ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

BOTANY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Diversity in the living world

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) — Build Up Your Understanding

NOMENCLATURE, CLASSIFICATION, SPECIES CONCEPT

1. Mayr proposed which type of concept of species:-
(1) Taxononic concept
(2) Biological concept
(3) Taxonomic and Biological concept
(4) Genetic concept
DL0001

2. Artificial system of classification classifies plants on the basis of :-
(1) One or two characters
(2) Phylogenetic trends
(3) Many naturally existing characters
(4) None of the above
DL0002

3. The term systematics was introduced by :-
(1) Mayr (2) Bentham
(3) Hutchinson (4) Linnaeus
DL0003

4. Group of organisms that closely resemble each other and freely interbreed in nature, constitute a:-
(1) Species (2) Genus
(3) Family (4) Taxon
DL0004

5. ICBN was first published in :-
(1) 1961 (2) 1964 (3) 1975 (4) 1753
DL0005

6. The term taxon refers to :-
(1) Name of a species
(2) Name of genus
(3) Name of family
(4) A taxonomic group of any rank
DL0006

7. The scientific naming of plants began with publication of Linnaeus book :-
(1) *Genera plantarum* (2) *Systema naturae*
(3) *Species plantarum* (4) Charaka samhita
DL0007

8. Which book most impressed the opinion of taxonomists ?
(1) Enquiry into plants
(2) Origin of life
(3) Genera plantarum
(4) Origin of species
DL0008

9. The basic smallest unit of classifications is :-
(1) Genus (2) Species
(3) Order (4) All of the above
DL0009

10. Plant nomenclature means :-
(1) To give names to plants without any rules
(2) Nomenclature of plants under the international rules
(3) Nomenclature of plants in local language
(4) Nomenclature of plants in english language
DL0010

11. Taxonomy term was given by :-
(1) Linnaeus (2) Mayr
(3) Haeckel (4) A.P. de. Candolle
DL0011

12. Which of the following is a correct name ?
(1) *Solanum tuberosum*
(2) *Solanum Tuberosum*
(3) *Solanum tuberosum* Linn.
(4) All the above
DL0012

13. Systematics deals with :-
(1) Classification
(2) Nomenclature
(3) Identification
(4) All of these
DL0013

14. Scientific name of Mango plant is *Mangifera indica* Linn. in the above name Linn. refers to :-
(1) Variety of Mango
(2) A taxonomist who proposed the present nomenclature in honour of Linnaeus
(3) A scientist who for the first time described Mango plant
(4) A scientist who changed the name proposed by Linnaeus and proposed present name

DL0014

15. Phylogeny refers to :-
(1) Natural classification
(2) Evolutionary classification
(3) Evolutionary history
(4) Origin of algae

DL0015

16. Biological concept of species is given by :-
(1) Aristotle (2) Bentham
(3) Koch (4) Mayr

DL0016

17. In taxonomy the first step is :-
(1) Identification (2) Nomenclature
(3) Classification (4) Affinities

DL0017

18. Who wrote *Systema naturae* ?
(1) Linnaeus (2) Mayr
(3) John Ray (4) De Candolle

BC0819

19. For higher plants, flowers are chiefly used as a basis of classification, because :–
(1) These show a great variety in colour
(2) It can be preserved easily
(3) Reproductive parts are more conservative than vegetative parts
(4) None of these

BC0820

20. Who wrote species plantarum ?
(1) Linnaeus (2) Mayr
(3) Bentham (4) Aristotle

BC0821

21. The binomial system of nomenclature was given by:–
(1) Magnus (2) Linnaeus
(3) Caesalpinno (4) Discorides

BC0822

22. Who is regarded as "Darwin of 20th century" ?
(1) John Ray (2) Lamarck
(3) Ernst Mayr (4) Darwin

BC0823

23. A division is formed by combining several :–
(1) Orders (2) Families
(3) Classes (4) Tribes

DL0024

24. For declaration of new species of higher plants what characters are mainly used :–
(1) Floral character of new species
(2) Anatomical characters of new species
(3) Physiological character of new species
(4) Character of endosperm

DL0025

25. The standared size of herbarium sheets is :–
(1) 11.5" × 16.5" (2) 15.5" × 16.5"
(3) 18.5" × 10.5" (4) 20.5" × 21.5"

DL0026

26. Which statement is true ?
(1) Tautonyms are not allowed in plants
(2) Tautonyms are not allowed in animals
(3) Tautonyms normally allowed in animals and some time allowed in plants
(4) Tautonyms allowed only in bacteria

DL0027

27. Most of the botanical names are derived from the following language :–
(1) German (2) Greek
(3) Latin (4) Spanish
DL0029

28. Evolutionary classification is called :–
(1) Artificial system
(2) Natural system
(3) Phylogenetic system
(4) None of the above
DL0030

29. Which of the following statements regarding nomenclature is correct ?
(1) Generic name always begins with capital letter whereas specific epithet with small letter
(2) Scientific nomenclature should be printed in italics
(3) Scientific nomenclature when typed or handwritten should be separately underlined
(4) All the above
DL0031

HISTORY OF TAXONOMY

30. According to Whittaker, BGA are included in :-
(1) Mycota (2) Protista
(3) Plantae (4) Monera
BC0824

31. By Bentham-Hooker, how many families are placed in gymnospermae class :-
(1) 86 (2) 88
(3) 45 (4) 3
BC0825

32. "Genera Plantarum" was written by :-
(1) Engler and Prantal
(2) Hutchinson
(3) Bentham & Hooker
(4) Bessey
BC0826

33. Chief merit of Bentham and Hooker's classification is that :-
(1) It is a system mostly based on evolutionary concepts
(2) It is a natural systems of classification of all groups of plants
(3) The description of the taxa are based on actual observation of the specimen
(4) It also considers the phylogenetic aspects
BC0827

34. The system of classification proposed by Bentham and Hooker is :-
(1) Artificial
(2) Natural
(3) Phylogenetic
(4) Numerical
DL0036

35. The classification of Linnaeus was mainly based on :-
(1) Sepals (2) Stem
(3) Petals (4) Stamens
DL0037

36. Kingdom Monera comprises the :-
(1) Plants of economic importance
(2) All the plants studied in botany
(3) Prokaryotic organisms
(4) Plants of Thallophyta group
BC0828

37. Whittaker is famous for :-
(1) Two kingdom classification
(2) Four kingdom classification
(3) Five kingdom classification
(4) Distinguishing in Bacteria & blue gree Algae
BC0829

38. System of classification proposed by Linnaeus was:-
(1) Artificial (2) Natural
(3) Sexual (4) (1) and (3) both
BC0830

39. The group "Plantae" proposed by Whittaker includes:-
(1) Pteridophytes (2) Gymnosperms
(3) Angiosperms (4) All the above
BC0831

40. In Whittaker's five kingdom classification, eucaryotes were assigned to :-
(1) All the five kingdom
(2) Only four of the five kingdoms
(3) Only three kingdom
(4) Only one kingdom
BC0832

41. "*Theorie elementaire de la botanique*" is the book written by :-
(1) Takhtajan
(2) De Candolle
(3) Eichler
(4) Linnaeus
BC0834

42. Carolus Linnaeus classified plant kingdom on the basis of :-
(1) Floral morphology
(2) Overall morphology of plants
(3) Type of sexual reproduction
(4) Anatomical character
BC0835

43. First plant classification was given by :–
(1) Linnaeus (2) John–Ray
(3) Aristotle (4) Darwin
BC0836

44. According to Benthum & Hooker total families of real flowering plants :–
(1) 202 (2) 199 (3) 34 (4) 85
BC0837

45. According to Whittaker kingdom protista includes:-
(1) Prokaryotes
(2) Unicellular eukaryotes
(3) Slime molds & protozoa
(4) Multicellular & eukaryotes
BC0840

KINGDOM – MONERA

46. Infoldings of plasma membrane in bacteria are called as :-
(1) Episomes (2) Plasmid
(3) Pili (4) Mesosomes
BC0841

47. The organisms participating most actively in nitrogen cycle in nature are :-
(1) Bacteria (2) Legumes
(3) Parasitic algae (4) Fungi
BC0842

48. Heterocyst is a structure which is associated with
(1) Reproduction (2) Respiration
(3) Nitrogen fixation (4) Locomotion
BC0843

49. *Trichodesmium erythraeum* which imparts red colour to sea water of red sea is a :
(1) Cyanobacterium (2) Red Algae
(3) Diatom (4) Red Coral
BC0844

50. Archaebacterial cell lacks :-
(1) Peptidoglycan
(2) DNA
(3) Ribosomes
(4) Branched Chain Lipids
BC0845

51. Most common method of reproduction in prokaryotes :-
(1) Budding
(2) Binary fission
(3) Transduction
(4) Conjugation
BC0846

52. Harmful activity of Blue green algae is:-
(1) Denitrification
(2) Water - bloom
(3) Increase alkalinity of soil
(4) Decrease fertility of soil
BC0847

53. The function of mesosome in prokaryotes is:-
(1) Aerobic respiration
(2) Cell wall formation
(3) Both (1) and (2)
(4) N_2 - fixation

BC0848

54. During rainy season ground surface become slippery due to:-
(1) Fungi (2) Blue green algae
(3) Bryophytes (4) Gymnosperm

BC0849

55. Photosynthesis of Blue green algae is:-
(1) Oxygenic
(2) Non oxygenic
(3) Both oxygenic and non oxygenic
(4) None

BC0850

56. Link between prokaryotes and multicellular eukaryotes :–
(1) Cyanobacteria
(2) Protista
(3) Fungi
(4) Plants

BC0852

57. Which structure of prokaryotes is analogous to lysosome ?
(1) Mesosome
(2) Genophore
(3) Periplasmic space
(4) Perinuclear space

BC0853

58. Which of the following performs respiration with the help of plasma membrane ?
(1) Bacteria
(2) Algae
(3) Fungi
(4) All the above

BC0854

59. Richest source of bacteria is : -
(1) Air (2) Soil
(3) Water (4) Milk

BC0855

60. The most primitive monerans are :-
(1) Archaebacteria
(2) Eubacteria
(3) Filamentous bacteria
(4) Cyanobacteria

BC0856

61. Which bacteria are utilized in Gobar gas plant ?
(1) Methanogens
(2) Nitrifying bacteria
(3) Ammonifying bacteria
(4) Denitrifying bacteria

BC0858

62. Plasmid are
(1) Virus
(2) New types of micro organism
(3) Extra chromosomal genetic material of bacteria
(4) Essential bacterial genetic materials

BC0859

63. A free living aerobic bacteria capable of fixing nitrogen is
(1) *Azotobactor*
(2) *Rhizobium*
(3) *Clostridium botulinum*
(4) *Streptomyces*

BC0860

64. Wine turns sour becasue of :-
(1) Heat
(2) Aerobic bacteria
(3) Anaerobic bacteria
(4) Exposure to the light

BC0861

65. Which one of the following fixes CO_2 in to carbohydrates ?
(1) *Rhizobium* (2) *E.coli*
(3) *Bacillus* (4) *Rhodospirillum*
BC0862

66. Antibiotics are mostly obtained from :-
(1) Bacteria (2) Viruses
(3) Fungi (4) Angiosperm
BC0863

67. The main difference between gram +ve and gram –ve resides in the composition of :-
(1) Cilia (2) Cell-wall
(3) Cell-membrane (4) Cytoplasm
BC0864

68. Free living nitrogen-fixing bacteria are found in-
(1) Air (2) Soil
(3) Root nodules (4) None of above
BC0865

69. Cell membrane of bacteria is made up of -
(1) Cellulose and lipid
(2) Chitin
(3) Lipid + Protein
(4) Protein and Cellulose
BC0866

70. Bacterial flagella are made of-
(1) Carbohydrate (2) Lipid
(3) Protein (4) Amide
BC0868

71. The mode of the nutrition of bacteria is usually-
(1) Photo autotrophic
(2) Chemo autotrophic
(3) Heterotrophic and autotrophic
(4) None
BC0869

72. Fertility of soil is increased by-
(1) Nitrogen - fixing bacteria
(2) Denitrifying bacteria
(3) Plasmalemma
(4) Cell membrane
BC0870

73. Plant pathogenic bacteria are :-
(1) Gram ⊕ (2) Gram ⊖
(3) Both (4) None
BC0871

74. Souring of milk is due to -
(1) Aerobic bacteria
(2) Anaerobic bacteria
(3) Both
(4) None
BC0872

75. At which place bacteria are not found
(1) Soil (2) Ice
(3) Sea (4) Distilled water
BC0873

KINGDOM-PROTISTA

76. "Golden Algae" is the common name of Algae belonging to :-
(1) Chrysophyta (2) Pyrrophyta
(3) Euglenophyta (4) Cyanophyta
BC0874

77. Armoured cell wall and biflagellated cells are characteristic of :-
(1) Chrysophyta (2) Pyrrophyta
(3) Euglenophyta (4) Cyanophyta
BC0875

78. Oils and Leucosine are characteristic stored food in :-
(1) Dinoflagellates (2) Euglenoids
(3) Diatoms (4) None
BC0876

79. Armoured algae are :-
(1) Dinoflagellates (2) Euglenoids
(3) Red algae (4) Cyanobacteria
BC0877

80. The diatoms do not easily decay like most of the other Algae because:-
(1) They have water proof cells
(2) Their walls are mucilagenous
(3) They have highly siliceous wall
(4) They are non living
BC0878

81. "Keiselgurh" a heat resistant material is obtained from :-
(1) Red Algae (2) Brown Algae
(3) Diatoms (4) Fungi
BC0879

82. The diatomaceous earth is used to insulate boilers and steam pipes because:-
(1) The wall of diatoms is deposited with calcium
(2) The diatomaceous earth is cheap
(3) It is a good conductor of heat
(4) The wall of diatoms is made of silica
BC0880

83. Shell of diatoms is made up of :–
(1) Silica
(2) Calcium carbonate
(3) Keratin
(4) Calcium oxalate
BC0881

84. "Diatomite" (Keiselgurh) is obtained from:–
(1) Myxophyceae (2) Chrysophyta
(3) Phaeophyceae (4) Rhodophyceae
BC0882

85. Most characteristic feature of diatoms is :–
(1) Pigments
(2) Stored food
(3) Cell wall
(4) Non oxygenic photosynthesis
BC0883

86. Taxonomically the most controversial group is :–
(1) Dinoflagellates (2) Diatoms
(3) Euglenoids (4) Prokryote
BC0884

87. Decomposer protists are :-
(1) Diatoms (2) Dinoflagellates
(3) Slime moulds (4) Euglenoid
BC0885

88. Taxonomists feel difficulty in classification of :-
(1) Procaryotes
(2) Unicellular eucaryotes
(3) Plants
(4) Animals
BC0887

89. Paramylum is stored food of :-
(1) Dinoflagellate (2) Euglenoid
(3) Diatom (4) Slime mould
BC0889

90. The most efficient locomotion in protists is through :-
(1) Pseudopodia (2) Flagella
(3) Cilia (4) Tentacles
BC0890

91. Organism of which kingdom feed like animals and perform photosynthesis like plants :-
(1) Monera (2) Protista
(3) Mycota (4) Animalia
BC0891

92. "Fire algae" belongs to group :-
(1) Pyrrophyta
(2) Chrysophyta
(3) Euglenophyta
(4) Rhodophyta
BC0892

93. Slime mould is known as naked fungi.
(1) Cell membrane absent
(2) Cell wall absent
(3) Cell wall and cell membrane absent
(4) Never naked
BC0893

94. Dinoflagellates are called fire algae due to which character :-
(1) They appear like fire due to pigments
(2) They produce fire due to friction
(3) They occur on burnt places
(4) They show bioluminescence
BC0894

95. Dead remains of diatoms at sea bed are called:-
(1) Keiselgurh (2) Peat
(3) Coral reefs (4) Sporopollenin
BC0897

96. Diatoms perform which type of movement in water :-
(1) Swimming (2) Amoeboid
(3) Floating (4) Ciliary
BC0900

97. Protist used for the construction of sound proof rooms, is -
(1) Dinoflagellate (2) Diatoms
(3) Euglenoids (4) Zooflagellates
BC0901

98. Protists which are diploid reproduce sexually by the process of -
(1) Zygotic meiosis
(2) Cyst formation
(3) Binary fission
(4) Gametic meiosis
BC0903

99. 'Red tides' are produced by -
(1) Red algae (2) Dinoflagellates
(3) Diatoms (4) Brown algae
BC0904

KINGDOM – FUNGI

100. Fungal hyphae penetrate hard cell walls of their hosts with the help of:-
(1) Enzymes (2) Hormones
(3) Sharp tips (4) Sugar Exudates
BC0905

101. Which of the following secretes toxins during storage conditions of crop plants ?
(1) *Aspergillus*
(2) *Penicillium*
(3) *Fusarium*
(4) *Colletotrichum*
BC0907

102. Which of the following characters indicate similarity between fungi and animals ?
(1) Heterotrophic nutrition
(2) Type of stored food
(3) Presence of chitin
(4) All the above
BC0908

103. The sac fungi belongs to :-
(1) Ascomycetes (2) Basidiomycetes
(3) Phycomycetes (4) Deuteromycetes
BC0909

104. *Neurospora*, which is popularly known as *Drosophilla* of plant kingdom, belongs to :-
(1) Phycomycetes (2) Ascomycetes
(3) Basidiomycetes (4) Deuteromycetes
BC0910

105. The basidiomycetes includes :-
(1) Rusts (2) Smuts
(3) Mushrooms (4) All the above
BC0911

106. Which of the following causes wheat rust disease?
(1) A red alga (2) A green alga
(3) A fungus (4) Mycoplasma
BC0912

107. *Penicillium* fungi belong to class :-
(1) Zygomycetes (2) Oomycetes
(3) Deuteromycetes (4) Ascomycetes
BC0914

108. The fungi are :-
(1) Autotrophic (2) Holotrophic
(3) Chemotrophic (4) Heterotrophic
BC0915

109. All fungi are :-
(1) With chlorophyll
(2) Without chlorophyll
(3) With carotene
(4) Wall less
BC0916

110. In class phycomycetes the mycelium is :-
(1) Coenocytic and aseptate
(2) Coenocytic and septate
(3) Uninucleate and aseptate
(4) Multinucleate and septate

BC0917

111. Coenocytic mycelium is found in :-
(1) *Rhizopus* (2) *Mucor*
(3) *Penicillium* (4) Both 1 and 2

BC0918

112. Stored food material of fungi :-
(1) Cellulose
(2) Starch
(3) Glycogen and starch
(4) Glycogen and oil

BC0919

113. The cell wall of Fungi is composed of:-
(1) Chitin (2) Cellulose
(3) Mucopeptide (4) Pseudomurein

BC0920

114. The chief characteristic of class Ascomycetes is :-
(1) Formation of spores
(2) Hyphae
(3) Formation of ascospores
(4) Formation of zoospores

BC0921

115. Which is commonly called "*Drosophilla* of plant kingdom" ?
(1) *Morchella* (2) *Neurospora*
(3) *Rhizopus* (4) *Claviceps*

BC0922

116. Normally how many ascospores are formed in an ascus :-
(1) 4 – ascospores
(2) 8 - ascospores
(3) 16 ascospores
(4) 24 ascospores

BC0923

117. Edible part in mushrooms is :-
(1) Basidiospores
(2) Mycelium
(3) Pseudomycelium
(4) Complete basidiocarp

BC0924

118. Penicillin is obtained from:-
(1) *Chara* (2) *Penicillium*
(3) *Aspergillus* (4) *Albugo*

BC0926

119. Cell wall of Chitin is found in :-
(1) Fungi (2) Bryophyta
(3) Bacteria (4) Angiosperms

BC0927

120. The fungus without mycelium is :-
(1) *Phytophthora* (2) *Rhizopus*
(3) *Saccharomyces* (4) *Microsporum*

BC0928

121. Pseudomycelium occurs in :–
(1) Muschroom (2) *Mucor*
(3) Bread mold (4) Yeast

BC0930

122. Occurence of dikaryotic mycelium mainly is the characteristic of :–
(1) Myxomycetes
(2) Phycomycetes
(3) Deuteromycetes
(4) Basidiomycetes

BC0931

123. Deuteromycetes are called 'Imperfect fungi' as :–
(1) They have no cell wall
(2) No mycelium
(3) No sexual reproduction
(4) No asexual reproduction

BC0932

124. Absorptive mode of nutrition is found in :–
(1) Algae (2) Fungi
(3) Bryophytes (4) Euglenoids

BC0935

125. Which of the following is called 'toad stools' ?
(1) All mushrooms
(2) Edible mushrooms
(3) Poisonous mushrooms
(4) None

BC0936

126. Yeast grows more quickly in :–
(1) Salt water
(2) Sugar solution
(3) Double distilled water
(4) Marine water

BC0937

127. Which of the following is a form class ?
(1) Deuteromycetes (2) Basidiomycetes
(3) Rhodophyceae (4) Euglenophyceae

BC0938

128. Ergot fungi belongs to :–
(1) Ascomycetes (2) Basidiomycetes
(3) Phycomycetes (4) Deuteromycetes

BC0939

129. Fungi are ecologically important because :-
(1) They yield antibiotics
(2) They are used in genetic studies
(3) They function as decomposers
(4) All the above

BC0941

130. Citric acid is obtained from
(1) *Streptomyces* (2) *Aspergillus*
(3) *Penicillium* (4) *Albugo*

BC0942

131. In fungi lump of hyphae is referred to as :-
(1) Thallus (2) Haustorium
(3) Mycelium (4) Archegonia

BC0943

132. Sexual reproduction is absent in :-
(1) Phycomycetes (2)Deuteromycetes
(3) Zygomycetes (4) Basidiomycetes

BC0945

133. Non-septate mycelium occurs in :-
(1) Phycomycetes
(2) Ascomycetes
(3) Basidiomycetes
(4) Deuteromycetes

BC0946

134. Basidiocarp is present in:-
(1) Basidiomycetes (2) Ascomycetes
(3) Deuteromycetes (4) Phycomycetes

BC0947

135. All fungi are:-
(1) Symbionts (2) Parasites
(3) Saprophytes (4) Heterotrophs

BC0948

136. Aspergillosis is caused by :–
(1) Virus (2) Bacteria
(3) Fungi (4) Mycoplasma

BC0949

KINGDOM – PLANTAE – ALGAE

137. Which algal groups have similarity in pigment composition ?
(1) Red algae and brown algae
(2) Green algae and blue green algae
(3) Kelps and diatoms
(4) Diatoms and euglenoids

PD0160

138. Autotrophic thallophytes are called as :-
(1) Fungi (2) Lichens
(3) Algae (4) Microbes

PD0161

139. Parasitic algae is :-
(1) *Laminaria* (2) *Fucus*
(3) *Sargassum* (4) *Cephaleuros*

PD0162

140. "Red rust of tea" is caused by parasitic:-
(1) Algae (2) Fungi
(3) Bacteria (4) Bryophyta

PD0163

141. No zoospore formation has been observed in the algal members belonging to:-
(1) Chlorophyceae
(2) Brown algae
(3) Phaeophyceae
(4) Cyanophyceae

PD0164

142. Which pigment is found in phaeophyceae?
(1) Chl. a, c and fucoxanthin
(2) Chl. a, d and violaxanthin
(3) β Carotene and phycocyanin
(4) None of these

PD0165

143. Food reserve in Rhodophyta is :-
(1) Floridean starch (2) Mannitol
(3) Leucosin (4) All of the above

PD0166

144. Zygotic meiosis is characteristic of :-
(1) Procaryotes
(2) Thallophyta
(3) Bryophyta
(4) Spermatophyta

PD0167

145. Photosynthetic pigments common to all algae :-
(1) Chlorophyll 'b' and carotene
(2) Chlorophyll 'a' and 'b'
(3) Chlorophyll 'a' and carotene
(4) Chlorophyll and xanthophyll

PD0168

146. Deepest algae in sea are :-
(1) Red Algae (2) Brown Algae
(3) Green Algae (4) Golden Algae

PD0170

147. Phycobilins are characteristic pigments of :-
(1) Rhodophyta and phaeophyta
(2) Rhodophyta and Pyrophyta
(3) Pyrophyta and Cyanophyta
(4) Rhodophyta and Cyanophyta

PD0171

148. Which of the following plant groups have similar pigment composition ?
(1) Rhodophyta and phaeophyta
(2) Chlorophyta and phaeophyta
(3) Rhodophyta and cyanophyta
(4) All of the above

PD0172

149. Globule and nucule are sex organs of :–
(1) *Chara* (2) *Chlorella*
(3) *Laminaria* (4) *Polysiphonia*

PD0173

150. Green algae are considered as ancestors of higher plants due to their resemblance with higher plants in :-
(1) Pigments (2) Cell wall
(3) Stored food (4) All the above

PD0175

151. Pyrenoids are characteristically found in algae. A pyrenoid consists of :-
(1) Core of starch surrounded by protein
(2) Core of protein surrounded by starch
(3) Core of fatty acids covered by starch
(4) Nucleic acid and protein

PD0176

152. In chlorophyta the mode of sexual reproduction is :-
(1) Isogamy
(2) Anisogamy
(3) Oogamy
(4) Isogamy, Anisogamy and oogamy

PD0177

153. Unique character of Thallophyta is :-
(1) Thalloid body
(2) Absence of vascular tissue
(3) Zygotic meiosis
(4) All the above

PD0178

154. Sexual reproduction in Thallophyta takes place by:-
(1) Isogamy (2) Anisogamy
(3) Oogamy (4) Any of the above

PD0180

155. Most advanced group of Algae is :-
(1) Myxophyta (2) Chlorophyta
(3) Brown algae (4) Phaeophyta
PD0181

156. "Agar-agar" is obtained from :-
(1) Green Algae
(2) Red Algae
(3) Brown Algae
(4) Yellow green Algae
PD0182

157. Motile stages are not found in life cycle of:-
(1) Red Algae & green Algae
(2) Red Algae & brown Algae
(3) Red Algae & blue green Algae
(4) Green Algae & brown Algae
PD0183

158. Embryo is not formed in thallophyta due to:-
(1) Zygotic meiosis
(2) Zygotic mitosis
(3) Sporangial meiosis
(4) Gametic meiosis
PD0184

159. Oogonia of Thallophyta differs with archegonia of bryophyta :-
(1) Being multicellular
(2) Being jacketed
(3) Being stalked
(4) Being unicellular and jacket less
PD0185

160. *Volvox* belongs to :-
(1) Brown Algae (2) Red Algae
(3) Golden Algae (4) Green Algae
PD0188

161. Gametes are non-motile in :-
(1) Blue green Algae (2) Red Algae
(3) Both 1 and 2 (4) Green Algae
PD0189

162. Blue - green algae resembles more closely to:-
(1) Green Algae
(2) Brown Algae
(3) Red Algae and bacteria
(4) Slime molds
PD0190

163. Which of the following statement is true for algae ?
(1) Algae have root, stem and leaves
(2) Algae have true roots but lack leaves
(3) Algae have rhizoides and leaves
(4) Body of algae is thallus
PD0191

164. In which plant group reproductive organs are not enclosed in a layer of sterile cells?
(1) Pteridophyta (2) Thallophyta
(3) Angiosperm (4) Gymnosperm
PD0192

165. Classification of algae is mainly based on :-
(1) Reproductive organs
(2) Structure of spores
(3) Pigments
(4) Stored food
PD0193

166. "Carrageenin" is obtained from :-
(1) *Chondrus crispus* (2) *Laminaria*
(3) *Gelidium* (4) *Macrocystis*
PD0194

167. Female sex organ of algae is called :-
(1) Carpel (2) Oogonium
(3) Archegonia (4) Oosphere
PD0195

168. Which of the following is not correctly matched ?
(1) Heterocyst = N_2-fixation structure of B.G.A.
(2) Hormogonia= Reproductive structure of B.G.A
(3) Floridean starch = Stored food of brown algae
(4) Cyanophycean starch = Stored food of B.G.A.
PD0196

169. Cilia & flagella are absent in life cycle of :–
(1) Red algae
(2) Brown algae
(3) Green algae
(4) Red algae & B.G.A.

PD0197

KINGDOM–PLANTAE – BRYOPHYTA

170. Embryo is present but true vasculature is absent in the group :-
(1) Cyanophyta (2) Tracheophyta
(3) Bryophyta (4) Chlorophyta

PD0199

171. The unique feature of bryophytes compared to other green plant groups is that:-
(1) They produce spores
(2) They lack vascular tissue
(3) They lack root
(4) Their sporophyte is attached to gametophyte

PD0200

172. In bryophytes diploid number of chromosomes occur in:-
(1) Gametes
(2) Spores
(3) Spore mother cells
(4) Nuclei of gametes

PD0201

173. The group bryophyta includes :-
(1) Liverworts and ferns
(2) Liverworts and club moss
(3) Moss and ferns
(4) Liverworts and moss

PD0202

174. A leafy non vascular plant with dependent sporophytic generation should properly be classified in
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) Spermatophyta

PD0203

175. Bryophyta includes :-
(1) Mosses (2) Psilopsida
(3) Horse tails (4) All the above

PD0204

176. A leafy gametophyte plant with multicellular rhizoids and sporophyte differentiated in foot, seta and capsule should belong to :-
(1) Psilopsida (2) Hepaticopsida
(3) Bryopsida (4) Lycopsida

PD0205

177. Bryophytes differ from thallophytes in having:-
(1) Embryo
(2) Rhizoids
(3) Sterile jacket around sex organs
(4) All the above

PD0206

178. Spores do not form protonema but directly grow into flat branching thallus in :-
(1) Liverworts (2) Mosses
(3) Ferns (4) Gymnosperms

PD0207

179. In bryophyta, simplest sporophyte occur in:-
(1) *Riccia* (2) *Marchantia*
(3) *Funaria* (4) *Anthoceros*

PD0208

180. In which of the following bryophytes there are gemmae, the means of vegetative reproduction?
(1) *Riccia* (2) *Marchantia*
(3) *Sphagnum* (4) *Anthoceros*

PD0209

181. In Bryophytes what is absent :-
(1) Embryo formation
(2) Fertilization
(3) Motile gametes
(4) True roots and vascular tissue

PD0210

182. In bryophytes fertilization takes place:-
(1) At low temp.
(2) In dry condition
(3) In presence of water
(4) In above all situation

PD0211

183. Which statement is true about bryophytes?
(1) They are non photosynthetic
(2) Zygote produces gametophyte on germination
(3) Spores form gametophyte plant on germination
(4) They have vascular tissues

PD0212

184. Which bryophyte is of economic importance ?
(1) *Funaria* (2) *Marchantia*
(3) *Riccia* (4) *Sphagnum*

PD0213

185. Mosses are gregarious because they :-
(1) Have vascular tissue
(2) Have indirect germination of spores
(3) Have direct germination of spores
(4) Have spore mother cells

PD0214

186. Aquatic ancestry of bryophytes is evidenced by:-
(1) Their green colour
(2) Algae like protonema
(3) Many aquatic bryophytes
(4) Flagellated male gametes

PD0215

187. Moss sporophyte is diffrentiated in :-
(1) Stem & leaves
(2) Root, stem and leaves
(3) Rhizoids, stem & leaves
(4) None of these

PD0216

188. Oblique septa are found in which part of moss :-
(1) Rhizoids of sporophyte
(2) Rhizoids of gametophyte
(3) Leaves
(4) Stem

PD0217

189. Leaves of Mosses and Ferns are :-
(1) Analogous and homologous both
(2) Analogous but not homologous
(3) Homologous but not analogous
(4) None of the above

PD0218

190. Which of the following plants are similar in requirement of water for fertilisation ?
(1) Bryophyta
(2) Pteridophyta
(3) Angiosperm
(4) (1) and (2) both

PD0219

191. The bryophyte which have great water holding capacity :-
(1) *Anthoceros* (2) *Sphagnum*
(3) *Funaria* (4) *Marchantia*

PD0220

192. In which of the following zygote further develops to form a diploid structure ?
(1) Thallophyta (2) Bryophyta
(3) Algae (4) Fungi

PD0221

193. Bryophytes are :–
(1) First successful land plant
(2) Vascular cryptogames
(3) Non vascular cryptogames
(4) Vascular embryophytes

PD0222

194. Sex organ in bryophytes are :–
(1) Unicellular and jacketed
(2) Unicellular and non-jacketed
(3) Multicellular and jacketed
(4) Multicellular and non jacketed

PD0223

195. Fossilised fuel obtained from bog is:-
(1) Tar (2) Peat
(3) Bio-gas (4) Petrol
PD0224

196. Which structure produces the gamete bearing plant of moss ?
(1) Spore (2) Bud
(3) Protonema (4) Zygote
PD0225

197. Which bryophyte is known as Peat moss ?
(1) *Riccia* (2) *Riella*
(3) *Sphagnum* (4) *Marchantia*
PD0227

198. Leafy gametophyte occurs in:-
(1) Liver worts (2) Horn worts
(3) Moss (4) Fern
PD0228

199. *Sphagnum* may be used as a substitute of :-
(1) Absorbent cotton
(2) Non absorbent cotton
(3) Plastic
(4) Polythene
PD0230

200. Non vascular embryophyta are :-
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) (1) and (2) both
PD0231

201. The water conducting tissue in bryophyta is:-
(1) Parenchyma (2) Sclerenchyma
(3) Tracheids (4) Sieve tubes
PD0232

202. The first cell of sporophytic generation in bryophyta is:-
(1) Spore
(2) Spore mother cell
(3) Zygote
(4) Protonema
PD0234

203. Structures for dispersal of spores in bryophyta are :-
(1) Elaters (2) Pseudoelaters
(3) Peristomial teeth (4) All the above
PD0235

204. Oblique septa in rhizoids are characteristic of :-
(1) Liverworts (2) Hornworts
(3) Mosses (4) Ferns
PD0236

205. In which bryophyta germination of spore is indirect:-
(1) *Riccia* (2) *Rhizopus*
(3) *Puccinia* (4) *Funaria*
PD0237

206. Male gametes of bryophytes are :-
(1) Uniflagellate
(2) Multiflagellate
(3) Biflagellate
(4) Triflagellate
PD0238

207. The vascular tissue is absent in :-
(1) Algae, fungi and pteridophytes
(2) Thallophytes and bryophytes
(3) Bryophytes and pteridophytes
(4) Angiosperm and gymnosperm
PD0240

208. The sporophyte of bryophyte is :-
(1) Parasitic
(2) Autotrophic
(3) Saprophytic
(4) Semiparasitic or parasitic
PD0241

209. Non vascular land plants are called:-
(1) Bryophtyes
(2) Pteridophytes
(3) Fungi
(4) Algae
PD0242

KINGDOM–PLANTAE – PTERIDOPHYTA

210. Vascular cryptogams or seed less vascular plants belongs to:-
(1) Bryophyta (2) Pteridophyta
(3) Thallophyta (4) Spermatophyta
PD0243

211. Most conspicuous alternation of generation occurs is:-
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) Spermatophyta
PD0245

212. Rhizoids containing sporophytic plants are characteristic of:-
(1) Bryopsida (2) Spenopsida
(3) Cycadophyta (4) Psilopsida
PD0246

213. Which group includes green leaf microphyllous plants:-
(1) Lycopsida (2) Sphenopsida
(3) Psilotopsida (4) Pteropsida
PD0247

214. Roots first originated in :-
(1) Algae (2) Fungi
(3) Bryophyta (4) Pteridophyta
PD0248

215. In pteridophyta, reduction division occurs when:-
(1) Prothallus is formed
(2) Spores are formed
(3) Sex organs are formed
(4) Gametes are formed
PD0250

216. The main plant body of pteridophytes is:-
(1) Sporophyte
(2) Gametophyte
(3) Haploid
(4) None of the above
PD0251

217. Cryptogamic plants are:-
(1) Seedless (2) Embryoless
(3) Leafless (4) Rootless
PD0252

218. *Adiantum* is called "walking fern" due to :-
(1) Power of locomotion
(2) Vegetative reproduction
(3) Motile antherozoites
(4) All the above
PD0253

219. Plants having vascular tissues but lacking seeds are :-
(1) Bryophyta
(2) Pteridophyta
(3) Gymnosperms
(4) Angiosperms
PD0254

220. Heterospory occurs in :-
(1) *Selaginella* (2) *Pteridium*
(3) *Funaria* (4) *Riccia*
PD0255

221. Sporangia are found in fruiting structures called sporocarps in aquatic ferns, which of the following is aquatic fern :–
(1) *Salvinia* (2) *Selaginella*
(3) *Pteridium* (4) *Equisetum*
PD0256

222. The antherozoids of fern are :–
(1) Uniflagellate
(2) Biflagellate
(3) Quadriflagellate
(4) Multiflagellate
PD0257

223. In pteridophytes the spores germinate to form:-
(1) Protonema (2) Prothallus
(3) Sporophyte (4) Archegonium
PD0258

224. Aquatic fern which supports the growth of blue green algae, *Anabaena*, and used to increase the yield of paddy crop is :-
(1) *Salvinia* (2) *Marsilea*
(3) *Selaginella* (4) *Azolla*
PD0259

225. Most distinct type of alternation of generations is demonstrated by :–
(1) Angiosperms (2) Ferns
(3) Gymnosperms (4) Bryophytes
PD0260

226. Presence of motile stage in life cycle & requirement of water as a medium to complete life cycle is diagnostic characters of :–
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) Cryptogams
PD0261

227. Evolution of seed habit first started in :-
(1) *Selaginella* like ancestral pteridophytes
(2) *Psilotum* like ancestral pteridophytes
(3) Gymnosperms
(4) Mosses
PD0262

228. Which is an aquatic fern
(1) *Psilotum* (2) *Salvinia*
(3) *Chara* (4) *Lycopodium*
PD0263

229. In ferns, the permanent roots are :-
(1) Tap root
(2) Adventitious roots
(3) Tuberous roots
(4) Rhizome
PD0264

230. Independent alternation of generation is found in-
(1) Pteridophyta (2) Spermatophyta
(3) Thallophyta (4) Bryophyta
PD0265

231. Stem distinctly differentiated in to node and internode in :-
(1) Psilopsida (2) Lycopsida
(3) Sphenopsida (4) Pteropsida
PD0266

232. Spore producing part of pteridophytes is:-
(1) Sporangia of gametophytes
(2) Capsule of sporophytes
(3) Sporangia of sporophytes
(4) Capsule of gametophytes
PD0267

233. In pteridophytes, reduction division takes place in :-
(1) Zygote
(2) Spore mother cells
(3) Gametangia
(4) Prothallus
PD0268

KINGDOM–PLANTAE – GYMNOSPERM

234. Most advanced Gymnosperm belongs to:-
(1) Cycadales
(2) Coniferales
(3) Gnetales
(4) Cycadofillicales
PD0269

235. Which of the following is called father of forest?
(1) *Pinus* (2) *Banyan*
(3) *Sequoia* (4) *Cedrus*
PD0270

236. Gymnosperm plants lack :-
(1) Vessels
(2) Fruits
(3) Companion cells
(4) All the above
PD0272

237. Gymnosperm plants do not produce fruits because they do not have:-
(1) ovary (2) gametes
(3) fertilization (4) None of these
PD0273

238. Ovule is morphologically equivalent to:-
(1) Megaspore
(2) Megasporangium
(3) Microspore
(4) Megasporophyll

PD0274

239. Cones in gymnosperm plants are usually :-
(1) Bisexual (2) Unisexual
(3) Sterile (4) Any of the above

PD0275

240. Gametophyte depends on sporophyte in:-
(1) Bryophyta (2) Pteridophyta
(3) Cryptogams (4) Spermatophyta

PD0279

241. Antheridia and archegonia both are absent in :-
(1) Bryophyta (2) Pteridophyta
(3) Gymnosperms (4) Angiosperms

PD0280

242. Ephedrine is obtained by :-
(1) *Ephedra* (2) *Gnetum*
(3) *Pinus* (4) *Cycas*

PD0281

243. Resin turpentine is obtained from:-
(1) *Pinus* (2) *Adiantum*
(3) Club mosses (4) *Sequoia*

PD0282

244. Which group is largest in gymnosperms ?
(1) Cycadales (2) Gnetales
(3) Coniferales (4) Cordaitales

PD0283

245. Spore bearing tracheophytes (Vascular plants) :-
(1) Pteridophyta
(2) Gymnosperms
(3) Angiosperms
(4) All the above

PD0284

246. Which of the following Gymnospermic orders resembles with angiosperms ?
(1) Cycadales (2) Coniferales
(3) Gnetales (4) Ginkgoales

PD0285

247. Living fossil:-
(1) *Cycas*
(2) *Ginkgo*
(3) *Psilotum*
(4) All the above

PD0286

248. *Sequoia* belongs to:-
(1) Cycadofillicales (2) Gnetales
(3) Coniferales (4) Dicots

PD0287

249. Which of the following are absent in group gymnosperm ?
(1) Trees (2) Shrubs
(3) Liana (4) Herbs

PD0288

250. Which plant group is exclusively perennial ?
(1) Dicots (2) Ferns
(3) Gymnosperms (4) Monocots

PD0289

251. In *Ginkgo*, male gametes are :-
(1) Motile
(2) Non-motile
(3) Amoeboid
(4) Absent

PD0290

252. Male gamete of *Cycas* is largest in plant kingdom, is :-
(1) Non motile
(2) Biflagellate
(3) Multiciliate
(4) Uniflagellate

PD0291

253. The mode of pollination in gymnosperme is:-
(1) Anemophily
(2) Entomophily
(3) Hydrophily
(4) Any of the above

PD0292

254. Which of the following order of gymnosperme is totally become extinct ?
(1) Cycadales (2) Ginkgoales
(3) Gnetales (4) Cycadofilicales

PD0293

255. Which of the following remained unchanged for last many million years ?
(1) *Pinus* (2) Rice
(3) *Cedrus* (4) *Ginkgo*

PD0294

256. Life cycle of gymnosperm is :-
(1) Haplontic (2) Haplodiplontic
(3) Diplontic (4) Diplohaplontic

PD0295

257. Which of the following is commonly known as "Chilgoza pine" ?
(1) *Cycas* (2) *Cedrus*
(3) *Pinus* (4) *Ginkgo*

PD0296

258. In pteridophytes and gymnosperm sporangia are born on which side of sporophyll :–
(1) Adaxial (2) Abaxial
(3) Lateral (4) Terminal

PD0298

259. Fruits are not formed in gymnosperm because :–
(1) Fertilization is absent
(2) Pollination is absent
(3) Seeds are not formed
(4) Ovary is absent

PD0300

260. Gymnosperms differ from pteridophytes in having–
(1) Presence of tracheids
(2) Presence of embryo
(3) Presence of ovule
(4) Companian cell

PD0302

261. Most gymnosperms have :–
(1) Both archegonia and antheridia
(2) Antheridia but no archegonia
(3) Archegonia but no antheridia
(4) No antheridia or archegonia

PD0303

262. The "endosperm" of a gymnosperm represent :–
(1) Gametophytic tissue
(2) Sporophytic tissue
(3) Tissue formed by double fertilization
(4) Polyploid tissue

PD0304

263. Vessels occur in the following gymnosperm plant:–
(1) *Ginkgo*
(2) *Taxus*
(3) *Gnetum*
(4) All the above

PD0305

264. In gymnosperm endosperm is :–
(1) Triploid
(2) Diploid
(3) Haploid
(4) Tetraploid

PD0306

265. Which of the following plant form seed and have pollen tube ?
(1) Angiosperm
(2) Pteridophytes
(3) Gymnosperm
(4) Siphonogamous plants

PD0309

266. Modern day (Advanced) plants are:-
(1) Monocots
(2) Dicots
(3) Gnetales
(4) Ferns

PD0310

267. Which group of plants is exclusively arborescent (woody) ?
(1) Pteridophyta
(2) Dicots
(3) Gymnosperms
(4) Monocots

PD0311

LIVING WORLD

268. Find the incorrect statements from the followings :-
(1) Growth, reproduction and consciousness are features of living organisms
(2) Growth and reproduction are defining characteristics of living organisms
(3) Metabolism, cellular organisation and consciousness are defining characters of livings
(4) Living organisms are self replicating, evolving and self regulating.

LW0716

269. Which is a group of organisms in which reproduction is synonymous with growth :-
(1) *Amoeba*, bacteria and unicellular algae
(2) Algae, fungi and lichen
(3) Lower organisms
(4) Higher multicellular organisms

LW0717

270. Reproduction can not be taken as defining property of living because -
(1) Unicellular organisms reproduce by cell division.
(2) Multicellular organisms reproduce by both, asexual and sexual methods.
(3) Few organisms on the earth are of sterile nature also
(4) Reproduction property is present in all living organisms

LW0722

271. Metabolism can be exhibited by ?
(1) Only plant
(2) Plant and animal both
(3) Plant, animal and fungi only
(4) Plant animal, fungi and microbes

LW0723

272. Metabolism can be defined as ?
(1) Sum total of all chemical reactions hapens out side the body.
(2) Chemical reactions take place in particular cells.
(3) Sum total of all chemical reactions occurring in living body.
(4) Sum total of all chemical reactions occurring outside the cells.

LW0724

273. Living organisms can respond against ?
(1) Physical and chemical stimuli
(2) Chemical and biological stimuli
(3) Both (1) and (2)
(4) None of these

LW0726

274. The property of self conscionsness can be observed?
(1) In non vertebrates
(2) In vertebrates
(3) In human beings
(4) In all mammals

LW0727

275. Consider the following characteristics :-

(A) Growth

(B) Reproduction

(C) Consciousness

(D) Cellular Organisation

Which of the above feature is/ are not the defining properties of are living organisms?

(1) A, B, C, D

(2) A, B, C

(3) C, D

(4) A, B

LW0730

276. Which of the following can grow but cannot reproduce ?

(1) Single celled organisms

(2) Living organisms

(3) Non-livings only

(4) Both (1) & (3)

LW0731

277. Twin characters of growth in organisms are

(1) Increase in mass

(2) Increases in number

(3) Increases in height

(4) Both (1) & (2)

LW0732

278. Stimulus can be ?

(1) Only physical type

(2) Only chemical type

(3) Only biological type

(4) All of the above

LW0725

VIRUS, VIROIDS, LICHEN, MYCORRHIZA

279. Why viruses did not find a place in classification?

(1) They are obligate parasities, cannot surive without host.

(2) Viruses are unicellular organisms so can not be included in livings.

(3) They are not truly living because they don't have cell structure.

(4) They can pass through the bacteria proof filter

BC0950

280. Which of the followings is/are symbiotic associations between autotrophic and heterotrophic organisms only

(A) Mycorrhiza between fungi and roots of higher plants

(B) Lichen between phycobiont and mycobiont.

(C) Coralloid roots of *Cycas* having cyanobacteria

(D) Obligate association between *Pinus* roots and fungi making mycorrhizae.

(1) A & B

(2) B & C

(3) A, B & C

(4) A, B & D

BC0951

281. Bacteriophages are made of both proteins and genetic material. Their genetic material is generally-

(1) ss DNA (2) ds DNA

(3) ss RNA (4) ds RNA

BC0952

282. Find the correct from the followings.

(1) T.O. Diener discovered a new infectious agent, smaller than virus and named them as prions.

(2) Viroids lack the protein coat and made of only free RNA

(3) The RNA of viroids is of high molecular weight

(4) Lichens are very good pollution indicators as they grow only in polluted areas.

BC0953

283. Match the column A with column B and find out the correct as shown ?

	Column-A	Column-B
a.	Pollution indicator	p. Fungal component
b.	Mycobiont	q. Viroid
c.	Potato spindle tuber disease	r. Lichen
d.	Obligate parasite	s. Virus

(1) a - r, b - p, c - s, d - q
(2) a - r, b - s, c - p, d - q
(3) a - s, b - r, c - p, d - q
(4) a - r, b - p, c - q, d - s

BC0954

284. In lichen fungal component is responsible to provide?
(1) Shelter to phycobiont
(2) Mineral absorption
(3) Water absorption
(4) All of the above

BC0955

285. The protein coat of viruses is called :
(1) Capsomeres (2) Capsid
(3) Sheath (4) Envelope

BC0956

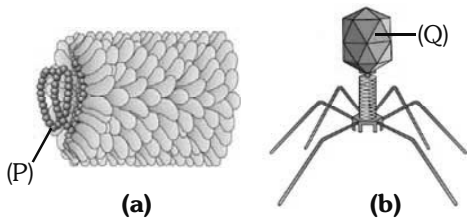
286. Lichens are :
(1) Symbiotic association between algae and fungi
(2) Pollution indicators
(3) Not placed in any kingdom by R.H. Whittaker
(4) All of these are correct

BC0957

287. Phycobiont is a :
(1) algal, autotrophic component of mycorrhiza
(2) fungal, heterotrophic component of lichen
(3) fungal component of mycorrhiza
(4) algal, autotrophic component of lichen

BC0958

288.



Identify the (a) & (b) figure and their (P) and (Q) part.

(1)	a - Tobacco Mosaic virus	P → RNA
	b - Bacteriophage	Q → Head
(2)	a - Bacteriophage	P → RNA
	b - Tobacco Mosaic virus	Q → Head
(3)	a - Potato Mosaic virus	P → Head
	b - Cyanophage	Q → RNA
(4)	a - Smallpox virus	P → RNA
	b - Influenza virus	Q → Head

BC0959

289. Choose the **incorrect** pair :-
(1) Virus – Nucleocapsid
(2) Viroids – Only RNA
(3) Lichen – Algae and fungi
(4) Mycorrhiza – BGA and higher plants

BC0960

290. Which of the given organism(s) belong to kingdom protista according to five kingdom system?
(A) Virus (B) *Euglena*
(C) Viroids (D) Lichen
(1) A and B
(2) C and D
(3) Only B
(4) A and C

BC0961

291. The transfer of genetic material from one bacterium to other bacterium from virus, is called:-
(1) Conjugation
(2) Transduction
(3) Transformation
(4) Crossing over

BC0962

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**1**	**4**	**1**	**1**	**4**	**3**	**4**	**2**	**2**	**4**	**3**	**4**	**3**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**4**	**1**	**1**	**3**	**1**	**2**	**3**	**3**	**1**	**1**	**1**	**3**	**3**	**4**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**4**	**3**	**3**	**2**	**4**	**3**	**3**	**4**	**4**	**2**	**2**	**1**	**3**	**2**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**1**	**3**	**1**	**1**	**2**	**2**	**3**	**2**	**1**	**2**	**3**	**1**	**2**	**1**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**3**	**1**	**2**	**4**	**1**	**2**	**2**	**3**	**3**	**3**	**1**	**3**	**2**	**4**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**1**	**2**	**3**	**1**	**3**	**3**	**4**	**1**	**2**	**3**	**3**	**3**	**2**	**2**	**3**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**2**	**1**	**2**	**4**	**1**	**3**	**2**	**4**	**2**	**1**	**1**	**4**	**1**	**2**	**4**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**3**	**4**	**4**	**2**	**1**	**4**	**4**	**1**	**3**	**2**	**2**	**4**	**2**	**1**	**3**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**4**	**4**	**3**	**2**	**3**	**2**	**1**	**1**	**3**	**2**	**3**	**2**	**1**	**1**	**4**
Que.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Ans.	**3**	**3**	**3**	**4**	**1**	**4**	**1**	**1**	**2**	**3**	**1**	**4**	**3**	**1**	**4**
Que.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Ans.	**2**	**4**	**3**	**4**	**2**	**2**	**3**	**1**	**4**	**4**	**2**	**3**	**4**	**2**	**3**
Que.	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans.	**1**	**2**	**3**	**4**	**3**	**4**	**3**	**4**	**2**	**1**	**3**	**4**	**1**	**1**	**2**
Que.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
Ans.	**4**	**3**	**3**	**4**	**2**	**4**	**4**	**2**	**2**	**4**	**2**	**2**	**3**	**3**	**2**
Que.	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210
Ans.	**2**	**3**	**3**	**1**	**2**	**1**	**3**	**4**	**3**	**4**	**3**	**2**	**4**	**1**	**2**
Que.	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225
Ans.	**3**	**4**	**1**	**4**	**2**	**1**	**1**	**2**	**2**	**1**	**1**	**4**	**2**	**4**	**2**
Que.	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
Ans.	**4**	**1**	**2**	**2**	**1**	**3**	**3**	**2**	**3**	**3**	**4**	**1**	**2**	**2**	**4**
Que.	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255
Ans.	**4**	**1**	**1**	**3**	**4**	**3**	**4**	**3**	**4**	**3**	**1**	**3**	**1**	**4**	**4**
Que.	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270
Ans.	**3**	**3**	**2**	**4**	**3**	**3**	**1**	**3**	**3**	**4**	**1**	**3**	**2**	**1**	**3**
Que.	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285
Ans.	**4**	**3**	**3**	**3**	**4**	**3**	**4**	**4**	**3**	**4**	**2**	**2**	**4**	**4**	**2**
Que.	286	287	288	289	290	291									
Ans.	**4**	**4**	**1**	**4**	**3**	**2**									

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Conifers differ from grasses in the
(1) absence of pollen tubes
(2) formation of endosperm before fertilization
(3) production of seeds from ovules
(4) lack of xylem tracheids

PD0312

2. The thalloid body of a slime mould (Myxomycetes) is known as :
(1) Fruiting body
(2) Mycelium
(3) Protonema
(4) Plasmodium

BC0964

3. Moss peat is used as a packing material for sending flowers and live plants to distant places because :
(1) it reduces transpiration
(2) it serves as a disinfectant
(3) it is easily available
(4) it is hygroscopic

PD0314

4. In a moss the sporophyte :
(1) arises from a spore produced from the gametophyte
(2) manufactures food for itself, as well as for the gametophyte
(3) is partially parasitic on the gametophyte
(4) produces gametes that give rise to the gametophyte

PD0315

5. Curing of tea leaves is brought about by the activity of :
(1) viruses (2) fungi
(3) bacteria (4) mycorrhiza

BC0965

6. The bacterium (*Clostridium botulinum*) that causes botulism is :
(1) a facultative aerobe
(2) an obligate aerobe
(3) a facultative anaerobe
(4) an obligate anaerobe

BC0966

7. Evolutionary history of an organism is known as :
(1) Paleontology (2) Ontogeny
(3) Phylogeny (4) Ancestry

DL0318

8. Two microbes found to be very useful in genetic engineering are :
(1) *Diplococcus* sp. and *Pseudomonas* sp.
(2) Crown gall bacterium and *Caenorhabditis elegans*
(3) *Escherichia coli* and *Agrobacterium tumefaciens*
(4) *Vibrio cholerae* and a tailed bacteriophage

BC0967

AIPMT 2007

9. Which one of the following is a slime mould?
(1) *Anabaena* (2) *Rhizopus*
(3) *Physarum* (4) *Thiobacillus*

BC0968

10. In the prothallus of a vascular cryptogam, the antherozoids and eggs mature at different times. As a result :
(1) Self fertilization is prevented
(2) There is no change in success rate of fertilization
(3) There is high degree of sterility
(4) One can conclude that the plant is apomictic

PD0325

11. Two plants can be conclusively said to belong to the same species if they :
(1) Have same number of chromosomes
(2) Can reproduce freely with each other and form seeds
(3) Have more than 90 percent similar genes
(4) Look similar and possess identical secondary metabolites.

DL0326

12. If you are asked to classify the various algae into distinct groups, which of the following characters you should choose ?
(1) Chemical composition of the cell wall
(2) Types of pigments present in the cell
(3) Nature of stored food materials in the cell
(4) Structural organization of thallus

PD0327

13. Flagellated male gametes are present in all the three of which one of the following sets?
(1) *Riccia, Dryopteris* and *Cycas*
(2) *Anthoceros, Funaria* and *Spirogyra*
(3) *Zygnema, Saprolegnia* and *Hydrilla*
(4) *Fucus, Marsilea* and *Calotropis*

PC0328

14. In gymnosperms, the pollen chamber represents:
(1) The microsporangium in which pollen grains develop
(2) A cell in the pollen grain in which the sperms are formed
(3) A cavity in the ovule in which pollen grains are stored after pollination
(4) An opening in the megagametophyte through which the pollen tube approaches the egg

PD0329

15. Spore dissemination in some liverworts is aided by:
(1) Peristome teeth (2) Elaters
(3) Indusium (4) Calyptra

PD0330

16. Which pair of the following belongs to Basidiomycetes ?
(1) *Morchella* and Mushrooms
(2) Birds' nest fungi and Puffballs
(3) Pufballs and *Claviceps*
(4) *Peziza* and Stinkhorns

BC0969

17. ICBN stands for :
(1) Indian Code of Botanical Nomenclature
(2) Indian Congress of Biological Names
(3) International Code of Botanical Nomenclature
(4) International Congress of Biological Names

DL0332

18. Ergot of rye is caused by a species of :-
(1) *Claviceps* (2) *Phytophthora*
(3) *Uncinula* (4) *Ustilago*

BC0970

19. One gene - one enzyme relationship was established for the first time in :-
(1) *Diplococcus pneumoniae*
(2) *Neurospora crassa*
(3) *Salmonella typhimurium*
(4) *Escherichia Coli*

BC0971

20. Which of the following is a flowering plant with nodules containing filamentous nitrogen-fixing microorganism ?
(1) *Cicer arietinum*
(2) *Casuarina equisetifolia*
(3) *Crotalaria juncea*
(4) *Cycas revoluta*

BC0972

21. Which one of the following pairs is wrongly matched?
(1) *Coliforms* – Vinegar
(2) *Methanogens* – Gobar gas
(3) *Yeast* – Ethanol
(4) *Streptomycetes* – Antibiotic

BC0973

AIPMT 2008

22. Thermococcus, Mtehanococcus and Methanobacterium exemplify :-

(1) Bacteria whose DNA is relaxed or positively supercoiled but which have a cytoskeleton as well as mitochondria

(2) Bacteria that contain a cytoskeleton and ribosomes

(3) Archaebacteria that contain protein homologous to eukaryotic core histones

(4) Archaebacteria that lack any histones resembling those found in eukaryotes but whose DNA is negatively supercoiled.

BC0974

23. Select one of the following pairs of important features distinguishing Gnetum from Cycas and Pinus and showing affinities with angiosperms :-

(1) Perianth and two integuments

(2) Embryo development and apical meristem

(3) Absence of resin duct and leaf venation

(4) Presence of vessel elements and absence of archegonia

PD0338

24. In which one of the following, male and female gametophytes do not have free living independent existence?

(1) Polytrichum (2) Cedrus

(3) Pteris (4) Funaria

PD0339

25. Which one of the following is heterosporous ?

(1) Adiantum

(2) Equisetum

(3) Dryopteris

(4) Salvinia

PD0340

26. In the light of recent classification of living organisms into three domains of life (bacteria, archaea and eukarya), which one of the following statements is true about archaea ?

(1) Archaea completely differ from both prokaryotes and eukaryotes

(2) Archaea completely differ from prokaryotes

(3) Archaea resemble eukarya in all respects

(4) Archaea have some novel features that are absent in other pyokaryotes and eukaryotes

BC0975

27. Cellulose is the major component of cell walls of:-

(1) Pseudomonas (2) Saccharomyces

(3) Pythium (4) Xanthomonas

BC0976

28. Bacterial leaf blight of rice is caused by a species of :-

(1) *Alternaria* (2) *Erwinia*

(3) *Xanthomonas* (4) *Pseudomonas*

BC0977

29. Nitrogen flxation in root nodules of Alnus is brought about by :-

(1) Frankia (2) Azorhizobium

(3) Bradyrhizobium (4) Clostridium

BC0978

AIPMT 2009

30. Which one of the following has haplontic life cycle:-

(1) Wheat (2) *Funaria*

(3) *Polytrichum* (4) *Ustilago*

BC0979

31. Mannitol is the stored food in :-

(1) *Gracillaria* (2) *Chara*

(3) *Porphyra* (4) *Fucus*

PD0346

32. Which one of the following is a vascular cryptogam
(1) *Cedrus* (2) *Equisetum*
(3) *Ginkgo* (4) *Marchantia*
PD0347

33. Phylogenetic system of classification is based on:-
(1) Floral characters
(2) Evolutionary relationships
(3) Morphological features
(4) Chemical constituents
DL0348

34. Oxygenic photosynthesis occurs in :-
(1) *Chlorobium* (2) *Chromatium*
(3) *Oscillatoria* (4) *Rhodospirillum*
BC0980

35. Which one of the following is considered important in the development of seed habit ?
(1) Free-living gametophyte
(2) Dependent sporophyte
(3) Heterospory
(4) Haplontic life cycle
PD0350

36. Which one of the following plants is monoecious?
(1) Papaya (2) *Marchantia*
(3) *Pinus* (4) *Cycas*
PD0351

37. Which one is the wrong pairing for the disease and its causal organism ?
(1) Root-knot of vegetables – *Meloidogyne sp*
(2) Late blight of potato – *Alternaria solani*
(3) Black rust to wheat – *Puccinia graminis*
(4) Loose smut of wheat – *Ustilago nuda*
PD0352

38. Which of the following is a symbiotic nitrogen fixer?
(1) *Azolla* (2) *Glomus*
(3) *Azotobacter* (4) *Frankia*
BC0981

39. Which one of the following is commonly used in transfer of foreign DNA into crop plants ?
(1) *Penicillium expansum*
(2) *Trichoderma harzianum*
(3) *Meloidogyme incognita*
(4) *Agrobacterium tumefaciens*
BC0982

AIPMT 2010

40. Some hyperthermophilic organisms that grow in highly acidic (pH2) habitats belong to the two groups:
(1) Liverworts and yeasts
(2) Eubacteria and archaea
(3) Cyanobacteria and diatoms
(4) Protists and mosses
BC0983

41. Male and female gametophytes are independent and free-living in :-
(1) *Sphagnum* (2) Mustard
(3) Castor (4) *Pinus*
PD0356

42. Single-celled eukaryotes are included in :-
(1) Monera (2) Protista
(3) Fungi (4) Archaea
BC0984

43. Algae have cell wall made up of :
(1) Cellulose, hemicellulose and pectins
(2) Cellulose, galactans and mannans
(3) Hemicellulose, *pectins* and proteins
(4) Pectins, cellulose and proteins
PD0358

44. Membrane-bound organelles are absent in:
(1) *Plasmodium*
(2) *Saccharomyces*
(3) *Streptococcus*
(4) *Chlamydononas*
BC0985

45. The chief water conducting elements of xylem in gymnosperms are :

(1) Tracheids

(2) Vessels

(3) Fibres

(4) Transfusion tissue

PD0360

46. One of the free-living, anaerobic nitrogen-fixer is:

(1) *Azotobacter*

(2) *Beijernickia*

(3) *Rhodospirillum*

(4) *Rhizobium*

BC0986

47. Ringworm in humans is caused by :

(1) Viruses (2) Bacteria

(3) Fungi (4) Namatodes

BC0987

48. The common nitrogen-fixer in paddy fields is :

(1) *Frankia*

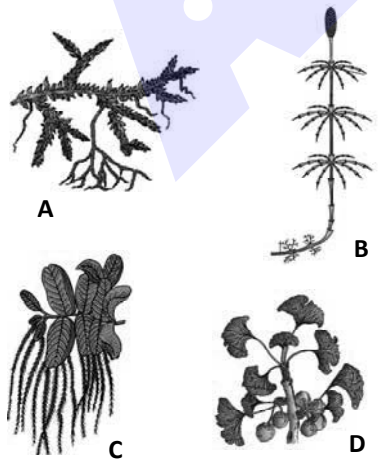
(2) *Rhizobium*

(3) *Azospirillum*

(4) *Oscillatoria*

BC0988

49. Examine the figure A, B, C and D. In which one of the four options all the items A, B, C and D are correct ?



Options :

	A	B	C	D
(1)	*Equisetum*	*Ginkgo*	*Selaginella*	*Lycopodium*
(2)	*Selaginella*	*Equisetum*	*Salvinia*	*Ginkgo*
(3)	*Funaria*	*Adiantum*	*Salvinia*	*Riccia*
(4)	*Chara*	*Marchantia*	*Fucus*	*Pinus*

PD0364

50. Which one of the following is monoecious ?

(1) *Cycas*

(2) *Pinus*

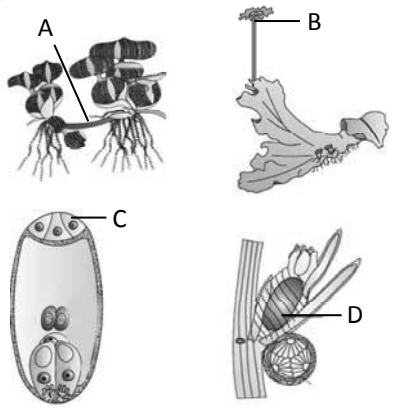
(3) *Date plam*

(4) *Marchantia*

PD0365

51. Examine the figures (A-D) given below and select the right option out of 1–4, in which all the four structures A, B, C and D are identified correctly:-

Structures :



	A	B	C	D
(1)	Runner	Archegoniophore	Synergid	Antheridium
(2)	Offset	Antheridiophore	Antipodals	Oogonium
(3)	Sucker	Seta	Megaspore mother cell	Gemma cup
(4)	Rhizome	Sporangiophore	Polar cell	Globule

PD0366

52. Black (stem) rust of wheat is caused by :

(1) *Ustilago nuda*

(2) *Puccinia graminis*

(3) *Xanthomonas oryzae*

(4) *Alternaria solani*

BC0989

53. Select the correct combination of the statement (a-d) regarding the *characteristics* of certain organisms :

(a) Methanogens are Archaebacteria which produce methane in marshy areas

(b) *Nostoc* is filamentous blue-green alga which fixes atmospheric nitrogen

(c) Chemoysynthetic autotrophic bacteria synthesize cellulose from glucose

(d) Mycoplasma lack a cell wall and can survive without oxygen

The correct statements are :

(1) (a), (b), (c)

(2) (b), (c), (d)

(3) (a), (b), (d)

(4) (b), (c)

BC0990

AIPMT 2011

54. A prokaryotic autotrophic nitrogen fixing symbiont is found in :-

(1) *Alnus* (2) *Cycas*

(3) *Cicer* (4) *Pisum*

PD0372

55. Which one of the following is not a biofertilizer ?

(1) *Agrobacterium* (2) *Rhizobium*

(3) *Nostoc* (4) Mycorrhiza

BC0991

56. An organism used as a biofertilizer for raising soyabean crop is :-

(1) *Azotobacter* (2) *Azospirillum*

(3) *Rhizobium* (4) *Nostoc*

BC0992

57. Ethanol is commercally produced through a particular species of :-

(1) *Saccharomyces*

(2) *Clostridium*

(3) *Trichoderma*

(4) *Aspergillus*

BC0993

58. Nitrifying bacteria :-

(1) Oxidize ammonia to nitrates

(2) Convert free nitrogen to nitrogen compounds

(3) Convert proteins into ammonia

(4) Reduce nitrates to free nitrogen

BC0994

59. Archegoniophore is present in :-

(1) *Marchantia*

(2) *Chara*

(3) *Adiantum*

(4) *Funaria*

PD0377

60. Compared with the gametophytes of the bryophytes, the gametophytes of vascular plants tend to be :-

(1) Smaller but to have larger sex organs

(2) Larger but to have smaller sex organs

(3) Larger and to have larger sex organs

(4) Smaller and to have smaller sex organs

PD0378

61. The gametophyte is not an independent, free living generation in:-

(1) *Polytrichum*

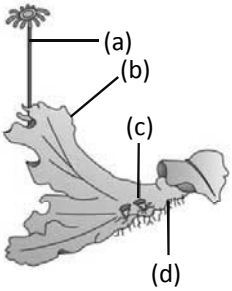
(2) *Adiantum*

(3) *Marchantia*

(4) *Pinus*

PD0379

62. Examine the figure given below and select the right option giving all the four parts (a, b, c, d) correctly identified.



	(a)	(b)	(c)	(d)
(1)	Antheridiophore	Male thallus	Globule	Roots
(2)	Archegoniophore	Female thallus	Gemma-cup	Rhizoids
(3)	Archegoniophore	Female thallus	Bud	Foot
(4)	Seta	Sporophyte	Protonema	Rhizoids

PD0380

63. *Selaginella* and *Salvinia* are considered to represent a significant step toward evolution of seed habit because :-

(1) Embryo develops in female gametophyte which is retained on parent sporophyte

(2) Female gametophyte is free and gets dispersed like seeds.

(3) Female gametophyte lacks archegonia

(4) Megaspores possess endosperm and embryo surrounded by seed coat.

PD0381

64. Consider the following four statements whether they are correct or wrong :

(a) The sporophyte in liverworts is more elaborate than that is mosses.

(b) *Salvinia* is heterosporous

(c) The life-cycle in all seed-bearing plants is diplontic.

(d) In Pinus male and female cones are borne on different trees.

The two wrong statements together are :

(1) Statements (a) and (b)

(2) Statements (a) and (c)

(3) Statements (a) and (d)

(4) Statements (b) and (c)

PD0382

65. Which one of the following is a wrong matching of a microbe and its industrial product, while the remaining three are correct ?

(1) *Aspergillus niger* - citric acid

(2) Yeast - Statins

(3) *Acetobacter aceti* - acetic acid

(4) *Clostridium butylicum* - lactic acid

BC0995

66. The pathogen *Microsporum* responsible for ringworm disease in humans belongs to the same Kingdom of organisms as that of :

(1) *Ascaris,* a round worm

(2) *Taenia,* a tapeworm

(3) *Wuchereria,* a filarial worm

(4) *Rhizopus*, a mould

BC0996

AIPMT 2012

67. *Cycas* and *Adiantum* resemble each other in having :-

(1) Cambium

(2) Vessels

(3) Seeds

(4) Motile sperms

PD0386

68. Maximum nutritional diversity is found in the group :-

(1) Monera

(2) Plantae

(3) Fungi

(4) Animalia

BC0997

69. Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses :-
(1) Mode of Nutrition
(2) Multiplication by fragmentation
(3) Diplontic life cycle
(4) Members of kingdom Plantae

LW0388

70. Which one of the following is a correct statement ?
(1) Antheridiophores and archegoniophores are present in pteridophytes
(2) Origin of seed habit can be traced in pteridophytes
(3) Pteridophyte gametophyte has a protonemal and leafy stage
(4) In gymnosperms female gametophyte is free living

PD0389

71. Nuclear membrane is absent in :-
(1) *Volvox* (2) *Nostoc*
(3) Penicillium (4) Agaricus

BC0998

72. Which one of the following does not differ in *E.coli* and *Chlamydomonas* ?
(1) Cell wall
(2) Cell membrane
(3) Ribosomes
(4) Chromosomal Organization

BC0999

73. Which one of the following is wrong statement ?
(1) Phosphorus is a constituent of cell membranes, certain nucleic acids and all proteins
(2) Nitrosomonas and Nitrobacter are chemoautotrophs
(3) *Anabaena* and *Nostoc* are capable of fixing nitrogen in free-living state also
(4) Root nodule forming nitrogen fixers live as aerobes under free-living conditions

BC1000

74. Yeast is used in the production of :-
(1) Bread and beer
(2) Cheese and butter
(3) Citric acid and lactic acid
(4) Lipase and pectinase

BC1001

75. A nitrogen fixing microbe associated with *Azolla* in rice-fields is :-
(1) *Frankia*
(2) *Tolypothrix*
(3) *Spirulina*
(4) *Anabaena*

BC1002

76. The cyanobacteria are also referred to as :-
(1) Slime moulds (2) Blue green algae
(3) Protists (4) Golden algae

BC1003

77. Which one single organism or the pair of organisms is correctly assigned to its or their named taxonomic group ?
(1) *Yeast* used in making bread and beer is a fungus
(2) *Nostoc* and *Anabaena* are examples of protista
(3) *Paramecium* and *Plasmodium* belong to the same kingdom as that of *Penicilium*
(4) Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan

BC1004

78. Them most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are ones categorised as :
(1) Chemosynthetic autotrophs
(2) Heterotrophic bacteria
(3) Cyanobactaria
(4) Archaebacteria

BC1005

79. *Monascus purpureus* is a yeast used commercially in the production of :-
(1) citric acid
(2) blood chlolestrol lowering statins
(3) ethanol
(4) streptokinase for removing clots from the blood vessels.

BC1006

80. Read the following five statements (A – E) and answer as asked next to them :-
(A) In *Equisetum* the female gametophyte is retained on the parent sporophyte
(B) In *Ginkgo* male gametophyte is not independent
(C) The sporophyte in *Riccia* is more developed than that in *Polytrichum*
(D) Sexual reproduction in - Volvox is isogamous
(E) The spores of slime molds lack cell walls
How many of the above statements are correct ?
(1) Four (2) One
(3) Two (4) Three

BC1007

81. Which one of the following pairs is wrongly matched?
(1) Viroids – RNA
(2) Mustard - Synergids
(3) *Ginkgo* – Archegonia
(4) *Salvinia* - Prothallus

PC0400

82. How many organisms in the list given below are *autotrophs*?
Lactobacillus, Nostoc, Chara, Nitrosomonas, Nitrobacter, Streptomyces, Saccharomyces, Trypanosoma, Porphyra, Wolfia
(1) Six (2) Three
(3) Four (4) Five

BC1008

83. In the five-kingdom classification, *Chlamydomonas* and *Chlorella* have been included in :
(1) Plantae (2) Monera
(3) Protista (4) Algae

BC1009

NEET-UG 2013

84. Which of the following are likely to be present in deep sea water ?
(1) Saprophytic fungi
(2) Archaebacteria
(3) Eubacteria
(4) Blue-green algae

BC1010

85. Megasporangium is equivalent to :
(1) Ovule (2) Embryo sac
(3) Fruit (4) Nucellus

PD0406

86. Isogamous condition with non-flagallated gametes is found in :
(1) *Fucus* (2) *Chlamydomonas*
(3) *Spirogyra* (4) *Volvox*

PD0407

87. Monoecious plant of *Chara* shows occurrence of:
(1) upper oogonium and lower antheridium on the same plant
(2) antheridiophore and archegoniophore on the same plant
(3) stamen and carpel on the same plant
(4) upper antheridium and lower oogonium on the same plant

PD0408

88. A good producer of citric acid is :
(1) *Saccharomyces*
(2) *Aspergillus*
(3) *Pseudomonas*
(4) *Clostridium*

BC1011

89. Besides paddy fields, cyanobacteria are also found inside vegetative part of :

(1) *Psilotum*

(2) *Pinus*

(3) *Cycas*

(4) *Equisetum*

PD0410

90. Select the wrong statement :

(1) *Chlamydomonas* exhibits both isogamy and anisogamy and *Fucus* shows oogamy

(2) Isogemetes are similar in structure, function and behaviour

(3) Anisogametes differ either in structure, function or behaviour

(4) In Oomycetes female gamete is smaller and motile, while male gamete is larger and non-motile

PD0411

91. Which one of the following is **not** a correct statements ?

(1) Key is taxonomic aid for identification of specimens

(2) Herbarium houses dried, pressed and preserved plant specimens

(3) Botanical gardens have collection of living plants for reference

(4) A museum has collection of photographs of plants and animals

DL0412

92. Which of the following represents maximum number of species among global biodiversity ?

(1) Mosses and Ferns

(2) Algae

(3) Lichens

(4) Fungi

BC1012

93. Read the following statements (a – e) and answer the question which follows them.

(a) In liverworts, mosses and ferns gametophytes are free living

(b) Gymnosperms and some ferns are heterosporous

(c) Sexual reproduction in *Fucus*, *Volvox* and *Allbugo* is oogamous

(d) The sporophyte in liverworts is more elaborate than that in mosses

(e) Both, *Pinus* and *Marchantia* are dioecious

How many of the above statements are correct ?

(1) Four (2) One

(3) Two (4) Three

PD0414

94. Pigment-containing membranous extensions in some cyanobacteria are :

(1) Chromatophores

(2) Heterocysts

(3) Basal bodies

(4) Pneumatophores

BC1013

95. Which of the following is **not** correctly matched for the organism and its cell wall degrading enzyme?

(1) Fungi – Chitinase

(2) Bacteria – Lysozyme

(3) Plant cells – Cellulase

(4) Algae – Methylase

BC1014

AIPMT 2014

96. Which one of the following shows isogamy with non-flagellated gametes?

(1) *Sargassum*

(2) *Ectocarpus*

(3) *Ulothrix*

(4) *Spirogyra*

PD0421

97. Five kingdom system of classification suggested by R.H. Whittaker is **not** based on :
(1) Presence or absence of a well defined nucleus.
(2) Mode of reproduction.
(3) Mode of nutrition.
(4) Complexity of body organisation.

BC1015

98. Which one of the following fungi contains hallucinogens ?
(1) *Morchella esculenta*
(2) *Amanita muscaria*
(3) *Neurospora sp.*
(4) *Ustilago sp.*

BC1016

99. Archaebacteria differ from eubacteria in :
(1) Cell membrane
(2) Mode of nutrition
(3) Cell shape
(4) Mode of reproduction

BC1017

100. Which one of the following is wrong about *Chara*?
(1) Upper oogonium and lower round antheridium.
(2) Globule and nucule present on the same plant.
(3) Upper antheridium and lower oogonium
(4) Globule is male reproductive structure

PD0425

101. Which of the following is responsible for peat formation ?
(1) *Marchantia*
(2) *Riccia*
(3) *Funaria*
(4) *Sphagnum*

PD0426

102. Anoxygenic photosynthesis is characteristic of :
(1) *Rhodospirillum* (2) *Spirogyra*
(3) *Chlamydomonas* (4) *Ulva*

PD0427

103. Male gametophyte with least number of cell is present in :
(1) *Pteris* (2) *Funaria*
(3) *Lilium* (4) *Pinus*

PD0428

104. Which of the following shows coiled RNA strand and capsomeres?
(1) Polio virus
(2) Tobacco masaic virus
(3) Measles virus
(4) Retrovirus

BC1018

105. Transformation was discovered by :-
(1) Meselson and Stahl
(2) Hershey and Chase
(3) Griffith
(4) Watson and Crick

BC1019

106. Viruses have :-
(1) DNA enclosed in a protein coat
(2) Prokaryotic nucleus
(3) Single chromosome
(4) Both DNA and RNA

BC1020

107. An alga which can be employed as food for human being is :-
(1) *Ulothrix* (2) *Chlorella*
(3) *Spirogyra* (4) *Polysiphonia*

PD0432

108. Which one of the following living organisms completely *lacks* a cell wall?
(1) Cyanobacteria
(2) Sea – fan(Gorgonia)
(3) *Saccharomyces*
(4) Blue–green algae

BC1021

AIPMT 2015

109. Which one one of the following matches is **correct** ?

(1)	Altemaria	Sexual reproduction absent	Deuteromycetes
(2)	Mucor	Reproduction by Conjugation	Ascomycetes
(3)	Agaricus	Parasitic fungus	Basidiomycetes
(4)	Phytophthora	Aseptate mycelium	Basidiomycetes

BC1022

110. In which of the following gametophyte is **not** independent free living ?

(1) *Marchantia* (2) *Pteris*
(3) *Pinus* (4) *Funaria*

PD0439

111. Read the following five statements (A to E) and select the option with **all correct** statements :-

(A) Mosses and Lichens are the first organisms to colonise a bare rock.
(B) *Selaginella* is a homosporous pteridophyte
(C) Coralloid roots in *Cycas* have VAM
(D) Main plant body in bryophytes is gametophytic, whereas in pteridophytes it is sporophytic
(E) In gymnosperms, male and female gametophytes are present within sporangia located on sporophyte

(1) (B), (C) and (D) (2) (A), (D) and (E)
(3) (B), (C) and (E) (4) (A), (C) and (D)

PD0440

112. True nucleus is absent in :-

(1) *Mucor* (2) *Vaucheria*
(3) *Volvox* (4) *Anabaena*

BC1023

113. Male gemetes are flagellated in :

(1) *Anabaena* (2) *Ectocarpus*
(3) *Spirogyra* (4) *Polysiphonia*

PD1024

114. Which one of the following is **not** an inclusion body found in prokaryotes ?

(1) Cyanophycean granule
(2) Glycogen granule
(3) Polysome
(4) Phosphate granule

BC0443

115. The guts of cow and buffalo possess:

(1) *Chlorella* spp. (2) Methanogens
(3) Cyanobacteria (4) *Fucus* spp.

BC1025

116. Which one of the following statements is **wrong**?

(1) Agar - agar is obtained from *Gelidium* and *Gracilaria*
(2) *Chlorella* and *Spirulina* are used as space food
(3) Mannitol is stored food in Rhodophyceae
(4) Algin and carragen are products of algae

PD0445

Re-AIPMT 2015

117. Which one is a **wrong** statement ?

(1) Brown algae have chlorophyll a and c, and fucoxanthin
(2) Archegonia are found in Bryophyta, Pteridophyta and Gymnosperms
(3) *Mucor* has biflagellate zoospores
(4) Haploid endosperm is typical feature of gymnosperms

PD0446

118. Which of the following structures is **not** found in prokaryotic cells?

(1) Plasma membrane
(2) Nuclear envelope
(3) Ribosome
(4) Mesosome

BC1026

119. Choose the **wrong** statement :
(1) Yeast is unicellular and useful in fermentation
(2) *Penicillium* is multicellular and produces antibiotics
(3) *Neurospora* is used in the study of biochemical genetics
(4) Morels and truffles are poisonous mushrooms

BC1027

120. Which of the following are **not** membrane-bound?
(1) Mesosomes (2) Vacuoles
(3) Ribosomes (4) Lysosomes

BC1028

121. Cell wall is absent in :
(1) *Nostoc* (2) *Aspergillus*
(3) *Funaria* (4) Mycoplasma

BC1029

122. In which group of organisms the cells walls form two thin overlapping shells which fit together ?
(1) Slime moulds (2) Chrysophytes
(3) Euglenoids (4) Dinoflagellates

BC1030

123. Match the following list of microbes and their importance :

(a)	*Saccharornyces cerevisiae*	(i)	Production of imm unosuppr e ssive agents
(b)	*Monascus pur pure us*	(ii)	Ripening of Swiss cheese
(c)	*Trichoderma pofysporurn*	(iii)	Commercial production of ethanol
(d)	*Propioni bacteriurn sharmanii*	(iv)	Production of blood cholesterol lowering agents

	(a)	(b)	(c)	(d)
(1)	(iii)	(i)	(iv)	(ii)
(2)	(iii)	(iv)	(i)	(ii)
(3)	(iv)	(iii)	(ii)	(i)
(4)	(iv)	(ii)	(i)	(iii)

BC1031

124. Chromatophores take part in :
(1) Respiration
(2) Photosynthesis
(3) Growth
(4) Movement

BC1032

125. The structures that help some bacteria to attach to rocks and/or host tissues are :
(1) Holdfast
(2) Rhizoids
(3) Fimbriae
(4) Mesosomes

BC1033

126. The imperfect fungi which are decomposers of litter and help in mineral cycling belong to :
(1) Ascomycetes
(2) Deuteromycetes
(3) Basidiomycetes
(4) Phycomycetes

BC1034

127. Pick up the **wrong** statement :
(1) Nuclear membrane is present in Monera
(2) Cell wall is absent in Animalia
(3) Protista have photosynthetic and heterotrophic modes of nutrition
(4) Some fungi are edible

BC1035

NEET-I 2016

128. Which one of the following statements is wrong ?
(1) Cyanobacteria are also called blue-green algae
(2) Golden algae are also called desmids
(3) Eubacteria are also called false bacteria
(4) Phycomycetes are also called algal fungi

BC1036

129. Select the **correct** statement :-
(1) Gymnosperms are both homosporous and heterosporous
(2) *Salvinia*, *Ginkgo* and *Pinus* all are gymnosperms
(3) *Sequoia* is one of the tallest trees
(4) The leaves of gymnosperms are not well adapted to extremes of climate

PD0462

130. In bryophytes and pteridophytes, transport of male gametes requires :-
(1) Wind (2) Insects
(3) Birds (4) Water

PD0463

131. Which of the following would appear as the pioneer organisms on bare rocks?
(1) Lichens
(2) Liverworts
(3) Mosses
(4) Green algae

BC1037

132. Nomenclature is governed by certain universal rules. Which one of the following is contrary to the rules of nomenclature?
(1) Biological names can be written in any language
(2) The first word in a biological name represents the genus name, and the second is a specific epithet
(3) The names are written in Latin and are italicised
(4) When written by hand, the names are to be underlined

DL0465

133. Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom :-
(1) Monera (2) Protista
(3) Fungi (4) Animalia

BC1038

134. Which of the following is wrongly matched in the given table ?

	Microbe	Product	Application
(1)	*Trichoderrna polysporum*	Cyclosporin A	immunosup-pressive drug
(2)	*Monascus pur pure us*	Statins	lowering of blood cholesterol
(3)	*Streptococcus*	Streptokinase	removal of clot from blood vessel
(4)	*Clostridium bufylicum*	Lipase	removal of oil stains

BC1039

135. The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the :-
(1) Halophiles
(2) Thermoacidiophiles
(3) Methanogens
(4) Eubacteria

BC1040

NEET-II 2016

136. The ovule of an angiosperm is technically equivalent to :
(1) megaspore mother cell
(2) megaspore
(3) megasporangium
(4) megasporophyll

PD0469

137. Methanogens belong to :
(1) Dinoflagellates (2) Slime moulds
(3) Eubacteria (4) Archaebacteria

BC1041

138. Select the **wrong** statement :
(1) Diatoms are chief producers in the oceans
(2) Diatoms are microscopic and float passively in water
(3) The walls of diatoms are easily destructible
(4) 'Diatomaceous earth' is formed by the cell walls of diatoms.

BC1042

139. The lable of a herbarium shet **does not** carry information on :
(1) Local names
(2) height of the plant
(3) date of collection
(4) name of collector

DL0472

140. Conifers are adapated to tolerate extreme environmental conditions because of :
(1) thick cuticle
(2) presence of vessels
(3) broad hardy leaves
(4) superficial stomata

PD0473

141. Which one of the following statements is **wrong**?
(1) Agar-agar is obtained from *Gelidium* and *Gracilaria*
(2) *Laminaria* and *Sargassum* are used as food
(3) Algae increase the level of dissolved oxygen in the immediate environment
(4) Algin is obtained from red algae, and carrageenan from brown algae.

PD0474

142. Select the **mismatch** :-
(1) Protists-Eukaryotes
(2) Methanogens-Prokaryotes
(3) Gas vacuoles-Green bacteria
(4) Large central vacoules - Animal cells

BC1043

143. Select the **wrong** statement :-
(1) Cyanobacteria lack flagellated cells.
(2) *Mycoplasma* is a wall-less microorganism
(3) Bacterial cell wall is made up of peptidoglycan.
(4) Pilli and fimbriae are mainly involved in motility of bacterial cells

BC1044

144. Match **Column–I** with **Column–II** and select the correct option using the codes given below

Column-I		Column-II	
(a)	Citric acid	(i)	Trichoderma
(b)	Cyclosporin A	(ii)	Clostridium
(c)	Statins	(iii)	Aspergillus
(d)	Butyric acid	(iv)	Monascus

Codes :

	a	b	c	d
(1)	i	iv	ii	iii
(2)	iii	iv	i	ii
(3)	iii	i	ii	iv
(4)	iii	i	iv	ii

BC1045

145. Which of the following sets of diseases is caused by bacteria?
(1) Tetanus and mumps
(2) Herpes and influenza
(3) Cholera and tetanus
(4) Typhoid and smallpox

BC1046

146. Match **Column–I** with **Column–II** for housefly classification and select the correct option using the codes given below:

Column-I		Column-II	
a	Family	(i)	Diptera
b	Order	(ii)	Arthropoda
c	Class	(iii)	Muscidae
d	Phylum	(iv)	Insecta

Codes :

	a	b	c	d
(1)	iv	iii	ii	i
(2)	iv	ii	i	iii
(3)	iii	i	iv	ii
(4)	iii	ii	iv	i

DL0479

147. Study the four statements (A–D) given below and select the two correct ones out of them :

(A) Definition of biological species was given by Ernst Mayr.

(B) Photoperiod does not affect reproduction in plants.

(C) Binomial nomenclature system was given by R.H. Whittaker.

(D) In unicellular organisms, reproduction is synonymous with growth.

The two **correct statements are**

(1) A and D (2) A and B

(3) B and C (4) C and D

LW0480

NEET(UG) 2017

148. Which of the following are found in extreme saline conditions ?

(1) Eubacteria (2) Cyanobacteria

(3) Mycobacteria (4) Archaebacteria

BC1047

149. Select the mismatch :

(1) *Rhodospirillum* - Mycorrhiza

(2) *Anabaena* - Nitrogen fixer

(3) *Rhizobium* - Alfalfa

(4) *Frankia - Alnus*

BC1048

150. An example of colonial alga is :

(1) *Volvox* (2) *Ulothrix*

(3) *Spirogyra* (4) *Chlorella*

PD0490

151. Which of the following components provides sticky character to the bacterial cell ?

(1) Nuclear membrane

(2) Plasma membrane

(3) Glycocalyx

(4) Cell wall

BC1049

152. Zygotic meiosis is characteristic of;

(1) *Fucus* (2) *Funaria*

(3) *Chlamydomonas* (4) *Marchantia*

PD0492

153. Life cycle of *Ectocarpus* and *Fucus* respectively are:

(1) Diplontic, Haplodiplontic

(2) Haplodiplontic, Diplontic

(3) Haplodiplontic, Haplontic

(4) Haplontic, Diplontic

PD0493

154. Viroids differ from viruses in having;

(1) DNA molecules without protein coat

(2) RNA molecules with protein coat

(3) RNA molecules without protein coat

(4) DNA molecules with protein coat

BC1050

155. Which of the following is correctly matched for the product produced by them ?

(1) *Methanobacterium* : Lactic acid

(2) *Penicillium notatum* : Acetic acid

(3) *Sacchromyces cerevisiae* : Ethanol

(4) *Acetobacter aceti* : Antibiotics

BC1051

156. Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen ?

(1) *Pseudomonas* (2) *Mycoplasma*

(3) *Nostoc* (4) *Bacillus*

BC1052

157. Select the mismatch

(1) *Cycas* – Dioecious

(2) *Salvinia* – Heterosporous

(3) *Equisetum* – Homosporous

(4) *Pinus* – Dioecious

PD0497

NEET(UG) 2018

158. Which among the following is ***not*** a prokaryote?

(1) *Saccharomyces*

(2) *Mycobacterium*

(3) *Nostoc*

(4) *Oscillatoria*

BC1053

159. Which of the following statement is ***correct***?

(1) Ovules are not enclosed by ovary wall in gymnosperms

(2) *Selaginella* is *heterosporous*, while *Salvinia* is homosporous

(3) Horsetails are gymnosperms

(4) Stems are usually unbranched in both *Cycas* and *Cedrus*

PD0506

160. Select the ***wrong*** statement :

(1) Cell wall is present in members of fungi and plantae

(2) Mushrooms belong to basidiomycetes

(3) Pseudopodia are locomotory and feeding structures in sporozoans

(4) Mitochondria are the powerhouse of the cell in all kingdoms except monera

BC1054

161. Which one is ***wrongly*** matched ?

(1) Uniflagellate gametes - *Polysiphonia*

(2) Biflagellate zoospores - Brown algae

(3) Gemma cups - *Marchantia*

(4) Unicellular organism - *Chlorella*

PD0508

162. Match the items given in Column I with those in Column II and select the ***correct*** option given below:-

Column-I	Column-II
(a) Herbarium	i. It is a place having a collection of preserved plants and animals.
(b) Key	ii. A list that enumerates methodically all the species found in an area with brief description aiding identification.
(c) Museum	iii. Is a place where dried and pressed plant specimens mounted on sheets are kept.
(d) Catalogue	iv. A booklet containing a list of characters and their alternates which are helpful in identification of various taxa.

	a	b	c	d
(1)	i	iv	iii	ii
(2)	iii	ii	i	iv
(3)	ii	iv	iii	i
(4)	iii	iv	i	ii

DL0509

163. After karyogamy followed by meiosis, spores are produced exogenously in

(1) *Neurospora* (2) *Alternaria*

(3) *Agaricus* (4) *Saccharomyces*

BC1055

164. Oxygen is ***not*** produced during photosynthesis by

(1) Green sulphur bacteria

(2) *Nostoc*

(3) *Cycas*

(4) *Chara*

BC1056

165. Which of the following organisms are known as chief producers in the oceans ?
(1) Dinoflagellates
(2) Diatoms
(3) Cyanobacteria
(4) Euglenoids

BC1057

166. Winged pollen grains are present in
(1) Mustard (2) *Cycas*
(3) Mango (4) *Pinus*

PD0513

NEET(UG) 2019

167. Which of the following statements is **incorrect**?
(1) Morels and truffles are edible delicacies.
(2) *Claviceps* is a source of many alkaloids and LSD.
(3) Conidia are produced exogenously and ascospores endogenously.
(4) Yeasts have filamentous bodies with long thread-like hyphae.

BC1058

168. Which of the following statements is **incorrect** ?
(1) Viroids lack a protein coat
(2) Viruses are obligate parasites
(3) Infective constituent in viruses is the protein coat
(4) Prions consist of abnormally folded proteins

BC1059

169. *Thiobacillus* is a group of bacteria helpful in carrying out :
(1) Nitrogen fixation
(2) Chemoautotrophic fixation
(3) Nitrification
(4) Denitrification

BC1060

170. Phloem in gymnosperms lacks :
(1) Albuminous cells and sieve cells
(2) Sieve tubes only
(3) Companion cells only
(4) Both sieve tubes and companion cells

PD0744

171. Match **Column - I** with **Column - II.**

Column - I	**Column - II**
(a) Saprophyte	(i) Symbiotic association of fungi with plant roots
(b) Parasite	(ii) Decomposition of dead organic materials
(c) Lichens	(iii) Living on living plants or animals
(d) Mycorrhiza	(iv) Symbiotic association of algae and fungi

Choose the **correct** answer from the options given below :

	(a)	**(b)**	**(c)**	**(d)**
(1)	(i)	(ii)	(iii)	(iv)
(2)	(iii)	(ii)	(i)	(iv)
(3)	(ii)	(i)	(iii)	(iv)
(4)	(ii)	(iii)	(iv)	(i)

BC1061

172. Select **correctly** written scientific name of Mango which was first described by Carolus Linnaeus:
(1) *Mangifera indica* Car. Linn.
(2) *Mangifera indica* Linn.
(3) *Mangifera indica*
(4) *Mangifera Indica*

DL0746

173. From evolutionary point of view, retention of the female gametophyte with developing young embryo on the parent sporophyte for some time, is first observed in :
(1) Liverworts (2) Mosses
(3) Pteridophytes (4) Gymnosperms

PD0747

NEET(UG) 2019 (ODISHA)

174. Match the organisms in column-I with habitats in column-II

Column-I	Column-II
(a) Halophiles	(i) Hot springs
(b) Thermoacidophiles	(ii) Aquatic environment
(c) Methanogens	(iii) Guts of ruminants
(d) Cyanobacteria	(iv) Salty area

Select the correct answer from the options given below :-

(1) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)
(2) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
(3) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)
(4) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)

BC1062

175. Mad cow disease in catttle is caused by an organism which has :-

(1) inert crystalline structure
(2) abnormally folded protein
(3) free RNA without protein coat
(4) free DNA without protein coat

BC1063

176. Which of the following statements is correct ?

(1) Lichens do not grow in polluted areas.
(2) Algal component of lichens is called mycobiont.
(3) Fungal component of lichens is called phycobiont
(4) Lichens are not good pollution indicators.

BC1064

177. Which of the following bacteria reduce nitrate in soil into nitrogen ?

(1) *Nitrobacter*
(2) *Nitrococcus*
(3) *Thiobacillus*
(4) *Nitrosomonas*

BC1065

178. Among the following pairs of microbes, which pair has both the microbes that can be used as biofertilizers?

(1) *Aspergillus* and *Rhizopus*
(2) *Rhizobium* and *Rhizopus*
(3) *Cyanobacteria* and *Rhizobium*
(4) *Aspergillus* and *Cyanobacteria*

BC1066

179. Which of the following statements about methanogens is not correct?

(1) They can be used to produce biogas.
(2) They are found in the rumen of cattle and their excreta
(3) They grow aerobically and breakdown cellulose-rich food.
(4) They produce methane gas.

BC1067

180. Which of the following is against the rules of ICBN?

(1) Hand written scientific names should be underlined.
(2) Every species should have a generic name and a specific epithet.
(3) Scientific names are in Latin and should be italicized.
(4) Generic and specific names should be written starting with small letters.

DL0754

181. The contrasting characteristics generally in a pair used for identification of animals in taxonomic key are referred to as :

(1) Lead (2) Couplet
(3) Doublet (4) Alternate

DL0755

NEET(UG) 2020

182. Floridean starch has structure similar to:

(1) Laminarin and cellulose
(2) Starch and cellulose
(3) Amylopectin and glycogen
(4) Mannitol and align

PD1144

183. Match the following columns and select the correct option.

Column - I	Column - II
(a) *Clostridium butylicum*	(i) Cyclosporin - A
(b) *Trichoderma polysporum*	(ii) Butyric Acid
(c) *Monascus purpureus*	(iii) Citric Acid
(d) *Aspergillus niger*	(iv) Blood cholesterol lowering agent

	(a)	(b)	(c)	(d)
(1)	(iv)	(iii)	(ii)	(i)
(2)	(iii)	(iv)	(ii)	(i)
(3)	(ii)	(i)	(iv)	(iii)
(4)	(i)	(ii)	(iv)	(iii)

BC1145

184. Which of the following is correct about viroids ?

(1) They have free DNA without protein coat.

(2) They have RNA with protein coat.

(3) They have free RNA without protein coat.

(4) They have DNA with protein coat.

BC1146

185. Which of the following pairs is of unicellular algae?

(1) *Chlorella* and *Spirulina*

(2) *Laminaria* and *Sargassum*

(3) *Gelidium* and *Gracilaria*

(4) *Anabaena* and *Volvox*

PD1147

186. Strobili or cones are found in :

(1) *Equisetum* (2) *Salvinia*

(3) *Pteris* (4) *Marchantia*

PD1148

187. Which of the following statements about inclusion bodies is **incorrect** ?

(1) These represent reserve material in cytoplasm.

(2) They are not bound by any membrane.

(3) These are involved in ingestion of food particles.

(4) They lie free in the cytoplasm.

BC1149

NEET(UG) 2020 (COVID-19)

188. Phycoerythrin is the major pigment in :

(1) Red algae

(2) Blue green algae

(3) Green algae

(4) Brown algae

PD1150

189. Which of the following statements is incorrect about gymnosperms ?

(1) They are heterosporous

(2) Male and female gametophytes are free living

(3) Most of them have narrow leaves with thick cuticle

(4) Their seeds are not covered

PD1151

190. Inclusion bodies of blue- green, purple and green photosynthetic bacteria are :

(1) Contractile vacuoles

(2) Gas vacuoles

(3) Centrioles

(4) Microtubules

BC1152

191. Which of the following is **incorrect** about Cynobacteria ?

(1) They are photoautotrophs

(2) They lack heterocysts

(3) They often form blooms in polluted water bodies

(4) They have chlorophyll A similar to green plants

BC1153

192. Male and female gametophytes do not have an independent free living existence in :-

(1) Pteridophytes (2) Algae

(3) Angiosperms (4) Bryophytes

PD1154

193. For the commercial and industrial production of Citric Acid, which of the following microbes is used ?

(1) *Aspergillus niger*

(2) *Lactobacillus sp*

(3) *Saccharomyces cerevisiae*

(4) *Clostridium butylicum*

BC1155

194. Cyclosporin A, used as immuno suppression agent, is produced from :

(1) *Monascus purpureus*

(2) *Saccharomyces cerevisiae*

(3) *Penicillium notatum*

(4) *Trichoderma polysporum*

BC1156

NEET(UG) 2021

195. Gemmae are present in :

(1) Mosses

(2) Pteridophytes

(3) Some Gymnosperms

(4) Some Liverworts

PD1157

196. Genera like *Selaginella* and *Salvinia* produce two kinds of spores. Such plants are known as :

(1) Homosorus (2) Heterosorus

(3) Homosporous (4) Heterosporous

PD1158

197. Which of the following plants is monoecious?

(1) *Carica papaya*

(2) *Chara*

(3) *Marchantia polymorpha*

(4) *Cycas circinalis*

PD1159

198. Which of the following algae contains mannitol as reserve food material ?

(1) *Ectocarpus* (2) *Gracilaria*

(3) *Volvox* (4) *Ulothrix*

PD1160

199. Which of the following algae produce Carrageen ?

(1) Green algae (2) Brown algae

(3) Red algae (4) Blue-green algae

PD1161

200. Which of the following statements is **correct** ?

(1) Fusion of two cells is called Karyogamy.

(2) Fusion of protoplasms between two motile or non-motile gametes is called plasmogamy.

(3) Organisms that depend on living plants are called saprophytes.

(4) Some of the organisms can fix atmospheric nitrogen in specialized cells called sheath cells.

BC1162

201. Which one of the following belongs to the family Muscidae ?

(1) Fire fly (2) Grasshopper

(3) Cockroach (4) House fly

DL1163

202. Match **List - I** with **List - II.**

	List-I		List-II
(a)	*Aspergillus niger*	(i)	Acetic Acid
(b)	*Acetobacter aceti*	(ii)	Lactic Acid
(c)	*Clostridium butylicum*	(iii)	Citric Acid
(d)	*Lactobacillus*	(iv)	Butyric Acid

Choose the **correct** answer from the options given below.

	(a)	**(b)**	**(c)**	**(d)**
(1)	(iii)	(i)	(iv)	(ii)
(2)	(i)	(ii)	(iii)	(iv)
(3)	(ii)	(iii)	(i)	(iv)
(4)	(iv)	(ii)	(i)	(iii)

BC1164

NEET(UG) 2021 (Paper-2)

203. Which of the following is not a correct statement?

(1) Herbaria serve as quick referral systems in taxonomical studies.

(2) Indian Botanical Garden is situated at Lucknow, India.

(3) Museums have collections of preserved plant and animal specimens.

(4) The keys are based on the contrasting characters.

DL1222

204. Match the columns and find the correct option.

Column I	**Column II**
a. Ascomycetes	i. *Ustilago*
b. Phycomycetes	ii. *Saccharomyces*
c. Basidiomycetes	iii. *Trichoderma*
d. Deuteromycetes	iv. *Albugo*

(1) a–ii, b–i, c–iv, d–iii

(2) a–iv, b–iii, c–ii, d–i

(3) a–ii, b–iv, c–i, d–iii

(4) a–iii, b–iv, c–i, d–ii

BC1223

205. Which of the following characters belongs to the kingdom Protista ?

(1) Prokaryotic

(2) Multicellular

(3) All members have cell wall

(4) Presence of nuclear membrane

BC1224

206. Which of the following is a characteristic feature of gymnosperms ?

(1) The development of pollen grains take place within the microsporangia.

(2) Some gymnosperms are homosporous.

(3) The ovules are borne on megasporophylls which may be clustered to form the male cones.

(4) All of the above.

PD1225

207. Match column I with column II for mango classification and select the correct option using the codes given below.

Column I	**Column II**
a. Division	i. Sapindales
b. Order	ii. Anacardiaceae
c. Family	iii. Dicotyledonae
d. Class	iv. Angiospermae

(1) a–ii, b–iii, c–iv, d–i

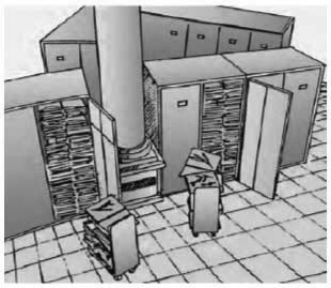
(2) a–iii, b–iv, c–i, d–ii

(3) a–iv, b–i, c–iii, d–ii

(4) a–iv, b–i, c–ii, d–iii

DL1226

208. Find out the correct statement about figure.



(1) It is the store house of collected dried plant specimens.

(2) they have collection of preserved plant and animal specimens for study and reference.

(3) They often have collections of skeletons of animals too.

(4) They have collections of living plants for reference.

DL1227

NEET(UG) 2022

209. Hydrocolloid carrageen is obtained from :

(1) Phaeophyceae and Rhodophyceae

(2) Rhodophyceae only

(3) Phaeophyceae only

(4) Chlorophyceae and Phaeophyceae

PD1228

210. Which of the following is **incorrectly** matched ?

(1) *Ulothrix* - Mannitol

(2) *Porphyra* - Floridian Starch

(3) *Volvox* - Starch

(4) *Ectocarpus* - Fucoxanthin

PD1229

211. Match the plant with the kind of life cycle it exhibits:

List-I	List-II
(a) *Spirogyra*	(i) Dominant diploid sporophyte vascular plant, with highly reduced male or female gametophyte
(b) Fern	(ii) Dominant haploid free-living gametophyte
(c) *Funaria*	(iii) Dominant diploid sporophyte alternating with reduced gametophyte called prothallus
(d) *Cycas*	(iv) Dominant haploid leafy gametophyte alternating with partially dependent multicellular sporophyte

Choose the **correct answer** from the options given below:

(1) (a)-(ii),(b)-(iii),(c)-(iv),(d)-(i)

(2) (a)-(iii),(b)-(iv),(c)-(i),(d)-(ii)

(3) (a)-(ii),(b)-(iv),(c)-(i),(d)-(iii)

(4) (a)-(iv), (b)-(i),(c)-(ii), (d)-(iii)

PD1230

212. In the taxonomic categories which hierarchial arrangement in ascending order is **correct** in case of animals ?

(1) Kingdom, Class, Phylum, Family, Order, Genus, Species

(2) Kingdom, Order, Class, Phylum, Family, Genus, Species

(3) Kingdom, Order, Phylum, Class, Family, Genus, Species

(4) Kingdom, Phylum, Class, Order, Family, Genus, Species

DL1231

213. Which of the following is a **correct** statement ?

(1) Bacteria are exclusively heterotrophic organisms.

(2) Slime moulds are saprophytic organisms classified under Kingdom Monera.

(3) Mycoplasma have DNA, Ribosome and cell wall

(4) Cyanobacteria are a group of autotrophic organisms classified under Kingdom Monera.

BC1232

NEET(UG) 2022 (OVERSEAS)

214. Which one of the following structures is haploid in its ploidy level?

(1) Microspore Mother Cell

(2) Protonemal cell of a moss

(3) Primary endosperm nucleus in dicot

(4) Primary Endospore Nucleus

PD1233

215. Which one of the following process is responsible for the release of N_2 in the atmosphere?

(1) Ammonification

(2) Denitrification

(3) Biological nitrogen fixation

(4) Industrial Nitrogen fixation

BC1234

216. Match **List - I** with **List - II**

List – I	**List – II**
(a) *Cedrus*	(i) Pteridophyte
(b) *Adiantum*	(ii) Gymnosperm
(c) *Sphagnum*	(iii) Liverwort
(d) *Marchantia*	(iv) Moss

Choose the correct answer from the options given below :

(1) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

(2) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

(3) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

(4) (a)-(ii), (b)-(iii), (c)-(i), (d)-(iv)

PD1235

217. Identify the fungi which do not belong to the group of other fungi among the following.

(1) Puffballs

(2) Mushrooms

(3) Bracket Fungi

(4) Sac-fungi

BC1236

218. Herbarium, Botanical gardens, Museum, Zoological parks and Key are considered as-

(1) Environmental aids

(2) Pollution aids

(3) Taxonomical aids

(4) Trophic aids

DL1237

219. Match **List - I** with **List - II**

List - I	**List - II**
(a) *Puccinia*	(i) Parasitic fungus on mustard
(b) *Neurospora*	(ii) Dead substrates
(c) Saprophytes	(iii) Wheat rust
(d) *Albugo*	(iv) Biochemical and Genetic work

Choose the **correct answer** from the options given below :

(1) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

(2) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

(3) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)

(4) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

BC1238

RE-NEET(UG) 2022

220. Match **List - I** with **List - II** :

List - I	**List - II**
(a) *Chlamydomonas*	(i) Moss
(b) *Cycas*	(ii) Pteridophyte
(c) *Selaginella*	(iii) Alga
(d) *Sphagnum*	(iv) Gymnosperm

Choose the **correct answer** from the options given below :

(1) (a) - (iii), (b) - (i), (c) - (ii), (d) - (iv)
(2) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)
(3) (a) - (iii), (b) - (ii), (c) - (i), (d) - (iv)
(4) (a) - (ii), (b) - (iii), (c) - (i), (d) - (iv)

PD1239

221. Read the following statements and identify the characters related to the alga shown in the diagram:

(a) It is a member of Chlorophyceae
(b) Food is stored in the form of starch
(c) It is a monoecious plant showing oogonium and antheridium
(d) Food is stored in the form of laminarin or mannitol
(e) It shows dominance of pigments chlorophyll a, c and Fucoxanthin.

Choose the **correct answer** from the options given below :

(1) (a) and (b) only
(2) (a), (b) and (c) only
(3) (a), (c) and (d) only
(4) (c), (d) and (e) only

PD1240

222. Pathogenic bacteria gain resistance to antibiotics due to changes in their :

(1) Cosmids
(2) Plasmids
(3) Nucleus
(4) Nucleoid

BL1241

223. Mad cow disease in cattle and Cr Jacob disease in humans are due to infection by_____ .

(1) Bacterium
(2) Virus
(3) Viroid
(4) Prion

BC1242

224. Which of the following are true about the taxonomical aid 'key' ?

(a) Keys are based on the similarities and dissimilarities.
(b) Key is analytical in nature.
(c) Keys are based on the contrasting characters in pair called couplet.
(d) Same key can be used for all taxonomic categories.
(e) Each statement in the key is called Lead.

Choose **the most appropriate answer** from the options given below :

(1) (a), (b) and (c) only
(2) (b), (c) and (d) only
(3) (a), (b), (c) and (e) only
(4) (a), (c), (d) and (e) only

DL1243

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**4**	**4**	**3**	**3**	**4**	**3**	**3**	**3**	**1**	**2**	**2**	**1**	**3**	**2**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**3**	**1**	**2**	**2**	**1**	**3**	**4**	**2**	**4**	**4**	**3**	**3**	**1**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**4**	**2**	**2**	**3**	**3**	**3**	**2**	**4**	**4**	**2**	**1**	**2**	**2**	**3**	**1**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**3**	**3**	**4**	**2**	**2**	**2**	**2**	**3**	**2**	**1**	**3**	**1**	**1**	**1**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**4**	**2**	**1**	**3**	**4**	**4**	**4**	**1**	**2**	**2**	**2**	**2**	**1**	**1**	**4**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**2**	**1**	**2**	**2**	**2**	**4**	**1**	**3**	**2**	**1**	**3**	**1**	**2**	**3**	**4**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**4**	**4**	**4**	**1**	**4**	**4**	**B**	**2**	**1**	**3**	**4**	**1**	**3**	**2**	**3**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**1**	**2**	**2**	**1**	**3**	**2**	**4**	**2**	**3**	**2**	**3**	**3**	**2**	**4**	**3**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**4**	**2**	**2**	**2**	**3**	**2**	**1**	**3**	**3**	**4**	**1**	**1**	**2**	**4**	**3**
Que.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Ans.	**3**	**4**	**3**	**2**	**1**	**4**	**4**	**4**	**4**	**3**	**3**	**1**	**4**	**1**	**1**
Que.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Ans.	**3**	**3**	**2**	**3**	**3**	**2**	**4**	**1**	**1**	**3**	**1**	**4**	**3**	**1**	**2**
Que.	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans.	**4**	**4**	**3**	**4**	**4**	**4**	**2**	**3**	**1**	**2**	**1**	**3**	**3**	**3**	**4**
Que.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
Ans.	**2**	**3**	**3**	**3**	**1**	**1**	**3**	**1**	**2**	**2**	**2**	**3**	**1**	**4**	**4**
Que.	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210
Ans.	**4**	**2**	**1**	**3**	**2**	**4**	**1**	**2**	**3**	**4**	**1**	**4**	**1**	**2**	**1**
Que.	211	212	213	214	215	216	217	218	219	220	221	222	223	224	
Ans.	**1**	**4**	**4**	**2**	**2**	**2**	**4**	**3**	**1**	**2**	**2**	**2**	**4**	**3**	

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) NCERT BASED QUESTIONS

1. The number and types of organisms present on earth make :-
(1) Taxonomy (2) Plant diversity
(3) Animal diversity (4) Biodiversity
DL0527

2. The process by which anything is grouped into convinient categories based on some easily observable characters is called as:-
(1) Biodiversity (2) Classifications
(3) Identification (4) Nomenclature
DL0528

3. The process in which biologists follow universally accepted principles to provide name of any organism is called as :-
(1) Identification (2) Classification
(3) Nomenclature (4) Systematics
DL0529

4. What are the essential basis of modern taxonomic studies ?
(1) External and internal structure
(2) Structure of cell
(3) Developmental process and ecological information
(4) All of these
DL0530

5. Characterisation of families is done on the basis of:-
(1) Vegetative feautres
(2) Reproductive features
(3) Both (1) and (2)
(4) None of them
DL0531

6. In the names *Mangifera indica*, *Solanum tuberosum* and *Panthera leo*, the words *indica*, *tuberosum* and *leo* represent :-
(1) Generic name
(2) Generic epithet
(3) Name of species
(4) Specific epithet
DL0532

7. Why the determination of relationship becomes more complex in higher taxonomic categories ?
(1) Number of common characters goes on decreasing in lower taxa
(2) Number of common characters goes on decreasing in higher taxa
(3) Because classification itself is very difficult process
(4) Number of common characters goes on increasing in higher taxa
DL0533

8. Which of the following is **not** a correct statement?
(1) Order is the assemblage of families which exhibit a few similar characters in comparisation to families
(2) Convolvulaceae and Solanaceae families are included in order polymoniales mainly on the basis of floral characters
(3) In hierarchy both broad categories and sub categories are used
(4) Class is a sub category which includes related order
DL0534

9. Which of the following is **not** used as taxonomic aid?
(1) Zoological park (2) Soil
(3) Herbarium (4) Museum
DL0535

10. In which group of taxonomic aids only the means of taxonomic literature are included:-
(1) Botanical gardens, Museum, Keys
(2) Botanical Gardens, Herbarium, Keys
(3) Flora, Manual, Monograph
(4) Botanical Garden, Museum, Monographs
DL0536

11. Taxonomists use to prepare and disseminate taxonomic informations by :-
(1) Manuals and monographs
(2) Museum and herbarium
(3) Zoological park and herbarium
(4) Keys and herbarium

DL0537

12. Largest Botanical garden, Indian Botanical Garden and National Botanical Research Institute are situated respectively at :-
(1) Kew, Lucknow, Howrah
(2) Kew, Howrah, Lucknow
(3) Lucknow, Howrah, Kew
(4) Howrah, Lucknow, Kew

DL0538

13. Which of the following taxonomic aid is useful only in case of animals ?
(1) Botanical gardens (2) Museum
(3) Keys (4) Zoological parks

DL0539

14. All the categories used in classification of organism constitute :-
(1) Taxonomy
(2) Systematics
(3) Taxonomic hierarchy
(4) Taxonomic affinity

DL0540

15. Archaebacteria differ from other bacteria in having a:-
(1) Different cell wall and cell membrane structure
(2) Different cellular organization
(3) Parasitic nature
(4) Both (2) and (3)

BC1068

16. Nitrogen fixing cyanobacteria are :-
(1) *Rhizobium, Nostoc*
(2) *Rhizobium, Anabaena*
(3) *Nostoc, Anabaena*
(4) *Anabaena, Azolla*

BC1069

17. The vast majority of bacteria are :-
(1) Symbiotic (2) Autotrophic
(3) Heterotrophic (4) Nitrogen fixing

BC1070

18. Which character indicates that Cyanobacteria are similar to higher green plants ?
(1) Type of cell wall
(2) Nitrogen fixation ability
(3) Presence of chlorophyll 'a'
(4) Presence of gelatinous sheath

BC1071

19. Typhoid and tetanus are caused by :-
(1) Bacteria (2) Virus
(3) Viroids (4) Fungi

BC1072

20. Which one of the following prokaryotes lack cell wall?
(1) Virus (2) Cyanobacteria
(3) Mycoplasma (4) Protozoa

BC1073

21. According to five kingdom classification protista includes :-
(1) Chrysophytes, Dinoflagellates, Protozoans
(2) Diatoms, Euglenoids, Virus
(3) Dinoflagellates, Protozoans, Red algae
(4) Chrysophytes, Bryophytes, Protozoans, Slime mould

BC1074

22. Which organisms have silica in their cell wall ?
(1) Dinoflagellates (2) Slime mould
(3) Diatoms (4) Euglenoids

BC1075

23. Which organism is responsible for red surface of sea?
(1) *Euglena* (2) *Gonyaulax*
(3) *Amoeba* (4) Paramecium

BC1076

24. Which one is unicellular, photosynthetic eukaryote lacks cell wall ?
(1) Mycoplasma (2) *Amoeba*
(3) *Euglena* (4) Slime mould
BC1077

25. Orange rots (Rotten fruit) disease is caused by :-
(1) Bacterium (2) Fungi
(3) *Citrus* (4) Mycoplasma
BC1078

26. Select incorrect statement about fungi ?
(1) The cell walls are composed of chitin and polysaccharides
(2) These are heterotrophic organisms
(3) They are autotrophic organsism
(4) They are absorptive in nature
BC1079

27. In fungi, vegetative reproduction takes place by :-
(1) Fragmentation (2) Conidia
(3) Zygospore (4) Oospore
BC1080

28. In ascomycetes and basidomycetes, the dikaryotic cell is :-
(1) Haploid (2) Diploid
(3) Triploid (4) Polyploid
BC1081

29. Which of the following is not a member of class phycomycetes ?
(1) *Albugo* (2) *Mucor*
(3) *Rhizopus* (4) *Neurospora*
BC1082

30. The mycelium is aseptate and coenocytic in:-
(1) Phycomycetes
(2) Basidiomycetes
(3) Deuteromycetes
(4) Ascomycetes
BC1083

31. Septate and branched mycelium is found in:-
(1) Basidiomycetes (2) Deuteromycetes
(3) Ascomycetes (4) All the above
BC1084

32. Select correct matched pair / pairs :-
(1) *Claviceps* – Ascomycetes
(2) Morels – Ascomycetes
(3) *Agaricus* – Basidiomycetes
(4) All the above
BC1085

33. Asexual reproduction takes place by conidia formation in :-
(1) *Aspergillus* (2) *Penicillium*
(3) *Colletotrichum* (4) All the above
BC1086

34. Which of the following are examples of unicellular algae ?
(1) *Chlamydomonas* (2) *Riccia*
(3) *Chlorella* (4) Both (1) & (3)
BC1087

35. Which of the following are not considered in five kingdom system of classification ?
(1) Lichen (2) Virus
(3) Viroid (4) All the above
BC1088

36. The name virus that means venom or poisonous fluid was given by :-
(1) Pasteur (2) Ivanowsky
(3) Stanley (4) Both (2) & (3)
BC1089

37. Viroid was discovered by :-
(1) Haeckel (2) Pasteur
(3) T.O. Diener (4) Theophrastus
BC1090

38. Bacteriophages are generally :-
(1) ss DNA virus (2) ds DNA virus
(3) ss RNA virus (4) ds RNA virus
BC1091

39. Select true statement :-
(1) Viruses are obligate parasites
(2) In Lichens, algal component is called phycobiont
(3) In Lichens, Fungal component is called mycobiont
(4) All the above
BC1092

40. Algae reproduce by :-
(1) Asexual (2) Sexual
(3) Vegetative (4) All the above
PD0566

41. Stored food in Phaeophyceae is :-
(1) Laminarin or manitol
(2) Starch
(3) Cellulose
(4) Algin
PD0567

42. Asexual reproduction in maximum brown algae is by :-
(1) Biflagellated zoospore
(2) Single flagellated zoospore
(3) Aplanospore
(4) None of these
PD0568

43. Pigments in Phaeophycae :-
(1) Chlorophyll a (2) Chlorophyll c
(3) Fucoxanthin (4) All the above
PD0569

44. Generally red algae do not form :-
(1) Zoospore
(2) Non - motile spore
(3) Non- motile gamete
(4) None of these
PD0570

45. The main plant body of bryophyte is :-
(1) Haploid (2) Diploid
(3) Haplo-diploid (4) Diplo-haploid
PD0571

46. The plant body of liverworts is :-
(1) Sporophyte (2) Thalloid
(3) With roots (4) Xerophytic
PD0572

47. Vegetative reproduction in mosses is by :-
(1) Fragementation (2) Budding
(3) Both (1) & (2) (4) By spore
PD0573

48. *Marchantia* is an example of :-
(1) Mosses (2) Liver worts
(3) Sphenopsida (4) Lycopsida
PD0574

49. In Mosses creeping, green, branched and frequently filamentous stage is called :-
(1) Protonema (2) Rhizome
(3) Rhizophore (4) All of these
PD0575

50. The leaves of Pteridophyta are :-
(1) Microphylls (2) Macrophylls
(3) Both (1) & (2) (4) None of these
PD0576

51. In majority of the Pteridophytes all the spores are of similar kind such plants are called :-
(1) Homosporous (2) Heterosporous
(3) Prothallus (4) Protanema
PD0577

52. Which is the dominant phase of Pteridophytes ?
(1) Gametophyte
(2) Sporophyte
(3) Spores
(4) Gametes
PD0578

53. In Pteridophytes, sporophylls may form distinct compact structure, called :-
(1) Strobili or cones (2) Microphyll
(3) Macrophyll (4) Tropophyll
PD0579

54. Pteridophytes are classified in to :-
(1) Three classes (2) Two classes
(3) Four classes (4) Five classes
PD0580

55. Gymnospermic plants are :-
(1) Homosporous
(2) Heterosporous
(3) Both
(4) Without spores
PD0581

56. The nucellus is protected by envelopes and the composite structure is called :-
(1) Megaspore (2) Microspore
(3) Ovule (4) Cone
PD0582

57. In *Cycas* specialised roots are associated with N_2 fixing cyanobacteria, called :-
(1) Tap root (2) Coralloid root
(3) Adventitious root (4) All the above
PD0583

58. Gymnosperms include :-
(1) Medium sized trees
(2) Tall tree
(3) Shrubs
(4) All the above
PD0584

59. In Gymnosperm which is not found :-
(1) Antheridia
(2) Archegonia
(3) Both
(4) None of these
PD0585

60. The number of species that are known and described ranges between :
(1) 1-2 million
(2) 1.7 - 1.8 billion
(3) 1.7 - 1.8 million
(4) 7 million
DL1165

61. Branch of biology, which deals with study of evolutionary relationship between organism:-
(1) Plant anatomy (2) Systematics
(3) Ecology (4) Physiology
DL1166

62. In botanical gardens various plant species are grown for which purpose?
(1) Identification
(2) Nomenclature
(3) Classification
(4) Both 2 and 3
DL1167

63. Taxonomical aid which contain actual account of habitat and distribution of plants of a given area :
(1) Flora (2) Fauna
(3) Manual (4) Monograph
DL1168

64. The taxonomic aid, which is useful in providing information for identification of names of species found in an area, called :
(1) Flora
(2) Museum
(3) Manual
(4) Monograph
DL1169

65. Monographs are concerned with :
(1) Information of any species only
(2) Information of any genus only
(3) Information of any family only
(4) Information of any one taxon
DL1170

66. ICZN is used for
(1) Virus
(2) Bacteria
(3) Cultivated plants
(4) Animals
DL1171

67. Which group shows the most extensive metabolic diversity ?
(1) Plantae (2) Animalia
(3) Monera (4) Fungi
BC1172

68. Archaebacteria differ from other bacteria in:-
(1) Nucleoid
(2) Composition of cell wall
(3) Composition of cytoplasm
(4) Composition of genetic material
BC1173

69. Which group of organisms is responsible for the production of biogas from the dung of cows and buffaloes ?
(1) *Methanomonas* (2) Methanogens
(3) Cyanobacteria (4) *Mycoplasma*
BC1174

70. Choose the correct statement :-
(1) Most of the bacteria are autotrophs
(2) All bacteria are heterotrophs
(3) Some bacteria are heterotrophs
(4) Most of the bacteria are heterotrophs
BC1175

71. Which of the following character is common in both cyanobacteria and green plants ?
(1) Cell wall composition
(2) Presence of chlorophyll 'a'
(3) Presence of heterocyst
(4) Presence of 80s ribosome
BC1176

72. *Nostoc* can fix atmospheric nitrogen in specialised cell, called :-
(1) Chromotophore
(2) Zoospore
(3) Heterocyst
(4) Oospore
BC1177

73. Which process is not performed by bacterial activity?
(1) Production of antibiotics
(2) Fixing nitrogen in legumes
(3) Making curd from milk
(4) Production of pseudomycelium
BC1178

74. Choose the incorrect statement regarding *Mycoplasma* :-
(1) They lack cell wall
(2) They are smallest living cell
(3) They can survive without oxygen
(4) They have mesosome for respiration
BC1179

75. Which are chief producers of oceans ?
(1) Diatoms (2) Dinoflagellates
(3) Euglenoid (4) Green algae
BC1180

76. Which organism is responsible for making the sea appear red by rapid multiplication ?
(1) *Euglena* (2) *Paramoecium*
(3) *Gonyaulax* (4) *Trypanosoma*
BC1181

77. Euglenoids have a protein rich layer instead of a cell wall. This layer is called as :-
(1) Epidermis (2) Skin
(3) Pellicle (4) Middle layer
BC1182

78. Choose the incorrect statement from following:
(1) Dinoflagellates have stiff cellulosic plates on the outer surface
(2) Euglenoids have two flagella, one lies longitudinally and the other transversely
(3) Slime mould spores are dispersed by air currents
(4) In diatoms, the cell walls form two thin overlapping shells, which fit together as in a soap box.
BC1183

79. Which group of organisms is used to make bread and beer ?
(1) *Rhizopus* (2) *Yeast*
(3) *Albugo* (4) *Neurospora*
BC1184

80. Fungus prefers to grow in :-
(1) Warm and humid places
(2) Cold and humid places
(3) Warm and cold both
(4) Warm, cold and humid places
BC1185

81. In fungi when the hyphae are continuous and branched tubes and fibled with multinucleated cytoplasm, these are called:-
(1) Unicellular hyphae
(2) Coenocytic hyphae
(3) Multicellular hyphae
(4) Both 1 and 3
BC1186

82. In fungi sexual reproduction is by :-
(1) Fragmentation, Ascospores and Basidiospores
(2) Budding, Conidia, and Basidiospores
(3) Oospores, Ascospores and Basidiospores
(4) Fission, Zoospores, Oospores
BC1187

83. Mycelium of members of phycomycetes is:-
(1) Septate and coenocytic
(2) Aseptate and coenocytic
(3) Septate and multicellular
(4) Septate and unicellular
BC1188

84. Choose the incorrect statement about phycomycetes :-
(1) Members are found in aquatic habitats
(2) Spores are endogenously produced in sporangium
(3) Zygospore is formed by reduction division
(4) Its members reproduce sexually may be isogamous, anisogamous or oogamous.
BC1189

85. Which fungus is used extensively in biochemical and genetic work ?
(1) *Agaricus* (2) *Aspergillus*
(3) *Claviceps* (4) *Neurospora*
BC1190

86. Choose the incorrect statement about ascomycetes :-
(1) Mycelium is branched and septate
(2) Sexual spores are produced endogenously
(3) They have sac like structure in which karyogamy takes place
(4) Reduction division occurs in fruiting bodies and form conidia
BC1191

87. Which group of organism is related with basidiomycetes ?
(1) Mushroom, *Ustilago*, *Aspergillus*
(2) Puffballs, *Agaricus*, *Aspergillus*
(3) Mushroom, *Ustilago*, *Agaricus*
(4) *Ustilago*, *Aspergillus*, *Agaricus*
BC1192

88. Which set of diseases is caused by members of basidiomycetes ?
(1) Rust and smut
(2) Ergot and smut
(3) Ergot and rust
(4) Citrus canker and rust
BC1193

89. Fungi imperfacti are called,
(1) members of phycomycetes
(2) members of ascomycetes
(3) members of basidiomycetes
(4) members of deuteromycetes
BC1194

90. Which is not found in members of deuteromycetes ?
(1) Asexual reproduction
(2) Mode of nutrition
(3) Structure of mycelium
(4) Sexual reproduction
BC1195

91. Which of the following are noncellular organisms that are characterized by having an inert crystalline structure outside the living cell :-
(1) Bacteria (2) *Mycoplasma*
(3) Virus (4) Lichen
BC1196

92. Select false statement :-
(1) Lichens are symbiotic association between algae & fungi
(2) Viruses are smaller than bacteria
(3) Virus name are obligate parasites
(4) Viruses are facultative parasite
BC1197

93. Select incorrect statement about viroid :-
(1) Free infectious RNA
(2) It was discovered by T.O. Diener
(3) It causes potato spindle tuber disease
(4) It contains high molecular weight RNA
BC1198

94. Which is incorrect statement ?
(1) The *Mycoplasma* are organisms that completely lack a cell wall
(2) *Mycoplasma* can survive without oxygen
(3) *Mycoplasma* are the smallest living cells.
(4) *Mycoplasma* can cause disease only in plants
BC1199

95. Generally plant viruses are :-
(1) Double stranded DNA viruses
(2) Single stranded RNA viruses
(3) Single stranded DNA viruses
(4) Double stranded RNA viruses
BC1200

96. Which group does not produce embryo ?
(1) Algae (2) Moss
(3) Liverworts (4) Club moss
PD1201

97. In which group the male and female sex organs are called antheridia and archegonia, respectively ?
(1) Blue green algae (2) Eubacteria
(3) Protista (4) Bryophyta
PD1202

98. The group of plants, in which body is differentiated into root, stem and leaf :-
(1) Chlorophyceae (2) Phaeophyceae
(3) Lycopsida (4) Hepaticopsida
PD1203

99. Which is not an example of moss plants ?
(1) *Funaria* (2) *Polytrichum*
(3) *Sphagnum* (4) *Colletotrichum*
PD1204

100. Strobilli or cones are not formed in :-
(1) Lycopods (2) Sphenopsids
(3) Conifers (4) Ferns
PD1205

101. In which group of plants both male and female gametophytes do not have an independent free living existence ?
(1) Bryophytes (2) Pteridophytes
(3) Gymnosperms (4) Both 1 and 2
PD1206

102. The gametophyte of pteridophytes require to grow :-
(1) Warm, damp, and shady place
(2) Cool, damp, and shady place
(3) Warm, dry, and shady place
(4) Cool, dry, and place of well sunshine
PD1207

103. Zygotic meiosis occurs in :-
(1) *Pinus* (2) *Funaria*
(3) *Pteridium* (4) *Chara*
PD1208

104. The megaspore mother cell in gymnosperms is differentiated from :-
(1) Integument (2) Embryosac
(3) Nucellus (4) Endosperm
PD1209

105. A group of algae, having following characters:-

(a) Chlorophyll a and b are present

(b) Chloroplast has one or many pyrenoids

(c) Cell wall made of cellulose and pectose

(d) Reserve food material is starch

Which one of the following is also a very important character including above characters to call it as a member of chlorophyceae ?

(1) Plant body colonial only

(2) Plant body is made of haploid cells called as gametophyte

(3) Its flagellar character may be 2–8 in number, equal and apical

(4) It may occur in fresh water, brackish water or salt water

PD1210

106. Integumented megasporangia are formed in:-

(1) Phanerogames

(2) Cryptogames only

(3) Gymnosperms only

(4) Pteridophytes only

PD1211

107. Needle like leaves to reduce the surface area, thick cuticle, and sunken stomata to reduce water loss etc. are the xerophytic characters present in :-

(1) Pteridophytes (2) Gymnosperms

(3) Angiosperms (4) Sphenopsida

PD1212

108. Consider the following characters :-

(A) Formation of only one functional megaspore in a megasporangium

(B) Formation of hard covering around megasporangium

(C) Development of embryo from zygote within the female gametophyte

(D) Retention of megaspore inside the megasporangium

These were very essential events occurred during the course of evolution for the phenomenon of:-

(1) Heterospory

(2) Seed habit

(3) Fruit formation

(4) Covered seed formation

PD1213

109. In gymnosperms, the megaspore forms :-

(1) Endosperm (2) Female gamete

(3) Male gamete (4) Male cone

PD1214

110. Find the odd one with respect to ploidy?

(1) Spore (2) Sporophyte

(3) Archegonium (4) Antheridium

PD1215

111. Which of the following is odd one from the following about liverworts ?

(1) Foot, Seta, Capsule

(2) Spore, Archegonium, Antheridium

(3) Multicellular rhizoids, Protonema

(4) Rhizoids, Gemmae

PD1216

112. Which is not true about fern plants ?

(1) They produce sori on sporophylls

(2) They produce male and female cone by spiral arrangement of sporophylls

(3) Some fern plants are heterosporous also

(4) Some ferns are aquatic also

PD1217

113. Which group of plants is of less economic importance but have great ecological importance?

(1) Gymnosperms (2) Angiospems

(3) Bryophyta (4) Pteridophyta

PD1218

114. Normally in gymnosperms how many archegonia are produced in an ovule ?
(1) One (2) Two
(3) Two or more (4) Always one
PD1219

115. Fusion between a large, nonmotile (static) female gamete and a smaller, motile male gamete is termed as :-
(1) Isogamy (2) Oogamy
(3) Anisogamy (4) Autogamy
BC1220

116. Vascular plants producing integumented megasporangia but not ovary are :-
(1) Pteridophytes
(2) Gymnosperms
(3) Angiosperms
(4) Bryophytes
PD1221

EXERCISE-III(B) ANALYTICAL QUESTIONS

117. Water is essential in bryophyta :-
(1) For fertilization and homosporous nature
(2) Water should be filled in archegonium for fertilization
(3) Water is necessary for movement of sperm
(4) For dissemination spores
PD0586

118. Which statement is wrong for *Cycas* ?
(1) Xylem have vessels
(2) Male cones are well developed
(3) It has coralloid roots
(4) Circinate ptyaxis/Circinate vernation
PD0587

119. Walking fern name of *Adiantum* is due to :-
(1) Dispersal by animals
(2) Reproduction by spores
(3) Vegetative reproduction
(4) Power of locomotion
BC1094

120. Modern farmer's can increase the yield of Paddy upto 50% by the use of :-
(1) Cyanobacteria
(2) *Rhizobium*
(3) Cyanobacteria in *Azolla pinnata*
(4) Farm yard manure
BC1095

121. Practical purpose of taxonomy or classification :-
(1) Facilitate the identification of unknown species.
(2) Explain the origin of organisms.
(3) To know the evolutionary history
(4) Identification of medicinal plants
DL0591

122. Plant pathogenic bacteria are mostly :-
(1) Gram + Non spore forming
(2) Gram - Negative non spore forming
(3) Gram + spore forming
(4) Gram (-) spore forming
BC1096

123. Which of the following statement is true for bryophyta ?
(1) Along with water absorption roots also provide anchoragement to plants
(2) Sporophyte is dominant
(3) Gametophyte is dominant and sporophyte is mostly parasitic
(4) Gametophyte is parasitic
PD0593

124. Nitrogen fixing bacteria convert :-
(1) $N_2 \rightarrow NH_3$ (2) $NH_4^+ \rightarrow$ Nitrates
(3) $NO_2 \rightarrow NO_3$ (4) $NO_3 \rightarrow N_2$
BC1097

125. Which arrangement is in correct ascending order ?
(1) Species < genus < order < family
(2) Genus < species < family < order
(3) Order < family < Genus < species
(4) Species < genus < family < order
DL0595

126. Main reason of water bloom in rivers, lakes, sea etc. is:-
(1) Brown algae and green algae
(2) Cyanobacteria and dinoflagellates
(3) *Eichornia*
(4) Fishes

BC1098

127. Genetic material of prokaryotic cell:-
(1) Non histonic double stranded DNA
(2) Histonic double stranded DNA
(3) Histone & DNA both are absent
(4) Histone without DNA

BC1099

128. Enzymes are not found in-
(1) Fungi (2) Algae
(3) Virus (4) Cyanobacteria

BC1101

129. *Cycas* have two cotyledons but not included in angiosperms because of :-
(1) Naked ovules
(2) Seems like monocot
(3) Circinate ptyxis
(4) Compound leaves

PD0600

130. Plant Decomposers belong to :-
(1) Monera and fungi
(2) Fungi and plants
(3) Protista and Animalia
(4) Animalia and Monera

BC1102

131. Which of the following more similar in characters as compared to genus ?
(1) Species
(2) Division
(3) Class
(4) Family

DL0603

132. Adhesive pad (Haustoria) of fungi penetrate the host with the help of :-
(1) Mechanical pressure and enzymes
(2) Hooke and suckers
(3) Softening by enzymes
(4) Only by mechanical pressure

BC1104

133. Which fungal disease spreads by seed and flowers ?
(1) Loose smut of Wheat
(2) Corn stunt
(3) Covered smut of Barley
(4) Soft rot of Potato

BC1105

134. Which bacteria is utilized in Gober gas plant ?
(1) Methanogens
(2) Nitrifying bacteria
(3) Ammonifying bacteria
(4) Denitrifying bacteria

BC1106

135. In bacteria, plasmid is :-
(1) Extra chromosomal material
(2) Main DNA
(3) Non functional DNA
(4) Repetative gene

BC1107

136. Sequence of which of the following is used to know the phylogeny :-
(1) m-RNA (2) r – RNA
(3) t - RNA (4) DNA

BC1109

137. In five kingdom system, the main basis of classification :-
(1) Structure of nucleus
(2) Nutrition
(3) Structure of cell wall
(4) Asexual reproduction

BC1110

138. Organisms which obtain energy by the oxidation of reduced inorganic compounds are called
(1) Photo autotrophs
(2) Chemo autotrophs
(3) Saprozoic
(4) Coproheterotrophs

BC1111

139. Which one of the following bacteria has found extensive use in genetic engineering work in plants:-
(1) *Clostridium septicum*
(2) *Xanthomonas citri*
(3) *Bacillus coagulens*
(4) *Agrobacterium tumefaciens*

BC1112

140. In which kingdom would you classify the archaea and nitrogen-fixing organisms, if the five-kingdom system of classification is used :-
(1) Plantae (2) Fungi
(3) Protista (4) Monera

BC1113

141. Which one pair of examples will correctly represent the grouping Spermatophyta according to one of the schemes of classifying plants :-
(1) *Acacia*, Sugarcane (2) *Pinus, Cycas*
(3) *Rhizopus, Triticum* (4) *Ginkgo, Pisum*

BC1114

142. Plants reproducing by spores such as mosses and ferns are grouped under the general term:-
(1) Cryptogams (2) Bryophytes
(3) Sporophytes (4) Thallophytes

BC1115

143. Chlorenchyma is known to develop in the :-
(1) Cytoplasm of *Chlorella*
(2) Mycelium of a green mould such as *Aspergillus*
(3) Spore capsule of a moss
(4) Pollen tube of *Pinus*

PD0617

144. Phenetic classification is based on :-
(1) The ancestral lineage of existing organisms
(2) Observable characteristics of existing organisms
(3) Dendograms based on DNA characteristics
(4) Sexual characteristics

DL0618

145. Which one of the following pairs of plants are not seed producers ?
(1) *Fern* and *Funaria*
(2) *Funaria* and *Ficus*
(3) *Ficus* and *Chlamydomonas*
(4) *Punica* and *Pinus*

PD0619

146. Species are considered as :-
(1) Real basic units of classification
(2) The lowest units of classification
(3) Artificial concept of human mind
(4) Biggest units of classification devised by taxonomists

DL0620

147. In oogamy, fertilization involves :-
(1) A large motile female gamete and a small non–motile male gamete
(2) A small non–motile female gamete and a large motile male gamete
(3) A large non–molile female gamete and a small motile male gamete
(4) A large non–motile female gamete and a large non–motile male gamete

PD0621

148. Flagella of prokaryotic and eukaryotic cells differ in :-
(1) Microtubular organization and function
(2) Type of movement and placement in cell
(3) Location in cell and mode of functioning
(4) Microtubular organization and type of movement

BC1116

149. If by radiation all nitrogenase enzyme are inactivated, then there will be no :-
(1) Conversion from ammonium to nitrate in soil
(2) Fixation of nitrogen in legumes
(3) Fixation of atmospheric nitrogen
(4) Conversion from nitrate to nitrite in legumes

BC1117

150. Which one of the following pairs is not correctly matched ?
(1) *Rhizobium* – Biofertilizer
(2) *Streptomyces* – Antibiotic
(3) *Serratia* – Drug addiction
(4) *Spirulina* – Single cell protein

BC1118

151. A free living nitrogen–fixing cyanobacterium which can also form symbiotic association with the water fern *Azolla* is :-
(1) *Anabaena*
(2) *Tolypothrix*
(3) *Chlorella*
(4) *Nostoc*

BC1119

152. Top-shaped multiciliate male gemetes, and the mature seed which bears only one embryo with two cotyledons, are characteristic features of :
(1) Cycads
(2) Gamopetalous angiosperms
(3) Conifers
(4) Polypetalous angiosperms

PD0628

153. Carbohydrates, the most abundant biomolecules on earth, are produced by :
(1) some bacteria, algae and green plant cells
(2) all bacteria, fungi and algae
(3) fungi, algae and green plant cells
(4) viruses, fungi and bacteria

PD0629

154. Match items in Column-I with those in Column-II:

Column-I	**Column-II**
(A) Peritrichous flagellation	(J) *Ginkgo*
(B) Living fossil	(K) *Macrocystis*
(C) Rhizophore	(L) *Escherichia coli*
(D) Smallest flowering plant	(M) *Selaginella*
(E) Largest perennial alga	(N) *Wolffia*

Select the correct answer from the following :
(1) A–L ; B–J ; C–M; D–N ; E–K
(2) A–J ; B–K ; C–N; D–L ; E–K
(3) A–N ; B–L ; C–K; D–N ; E–J
(4) A–K ; B–J ; C–L; D–M ; E–N

PD0630

155. Barophilic prokaryotes :
(1) occur in water containing high concentrations of barium hydroxide.
(2) readily grow and divide in sea water enriched in any soluble salt of barium
(3) grow and multiply in very deep marine sediments
(4) grow slowly in highly alkaline frozen lakes at high altitudes

BC1121

156. Study the following statements carefully and give the answer :-

A. Biological names are generally in Latin and printed in italics.

B. The first word in biological names represents the genus.

C. Both the words in a biological name are separately underlined when printed.

D. The first word of biological name starts with capital letter when given in memory of a person otherwise with small letter.

(1) A, D – correct B, C – correct

(2) A, C – correct B, D – incorrect

(3) A, B – correct C, D – incorrect

(4) A, B – incorrect C, D – correct

DL0634

157. How many are the **incorrect** statements from the followings ?

(A) In museum insects are preserved in insect boxes after collecting and killing.

(B) Monkey, gorilla and gibbon are placed in class mammalia.

(C) In an order similar characters are more as compared to different genera included in a family.

(D) Three pairs of jointed legs are present in all chordates.

(1) Two (2) Three (3) One (4) Four

DL0635

158. Which of the following is / are not correctly match?

	Common Name	Genus	Family
(i)	Man	*Homo*	Hominidae
(ii)	Housefly	*Musa*	Muscidae
(iii)	Mango	*Mangifera*	Anacardiaceae
(iv)	Wheat	*Triticum*	Poaceae

(1) i & ii (2) only i (3) only ii (4) iii & iv

DL0636

159. How many of the followings are taxa ?

Dogs, Cats, Mammals, Wheat, Rice, Plants, Wood, Mango, Leaves, Jointed legs.

(1) Eight (2) Six

(3) Seven (4) One

DL0637

160.

(A)

(B)

Identify A and B and select the right option giving their some of the features correctly ?

	I	II	III
(1)	(A) is Herbarium	Plant specimens are stored alive	Help in identification of plant
(2)	(B) is Herbarium	Animal specimens are stored alive	Help in studying anatomy
(3)	(B) is zoological park	Living animals are kept there	Help in studying animal behaviour
(4)	(A) is zoological park	Living plant parts are kept	Help to study plant physiology

DL0638

161. How many are the **incorrect** statements from the followings ?

(A) Lower the taxa, more are the characteristics that the members within the taxon share

(B) Higher the taxonomic category, greater is the difficulty of determining the relationships to other taxa at the same level

(C) In lower taxa the problems of classification becomes more complex

(D) As we go higher from species to kingdom, the number of common characters increases

(1) One (2) Two

(3) Three (4) Four

DL0639

162. Some taxonomical aids are given in the following options; which option is correct to be used as quick referral system ?

(1) Herbarium and books

(2) Botanical garden and Zoological park

(3) Zoological park and Herbarium

(4) Biological museum and Zoological park

DL0640

163. Nomenclature is very must in taxonomy which of the following is **not correct** about scientific nomenclature ?

(1) They ensure that each organism has only one name

(2) They also ensure that such a name has not been used for any other known organism

(3) Scientific nomenclature is a standardised naming system

(4) Different countries of the world use different kinds of scientific nomenclature system

DL0641

164. The relation of solanaceae and convolvulaceae with polymoniales is similar to the relation occuring in:-

(1) Felidae and canidae with carnivora

(2) Primata and carnivora with mammalia

(3) Amphibia and reptilia with chordata

(4) *Solanum* and *Petunia* with solanaceae

DL0642

165. Classification system are changing every now and then because an attempt has been made to evolve such a system ultimately which is able to explain evolutionary relations in organisms. What was the correct sequence of these types of classification systems with respect to their evolution :-

(1) Practical → Artificial → Natural → Phylogenetic → Numerical

(2) Artificial → Practical → Numerical → Phylogenetic

(3) Practical → Artifical→ Natural → Numerical → phylogenetic

(4) Numerical → Artifical → Natural → Practical → phylogenetic

DL0643

166. In potato, brinjal, lion, leopard, and tiger, how many species and genera are there respectively ?

(1) 4 & 2 (2) 5 & 3 (3) 5 & 4 (4) 5 & 2

DL0644

167. The correct sequence of evolution is :-

(1) Bryophyta → Pteridophyta → Gymnosperms → Dicots → Monocots

(2) Pteridophyta → Gymnosperms → Dicots → Monocots → Bryophyta

(3) Bryophyta → Gymnosperms → Dicots → Monocots → Angiosperms

(4) Bryophyta → Pteridophyta → Gymnosperms → Monocots → Dicots

PD0645

168. Suffix is not used for :-
(1) Genus (2) Species
(3) Kingdom (4) All of them
DL0646

169. Which of the following is non-cellular organism?
(1) Bacteria (2) Fungi
(3) Algae (4) Virus
BC1124

170. Find the **incorrect** match :-

	Column-I	Column-II
(1)	*Ustilago*	belongs to class basidiomycetes
(2)	*Agaricus*	belongs to class basidiomycetes
(3)	*Trichoderma*	sexual cycle is found
(4)	*Alternaria*	sexual cycle is not found

BC1125

171. Find the **incorrect** statement about fungi :-
(1) They show a great diversity in morphology and habitats
(2) Fungi are cosmopolitan and occur in air, water, soil and as parasites also
(3) They prefer to grow in cold and dry places
(4) With the exception of yeasts, fungi are filamentous
BC1126

172. Find the **correct** statements about fungi :-
(A) Most of the fungi are saprophytes
(B) Fungi can also survive as symbionts
(C) Sexual reproduction in fungi involves three steps
(D) Reduction division in fungi occurs in fruiting bodies which forms haploid spores
(1) A, B are correct
(2) C, D are correct
(3) A, B & C are correct
(4) A, B, C & D are correct
BC1127

173. Choose the **incorrect** statement regarding decomposer :-
(1) They may be prokaryotes or eukaryotes.
(2) They may be unicellular or multicellular
(3) They convert inorganic into organic compounds
(4) They play a great role in ecology
BC1128

174. With respect to fungal sexual cycle, what is the correct sequence ?
(1) Karyogamy, plasmogamy & meiosis
(2) Meiosis, plasmogamy & karyogamy
(3) Plasmogamy, karyogamy & meiosis
(4) Meiosis, karyogamy & plasmogamy
BC1129

175. For Bryophytes, select the **incorrect** statement in the followings :-
(1) The plant body of liverworts is thalloid & erect.
(2) Mosses have upright, slender axis bearing spirally arranged leaves.
(3) Spores germinate to form gametophyte
(4) The zygote produces a sporophyte
PD0654

176. Which of the following is not a character related to Red Algae ?
(1) Sexual reproduction is oogamous.
(2) They occur in both well lighted areas and great depths of oceans.
(3) The food stored in them is cyanophycean starch, very similar to amylopectin and glycogen.
(4) They reproduce asexually by non motile spores.
PD0655

177. Find the **incorrect** from the following :-
(1) Sporophyte of moss is more elaborate than that in liver worts
(2) Gemmae are asexual buds formed in moss only.
(3) *Funaria, Polytrichum* & *Sphagnum* are moss plants
(4) After meiosis spores are produced within the capsule of bryophytes
PD0656

178. Oogamous type of sexual reproduction is found in :-
(1) *Chlamydomonas* & *Spirogyra*
(2) *Chlamydomonas* & *Ulothrix*
(3) *Spirogyra* & *Ulothrix*
(4) *Volvox* & *Fucus*

PD0657

179. A plant shows sporophyte as a main generation. Its gametophyte shows rhizoids and is haploid. It needs water to complete its life cycle because the male gametes are motile. Identify the group to which it belongs to :-
(1) Pteridophytes (2) Gymnosperms
(3) Monocots (4) Bryophytes

PD0658

180. A protonema is ?
(1) A structure in pteridophytes formed before the thallus develops
(2) A sporophytic free living structure formed in pteridophytes
(3) A creeping, green, filamentous and gametophytic structure produced in bryophytes.
(4) A primitive structure formed after fertilization in pteridophytes

PD0659

181. Read the following statements & select the correct option :
(A) Gymnosperms do not show xerophytic characters.
(B) In *Cycas* coralloid roots are associated with mycorrhiza
(C) In conifers needle like leaves reduce the surface area.
(D) All gymnosperms are heterosporous
How many above statements are correct & incorrect?
(1) 2 - correct, 2 - incorrect
(2) 3 - correct, 1 - incorrect
(3) 1 - correct, 3 - incorrect
(4) 0 - correct, 4 - incorrect

PD0660

182. As we go from species to kingdom in a taxonomic hierarchy, the number of common characteristics
(1) Will decrease
(2) Will increase
(3) Remain same
(4) May increase or decrease

DL0756

183. Which of the following 'suffixes' used for units of classification in plants indicates a taxonomic category of 'family'.
(1) Ales (2) Onae
(3) Aceae (4) Ae

DL0757

184. The term 'systematics' refers to:
(1) Identification and classification of plants and animals
(2) Nomenclature and identification of plants and animals
(3) Diversity of kinds of organisms and their relationship
(4) Different kinds of organisms and their classification

DL0758

185 Genus represents
(1) An individual plant or animal
(2) A collection of plants or animals
(3) Group of closely related species of plants or animals
(4) None of these

DL0759

186. The taxonomic unit 'Phylum' in the classification of animals is equivalent to which hierarchial level in classfication of plants
(1) Class
(2) Order
(3) Division
(4) Family

DL0760

187. All living organisms are linked to one another because
(1) They have common genetic material of the same type
(2) They share common genetic material but to varying degrees
(3) All have common cellular organization
(4) All of above

LW0763

188. Which of the following is a defining characteristic of living organisms?
(1) Growth
(2) Ability to make sound
(3) Reproduction
(4) Response to external stimuli

LW0764

189. Match the following and choose the correct option:

A. Family	i. *Solanum tuberosum*
B. Kingdom	ii. Polymoniales
C. Order	iii. *Solanum*
D. Species	iv. Plantae
E. Genus	v. Solanaceae

Options
(1) i-D, ii-C, iii-E, iv-B, v-A
(2) i-E, ii-D, iii-B, iv-A, v-C
(3) i-D, ii-E, iii-B, iv-A, v-C
(4) i-E, ii-C, iii-B, iv-A, v-D

DL0765

190. All eukaryotic unicellular organisms belong to
(1) Monera (2) Protista
(3) Fungi (4) Bacteria

BC1131

191. The five kingdom classification was proposed by
(1) R.H. Whittaker (2) C.Linnaeus
(3) A. Roxberg (4) Virchow

BC1132

192. Organisms living in salty areas are called as
(1) Methanogens
(2) Halophiles
(3) Heliophytes
(4) Thermoacidophiles

BC1133

193. Naked cytoplasm, multinucleated and saprophytic are the characteristics of
(1) Monera (2) Protista
(3) Fungi (4) Slime molds

BC1134

194. An association between roots of higher plants and fungi is called
(1) Lichen (2) Fern
(3) Mycorrhiza (4) BGA

BC1135

195. A dikaryon is formed when
(1) Meiosis is arrested
(2) The two haploid nuclei do not fuse immediately
(3) Cytoplasm does not fuse
(4) None of the above

BC1136

196. *Contagium vivum fluidum* was proposed by
(1) D.J. Ivanowsky
(2) M.W. Beijerinek
(3) Stanley
(4) Robert Hook

BC1137

197. Mycobiont and Phycobiont are found in
(1) Mycorrhiza (2) Root
(3) Lichens (4) BGA

BC1138

198. Difference between Virus and Viroid is
(1) Absence of protein coat in viroid but present in virus
(2) Presence of low molecular weight RNA in virus but absent in viroid
(3) Both a and b
(4) None of the above

BC1139

199. With respect to fungal sexual cycle, choose the correct sequence of events
(1) Karyogamy, Plasmogamy and Meiosis
(2) Meiosis, Plasmogamy and Karyogamy
(3) Plasmogamy, Karyogamy and Meiosis
(4) Meiosis, Karyogamy and Plasmogamy

BC1140

200. Viruses are non-cellular organisms but replicate themselves once they infect the host cell. To which of the following kingdom do viruses belong to?
(1) Monera
(2) Protista
(3) Fungi
(4) None of the above

BC1141

201. Members of phycomycetes are found in
i. Aquatic habitats
ii. On decaying wood
iii. Moist and damp places
iv. As obligate parasites on plants
Choose from the following options
(1) None of the above
(2) i and iv
(3) ii and iii
(4) All of the above

BC1142

202. Cyanobacteria are classified under
(1) Protista (2) Plantae
(3) Monera (4) Algae

BC1143

203. Fusion of two gametes which are dissimilar in size is termed as
(1) Oogamy
(2) Isogamy
(3) Anisogamy
(4) Zoogamy

PD0779

204. Holdfast, stipe and frond constitutes the plant body in case of
(1) Rhodophyceae
(2) Chlorophyceae
(3) Phaeophyceae
(4) All of the above

PD0780

205. A plant shows thallus level of organization. It shows rhizoids and is haploid. It needs water to complete its life cycle because the male gametes are motile. Identify the group to which it belongs to
(1) Pteridophytes (2) Gymnosperms
(3) Monocots (4) Bryophytes

PD0781

206. A Prothallus is
(1) A structure in pteridophytes formed before the thallus develops
(2) A sporophytic free living structure formed in pteridophytes
(3) A gametophyte free living structure formed in pteridophytes
(4) A primitive structure formed after fertilization in pteridophytes

PD0782

207. Plants of this group are diploid and well adapted to extreme conditions. They grow bearing sporophylls in compact structures called cones. The group in reference is
(1) Monocots (2) Dicots
(3) Pteridophytes (4) Gymnosperms

PD0783

208. Protonema is
(1) Haploid and is found in mosses
(2) Diploid and is found in liverworts
(3) Diploid and is found in pteridophytes
(4) Haploid and is found in pteridophytes

PD0784

209. The giant Redwood tree (*Sequoia sempervirens*) is a/an
(1) Angiosperm
(2) Free fern
(3) Pteridophyte
(4) Gymnosperm

PD0785

EXERCISE-III

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**4**	**2**	**3**	**4**	**3**	**4**	**2**	**4**	**2**	**3**	**1**	**2**	**4**	**3**	**1**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**3**	**3**	**3**	**1**	**3**	**1**	**3**	**2**	**3**	**2**	**3**	**1**	**1**	**4**	**1**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**4**	**4**	**4**	**4**	**4**	**1**	**3**	**2**	**4**	**4**	**1**	**1**	**4**	**1**	**1**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**2**	**3**	**2**	**1**	**3**	**1**	**2**	**1**	**3**	**2**	**3**	**2**	**4**	**1**	**3**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**2**	**1**	**1**	**3**	**4**	**4**	**3**	**2**	**2**	**4**	**2**	**3**	**4**	**4**	**1**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**3**	**3**	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**4**	**4**	**3**	**1**	**4**	**4**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**3**	**4**	**4**	**4**	**2**	**1**	**4**	**3**	**4**	**4**	**3**	**2**	**4**	**3**	**3**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**1**	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**3**	**2**	**2**	**3**	**1**	**3**	**3**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**1**	**2**	**3**	**1**	**4**	**2**	**1**	**3**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Que.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Ans.	**2**	**2**	**2**	**4**	**4**	**4**	**1**	**3**	**2**	**1**	**1,2**	**3**	**4**	**2**	**3**
Que.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Ans.	**1**	**1**	**1**	**1**	**3**	**3**	**1**	**3**	**3**	**3**	**2**	**1**	**4**	**1**	**1**
Que.	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans.	**4**	**1**	**4**	**4**	**3**	**3**	**4**	**3**	**3**	**1**	**3**	**2**	**4**	**1**	**3**
Que.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
Ans.	**1**	**1**	**3**	**3**	**3**	**3**	**2**	**4**	**1**	**2**	**1**	**2**	**4**	**3**	**2**
Que.	196	197	198	199	200	201	202	203	204	205	206	207	208	209	
Ans.	**2**	**3**	**1**	**3**	**4**	**4**	**3**	**3**	**3**	**4**	**3**	**4**	**1**	**4**	

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

ZOOLOGY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Animal Kingdom

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

NON-CHORDATES

1. In which of the following nuclear dimorphism is seen?
(1) *Entamoeba*
(2) *Leishmania*
(3) *Trypanosoma*
(4) *Paramoecium*

AD0001

2. Slipper animalcule is -
(1) *Entamoeba*
(2) *Paramoecium*
(3) *Giardia*
(4) *Euglena*

AD0002

3. Vaginitis or Leucorrhoe disease in female is caused by -
(1) *Trichomonas* (2) *Trichonympha*
(3) *Trypanosoma* (4) *Giardia*

AD0003

4. Bath sponge is common name of -
(1) *Spongilla* (2) *Euspongia*
(3) *Euplectella* (4) *Leucosolenia*

AD0007

5. Which one of the following is Coelentrate -
(1) Sea urchin (2) Sea cucumber
(3) Sea fan (4) Sea horse

AD0009

6. Which animal do not possess larval stage in its life cycle?
(1) *Ascaris* (2) Frog
(3) *Taenia* (4) *Pheretima*

AD0010

7. Which of the following is an Annelid?
(1) sea horse (2) sea mouse
(3) sea hare (4) sea pen

AD0011

8. *Taenia solium* has -
(1) Mouth and anus both
(2) Only mouth present but no anus
(3) Only anus present but no mouth
(4) Complete digestive tract is absent

AD0012

9. Which of the following characteristic is shared by all arthropods?
(1) Complete metamorphosis
(2) Wings
(3) Jointed appendages
(4) Tracheal system

AD0013

10. Members of phylum Arthropoda lack one of the following feature :-
(1) External skeleton made of chitin
(2) Compound eyes
(3) Excretion by malphigian tubules
(4) Usually a close type of blood vascular system

AD0014

11. Cockroach, house fly and mosquitoes are insect because they have :-
(1) Chitinous exoskeleton and body divided into head and cephalothorax
(2) Six legs, compound eyes and body divided into head, thorax and abdomen
(3) Segmented body with jointed feet and chitinous exoskeleton
(4) Three pairs of legs, one pair of antennae and flame cells

AD0015

12. Which of the following animal is considered as "Living fossil"?
(1) *Limulus*
(2) Spider
(3) *Eupagurus*
(4) Scorpion

AD0016

13. Select the economically important insect :-
(1) *Locusta* (2) *Culex*
(3) *Aedes* (4) *Apis*

AD0017

14. Which animal has visceral hump ?
(1) *Culex* (2) *Apis*
(3) *Nereis* (4) *Pila*

AD0018

15. Which mollusca is called tusk shell?
(1) *Neopilina* (2) *Pila*
(3) *Dentalium* (4) *Doris*

AD0019

16. Secretion of shell in molluscs take place by:-
(1) Foot (2) Ink gland
(3) Radula (4) Mantle

AD0020

17. Which of the following characteristic is not of phylum mollusca?
(1) Soft body covered usually by a shell
(2) Segmented body
(3) Triploblastic
(4) Presence of coelom

AD0021

18. The most characteristic feature of molluscs is the presence of :-
(1) Hard - body (2) Shell
(3) Mantle (4) Foot

AD0022

19. Open type of blood vascular system and presence of haemocyanin pigment are the characters of :-
(1) Mollusca (2) Annelida
(3) Echinodermata (4) Hemichordata

AD0023

20. Member of Echinodermata has a specific system, which is not found in other phylum, it is :-
(1) Canal system
(2) Water vascular system
(3) Respiratory system
(4) Jointed appendages

AD0024

21. Segmentation of body is not represented in:-
(1) Cray - fish (2) *Sepia*
(3) Grass hopper (4) Silver fish

AD0025

22. Aristotle lantern is found in :-
(1) Sea - urchin (2) *Sepia*
(3) Star fish (4) *Obelia*

AD0026

23. Which of the following is not related with Echinodermata ?
(1) Madreporite (2) Parapodia
(3) Marine habitat (4) Autotomy

AD0027

24. Locomotory organs of echinoderms are :-
(1) Tube feet (2) Setae
(3) Parapodia (4) Pseudopodia

AD0028

25. Absence of excretory organs, great power of regeneration and exclusively marine animals belongs to the phylum :-
(1) Mollusca (2) Arthropoda
(3) Echinodermata (4) Annelida

AD0029

26. Stomochord (Buccal diverticulum) is present in:-

(1) *Amphioxus* (2) *Herdmania*

(3) *Balanoglossus* (4) *Asterias*

AD0030

27. Which of the following character does not belong to Arthropoda?

(1) Closed circulatory system

(2) Movable jaws

(3) Segmented body

(4) Jointed legs

AD0031

28. Chiton is included in phylum

(1) Annelida

(2) Arthropoda

(3) Mollusca

(4) Echinodermata

AD0032

29. Coxal glands are the excretory organ of :-

(1) Cray fish (2) Devil fish

(3) Jelly - fish (4) Scorpion

AD0033

30. Most of the adult insects have six legs and:-

(1) Two antennae and four wings

(2) Four antennae and four wings

(3) Two antennae and two or four wings

(4) Four wings and four eyes

AD0034

31. The first flying animals on earth were :-

(1) Insects (2) Birds

(3) Reptiles (4) Mammals

AD0035

32. Chemoreceptor in *Pila* is ?

(1) Ctenidium (2) Radula

(3) Osphradium (4) Statocyst

AD0036

33. Given below are four matchings of an animal and its kind of respiratory organ :

A. Silver fish – Trachea

B. Scorpion – Book lung

C. Sea squirt – Pharyngeal gills

D. Dolphin – Skin

The correct matchings are :-

(1) A and D (2) A, B and C

(3) B and D (4) C and D

AD0038

34. In contrast to Annelids the Platyhelminths show –

(1) Absence of body cavity

(2) Presence of pseudocoel

(3) Radial symmetry

(4) Bilateral symmetry

AD0039

35. Which one of the following is not correctly matched?

(1) *Culex* – Filariasis

(2) *Aedes* – Yellow fever

(3) *Anopheles* – Leishmaniasis

(4) *Glossina* – Sleeping sickness

AD0040

36. The canal system is characteristic feature of-

(1) Sponges

(2) Helminthes

(3) Echinoderms

(4) Coelenterates

AD0041

37. Contractile vacuole of *Amoeba* is analogous to :-

(1) Typhlosole of earthworm

(2) Sweat gland of human

(3) Uriniferous tubules of frog and man

(4) Gastrovascular cavity of *Hydra*

AD0042

38. Which of the following is pseudoceolomate?
(1) *Hydra* (2) *Periplaneta*
(3) *Ascaris* (4) *Pheretima*

AD0043

39. Which of the following group is Duterostome?
(1) Annelida, Arthropoda, Mollusca
(2) Echinodermata, Hemichordata, Chordata
(3) Annelida, Mollusca, Chordata
(4) Arthropoda, Mollusca, Echinodermata

AD0044

40. *Sycon* belongs to a group of animals, which are best described as :-
(1) Unicellular or acellular
(2) Multicellular without any tissue organization
(3) Multicellular with a gastrovascular system
(4) Multicellular having tissue organization, but no body cavity

AD0046

41. Which one of the following phyla is correctly matched with its general characteristics ?
(1) Porifera - Cellular level of organisation and external fertilisation
(2) Coelenterata - Diploblastic and mostly Asymmetric
(3) Aschelminthes - Pseudocoelomates and dioecious
(4) Hemichordata - Coelomates and closed circulatory system

AD0047

42. Which one is monogenetic parasite ?
(1) *Trypanosoma*
(2) *Plasmodium*
(3) *Entamoeba*
(4) Liver fluke

AD0048

43. Which one of the following is a matching pair of a body feature and the animal possessing it?
(1) Canal system - *Asterias*
(2) Metagenesis - *Obelia*
(3) Dorsal nerve cord - *Pheretima*
(4) Muscular pharynx - *Taenia*

AD0049

44. One of the following animals is not hermaphrodite-
(1) Earthworm (2) Leech
(3) Taenia (4) Ascaris

AD0050

45. In Annelids formation of larva is usually absent but when present the larva is called:
(1) Tadpole (2) Planula
(3) Trochophore (4) Ephyra

AD0051

46. Excretion in most Annelids take place by -
(1) Kidneys (2) Flame cells
(3) Nephridia (4) Ciliated funnel

AD0052

47. True coelom appeared first during the course of evolution in :-
(1) Echinodermata (2) Annelida
(3) Chordata (4) Protozoa

AD0054

48. Rhabditiform larva occurs in :
(1) *Neries* (2) *Ascaris*
(3) *Taenia* (4) *Fasciola*

AD0055

49. Sea-anemone belongs to phylum -
(1) Protozoa (2) Porifera
(3) Coelenterata (4) Echinodermata

AD0056

50. Syncytial epidermis is associated with :
(1) *Hydra* (2) Star fish
(3) Earthworm (4) *Ascaris*

AD0057

51. Cephalopod with closed circulatory system is :-
(1) *Pila* (2) *Chiton*
(3) *Unio* (4) *Octopus*
AD0059

52. A sponge harmful to oyster industry is
(1) *Spongilla*
(2) *Euspongia*
(3) *Hyalonema*
(4) *Cliona*
AD0060

53. Haemoglobin is dissolved in blood plasma of
(1) Frog
(2) Rabbit
(3) Cockroach
(4) Earthworm
AD0061

54. Skeleton is made up of.....in porifera.
(1) Spicules
(2) Spongin
(3) Both 1 and 2
(4) Chitin
AD0296

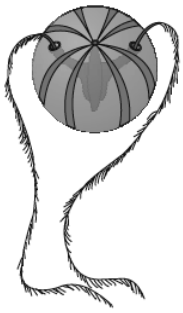
55. Find the odd
(1) Sea fan (2) sea horse
(3) sea cucumber (4) sea lily
AD0297

56. Which animal has only cylindrical form?
(1) Physalia
(2) Admsia
(3) Hydra
(4) (2) and (3)
AD0298

57. Which animal is umbrella-shaped and free swiming?
(1) Aurelia (2) Jelly-fish
(3) Hydra (4) (1) and (2)
AD0299

58. Corals have a skeleton composed of.....
(1) $CaCO_3$ (2) $CaPO_4$
(3) $CaCl_2$ (4) $CaSiO_2$
AD0300

59. Identify the animal shown in diagram



(1) Tape worm (2) Pleurobrachia
(3) Neris (4) Octopus
AD0301

CHORDATES

60. The distinguishing feature of all chordates is :-
(1) A ventrally placed nerve cord
(2) A water vascular system
(3) A chitinous exoskeleton
(4) An elastic rod (Notochord)
AD0062

61. Chordates possess :-
(1) Dorsal nerve cord placed below gut
(2) Single hollow nerve cord placed dorsal to gut
(3) Double ventral nerve cord
(4) Single, solid and ventral nerve cord
AD0063

62. In vertebrates the notochord :-
(1) Persists throughout the life
(2) Is partially replaced by vertebral column
(3) Is completely replaced by vertebral column
(4) Is partially or fully replaced by vertebral column
AD0064

63. Which one is the distinguishing feature of all vertebrates?
(1) An internal bony or cartilagenous skeleton
(2) A hairy body covering
(3) Presence of mammary glands
(4) Open type of circulatory system
AD0065

64. The three living Lung fishes namely *Protopterus*, *Lepidosiren* and *Neoceratodus* are respectively distributed in which countries of the world :-
(1) Africa, South America and Australia
(2) Africa, Australia and Japan
(3) India, Africa and South America
(4) South America, England & Africa
AD0066

65. Which fish is known as living fossil?
(1) *Chimaera* (2) *Latimaria*
(3) *Pristis* (4) *Harpodon*
AD0067

66. Which of the following fins are paired in fishes?
(1) Dorsal fin (2) Anal fin
(3) Pelvic fin (4) Ventral fin
AD0068

67. Fish change its direction suddenly by :-
(1) Pectoral fin (2) Pelvic fin
(3) Caudal fin (4) All the above
AD0069

68. Which one of the following amphibia is common toad?
(1) *Ichthyophis* (2) *Bufo*
(3) Frog (4) *Salamandra*
AD0070

69. If an "Axolotl larva" is placed in water containing sufficient Iodine then :-
(1) Larva will die soon
(2) Its skin pigmentation will change
(3) It will start metamorphosis
(4) It remains as usual without any change
AD0071

70. Which is a balancing organ of fish?
(1) Ampulla of lorenzini
(2) Utriculus
(3) Air bladder
(4) Internal ear
AD0072

71. Which of the following group of animals have a constant body temperature ?
(1) Reptiles, aves & mammalia
(2) Aves & cyclostomata
(3) Pisces & amphibia
(4) Aves & mammalia
AD0073

72. Kidney in amphibians is :-
(1) Pronephric
(2) Mesonephric
(3) Archaeonephric
(4) Metanephric
AD0074

73. Teeth in Amphibia are :-
(1) Homodont, Pleurodont & diphyodont
(2) Thecodont, heterodont & diphyodont
(3) Homodont, pleurodont & polyphyodont
(4) Homodont, thecodont & polyphyodont
AD0075

74. Which group of phylum chordata has paired fins?
(1) Pisces (2) Reptilia
(3) Aves (4) Mammalia
AD0076

75. The embryo is surrounded with amnion in:-
(1) Toad (2) Snake
(3) fish (4) Cockroach
AD0077

76. Which is poikilothermic animal?
(1) Tortoise (2) Pigeon
(3) Penguin (4) Whale
AD0078

77. Which of the following is not the feature of snakes ?
(1) Eggs (2) Limbs
(3) Scales (4) Kidney
AD0079

78. Which of the following groups includes Endothermic animals (Homothermal) :-
(1) Crocodile, alligator, turtle
(2) Whale, pigeon, bat
(3) Sea-horse, dog fish, cat fish
(4) Toad, frog, salamander
AD0080

79. Which bird had teeth in its beak?
(1) Kiwi (2) Ostrich
(3) Dodo (4) Archaeopteryx
AD0081

80. Number of cranial nerves in a crocodile is:-
(1) 8-pairs (2) 10-pairs
(3) 12-pairs (4) 14-pairs
AD0082

81. Mostly birds are:-
(1) Uricotelic and oviparous
(2) Uricotelic and viviparous
(3) Ammonotelic and oviparous
(4) Uricotelic and ovoviviparous
AD0083

82. The primitive characters of Duck billed platypus suggest that it:-
(1) Is a degenerated mammals
(2) Shows the stage between aves and mammals
(3) Shows the stage between reptiles and birds
(4) Shows the stage between reptiles and mammals
AD0084

83. Find out correct statement:-
(1) All birds can fly
(2) All snakes are poisonous
(3) All amphibians lay eggs in water
(4) All mammals are viviparous
AD0085

84. Oviparous animal is :–
(1) *Scoliodon* (2) Viper
(3) Scorpion (4) Cobra
AD0086

85. Characteristic of Corvus is:-
(1) Unisexual and sexual dimorphism absent
(2) Bisexual and sexual dimorphism absent
(3) Unisexual and sexual dimorphism present
(4) Bisexual and sexual dimorphism present
AD0087

86. Which of the following is a "Lizard- bird"?
(1) *Archaeopteryx*
(2) *Struthio*
(3) *Aptenodytes*
(4) *Humming bird*
AD0088

87. Uropygial or preen glands occur in:-
(1) Reptiles
(2) Birds
(3) Amphibians
(4) Mammals
AD0089

88. The flight less birds *Rhea*, Kiwi & Emu respectively belong to which countries:-
(1) South America, Newzealand & Australia
(2) Africa, Australia & Newzealand
(3) North America , Japan & Africa
(4) Australia, S. Africa & Japan
AD0090

89. Which is not found in birds?
(1) Pectoral girdle
(2) Pelvic girdle
(3) Hind limbs
(4) Fore limbs
AD0091

90. The character found only in birds is:-
(1) Toothless beak
(2) Bipedal locomotion
(3) Wings
(4) Feathers

AD0092

91. Which of the following characters is not related to Aves?
(1) Homiothermy and presence of oil glands in skin
(2) Female genital organs of both sides functional
(3) Female genital organs of one sides functional
(4) Exoskeleton of feathers

AD0093

92. Birds which is capable of flying backward:-
(1) Crane (2) Penguin
(3) Humming bird (4) Albatross

AD0094

93. Muscular diaphragm is found in?
(1) Amphibian (2) Mammal
(3) Reptilian (4) Fish

AD0296

94. Whales are included in the same taxonomic class as:-
(1) Sharks (2) Crocodile
(3) Sea horse (4) Gorilla

AD0096

95. Which of the following group of vertebrates have dicondylic skull:-
(1) Amphibia & mammals
(2) Reptilia & Aves
(3) Aves & mammals
(4) Reptilia & mammals

AD0097

96. Hair are not found in adult whale, its body temperature is regulated by:-
(1) Sweat glands
(2) Blubber
(3) Blood circulation
(4) Water

AD0098

97. Two chambered heart is the feature of :-
(1) Mammals (2) Aves
(3) Amphibia (4) Pisces

AD0099

98. Which of the following animals have character of both reptiles and mammals?
(1) Monotremes
(2) Marsupials
(3) *Macropus*
(4) *Canis*

AD0100

99. An egg laying mammal is -
(1) Kangaroo (2) Platypus
(3) Koala (4) Whale

AD0101

100. Presence of gills in the tadpole of frog indicates that :-
(1) Fishes evolved from frog like ancestors
(2) Frogs will have gills in future
(3) Frogs evolved from gilled ancestors
(4) Fishes were amphibious in the past

AD0102

101. Hollow air filled bones (pneumatic bones) occur in :-
(1) Mammals (2) Reptiles
(3) Urodela (4) Aves

AD0103

102. Which of the following character is not found in all the chordates?
(1) Diaphragm
(2) Coelom
(3) Pharyngeal gill clifts
(4) Dorsal nerve cord

AD0104

103. In which of the following animal post anal tail is found
(1) Earthworm
(2) Lower invertebrate
(3) Scorpion
(4) Snake

AD0105

104. In which of the following notochord is present in embryonic stage :-
(1) All chordates
(2) Some chordates
(3) Vertebrates
(4) Non chordates

AD0106

105. Axolotal larva is the name of larva of
(1) *Amphioxus* (2) Silkworm
(3) *Salamandra* (4) Round worm

AD0107

106. The early stage human embryo distinctly possesses :–
(1) Gills
(2) Gill slits
(3) External ear (pinna)
(4) Eye brows

AD0108

107. Most favourable land adaptation in reptiles is -
(1) Lungs
(2) Scales
(3) Moist skin
(4) Pentadactylous limbs

AD0109

108. Retention of larval characters even after sexual maturity is called -
(1) Parthenogensis
(2) Ontogenesis
(3) Phyllogenesis
(4) Neoteny

AD0110

109. *Ichthyophis* belongs to -
(1) Amphibia (2) Mollusca
(3) Annelida (4) Reptilia

AD0111

110. Larva of *Balanoglossus* is -
(1) Muller's larva
(2) Tadpole
(3) Tornaria
(4) Bipinnaria larva

AD0112

111. In fishes the kidney is -
(1) Pronephric
(2) Metanephric
(3) Mesonephric
(4) Nephridial

AD0113

112. Air sacs connected to lungs supplement respiration in:
(1) Lung fishes (2) Birds
(3) Reptilia (4) Mammals

AD0297

113. Which of the following reptile is non-poisonous ?
(1) Cobra (2) Krait
(3) Viper (4) Python

AD0115

114. Tailed amphibian is :-
(1) *Icthyophis* (2) Frog
(3) *Salamandra* (4) Toad

AD0116

115. Amniota, Monocondylar, Poikilothermal animals are:-
(1) Birds (2) Amphibia
(3) Reptiles (4) Fish
AD0117

116. Which one of the following is a true fish ?
(1) Cray fish (2) Jelly fish
(3) Silver fish (4) Cat fish
AD0118

117. Corpus callosum is found in the brain of -
(1) Elephant (2) Pigeon
(3) Crocodile (4) Frog
AD0119

118. One of the following is a very unique feature of the mammalian body –
(1) Presence of muscular diaphragm
(2) Four chambered heart
(3) Rib cage
(4) Homeothermy
AD0120

119. Which is the smallest taxonomic group having cranium, vetebral column, ventral heart, pulmonary respiration and two pairs of legs ?
(1) Chordata (2) Gnathostomata
(3) Vertebrata (4) Tetrapoda
AD0121

120. Which of the following are Anamniotes?
(1) Chondrichthyes, Osteichthyes, Amphibia
(2) Reptilia, Aves, Amphibia
(3) Amphibia, Aves, Mammals
(4) Reptilia, Mammals, Aves
AD0122

121. Which is not aerial adaptation of Birds?
(1) Single ovary
(2) Pneumatic bone
(3) Gizzard
(4) Keeled sternum
AD0123

122. Which of the following has no teeth in its mouth?
(1) Tortoise (2) Crocodile
(3) *Hemidactylus* (4) *Draco*
AD0124

123. Feathers of birds are modified:-
(1) Epidermal scales
(2) Bony scales
(3) Plates
(4) Scutes
AD0125

124. Identify the animal

(1) Ascidia (2) Salpa
(3) Amphioxus (4) Doliolum
AD0284

125. Notochord is present only in larval tail of :-
(1) Urochordata
(2) Cephalochordata
(3) Vertebrata
(4) Protochordates
AD0285

126. Vertebrates have ventral muscular heart with _____ chambers.
(1) 2 (2) 3
(3) 4 (4) all above
AD0286

127. Larve of.....after metamorphosis return to the ocean.
(1) Scoliodon (2) Shark
(3) Lamprey (4) Flying fish
AD0287

128. Air bladder is absent in _____
(1) Dog fish (2) Catla
(3) Rohu (4) Flying fish
AD0288

129. Sea horse is _____
(1) a bird
(2) a mammal
(3) an amphibian
(4) a fish
AD0289

130. Choose the correct combination of the given option?
(1) *Calotes* - garden lizard
(2) *Chameleon* - krait
(3) *Naja* - viper
(4) *Crocodilus* - tortoise

AD0290

131. Which one of the following mammalia live in water?
(1) Bat (2) Platypus
(3) *Macropus* (4) Blue whale

AD0291

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**4**	**2**	**1**	**2**	**3**	**4**	**2**	**4**	**3**	**4**	**2**	**1**	**4**	**4**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**4**	**2**	**3**	**1**	**2**	**2**	**1**	**2**	**1**	**3**	**3**	**1**	**3**	**4**	**3**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**3**	**2**	**1**	**3**	**1**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**4**	**3**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**3**	**2**	**2**	**3**	**4**	**4**	**4**	**4**	**3**	**2**	**4**	**4**	**1**	**2**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**2**	**4**	**1**	**1**	**2**	**3**	**3**	**2**	**3**	**4**	**4**	**2**	**3**	**1**	**2**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**1**	**2**	**2**	**4**	**3**	**1**	**4**	**3**	**4**	**3**	**1**	**2**	**1**	**4**	**4**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**2**	**3**	**2**	**4**	**1**	**2**	**4**	**1**	**2**	**3**	**4**	**1**	**4**	**1**	**3**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**2**	**1**	**4**	**1**	**3**	**3**	**2**	**4**	**3**	**3**	**4**	**1**	**1**	**4**	**1**
Que.	121	122	123	124	125	126	127	128	129	130	131				
Ans.	**3**	**1**	**1**	**1**	**1**	**4**	**3**	**1**	**4**	**1**	**4**				

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. What is common about *Trypanosoma, Noctiluca, Monocystis* and *Giardia* ?
(1) These are all parasites
(2) These are all unicellular protists
(3) They have flagella
(4) They produce spores

AD0126

2. Which one of the following is a matching set of a phylum and its three examples ?
(1) Porifera : *Spongilla, Euplectella, Pennatula*
(2) Cnidaria : *Bonellia, Physalia, Aurelia*
(3) Platyhelminthes : *Planaria, Schistosoma, Enterobius*
(4) Mollusca : *Loligo, Teredo, Octopus*

AD0127

3. Metameric segmentation is the characteristic of
(1) Mollusca and Choradata
(2) Platyhelminthes and Arthropoda
(3) Echinodermata and Annelida
(4) Annelida and Arthropoda

AD0128

4. Two common characters found in Centipede, Cockroach and Crab are -
(1) Book lungs and antennae
(2) Compound eyes and anal cerci
(3) Jointed legs and chitinous exoskeleton
(4) Green gland and tracheae

AD0129

5. Biradial symmetry and lack of cnidoblasts are the characteristic of -
(1) *Hydra* and *Starfish*
(2) *Starfish* and Sea Anemone
(3) *Ctenoplana* and *Beroe*
(4) *Aurelia* and *Paramoecium*

AD0130

6. Which one of the following has an open circulatory system ?
(A) *Octopus* (B) *Pheretima*
(C) *Periplaneta* (D) *Hirudinaria*
(1) A & B (2) B & C
(3) C & D (4) A & D

AD0131

7. In which one of the following sets of animals all the four give birth to young ones ?
(1) Kangaroo, Hedgehog, Dolphin, Loris
(2) Lion, Bat, Whale, Ostrich
(3) Platypus, Penguin, Bat, *Hippopotamus*
(4) Shrew, Bat, Cat, Kiwi

AD0132

AIPMT 2007

8. Which one of the following is a matching pair of a body feature and the animal possessing it ?
(1) Ventral heart – Scorpion
(2) Post-anal tail – Octopus
(3) Ventral central nervous system – Leech
(4) Pharyngeal gill slits absent in embryo – *Chamaeleon*

AD0133

9. What is true about *Nereis*, Scorpion, Cockroach and Silver fish ?
(1) They all belong to the same phylum
(2) They all have paired jointed appendages
(3) They all possess dorsal heart
(4) None of them is aquatic

AD0134

10. Which one of the following pairs is mismatched?
(1) *Bombyx mori* – Silk
(2) *Pila globosa* – Pearl
(3) *Apis indica* – Honey
(4) *Kenia lacca* – Lac

AD0135

11. Which of the following pairs are correctly matched ?

Animals	Morphological features
(A) Crocodile	4-chambered heart
(B) Sea Urchin	Parapodia
(C) *Obelia*	Metagenesis
(D) Lemur	Thecodont

(1) Only A and B (2) A, C and D
(3) B, C and D (4) Only A and D

AD0136

12. What is common between parrot, platypus and kangaroo ?
(1) Ovoparity
(2) Homoiothermy
(3) Toothless jaws
(4) Functional post-anal tail

AD0137

AIPMT 2008

13. Which one of the following is not a characteristic of phylum Annelida?
(1) Closed circulatory system
(2) Segmentation
(3) Pseudocoelom
(4) Ventral nerve cord

AD0138

14. Which one of the following phyla is correctly matched with its two general characteristics ?
(1) Arthropoda : Body divided into head, thorax and abdomen and respiration by tracheae
(2) Chordata : Notochord at some stage and separate anal and urinary openings to the outside
(3) Echinodermata : Pentamerous radial symmetry and mostly internal fertilization
(4) Mollusca : Normally oviparous and development through a trochophore or veliger larva

AD0139

15. *Ascaris* is characterized by :
(1) absence of true coelom but presence of metamerism
(2) presence of neither true coelom nor metamerism
(3) presence of true coelom but absence of metamerism
(4) presence of true coclom and metamerism

AD0140

16. Which one of the following groups of the three animals each is correctly matched with their one characteristic morphological feature?

Animals	***Morphological feature***
(1) Liver fluke, Sea anemone, Sea cucumber	- Bilateral symmetry
(2) Centipede, Prawn, Sea urchin	- Joined appendages
(3) Scorpion, Spider, Cockroach	- Ventral solid central nervous system
(4) Cockroach, Locust, *Taenia*	- Metameric segmentation

AD0141

AIPMT 2009

17. Which one of the following groups of animals is bilaterally symmetrical and triploblastic?
(1) Sponges
(2) Coelenterates (Cnidarians)
(3) Aschelminthes (round worms)
(4) Ctenophores

AD0142

18. *Peripatus* is a connecting link between :-
(1) Coelenterata and Porifera
(2) Ctenophora and Platyhelminthis
(3) Mollusca and Echinodermata
(4) Annelida and Arthropoda

AD0143

19. Which one of the following pairs of animals are 'jawless fishes' ?
(1) Guppies and hag fishes
(2) Lampreys and eels
(3) Mackerals and Rohu
(4) Lampreys and hag fishes

AD0144

AIPMT (Pre.) 2010

20. One example of animals having a single opening to the outside that serves both as mouth as well as anus is :-
(1) *Fasciola* (2) *Octopus*
(3) *Asterias* (4) *Herdmania*

AD0145

21. Which one of the following statement about all the four of *Spongilla*, Leech, Dolphin and Penguin is correct ?
(1) All are bilaterally symmetrical
(2) Penguin is homoiothermic while the remaining three are poikilothermic
(3) Leech is a fresh water form while all others are marine
(4) *Spongilla* has special collared cells called choanocytes, not found in the remaining three.

AD0146

22. Which one of the following animals are triploblastic?
(1) Corals (2) Flat worms
(3) Sponges (4) Ctenophores

AD0147

23. Which one of the following statement about certain given animals is correct ?
(1) Flat worms (Platyhelminthes) are coelomates
(2) Round worms (Aschelminthes) are pseudocoelomates
(3) Molluscs are acoelomates
(4) Insects are pseudocoelomates

AD0148

AIPMT (Mains) 2010

24. Crocodile and Penguin are similar to Whale and Dogfish in which one of the following features ?
(1) Lay eggs and guard them till they hatch
(2) Possess bony skeleton
(3) Have gill slits at some stage
(4) Possess a solid single stranded central nervous system

AD0149

AIPMT (Pre.) 2011

25. Which one of the following groups of animals is correctly matched with its one characteristic feature without even a single exception ?
(1) Reptilia : possess 3-chambered heart with one incompletely divided ventricle
(2) Chordata : possess a mouth provided with an upper and a lower jaw
(3) Chondrichthyes : possess cartilaginous endoskeleton
(4) Mammalia : give birth to young ones

AD0150

26. Which one of the following animals is correctly matched with its particular named taxonomic category ?

(1) Tiger – *tigris*, the species

(2) Cuttlefish – Mollusca, a class

(3) Humans – Primata, the family

(4) Housefly – *Musca*, an order

AD0151

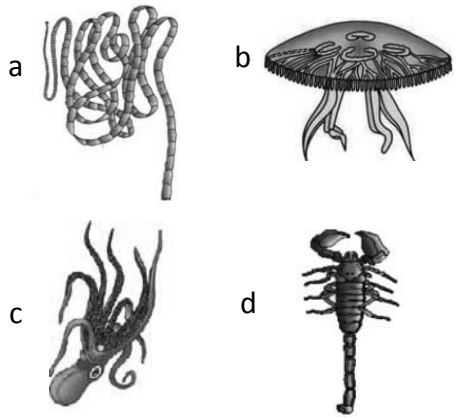
27. In which one of the following the genus name, its two character and its class/phylum are correctly matched?

Genus name	Two characters	Class/ Phylum
(1) *Ascaris*	(a) Body segmented (b) Males and females distinct	Annelida
(2)*Salamendra*	(a) A tympanum represents ear (b) Fertilization is external	Amphibia
(3) *Pteropus*	(a) Skin prossesses hair (b) Oviparous	Mammalia
(4) *Aurelia*	(a) Cnidoblasts (b) Organ level of organization	Coelenterata

AD0152

AIPMT (Mains) 2011

28. The figure shows four animals (a), (b), (c) and (d). Select the correct answer with respect to a common characteristics of two of these animals.



(1) (c) and (d) have a true coelom

(2) (a) and (d) respire mainly through body wall

(3) (b) and (c) show radial symmetry

(4) (a) and (b) have cnidoblasts for self defence.

AD0153

AIPMT (Pre.) 2012

29. In which one of the following, the genus name, its two characters and its phylum are **not correctly** matched, whereas the remaining three are correct ?

	Genus name	Two characters	Phylum
(1)	*Sycon*	(a) Pore bearing (b) Canal system	Porifera
(2)	*Periplaneta*	(a) Jointed appendages (b) Chitinuous exoskeleton	Arthropoda
(3)	*Pila*	(a) Body segmented (b) Mouth with Radula	Mollusca
(4)	*Asterias*	(a) Spiny skinned (b) Water vascular system	Echino-dermata

AD0154

AIPMT (Mains) 2012

30. Which one of the following organisms is scientifically correctly named, correctly printed according to the International Rules of Nomenclature and correctly described?

(1) *Felis tigris* - The Indian tiger, well protected in Gir forests.

(2) *E.coli* - Full name *Entamoeba coli*, a commonly occuring bacterium in human intestine.

(3) *Musca domestica* - The common house lizard, a reptile.

(4) *Plasmodium falciparum* - A protozoan pathogen causing the most serious type of malaria.

AD0155

31. Which one of the following categories of animals, is correctly described with no single exception in it?

(1) All sponges are marine and have collared cells

(2) All mammals are viviparous and possess diaphragm for breathing

(3) All reptiles possess scales, have a three chambered heart and are cold blooded (poikilothermal)

(4) All bony fishes have four pairs of gills and an operculum on each side

AD0156

32. Which one of the following pairs of animals are similar to each other pertaining to the feature stated against them?

(1) *Ascaris* and *Ancylostoma* - Metameric segmentation

(2) Sea horse and Flying fish - Cold blooded (poikilothermal)

(3) *Pteropus* and *Ornithorhyncus* - Viviparity

(4) Garden lizard and Crocodile - Three chambered heart

AD0157

NEET-UG 2013

33. One of the representatives of Phylum Arthropoda is :

(1) flying fish

(2) cuttle fish

(3) silver fish

(4) puffer fish

AD0160

34. Which group of animals belong to the same phylum?

(1) Sponge, Sea anemone, Starfish

(2) Malarial parasite, *Amoeba*, Mosquito

(3) Earthworm, Pinworm, Tapeworm

(4) Prawn, Scorpion, *Locusta*

AD0161

35. Infection of *Ascaris* usually occurs by :

(1) mosquito bite

(2) drinking water containing eggs of *Ascaris*

(3) eating imperfectly cooked pork.

(4) Tse-tse fly

AD0162

36. Which of the following are correctly matched with respect to their taxonomic classification ?

(1) Spiny anteater, sea urchin, sea cucumber –Echinodermata

(2) Flying fish, cuttlefish, silverfish – Pisces

(3) Centipede, millipede, spider, scorpion – Insecta

(4) House fly, butterfly, tsetsefly, silverfish – Insecta

AD0163

37. Match the name of the animal (column I), with one characteristics (column II), and the phylum/ class (column III) to which it belongs :

	Column I	Column II	Column III
(1)	*Adamsia*	radially symmetrical	Porifera
(2)	*Petromyzon*	ectoparasite	Cyclostomata
(3)	*Ichthyophis*	terrestrial	Reptilia
(4)	*Limitlus*	Body covered by chitinous exoskeleton	Pisces

AD0164

AIPMT 2014

38. Which one of the following living organisms completely *lacks* a cell wall?

(1) Cyanobacteria
(2) Sea – fan *(Gorgonia)*
(3) *Saccharomyces*
(4) Blue–green algae

AD0166

39. Select the Taxon mentioned that represents both marine and fresh water species :-

(1) Echinoderms
(2) Ctenophora
(3) Cephalochordata
(4) Cnidaria

AD0167

40. *Planaria* possess high capacity of :-

(1) Metamorphosis
(2) Regeneration
(3) Alternation of generation
(4) Bioluminescence

AD0168

41. A marine cartilaginous fish that can produce electric current is :-

(1) *Pristis* (2) *Torpedo*
(3) *Trygon* (4) *Scoliodon*

AD0169

AIPMT 2015

42. Which of the following animals is **not** viviparous?

(1) Elephant (2) Platypus
(3) Whale (4) Flying fox (Bat)

AD0172

43. Which of the following represents the correct combination without any exception?

	Characteristics	Class
(1)	Mouth ventral, gills without operculum; skin with placoid scales; persistent notochord	Chondrichthyes
(2)	Sucking and circular mouth; jaws absent, integument without scales; paired appendages	Cyclostomata
(3)	Body covered with feathers; skin moist and glandular; fore-limbs form wings; lungs with air sacs	Aves
(4)	Mammary gland; hair on body; pinnae; two pairs of Limbs	Mammalia

AD0173

44. The active form of *Entamoeba histolytica* feeds upon:

(1) mucosa and submucosa of colon only
(2) food in intestine
(3) blood only
(4) erythrocytes; mucosa and submucosa of colon

AD0174

45. Which of the following endoparasites of humans does show viviparity ?

(1) *Enterobius vermicularis*

(2) *Trichinella spiralis*

(3) *Ascaris lumbricoides*

(4) *Ancylostoma duodenale*

AD0175

Re-AIPMT 2015

46. Metagenesis refers to :

(1) Presence of a segmented body and parthenogenetic mode of reproduction

(2) Presence of different morphic forms

(3) Alternation of generation between asexual and sexual phases of an organism

(4) Occurrence of a drastic change in form during post-embryonic development

AD0176

47. Which one of the following animals has two separate circulatory pathways ?

(1) Shark (2) Frog

(3) Lizard (4) Whale

AD0177

48. Body having meshwork of cells, internal cavities lined with food filtering flagellated cells and indirect development are the characteristics of phylum :

(1) Protozoa (2) Coelenterata

(3) Porifera (4) Mollusca

AD0178

49. A jawless fish, which lays eggs in fresh water and whose ammocoetes larvae after metamorphosis return to the ocean is :

(1) *Petromyzon* (2) *Eptatretus*

(3) *Myxine* (4) *Neomyxine*

AD0179

NEET-I 2016

50. Which of the following characteristic features always holds true for the corresponding group of animals?

(1)	Cartilaginous endoskeleton	Chondrichthyes
(2)	Viviparous	Mammalia
(3)	Possess a mouth with an upper and a lower jaw	Chordata
(4)	3 - chambered heart with one incompletely divided ventricle	Reptilia

AD0180

51. Which one of the following characteristics is **not** shared by birds and mammals ?

(1) Ossified endoskeleton

(2) Breathing using lungs

(3) Viviparity

(4) Warm blooded nature

AD0181

NEET-II 2016

52. Choose the **correct** statement.

(1) All reptiles have a three–chambered heart.

(2) All pisces have gills covered by an operculum.

(3) All mammals are viviparous.

(4) All cyclostomes do not possess jaws and paired fins.

AD0182

NEET(UG) 2017

53. An important characteristic that Hemichordates share with Chordates is :
(1) Ventral tubular nerve cord
(2) Pharynx with gill slits
(3) Pharynx without gill slits
(4) Absence of notochord

AD0186

54. Which among these is the correct combination of aquatic mammals ?
(1) Dolphins, Seals, *Trygon*
(2) Whales, Dolphins, Seals
(3) *Trygon*, Whales, Seals
(4) Seals, Dolphins, Sharks

AD0187

55. In case of poriferans, the spongocoel is lined with flagellated cells called:
(1) oscula
(2) choanocytes
(3) mesenchymal cells
(4) ostia

AD0188

NEET(UG) 2018

56. Which of the following animals does ***not*** undergo metamorphosis ?
(1) Earthworm
(2) Tunicate
(3) Moth
(4) Starfish

AD0195

57. Identify the vertebrate group of animals characterized by crop and gizzard in its digestive sytstem.
(1) Amphibia (2) Reptilia
(3) Aves (4) Osteichthyes

AD0196

58. Which one of these animals is ***not*** a homeotherm?
(1) *Macropus* (2) *Chelone*
(3) *Camelus* (4) *Psittacula*

AD0197

59. Ciliates differ from all other protozoans in
(1) using flagella for locomotion
(2) having a contractile vacuole for removing excess water
(3) using pseudopodia for capturing prey
(4) having two types of nuclei

AD0198

NEET(UG) 2019

60. Match the following organisms with their respective characteristics :-

(a) *Pila*	(i) Flame cells
(b) *Bombyx*	(ii) Comb plates
(c) *Pleurobrachia*	(iii) Radula
(d) *Taenia*	(iv) Malpighian tubules

Select the **correct** option from the following :-

	(a)	**(b)**	**(c)**	**(d)**
(1)	(iii)	(ii)	(i)	(iv)
(2)	(iii)	(iv)	(ii)	(i)
(3)	(ii)	(iv)	(iii)	(i)
(4)	(iiii)	(ii)	(iv)	(i)

AD0292

61. Consider following features:
(a) Organ system level of organisation
(b) Bilateral symmetry
(c) True coelomates with segmentation of body

Select the **correct** option of animal groups which possess all the above characteristics.
(1) Annelida, Arthropoda and Chordata
(2) Annelida, Arthropoda and Mollusca
(3) Arthropoda , Mollusca and Chordata
(4) Annelida, Mollusca and Chordata

AD0293

NEET(UG) 2019 (Odisha)

62. Match the following genera with their respective phylum:

(a) *Ophura* (i) Mollusca
(b) *Physalia* (ii) Platyhelminthes
(c) *Pinctada* (iii) Echinodermata
(d) *Planaria* (iv) Coelenterata

Select the correct option:

(1) (a)-(iv), (b)-(i), (c)-(iii), d-(ii)
(2) (a)-(iii), (b)-(iv), (c)-(i), d-(ii)
(3) (a)-(i), (b)-(iii), (c)-(iv), d-(ii)
(4) (a)-(iii), (b)-(iv), (c)-(ii), d-(i)

AD0294

63. Which of the following animals are true coelomates with bilateral symmetry?

(1) Adult Echinoderms
(2) Aschelminthes
(3) Platyhelminthes
(4) Annelids

AD0295

NEET(UG) - 2020

64. Match the following columns and select the **correct** option.

Column -I	**Column -II**
(a) 6 -15 pairs of gill slits	(i) *Trygon*
(b) Heterocercal caudal fin	(ii) Cyclostomes
(c) Air Bladder	(iii) Chondrichthyes
(d) Poison sting	(iv) Osteichthyes

	(a)	**(b)**	**(c)**	**(d)**
(1)	(i)	(iv)	(iii)	(ii)
(2)	(ii)	(iii)	(iv)	(i)
(3)	(iii)	(iv)	(i)	(ii)
(4)	(iv)	(ii)	(iii)	(i)

AD0298

65. Bilaterally symmetrical and acoelomate animals are exemplified by:

(1) Annelida (2) Ctenophora
(3) Platyhelminthes (4) Aschelminthes

AD0299

66. Which of the following statements are true for the phylum-Chordata ?

(a) In Urochordata notochord extends from head to tail and it is present throughout their life.
(b) In Vertebrata notochord is present during the embryonic period only.
(c) Central nervous system is dorsal and hollow.
(d) Chordata is divided into 3 subphyla : Hemichordata, Tunicata and Cephalochordata.

(1) (b) and (c) (2) (d) and (c)
(3) (c) and (a) (4) (a) and (b)

AD0300

67. Match the following columns and select the **correct** option.

Column-I	**Column-II**
(a) Gregarious, polyphagous pest	(i) *Asterias*
(b) Adult with radial symmetry and larva with bilateral symmetry	(ii) Scorpion
(c) Book lungs	(iii) *Ctenoplana*
(d) Bioluminescence	(iv) *Locusta*

	(a)	**(b)**	**(c)**	**(d)**
(1)	(ii)	(i)	(iii)	(iv)
(2)	(i)	(iii)	(ii)	(iv)
(3)	(iv)	(i)	(ii)	(iii)
(4)	(iii)	(ii)	(i)	(iv)

AD0301

NEET (UG)-2020 (COVID-19)

68. Which of the following options does correctly represent the characteristic features of phylum Annelida ?

(1) Triploblastic, unsegmented body and bilaterally symmetrical.

(2) Triploblastic, segmented body and bilaterally symmetrical.

(3) Triploblastic, flattened body and acoelomate condition.

(4) Diploblastic, mostly marine and radially symmetrical.

AD0302

69. Match the following group of organisms with their respective distinctive characteristics and select the correct option :

Organisms	Characteristics
(a) Platyhelminthes	(i) Cylindrical body with no segmentation
(b) Echinoderms	(ii) Warm blooded animals with direct development
(c) Hemichordates	(iii) Bilateral symmetry with incomplete digestive system
(d) Aves	(iv) Radial symmetry with indirect development

(1) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

(2) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)

(3) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

(4) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

AD0303

70. Match the following columns and select the correct option :

Column - I	Column - II
(a) *Aptenodytes*	(i) Flying fox
(b) *Pteropus*	(ii) Angel fish
(c) *Pterophyllum*	(iii) Lamprey
(d) *Petromyzon*	(iv) Penguin

(1) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

(2) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

(3) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

(4) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

AD0304

71. All vertebrates are chordates but all chordates are not vertebrates, why ?

(1) Notochord is replaced by vertebral column in adult of some chordates.

(2) Ventral hollow nerve cord remains throughout life in some chordates.

(3) All chordates possess vertebral column.

(4) All chordates possess notochord throughout their life.

AD0305

NEET(UG) 2021

72. Read the following statements.

(a) Metagenesis is observed in Helminths.

(b) Echinoderms are triploblastic and coelomate animals.

(c) Round worms have organ-system level of body organization.

(d) Comb plates present in ctenophores help in digestion.

(e) Water vascular system is characteristic of echinoderms.

Choose the **correct** answer from the options given below.

(1) (c), (d) and (e) are correct

(2) (a), (b) and (c) are correct

(3) (a), (d) and (e) are correct

(4) (b), (c) and (e) are correct

AD0306

73. Match **List - I** with **List - II.**

List-I		List-II	
(a)	Metamerism	(i)	Coelenterata
(b)	Canal system	(ii)	Ctenophora
(c)	Comb plates	(iii)	Annelida
(d)	Cnidoblasts	(iv)	Porifera

Choose the **correct** answer from the options given below.

	(a)	**(b)**	**(c)**	**(d)**
(1)	(iv)	(iii)	(i)	(ii)
(2)	(iii)	(iv)	(i)	(ii)
(3)	(iii)	(iv)	(ii)	(i)
(4)	(iv)	(i)	(ii)	(iii)

AD0307

74. Match the following:

List-I		List-II	
(a)	*Physalia*	(i)	Pearl oyster
(b)	*Limulus*	(ii)	Portuguese Man of War
(c)	*Ancylostoma*	(iii)	Living fossil
(d)	*Pinctada*	(iv)	Hookworm

Choose the **correct** answer from the options given below.

	(a)	**(b)**	**(c)**	**(d)**
(1)	(ii)	(iii)	(i)	(iv)
(2)	(iv)	(i)	(iii)	(ii)
(3)	(ii)	(iii)	(iv)	(i)
(4)	(i)	(iv)	(iii)	(ii)

AD0308

75. Which one of the following organisms bears hollow and pneumatic long bones?

(1) *Neophron* (2) *Hemidactylus*

(3) *Macropus* (4) *Ornithorhynchus*

AD0309

NEET(UG) 2021 (Paper-2)

76. Single circulation is found in

(1) *Neophron*

(2) *Scoliodon*

(3) *Pteropus*

(4) *Bufo*

AD0313

77. Common characters of all vertebrates without exception is

(1) Two pairs of limbs

(2) Exoskeleton

(3) External ears and body hairs

(4) Presence of vertebral column

AD0314

78. Pneumatic bones are present in

(1) *Neophron* (2) *Ornithorynchus*

(3) *Testudo* (4) *Trygon*

AD0315

79. Which of the following is an incorrect match ?

(1) Doliolum – Urochordata – Subphylum

(2) Scoliodon – Pisces – Super class

(3) Bufo – Gnathostomata – Division

(4) Lamprey – Agnatha – Class

AD0316

NEET(UG) 2022

80. In which of the following animals, digestive tract has additional chambers like crop and gizzard ?

(1) *Bufo, Balaenoptera, Bangarus*

(2) *Catla, Columba, Crocodilus*

(3) *Pavo, Psittacula, Corvus*

(4) *Corvus, Columba, Chameleon*

AD0317

81. Given below are two statements : one is labelled as

Assertion (A) and the other is labelled as **Reason (R).**

Assertion (A) :

All vertebrates are chordates but all chordates are not vertebrates.

Reason (R) :

Notochord is replaced by vertebral column in the adult vertebrates.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

(1) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(2) **(A)** is correct but **(R)** is not correct

(3) **(A)** is not correct but **(R)** is correct

(4) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

AD0318

NEET(UG) 2022 (OVERSEAS)

82. Air bladder is found in :

(1) Aves (2) Cyclostomata

(3) Chondrichthyes (4) Osteichthyes

AD0319

83. Given below are two statements:

Statement-I : Amphibians and reptiles have a 3-chambered heart with two atria and a single ventricle; and oviparous in nature.

Statement-II : Crocodiles possess a 4 chambered heart with two ventricles and two atria; and viviparous in nature.

In the light of the-above statements, choose the **most appropriate** answer from the options given below :

(1) **Statement-I** is incorrect but **Statement-II** is correct

(2) Both **Statement-I** and **Statement-II** are correct

(3) Both **Statement-I** and **Statement-II** are incorrect

(4) **Statement-I** is correct but **Statement-II** is incorrect

AD0320

84. Which one of the following features are **not** true for chordates?

(a) Heart is dorsal.

(b) Pharynx is perforated by gill slits.

(c) Central nervous system is ventral, solid and single.

(d) Post-anal tail is present.

(e) Notochord is present.

Choose the **most appropriate** answer from the options given below :

(1) (a), (d) and (c) only

(2) (b) and (c) only

(3) (a) and (c) only

(4) (e) only

AD0321

Re-NEET(UG) 2022

85. Which of the following animals has three chambered heart ?

(1) *Scoliodon*

(2) *Hippocampus*

(3) *Chelone*

(4) *Pteropus*

AD0322

86. Select the **Incorrect** statements with respect to Cyclostomes :

(a) They lack scales and paired fins.

(b) They have circular mouth with Jaws.

(c) They bear 6-15 pairs of gills.

(d) They migrate to deep sea for spawning.

Choose **the most appropriate answer** from the options given below :

(1) (a) and (b) only (2) (b) and (c) only

(3) (b) and (d) only (4) (a) and (d) only

AD0323

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**4**	**4**	**3**	**3**	**3**	**1**	**3**	**3**	**2**	**2**	**2**	**3**	**4**	**2**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**3**	**3**	**4**	**4**	**1**	**4**	**2**	**2**	**3**	**3**	**1**	**2**	**1**	**3**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**4**	**2**	**3**	**4**	**2**	**4**	**2**	**2**	**4**	**2**	**2**	**2**	**1**	**4**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**3**	**4**	**3**	**1**	**1**	**3**	**4**	**2**	**2**	**2**	**1**	**3**	**2**	**4**	**2**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**2**	**4**	**2**	**3**	**1**	**3**	**2**	**1**	**3**	**1**	**4**	**3**	**3**	**1**
Que.	76	77	78	79	80	81	82	83	84	85	86				
Ans.	**2**	**4**	**1**	**4**	**3**	**4**	**4**	**4**	**3**	**3**	**3**				

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT Based QUESTIONS)

1. Which one of the following is a radially symmetrical, blind sac body plan and diploblastic animal?

(1) *Spongilla*

(2) *Euspongia*

(3) *Asterias*

(4) *Physalia*

AD0207

2. Which one is not a platyhelminthes?

(1) Tapeworm

(2) Liver fluke

(3) *Planaria*

(4) Hookworm

AD0208

3. Consider the following statements :-

(A) Protochordates are exclusively marine

(B) In cephalochordates, Notochord extends from head to tail region.

(C) In urochordates, Notochord is present only in larval tail.

(D) Cranium and vertebral column are bony in cyclostomates.

Which of the above statement is/are correct?

(1) A alone

(2) B, C and D

(3) A, B and C

(4) All

AD0209

4. Consider the following characteristic of fishes :-

(A) They have four pairs of gills which are covered by an operculum.

(B) They have air bladder which regulates buoyancy

(C) They are mostly viviparous and development is direct

(D) Their body is streamlined and covered with cycloid/ctenoid scales

Which of the above characteristics regarding bony fishes are correct?

(1) A, B and C (2) C and D

(3) A, B and D (4) B alone

AD0210

5. Identified the correct statement from the following with reference to Amphibians :-

(A) They have internal fertilisation and development is direct.

(B) Amphibian skin is moist and without scales

(C) Their body is divisible into head and trunk

(D) They have three chambered heart

Select the correct answer :-

(1) A and D (2) A and B

(3) B, C and D (4) D alone

AD0211

6. Which of the following pairs are correctly matched?

(A) Poikilothemous - Birds and mammals

(B) Agnatha - *Petromyzon* and *Myxine*

(C) Tunicates - *Ascidia, Salpa* and *Doliolum*

(D) Cartilaginous fishes - *Betta* and *Labeo*

(1) A and B (2) A, B and C

(3) B and C (4) A, B and D

AD0212

7. Water vascular system is found in :-
(1) Porifera (2) Echinodermata
(3) Mollusca (4) Elasmobranch
AD0213

8. Match the column :-
(a) *Dentalium* (i) Brittle star
(b) *Ophiura* (ii) Cuttle fish
(c) *Antedon* (iii) Sea Urchin
(d) *Echinus* (iv) Tusk shell
(e) *Sepia* (v) Sea lily
(1) a-(iv), b-(i), c-(iv), d-(ii), e-(iii)
(2) a-(iv), b-(i), c-(v), d-(iii), e-(ii)
(3) a-(i), b-(iv), c-(v), d-(iii), e-(ii)
(4) a-(iv), b-(i), c-(iii), d-(v), e-(ii)
AD0214

9. True coelom and metameric segmentation in the body is first observed in which of the following phylum
(1) Platyhelminthes (2) Aschelminthes
(3) Annelida (4) Arthropoda
AD0215

10. Read the following statements (a to e) carefuly :-
(a) Triploplastic
(b) Bilateral symmetric
(c) Organ system organisation
(d) Pseudocoelomate
(e) Metameric segmentation
Which of the above statement(s) is/are correct for phylum Aschelminthyes
(1) a and b only (2) a, b, c and e
(3) a, b, c and d (4) a, b, c, d and e
AD0216

11. Which of the following coelenterate exist in both forms polyp and medusa and exhibit metagenesis?
(1) *Hydra* (2) *Adamsia*
(3) *Obelia* (4) *Gorgonia*
AD0217

12. Which of the following animal is radially symmetrical but has a bilaterally symmetrical larva?
(1) *Ascaris* (Round worm)
(2) *Nereis* (Ring worm)
(3) *Pila* (Apple snail)
(4) *Asterias* (Star fish)
AD0218

13. Mark the incorrectly matched pair
(1) *Petromyzon* - Body devoid of scales and paired fins
(2) *Scoliodon* - Operculum present but air bladder is absent
(3) *Exocoetus* - Heart two chamered with sinus venosus
(4) *Rana* - Cold blooded with 10 pairs of cranial nerves and mesonephric kidneys
AD0219

14. Match list 'A' and List 'B' correctly and find your answer from the code given below :-

List-A (Animal)	**List-B (Common name)**
(i) *Physalia*	(A) Brain coral
(ii) *Pennatula*	(B) Sea fan
(iii) *Gorgonia*	(C) Sea pen
(iv) *Meandrina*	(D) Portuguese man of war

Code :
(1) (i)-A, (ii)-B, (iii)-C, (iv)-D
(2) (i)-D, (ii)-C, (iii)-B, (iv)-A
(3) (i)-C, (ii)-D, (iii)-B, (iv)-A
(4) (i)-D, (ii)-C, (iii)-A, (iv)-B
AD0220

15. Which of the following is gregarious pest?

(1) Bed bug (2) Rat

(3) Cockroach (4) Locusta

AD0221

16. Pick the odd pair out :-

(1) Cellular level : Porifera

(2) Tissue level : Aschelminthes

(3) Organ level : Platyhelminthes

(4) Organ system level : Annelida

AD0222

17. Select the group of organisms given below those have diploblastic members only :-

(1) *Ctenoplana, Taenia, Fasciola*

(2) *Aurelia, Physalia, Meandrina*

(3) *Wuchereria, Culex, Limulus*

(4) *Aedes, Ascaris, Hydra*

AD0223

18. Fresh water sponge is :-

(1) *Spongilla* (2) *Scypha*

(3) *Euspongia* (4) *Leucosolenia*

AD0224

19. The symmetry found in an animal which can be divided into indentical left and right halves in only one plane is:-

(1) Spherical (2) Bilateral

(3) Radial (4) Biradial

AD0225

20. Select the pseudocoelomates from the list of organisms given below :-

(1) *Ascaris, Fasciola, Taenia*

(2) *Culex, Locusta, Limulus*

(3) *Wuchereria, Ascaris, Ancylostoma*

(4) *Nereis, Hirudinaria, Wuchereria*

AD0226

21. Which of the following pairs of animals comprise 'Combjellies' ?

(1) *Balanoglossus* and *Saccoglossus*

(2) *Pleurobranchia* and *Ctenoplana*

(3) Sea anemone and sea pen

(4) Sea lily and brittle star

AD0227

22. Which one of the following pairs of animals comprise 'Cartilaginous fishes'?

(1) *Labeo* and *Catla*

(2) *Pterophyllum* and *Scoliodon*

(3) *Pristis* and *Carcharodon*

(4) *Petromyzon* and *Myxine*

AD0228

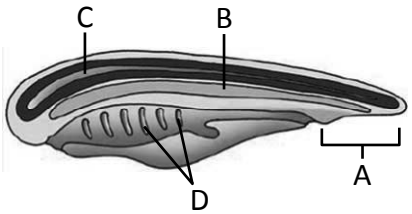
23. Which of the following fishes is also known as "Great white shark'?

(1) *Pristis* (2) *Trygon*

(3) *Clarias* (4) *Carcharodon*

AD0229

24.



A schematic representation of a chordate's embryo is shown in the above figure.

The structures maked **A, B, C** and **D** are respectively :-

(1) Notochord, Nerve cord, Intestine and gill slits

(2) Postanal part, Gill slits, Nerve cord and Notochord

(3) Postanal part, nerve cord, Notochord and Gill

(4) Post anal part, Notochord, Nervecord and Gill slits.

AD0230

25. In which one of the following protochordates notochord present only in the tail of larva ?
(1) *Ascidia*
(2) *Balanoglossus*
(3) *Myxine*
(4) *Branchiostoma*

AD0231

26. In which of the following group notochord present in whole life?
(1) Hemichordata
(2) Urochordata
(3) Cephalochordata
(4) Vertebrata

AD0232

27. Match the column-I with the column-II and find out the correct answer :

Column-I	**Colum-II**
(A) Spongocoel	(i) Arthropoda
(B) Dorso-ventrally flattened body	(ii) Cnidaria
(C) Coelenteron cavity	(iii) Porifera
(D) Chitinous exoskeleton	(iv) Platyhelminthes

(1) A-iii, B-iv, C-i, D-ii
(2) A-iv, B-iii, C-ii, D-i
(3) A-iii, B-iv, C-ii, D-i
(4) A-ii, B-iv, C-iii, D-i

AD0233

28. Which of the following is a matching pair ?
(1) *Ophiura* - Sea lily
(2) *Octopus* - Cuttle fish
(3) *Torpedo* - Electric ray
(4) *Aptenodytes* - Ostrich

AD0234

29. Which one is not the character of Osteichthyes?
(1) Terminal mouth
(2) Gills with operculum
(3) Body covered by placoid scales
(4) Air bladder regulate buoyancy.

AD0235

30. Which one of the following pairs is not correcly matched?
(1) *Choetopleura* - Chiton
(2) *Ascaris* - Round worm
(3) *Wuchereria* - Filaria worm
(4) *Enterobias* - Hook worm

AD0236

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

31. Which one of the following is a matching pair of an animal and a certain phenomenon it exhibits :-
(1) *Pheretima* – Sexual dimorphism
(2) *Musca* – Complete metamorphosis
(3) *Chameleon* – Mimicry
(4) *Taenia* – Polymorphism

AD0237

32. The greatest evolutionary change that enabled the land vertebrates to be completely free from water, was the development of -
(1) four appendages
(2) lungs
(3) cleidoic eggs
(4) four chambered heart

AD0238

33. During its life-cycle, *Fasciola hepatica* (liver fluke) infects its intermediate host and primary host at the following larval stages respectively :-
(1) Redia and miracidium
(2) Cercaria and redia
(3) Metacercaria and cercaria
(4) Miracidium and metacercaria

AD0239

34. A mammal which completely lives in water is?

(1) Bear (2) Camel

(3) Whale (4) Rhinoceros

AD0240

35. Which of the following does not make a nest of its own ?

(1) Crow

(2) Parrot

(3) Cuckoo (Koel)

(4) Sparrow

AD0241

36. Identify the correct match from the column I, II and III

Column I		Column II		Column III	
1	*Leishmania donovani*	a	Sleeping sickness	i	Termites
2	*Trichonympha*	b	Kala-azar	ii	Silk worm
3	*Nosema*	c	Glucosidases	iii	Tse-tse fly
4	*Tiypanosoma*	d	Pebrine	iv	Sand fly

Options :-

(1) 2–a–i, 1–b–iv, 3–d–ii, 4–c–iii

(2) 1–b–iv, 2–c–i, 3–d–ii, 4–a–iii

(3) 1–b–iii, 2–c–ii, 3–d–i, 4–a–iv

(4) 2–b–iv, 1–c–i, 3–a–ii, 4–d–iii

AD0242

37. How many in the given examples of animals are Coelentrates?

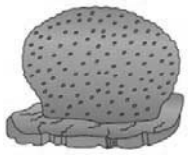
Physalia, Obelia, Plannaria, Pennatula, Gorgonia, Pleurobrachia, Meandrina and *Nereis*

(1) Three (2) Four

(3) Five (4) Six

AD0243

38. Identify the following four animals (A, B, C and D) given below. Which one of these is not correctly identified in the option given along with its correct taxonomic group and their common name ?



A

B

C

D

Options :-

Option	Fig.	Name of animal	Taxonomic group	Common Name
(1)	B	*Adamsia*	Ctenophora	Star coral
(2)	D	*Spongilla*	Porifera	Fresh water sponge
(3)	C	*Aurelia*	Coelenterata	Jelly fish
(4)	A	*Enspongia*	Porifera	Bath sponge

AD0244

39. How many organism are releated with Echinodermata phylum?

Star fish, Sea-urchin, Sea-lily, Sea-mouse, Sea-hare, Sea-cucumber, Brittle star, Sea-potato, Sea-squirt, Sea-fan, Sea-pen

(1) 4 (2) 5

(3) 6 (4) 7

AD0245

40. Which of the following unicellular organism has a macronucleus for trophic function and one or more micronuclei for reproduction?

(1) *Trypanosoma* (2) *Paramoecium*
(3) *Euglena* (4) *Amoeba*

AD0246

41. Which one of the following features is common in - silverfish, scorpion, dragonfly and prawn ?

(1) Three pairs of legs and segmented body
(2) Chitinous cuticle and two pairs of antennae
(3) Jointed appendages and chitinous exoskeleton
(4) Cephalothorax involves

AD0247

42. Adult *Wuchereria bancrofti* attacks -

(1) Nervous system
(2) Lymph vessels
(3) Muscular system
(4) Blood vessels

AD0248

43. In which animal nerve cell is present but brain is absent?

(1) Sponge
(2) Earthworm
(3) Cockroach
(4) *Hydra*

AD0249

44. Which group of vertebrates have characteristic features the presence of feathers and most of them can fly ?

(1) Mammals (2) Fishes
(3) Reptiles (4) Birds

AD0310

45. Which class name refers to their creeping or crawling mode of locomotion (Latin, repere or reptum, to creep or crawl)?

(1) Aves
(2) Mammalia
(3) Amphibia
(4) Reptilia

AD0311

46. Which one of the following is not a living fossil ?

(1) *Peripatus*
(2) King crab
(3) *Sphenodon*
(4) *Archaeopteryx*

AD0252

47. Body is divisible into head and trunk in?

(1) Lizard
(2) Frog
(3) Peacock
(4) Platypus

AD0312

48. The evidence for the origin of birds from reptiles is the presence in them of -

(1) feathers (2) scales
(3) claws (4) hairs

AD0254

49. In which one of the following groups all animals are hermaphrodite?

(1) *Hydra, Ascaris, Pheretima*
(2) *Hydra, Homo sapiens*, Leech
(3) Tapeworm, Toad, Starfish
(4) *Hydra*, Leech, Tapeworm

AD0255

50. Which of the following shows the sexual dimorphism? **AD0256**

(1) *Hydra* & *Ascaris*

(2) *Hydra* & *Macaca*

(3) *Ascaris* & *Pheretima*

(4) *Ascaris* & *Macaca*

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**4**	**4**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**4**	**2**	**2**	**4**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**4**	**4**	**1**	**3**	**3**	**3**	**3**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**2**	**3**	**4**	**3**	**3**	**2**	**3**	**1**	**2**	**2**	**3**	**2**	**4**	**4**	**4**
Que.	46	47	48	49	50										
Ans.	**4**	**2**	**2**	**4**	**4**										

PRE-MEDICAL

BOTANY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Morphology of Flowering plants

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) — Build Up Your Understanding

ROOTS TO INFLORESCENCE

1. Radish is an example of -
(1) Fusiform root (2) Napiform root
(3) Conical root (4) Tuberous root
PM0001

2. Roots associated with nitrogen fixing bacteria are-
(1) Fusiform roots (2) Napiform roots
(3) Nodulated roots (4) Conical roots
PM0002

3. The edible part of turnip is -
(1) Modified adventitious roots
(2) Modified tap root
(3) Stem
(4) Underground stem
PM0003

4. Which is a modification of root that does not store food?
(1) Napiform root (2) Fusiform root
(3) Tuberous root (4) Stilt root
PM0004

5. Shoot/Stem develops from -
(1) Plumule (2) Radicle
(3) Both 1 & 2 (4) Endosperm
PM0005

6. Which is an example of offset?
(1) *Cynodon dactylon* (2) *Eichhornia*
(3) *Fragaria* (4) *Mentha*
PM0006

7. Rhizome of ginger is a modification of stem because -
(1) It bears adventitious roots
(2) It bears nodes and internodes
(3) It is underground
(4) It stores food material
PM0007

8. Phylloclade is found in -
(1) *Opuntia* (2) Cactus
(3) *Acacia* (4) Both (1) & (2)
PM0008

9. Nodulated roots occurs in
(1) Liliaceae (2) Solanaceae
(3) Malvaceae (4) Fabaceae
PM0009

10. Thorns and spines are -
(1) Defensive organs
(2) Respiratory organs
(3) Both 1 & 2
(4) Storage organs
PM0010

11. In onion the reduced disc like underground stem having fleshy leaves is -
(1) Root (2) Rhizome
(3) Bulb (4) Tuber
PM0011

12. Stem modified into leaf like structure and leaves are changed into spines in -
(1) Phyllode (2) Tuber
(3) Phylloclade (4) All the above
PM0013

13. Prop roots of banyan tree are meant for
(1) Respiration
(2) Storage
(3) Providing support to big tree
(4) All
PM0019

14. Which is not a stem modification -
(1) Rhizome of ginger
(2) Corm of *Colocasia*
(3) Pitcher of *Nepenthes*
(4) Tuber of potato
PM0020

15. A modification of petiole is -
(1) Phyllode (2) Phylloclade
(3) Cladode (4) Corm
PM0021

16. The floral leaves arise from
(1) Mother axis (2) Thalamus
(3) Root (4) Pedicel
PM0024

17. What is the eye of potato ?
(1) Axillary bud (2) Accessory bud
(3) Adventitious bud (4) Apical bud
PM0025

18. In *Ruscus,* the modification is :-
(1) Phyllode (2) Cladode
(3) Offset (4) Sucker
PM0026

19. In turmeric, stem is a :-
(1) Tuber (2) Bulb
(3) Rhizome (4) Corm
PM0027

20. Catkin inflorescence is found in :-
(1) Wheat (2) Oat
(3) Mulberry (4) Fig
PM0028

21. Spathe is present in inflorescence of :-
(1) Maize (2) Rice
(3) Marigold (4) Sunflower
PM0029

FLOWER TO FAMILIES

22. Caryopsis fruit is found in -
(1) Wheat (2) Pea
(3) Gram (4) Bean
PM0030

23. If the filaments are fused in a single group the condition is
(1) Monoadelphous
(2) Polyadelphous
(3) Both 1 & 2
(4) Diadelphous
PM0031

24. Pappus is modification of -
(1) Bracts (2) Corolla
(3) Calyx (4) All
PM0032

25. A characteristic of angiosperm is
(1) Flowers (2) Roots
(3) Seeds (4) Stem
PM0033

26. Adhesion in a flower is -
(1) Union of dissimilar parts
(2) Union of similar parts
(3) Both 1 & 2
(4) Fusion of carpels
PM0034

27. The fourth whorl of flower is consists of
(1) Petals (2) Stamens
(3) Carpels (4) Sepals
PM0037

28. Siliqua is the fruit of:-
(1) Cruciferae (2) Fabaceae
(3) Liliaceae (4) Solanaceae
PM0038

29. Fruit of brinjal is :-
(1) Berry (2) Hesperidium
(3) Drupe (4) Pome
PM0039

30. Which of the following is false fruit ?
(1) Pome (2) Capsule
(3) Hesperidium (4) Drupe
PM0040

31. A true fruit develops from :-
(1) Ovary (2) Thalamus
(3) Petals (4) Receptacle
PM0041

32. Fruit of "Ground nut" is :-
(1) Nut (2) Legume
(3) Lomentum (4) Capsule
PM0042

33. The first whorl of flower is consists of
(1) Petals (2) Stamens
(3) Carpels (4) Sepals
PM0043

34. Geocarpic fruit is -
(1) Carrot (2) Radish
(3) Ground nut (4) Turnip
PM0045

35. Tetradyanamous condition of stamens occur in members of :–
(1) Cruciferae (2) Malvaceae
(3) Solanaceae (4) Lilliaceae
PM0046

36. Edible part in pomegranate is :-
(1) Testa (2) Epicarp
(3) Endocarp (4) Epidermis
PM0047

37. Edible Juicy hair-like structures are found in:-
(1) Apple
(2) Pear
(3) Lemon
(4) Strawberry
PM0048

38. Which of the following represents the edible part of the fruit of Litchi –
(1) Endocarp (2) Pericarp
(3) Juicy aril (4) Mesocarp
PM0049

39. Epigynous flowers are present in :-
(1) Mustard (2) Brinjal
(3) China rose (4) Cucumber
PM0050

40. In *Dianthus,* placentation is :-
(1) Basal (2) Free central
(3) Axile (4) Marginal
PM0051

41. Ovary is half-inferior in the flower of :-
(1) Apple (2) Guava
(3) Peach (4) Garlic
PM0052

42. The term "Keel" is used for special type of:-
(1) Sepals (2) Petals
(3) Stamens (4) Carpels
PM0053

43. Polyadelphous stamens are found in :-
(1) Cotton (2) China rose
(3) Pea (4) Lemon
PM0054

44. *Aloe* and garlic are the plants of:–
(1) Fabaceae
(2) Solanaceae
(3) Liliaceae
(4) Poaceae
PM0055

45. Zygomorphic flowers are found in:-
(1) Solanaceae (2) Liliaceae
(3) Fabaceae (4) Brassicaceae
PM0056

46. Replum is:-
(1) False placenta
(2) False septum
(3) False ovule
(4) False thalamus
PM0057

47. Point out the correct example of cruciferae:-
(1) Mustard (2) Pea
(3) Onion (4) Brinjal
PM0058

48. Which type of placentation is found in mustard.
(1) Parietal (2) Axile
(3) Basal (4) Marginal
PM0059

49. Edible part of potato is:-
(1) Inflorescence (2) Leaves
(3) Roots (4) Stem
PM0061

50. Ground nut belongs to family:-
(1) Fabaceae (2) Brassicaceae
(3) Liliaceae (4) Solanaceae
PM0062

51. Bicarpellary ovary with parietal placentation and false septum is found in:-
(1) Cruciferae (2) Fabaceae
(3) Solanaceae (4) Liliaceae
PM0063

52. Inflorescence in Liliaceae is generally:-
(1) Racemose (2) Solitary/Cymose
(3) Catkin (4) Hypanthodium
PM0065

53. Inflorescence in Solanaceae is:-
(1) Racemose (2) Cymose
(3) Capitulum (4) Hypanthodium
PM0074

54. ***Lycopersicum esculentum*** (Tomato) belongs to family :-
(1) Solanaceae (2) Fabaceae
(3) Cruciferae (4) Liliaceae
PM0075

55. ***Atropa belladona***, an important medicinal plant is of the family:-
(1) Liliaceae (2) Fabaceae
(3) Cruciferae (4) Solanaceae
PM0076

56. 'Simla mirch', chillies and potato belong to family:-
(1) Solanaceae
(2) Fabaceae
(3) Liliaceae
(4) Cruciferae
PM0077

57. ***Nicotiana,*** *Petunia* belong to :-
(1) Fabaceae (2) Liliaceae
(3) Solanaceae (4) Cruciferae
PM0078

58. The drug 'belladona' is obtained from :-
(1) ***Atropa*** (2) ***Rauwolfia***
(3) ***Solanum*** (4) ***Capsicum***
PM0079

59. What is the major edible part of brinjal
(1) Calyx (2) Thalamus
(3) Swollen Placenta (4) Style
PM0080

60. Diadelphous condition is common in :-
(1) Solanaceae (2) Cruciferae
(3) Liliaceae (4) Fabaceae
PM0084

61. Pulses yielding main family of plants is :-
(1) Solanaceae
(2) Brassicaceae
(3) Liliaceae
(4) Fabaceae
PM0086

62. The floral formula of pea is represented by:-
(1) Br% ⚥ $K_{(5)}\ C_{1+2+(2)}\ A_{(9)+1}\ \underline{G}_1$
(2) Br ⊕ ⚥ $K_{(5)}\ C_5\ A_{1+(9)}\ \underline{G}_1$
(3) Br% ⚥ $K_{(5)}\ C_{1+2+(2)}\ A_{9+1}\ \underline{G}_1$
(4) Ebr or Br % $K_{(5)}\ C_{1+2+(2)}\ A_{10}\ \underline{G}_1$
PM0087

63. Which of the following statements is correct :-
(1) Flower is a modified root
(2) Flower is a modified shoot
(3) Flower is a modified leaf
(4) Flower is a modified inflorescence
PM0088

64. Bean and gram belong to the family :-
(1) Liliaceae (2) Fabaceae
(3) Solanaceae (4) Cruciferae
PM0092

65. Fruit legume is characteristic feature of :-
(1) Solanaceae (2) Liliaceae
(3) Fabaceae (4) Brassicaceae
PM0093

66. Floral formula ⊕⚥ $K_{(5)}\overset{\frown}{C_{(5)}A_5}\underline{G}_{(2)}$ is shown by :-
(1) Onion, garlic (2) Pea, bean
(3) Tomato, brinjal (4) All of the above
PM0094

67. Parallel venation occurs in :-
(1) Liliaceae (2) Solanaceae
(3) Brassicaceae (4) Fabaceae
PM0095

68. In which of the families the stamens are in two whorls and epiphyllous :-
(1) Brassicaceae
(2) Solanaceae
(3) Liliaceae
(4) Fabaceae
PM0096

69. A distinct monocot character shown by the flowers of Liliaceae is :-
(1) Hypogynous flowers
(2) Actinomorphic flowers
(3) Trimerous flowers
(4) Bisexual flowers
PM0097

70. *Allium cepa* (onion) belongs to the family :-
(1) Solanaceae (2) Liliaceae
(3) Cruciferae (4) Brassicaceae
PM0098

71. Which of the family possess perianth of six tepals:-
(1) Fabaceae (2) Solanaceae
(3) Liliaceae (4) Brassicaceae
PM0099

72. *Colchicum autumnale* belongs to :-
(1) Fabaceae (2) Cruciferae
(3) Liliaceae (4) Malvaceae
PM0101

73. *Smilax* and *Gloriosa* belong to :-
(1) Liliaceae (2) Solanaceae
(3) Fabaceae (4) Cruciferae
PM0102

74. Tetradynamous stamens and cruciform corolla are characteristic features of –
(1) *Solanum tuberosum* (Potato)
(2) *Solanum nigrum* (Makoi)
(3) *Allium cepa* (Onion)
(4) *Brassica campestris* (Mustard)
PM0109

75. In which of the following family, perianth and trimerous flowers are found –
(1) Solanaceae
(2) Crucifereae
(3) Liliaceae
(4) Fabaceae
PM0110

76. Grain of maize is termed as –
(1) Seed
(2) Fruit
(3) Neither seed nor fruit
(4) Floral bud

PM0111

77. $Br\oplus ⚥ \overset{\frown}{P_{(3+3)} A_{3+3}} \underline{G}_{(3)}$ floral formula belongs to which family :-
(1) Fabaceae (2) Liliaceae
(3) Solanaceae (4) Brassicaceae

PM0112

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**1**	**3**	**2**	**4**	**1**	**2**	**2**	**4**	**4**	**1**	**3**	**3**	**3**	**3**	**1**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**1**	**2**	**3**	**3**	**1**	**1**	**1**	**3**	**1**	**1**	**3**	**1**	**1**	**1**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**3**	**4**	**3**	**1**	**1**	**3**	**3**	**4**	**2**	**3**	**2**	**4**	**3**	**3**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**2**	**1**	**1**	**4**	**1**	**1**	**2**	**2**	**1**	**4**	**1**	**3**	**1**	**3**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**4**	**1**	**2**	**2**	**3**	**3**	**1**	**3**	**3**	**2**	**3**	**3**	**1**	**4**	**3**
Que.	76	77													
Ans.	**2**	**2**													

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Pineapple (ananas) fruit develops from
(1) A unilocular polycarpellary flower
(2) A multipistillate syncarpous flower
(3) A cluster of compactly borne flowers on a common axis
(4) A multilocular monocarpellary flower
PM0113

2. In which of the following fruits the edible part is the aril ?
(1) Custard apple (2) Pomegranate
(3) Orange (4) Litchi
PM0114

3. Long filamentous threads protruding at the end of a young cob of maize are
(1) Anthers (2) Styles
(3) Ovaries (4) Hairs
PM0115

4. What type of placentation is seen in sweet pea?
(1) Basal (2) Axile
(3) Free central (4) Marginal
PM0116

5. Pentamerous, actinomorphic flowers, bicarpellary ovary with oblique septa, and fruit a capsule or berry, are characteristic features of
(1) Asteraceae
(2) Brassicaceae
(3) Solanaceae
(4) Liliaceae
PM0117

6. Replum is present in the ovary of flower of:-
(1) Sun flower (2) Pea
(3) Lemon (4) Mustard
PM0118

AIPMT 2008

7. The fruit is chambered, developed from inferior ovary and has seeds with succulent testa in :-
(1) Guava (2) Cucumber
(3) Pomegranate (4) Orange
PM0119

8. The fleshy receptacle of syconus of fig encloses a number of :-
(1) Berries (2) Mericarps
(3) Achenes (4) Samaras
PM0120

9. Dry indehiscent single-seeded fruit formed from bicarpellary syncarpous inferior ovary is :-
(1) Berry (2) Cremocarp
(3) Caryopsis (4) Cypsela
PM0121

AIPMT 2009

10. Cotyledons and testa respectively are edible parts in :-
(1) Cashew nut and litchi
(2) Groundnut and pomegranate
(3) Walnut and tamarind
(4) French bean and coconut
PM0122

11. A fruit developed from hypanthodium inflorescence is called :-
(1) Caryopsis (2) Hesperidium
(3) Sorosis (4) Syconus
PM0123

12. An example of axile placentation is :-
(1) Marigold (2) *Argemone*
(3) *Dianthus* (4) Lemon
PM0124

13. Vegetative propagation in mint occurs by :-
(1) Sucker (2) Runner
(3) Offset (4) Rhizome
PM0125

14. The floral formula $\oplus \, ⚥ \, K_{(5)} \overset{\frown}{C_{(5)} A_5} \, \underline{G}_{(2)}$ is that of:-
(1) Tobacco (2) Tulip
(3) Soyabean (4) Sunnhemp
PM0126

AIPMT-Pre 2010

15. In unilocular ovary with a single ovule the placentation is :
(1) Axile (2) Marginal
(3) Basal (4) Free Central
PM0127

16. The technical term used for the androecium in a flower of China rose *(Hibiscus rosa-sinensis)* is :
(1) Polyadelphous (2) Monoadelphous
(3) Diadelphous (4) Polyandrous
PM0128

17. Ovary is half-inferior in the flowers of :
(1) Cucumber (2) Guava
(3) Plum (4) Brinjal
PM0129

18. Keel is characteristic of the flowers of :
(1) Bean (2) Gulmohur
(3) *Cassia* (4) *Calotropis*
PM0130

AIPMT-Mains 2010

19. Vegetative propagation in *Pistia* occurs by :
(1) Offset (2) Runner
(3) Sucker (4) Stolon
PM0131

20. Which one of the following is a xerophytic plant in which the stem is modified into a flat, green and succulent structure ?
(1) Casuarina (2) *Hydrilla*
(3) *Acacia* (4) *Opuntia*
PM0132

21. Consider the following four statements A, B, C and D and select the right option for two correct statements :
Statements :
(A) In vexillary aestivation, the large posterior petal is called - *standard*, two lateral ones are *wings* and two small anterior petals are termed *keel*.
(B) The floral formula for Liliaceae is
$\oplus \, ⚥ \, P_{(3+3)} A_{3+3} \underline{G}_{(3)}$
(C) In pea flower the stamens are monoadelphous
(D) The floral formula for Solanaceae is
$\oplus \, ⚥ \, K_{(3)}C_{(3)}A_{(4)}A_{\underline{(2)}}$
The correct statements are :-
(1) (A) and (B)
(2) (B) and (C)
(3) (C) and (D)
(4) (A) and (C)
PM0133

22. The correct floral formula of soyabean is :-
(1) % ⚥ $K_5C_{1+(2)+2}\,A_{(9)+1}\,\underline{G_1}$
(2) % ⚥ $K_{(5)}C_{1+2+(2)}\,A_{(9)+1}\,\underline{G_1}$
(3) % ⚥ $K_{(5)}C_{1+2+(2)}\,A_{1+(9)}\,\underline{G_1}$
(4) % ⚥ $K_{(5)}C_{1+(2)+2}\,A_{(9)+1}\,\underline{G_1}$
PM0134

23. Aestivation of petals in the flower of cotton is correctly shown in :
(1)
(2)
(3)
(4)
PM0135

AIPMT-Pre 2011

24. The "Eyes" of the potato tuber are :-
(1) Root buds
(2) Flower buds
(3) Shoot buds
(4) Axillary buds
PM0136

25. Flowers are Zygomorphic in :-
(1) Mustard (2) Gulmohur
(3) Tomato (4) Datura
PM0137

26. The ovary is half inferior in flowers of :-
(1) Peach (2) Cucumber
(3) Cotton (4) Guava
PM0138

27. A drupe develops in :-
(1) Mango (2) Wheat
(3) Pea (4) Tomato
PM0139

28. Which one of the following statements is correct?
(1) In tomato, fruit is a capsule
(2) Seeds of orchids have oil-rich endosperm
(3) Placentation in *Primrose* is basal
(4) Flower of tulip is a modified shoot
PM0140

29. The correct floral formula of chilli is :-

(1) $\oplus \, ⚥ \, K_{(5)}C_5A_5\underline{G_{(2)}}$

(2) $\oplus \, ⚥ \, K_{(5)}\overset{\curvearrowleft}{C_{(5)}A_5}\underline{G_{(2)}}$

(3) $\oplus \, ⚥ \, K_{(5)}C_{(5)}A_{(5)}G_2$

(4) $\oplus \, ⚥ \, K_5 \overset{\curvearrowleft}{C_5 A_{(5)}} G_2$

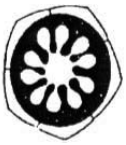
PM0141

AIPMT-Mains 2011

30. Which one of the following diagrams represents the placentation in *Dianthus* ?

(1)

(2)

(3) 

(4)

PM0142

31. Sweet potato is homologous to :-
(1) Turnip (2) Potato
(3) *Colocasia* (4) Ginger

PM0143

32. Whorled, simple leaves with reticulate venation are present in :
(1) *Alstonia*
(2) *Calotropis*
(3) Mustard
(4) China Rose

PM0144

33. Which one of the following pairs is wrongly matched while the remaining three are correct ?
(1) *Agave* - Bulbils
(2) Grass - Runner
(3) Water hyacinth - Runner
(4) *Bryophyllum* - Leaf buds

PM0145

AIPMT-Pre 2012

34. Placentation in tomato and lemon is :-
(1) Marginal (2) Axile
(3) Parietal (4) Free central

PM0147

35. Vexillary aestivation is characteristic of the family:-
(1) Solanaceae
(2) Brassicaceae
(3) Fabaceae
(4) Asteraceae

PM0148

36. Phyllode is present in :-
(1) Australian Acacia
(2) *Opuntia*
(3) *Asparagus*
(4) *Euphorbia*

PM0149

37. How many plants in the list given below have composite fruits that develop from an inflorescence? Walnut, poppy, radish, fig, pineapple, apple, tomato, mulberry
(1) Two (2) Three
(3) Four (4) Five

PM0150

38. Cymose inflorescence is present in :-
(1) *Trifolium* (2) *Brassica*
(3) *Solanum* (4) *Sesbania*

PM0151

39. The coconut water and the edible part of coconut are equivalent to :-
(1) Mesocarp
(2) Embryo
(3) Endosperm
(4) Endocarp

PM0152

40. The gynoecium consists of many free pistils in flowers of :-
(1) *Papaver*
(2) *Michelia*
(3) *Aloe*
(4) Tomato

PM0153

AIPMT-Mains 2012

41. How many plants in the list given below have marginal placentation ?
Mustard, Gram, Tulip, *Asparagus*, Arhar, Sun hemp, Chilli, Colchicine, Onion, Moong, Pea, Tobacco, Lupin
(1) Six (2) Three
(3) Four (4) Five

PM0154

NEET-UG 2013

42. In china rose the flowers are :
(1) Zygomorphic, epigynous with twisted aestivation
(2) Actinomorphic, hypogynous with twisted aestivation
(3) Actinomorphic, epigynous with valvate aestivation
(4) Zygomorphic, hypogynous with imbricate aestivation

PM0156

43. Among bitter gourd, mustard, brinjal, pumpkin chinarose, lupin, cucumber, sunnhemp, gram, guava, bean, chilli, plum, *Petunia*, tomato, rose, *Withania*, potato, onion, *Aloe* and tulip how many plants have hypogynous flower ?
(1) Eighteen (2) Six
(3) Ten (4) Fifteen

PM0157

AIPMT 2014

44. Placenta and pericarp are both edible portions in:
(1) Apple
(2) Banana
(3) Tomato
(4) Potato

PM0159

45. When the margins of sepals or petals overlap one another without any particular direction, the condition is termed as :
(1) Vexillary
(2) Imbricate
(3) Twisted
(4) Valvate

PM0160

46. An example of edible underground stem is :
(1) Carrot
(2) Groundnut
(3) Sweet potato
(4) Potato

PM0161

47. An aggregate fruit is one which develops from :
(1) Multicarpellary syncarpous gynoecium
(2) Multicarpellary apocarpus gynoecium
(3) Complete inflorescence
(4) Multicarpellary superior ovary

PM0162

AIPMT 2015

48. Leaves become modified into spines in :-
(1) Pea (2) Onion
(3) Silk Cotton (4) *Opuntia*

PM0164

49. Perigynous flowers are found in :-
(1) Cucumber (2) China rose
(3) Rose (4) Guava

PM0165

50. In ginger vegetative propagation occurs through:
(1) Offsets (2) Bulbils
(3) Runners (4) Rhizome

PM0166

51. $\oplus$ ⚥ $K_{(5)}C_{(5)}A_5G_{\underline{(2)}}$ is the floral formula of :-
(1) *Sesbania* (2) *Petunia*
(3) *Brassica* (4) *Allium*

PM0167

52. Keel is the characteristic feature of flower of :-
(1) *Indigofera* (2) *Aloe*
(3) Tomato (4) Tulip

PM0168

Re-AIPMT 2015

53. Axile placentation is present in :
(1) *Argemone*
(2) *Dianthus*
(3) Lemon
(4) Pea

PM0169

54. Among china rose, mustard, brinjal, potato, guava, cucumber, onion and tulip, how many plants have superior ovary?
(1) Four (2) Five
(3) Six (4) Three

PM0170

55. Which one of the following fruits is parthenocarpic?
(1) Banana
(2) Brinjal
(3) Apple
(4) Jackfruit

PM0171

56. Roots play insignificant role in absorption of water in :
(1) Wheat
(2) Sunflower
(3) *Pistia*
(4) Pea

PM0172

NEET-I 2016

57. The standard petal of a papilionaceous corolla is also called :
(1) Carina (2) Pappus
(3) Vexillum (4) Corona

PM0176

58. Tricarpellary syncarpous gynoecium is found in flowers of :
(1) Liliaceae
(2) Solanaceae
(3) Fabaceae
(4) Poaceae

PM0177

59. Which of the following is **not** a stem modification?
(1) Pitcher of *Nepenthes*
(2) Thorns of citrus
(3) Tendrils of cucumber
(4) Flattened structures of *Opuntia*

PM0178

60. Cotyledon of maize grain is called :-
(1) plumule
(2) coleorhiza
(3) coleoptile
(4) scutellum

PM0179

61. Stems modified into flat green organs performing the functions of leaves are known as :-
(1) Cladodes
(2) Phyllodes
(3) Phylloclades
(4) Scales

PM0180

NEET-II 2016

62. The term 'polyadelphous' is related to :-
(1) Corolla
(2) Calyx
(3) Gynoecium
(4) Androecium

PM0181

63. How many plants among *Indigofera, Sesbania, Salvia, Allium, Aloe*, mustard, groundnut, radish, gram and turnip have stamens with different lengths in their flowers ?
(1) Five (2) Six
(3) Three (4) Four

PM0182

64. Radial symmetry is found in the flowers of:-
(1) *Pisum* (2) *Cassia*
(3) *Brassica* (4) *Trifolium*

PM0183

65. Free-central placentation is found in :-
(1) *Brassica*
(2) *Citrus*
(3) *Dianthus*
(4) *Argemone*

PM0184

NEET(UG) 2017

66. Coconut fruit is a :
(1) Berry (2) Nut
(3) Capsule (4) Drupe

PM0188

67. In *Bougainvillea* thorns are the modifications of :
(1) Adventitious root
(2) Stem
(3) Leaf
(4) Stipules

PM0189

68. Root hairs develop from the region of :
(1) Elongation
(2) root cap
(3) Meristematic activity
(4) Maturation

PM0190

69. The morphological nature of the edible part of coconut is:
(1) Cotyledon
(2) Endosperm
(3) Pericarp
(4) Perisperm

PM0191

NEET(UG) 2018

70. Offsets are produced by
(1) Meiotic divisions
(2) Mitotic divisions
(3) Parthenocarpy
(4) Parthenogenesis

PM0193

71. Pneumatophores occur in
(1) Halophytes
(2) Free-floating hydrophytes
(3) Carnivorous plants
(4) Submerged hydrophytes

PM0194

72. Sweet potato is a modified
(1) Stem
(2) Adventitious root
(3) Tap root
(4) Rhizome

PM0195

NEET(UG) 2019

73. Placentation, in which ovules develop on the inner wall of the ovary or in peripheral part, is :
(1) Basal (2) Axile
(3) Parietal (4) Free central

PM0282

NEET(UG) 2019 (Odisha)

74. Which of the following shows whorled phyllotaxy ?
(1) Mustard (2) China rose
(3) *Alstonia* (4) *Calotropis*

PM0283

75. Bicarpellary ovary with obliquely placed septum is seen in :-
(1) *Brassica*
(2) *Aloe*
(3) *Solanum*
(4) *Sesbania*

PM0284

76. Match the placental types **(column-I)** with their examples **(column-II)**

Column-I	**Column-II**
(a) Basal	(i) Mustard
(b) Axile	(ii) China rose
(c) Parietal	(iii) *Dianthus*
(d) Free central	(iv) Sunflower

Choose the correct answer from the following **options:**
(1) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(2) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
(3) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
(4) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

PM0285

NEET(UG) 2020

77. Ray florets have :
(1) Half inferior ovary
(2) Inferior ovary
(3) Superior ovary
(4) Hypogynous ovary

PM0286

78. The roots that originate from the base of the stem are :
(1) Lateral roots
(2) Fibrous roots
(3) Primary roots
(4) Prop roots

PM0287

79. The ovary is half inferior in :
(1) Plum
(2) Brinjal
(3) Mustard
(4) Sunflower

PM0288

NEET(UG) 2020 (COVID-19)

80. In some plants thalamus contributes to fruit formation. Such fruits are termed as :
(1) False fruits
(2) Aggregate fruits
(3) True fruits
(4) Parthenocarpic fruit

PM0289

81. Correct position of floral parts over thalamus in mustard plant is :
(1) Gynoecium occupies the highest position, while the other parts are situated below it.
(2) Margin of the thalamus grows upward, enclosing the ovary completely, and other parts arise below the ovary.
(3) Gynoecium is present in the centre and other parts cover it partially.
(4) Gynoecium is situated in the centre, and other parts of the flower are located at the rim of the thalamus, at the same level.

PM0290

82. Which of the following is the correct floral formula of Liliaceae ?
(1) $\% \circlearrowright \underset{\text{♀}}{} C_{1+2+(2)} A_{(9)+1} \underline{G}_1$
(2) $\oplus \circlearrowright \underset{\text{♀}}{} \overset{\frown}{K_{(5)} C_{(5)}} A_5 \underline{G}_{(2)}$
(3) $Br \oplus \circlearrowright \underset{\text{♀}}{} \overset{\frown}{P_{(3+3)} A_{3+3}} G_{(3)}$
(4) $\oplus \circlearrowright \underset{\text{♀}}{} K_{(5)} \overset{\frown}{C_{(5)} A_5} \underline{G}_{(2)}$

PM0291

83. Vegetative propagule in *Agave* is termed as:
(1) Rhizome
(2) Bulbil
(3) Offset
(4) Eye

PM0292

84. Identify the correct features of Mango and Coconut fruits.
(i) In both fruit is a drupe
(ii) Endocarp is edible in both
(iii) Mesocarp in Coconut is fibrous, and in Mango it is fleshy
(iv) In both, fruit develops from monocarpellary ovary
Select the correct option from below :
(1) (i), (iii) and (iv) only
(2) (i), (ii) and (iii) only
(3) (i) and (iv) only
(4) (i) and (ii) only

PM0293

NEET(UG) 2021

85. Diadelphous stamens are found in:
(1) China rose
(2) *Citrus*
(3) Pea
(4) China rose and *Citrus*

PM0294

86. Match **Column - I** with **Column - II.**

Column - I	**Column - II**
(a) $\% \circlearrowright \underset{\text{♀}}{} K_{(5)} C_{1+2+(2)} A_{(9)+1} \underline{G}_1$	(i) Brassicaceae
(b) $\oplus \circlearrowright \underset{\text{♀}}{} K_{(5)} \overset{\frown}{C_{(5)} A_5} \underline{G}_2$	(ii) Liliaceae
(c) $\oplus \circlearrowright \underset{\text{♀}}{} \overset{\frown}{P_{(3+3)} A_{3+3}} \underline{G}_{(3)}$	(iii) Fabaceae
(d) $\oplus \circlearrowright \underset{\text{♀}}{} K_{2+2} C_4 A_{2+4} \underline{G}_{(2)}$	(iv) Solanaceae

Select the **correct** answer from the options given below.

	(a)	**(b)**	**(c)**	**(d)**
(1)	(iii)	(iv)	(ii)	(i)
(2)	(i)	(ii)	(iii)	(iv)
(3)	(ii)	(iii)	(iv)	(i)
(4)	(iv)	(ii)	(i)	(iii)

PM0295

RE-NEET(UG) 2021

87. Vegetative propagation in jasmine occurs by
(1) Runner
(2) Sucker
(3) Stolon
(4) Offset

PM0325

88. The following figure represents the root system of

(1) *Triticum* (2) Mango
(3) Banyan (4) *Brassica*

PM0326

89. Among mustard, muliathi, watermelon, soyabean, pumpkin, ashwagandha, *Asparagus*, brinjal, *Allium*, *Trifolium*, Rose, *Indigofera*, bitter gourd, plum, cucumber, arhar, moong and peach, how many plants have hypogynous flowers ?
(1) Three (2) Ten
(3) Four (4) Eleven
PM0327

90. Pinnate, compound leaves with reticulate venation are present in
(1) Neem (2) Mango
(3) *Alstonia* (4) Silk cotton
PM0328

NEET(UG) 2022

91. Identify the **correct** set of statements:
(a) The leaflets are modified into pointed hard thorns in *Citrus* and *Bougainvillea*
(b) Axillary buds form slender and spirally coiled tendrils in cucumber and pumpkin
(c) Stem is flattened and fleshy in *Opuntia* and modified to perform the function of leaves
(d) *Rhizophora* shows vertically upward growing roots that help to get oxygen for respiration
(e) Subaerially growing stems in grasses and strawberry help in vegetative propagation
Choose the **correct answer** from the options given below:
(1) (a) and (d) Only
(2) (b), (c),(d) and (e) Only
(3) (a), (b), (d) and (e) Only
(4) (b) and (c) Only
PM0329

92. The flowers are Zygomorphic in:
(a) Mustard (b) Gulmohar
(c) *Cassia* (d) *Datura*
(e) Chilly
Choose the **correct answer** from the options given below:
(1) (b), (c) Only (2) (d), (e) Only
(3) (c), (d), (e) Only (4) (a), (b), (c) Only
PM0330

93. Which one of the following plants shows vexillary aestivation and diadelphous stamens ?
(1) *Pisum sativum*
(2) *Allium cepa*
(3) *Solanum nigrum*
(4) *Colchicum autumnale*
PM0331

NEET(UG) 2022 (OVERSEAS)

94. Identify the **correct** statements related to the androecium in the flower.
(a) The sterile stamens are called staminodes.
(b) When stamens are attached to petals they are called epipetalous.
(c) Monoadelphy is seen in China-rose.
(d) Polyadelphy is seen in Pea.
(e) Variation in the length of anther filaments is seen in Mustard.
Choose the **correct** answer from the options given below :
(1) (a), (b), (c) and (e) only
(2) (a), (b) and (c) only
(3) (b), (c) and (d) only
(4) (a), (c), (d) and (e) only
PM0332

95. Which of the following plants possesses the placentation of ovules borne on central axis with no septa?
(1) Pea (2) China-rose
(3) Primrose (4) Lemon
PM0333

96. Choose the mismatched pair of leaf character with its example :
(1) Alternate phyllotaxy - China-rose
(2) Leaf tendril - Pea
(3) Opposite phyllotaxy - *Calotropis*
(4) Palmately compound - *Alstonia*
PM0334

RE-NEET(UG) 2022

97. The Floral Diagram represents which one of the following families ?

(1) Fabaceae (2) Brassicaceae

(3) Solanaceae (4) Liliaceae

PM0335

98. Match List - I with List - II :

List - I	**List - II**
(a) Imbricate	(i) *Calotropis*
(b) Valvate	(ii) *Cassia*
(c) Vexillary	(iii) Cotton
(d) Twisted	(iv) Bean

Choose the **correct answer** from the options given below :

(1) (a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)

(2) (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)

(3) (a) - (ii), (b) - (iv), (c) - (iii), (d) - (i)

(4) (a) - (i), (b) - (iii), (c) - (iv), (d) - (ii)

PM0336

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**3**	**4**	**2**	**4**	**3**	**4**	**3**	**3**	**4**	**2**	**4**	**4**	**1**	**1**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**3**	**1**	**1**	**4**	**1**	**2**	**3**	**4**	**2**	**1**	**1**	**4**	**2**	**3**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**1**	**3**	**2**	**3**	**1**	**2**	**3**	**3**	**2**	**1**	**2**	**4**	**3**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**2**	**4**	**3**	**4**	**2**	**1**	**3**	**3**	**1**	**3**	**3**	**1**	**1**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**3**	**4**	**4**	**3**	**3**	**4**	**2**	**4**	**2**	**2**	**1**	**2**	**3**	**3**	**3**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**3**	**2**	**2**	**1**	**1**	**1**	**3**	**2**	**1**	**3**	**1**	**3**	**1**	**4**	**1**
Que.	91	92	93	94	95	96	97	98							
Ans.	**2**	**1**	**1**	**1**	**3**	**4**	**2**	**2**							

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) [NCERT BASED QUESTIONS]

1. Roots developing from plant parts other than radicle are :-
(1) Tap roots
(2) Adventitious roots
(3) Both (1) & (2)
(4) Conical roots

PM0201

2. Prop roots are :-
(1) Tap roots
(2) Adventitious roots
(3) Secondary roots
(4) All

PM0202

3. A monocot can be distinguished from a dicot by:-
(1) Aestivation (2) Venation
(3) Both (1) & (2) (4) Placentation

PM0203

4. In Racemose, flowers are arranged in :-
(1) Acropetal order
(2) Centrifugal order
(3) Both (1) & (2)
(4) Basipetal order

PM0204

5. Axis of inflorescence is called :-
(1) Pedicel (2) Peduncle
(3) Petiole (4) All

PM0205

6. Stilt roots occur in :-
(1) Groundnut (2) Rice
(3) Sugarcane (4) Wheat

PM0206

7. Function of stem is to :-
(1) Bear leaves and branches
(2) Conduction of water and minerals
(3) Conduction and storage of food
(4) All of the above

PM0207

8. Arrangement of leaves on a stem or branch is :-
(1) Venation (2) Vernation
(3) Inflorescence (4) Phyllotaxy

PM0208

9. A slender lateral branch arises from the base of the main axis and after growing aerially for some time arch downwards to touch the ground. Such type of modification is
(1) Runner (2) Sucker
(3) Stolon (4) Offset

PM0296

10. A lateral branch with short internodes and each node bearing a rosette of leaves and a tuft of roots in aquatic plants, such type of modification is
(1) Runner (2) Stolon
(3) Sucker (4) Offset

PM0297

11. Lateral branches originate from the basal and underground portion of the main stem, grow horizontally beneath the soil and then comes out obliquely upward giving rise to leafy shoots, such type of modification is
(1) Runner (2) Stolon
(3) Sucker (4) Offset

PM0298

12. In some leguminous plants the leaf base may become swollen, it is called :-
(1) Pulvinus
(2) Lamina
(3) Leaf margin
(4) Stipule

PM0299

13. When the veins run parallel to each other within a lamina, the venation is termed as:-
(1) Parallel
(2) Reticulate
(3) Both 1 & 2
(4) Pinnate

PM0300

14. If the leaflets are present on a common axis, the rachis, leaf is called :-
(1) Palmate compound leaf
(2) Pinnate compound leaf
(3) Simple leaf
(4) Trifoliate leaf

PM0301

15. If the leaflets are attached at the tip of petiole, leaf is called :-
(1) Pinnate compound leaf
(2) Palmate compound leaf
(3) Simple leaf
(4) Unipinnate leaf

PM0302

16. When single leaf arises at each node then phyllotaxy is called :-
(1) Alternate (2) Opposite
(3) Whorled (4) Pinnate

PM0303

17. Opposite phyllotaxy is present in :-
(1) Mustard
(2) Guava
(3) China rose
(4) *Alstonia*

PM0304

18. Arrangement of sepals and petals in floral bud with respect of other members of same whorl is known as :-
(1) Venation
(2) Aestivation
(3) Cohesion
(4) Adhesion

PM0209

19. Didynamous condition is related to :-
(1) Androecium (2) Inflorescence
(3) Gynoecium (4) All of the above

PM0210

20. Stamens attached to petals are :-
(1) Epipetalous (2) Epiphyllous
(3) Episepalous (4) All

PM0211

21. Androecium is the whorl of :-
(1) Anthers (2) Stamens
(3) Filaments (4) Tepals

PM0212

22. Syncarpous gynoecium has two or more :-
(1) Free carpels (2) Fused carpels
(3) Free Ovaries (4) All

PM0213

23. A typical flower with superior ovary and other floral parts inferior is called :-
(1) Polygamous (2) Hypogynous
(3) Perigynous (4) Epigynous

PM0214

24. Arrangement of ovules within the ovary is known as:-
(1) Aestivation
(2) Placentation
(3) Both (1) & (2)
(4) Cohesion

PM0215

25. When gynoecium is present in the top most position of thalamus, the ovary is known as:-
(1) Inferior
(2) Half inferior
(3) Half superior
(4) Superior

PM0216

26. Drupe contains :-
(1) Stony endocarp (2) Stony mesocarp
(3) Edible epicarp (4) Edible endocarp

PM0217

27. Plants which yield pulses belong to family :-
(1) Fabaceae (2) Liliaceae
(3) Brassicaceae (4) Solanaceae

PM0219

28. Edible portion of mango is :-
(1) Epicarp (2) Endocarp
(3) Mesocarp (4) Placenta

PM0220

29. Fibrous coir is obtained from which part of the coconut ?
(1) Epicarp (2) Mesocarp
(3) Endocarp (4) Seed coat

PM0221

30. A characteristic feature of ovary of mustard is :
(1) Presence of false septum
(2) Axile placentation
(3) Epigynous
(4) All of the above

PM0222

31. In cacti the spines are modification of :-
(1) Leaf (2) Branch
(3) Epidermis (4) Axillary bud

PM0223

32. Placentaion in Solanaceae is :-
(1) Parietal (2) Marginal
(3) Axile (4) Basal
PM0224

33. Coconut is which type of fruit ?
(1) Drupe (2) Cypsela
(3) Berry (4) Pome
PM0225

34. Arrangement of flowers on the floral axis is termed as inflorescence. Regarding to inflorescence which of the following statement is not correct
(1) In racemose – main axis is continues to grow
(2) In cymose – main axis terminates into flower
(3) In racemose – flowers are in basipetal succession
(4) In cymose – growth of main axis is limited
PM0305

35. Regarding to symmetry of flower which of the following plant is odd
(1) Pea (2) Mustard
(3) *Datura* (4) Chilli
PM0306

36. Find out the wrong match
(1) Actinomorphic symmetry – *Datura*
(2) Radial symmetry – Mustard
(3) Zygomorphic symmetry – Bean
(4) Bilateral Symmetry – Chilli
PM0307

37. In which of the following plant flower can not be divided into two similar halves by any vertical plane
(1) Mustard (2) *Cassia*
(3) *Canna* (4) *Datura*
PM0308

38. In which of the following plant gynoecium occupies the highest position while the other parts situated below it ?
(1) Brinjal (2) Plum
(3) Rose (4) Guava
PM0309

39. Match the following and select correct option :-

(a) Hypogynous	(i) Lily, Onion
(b) Perigynous	(ii) Cucumber, Ray florets of sunflower
(c) Epigynous	(iii) Plum, Peach
(d) Perianth	(iv) Chinarose, Brinjal

(1) a(iv), b(iii), c(ii), d(i)
(2) a(iv), b(ii), c(iii), d(i)
(3) a(iii), b(ii), c(iv), d(i)
(4) a(iii), b(iv), c(ii), d(i)
PM0310

40. Calyx is the outermost accessory whorl of flower. What is the function of calyx?
(1) Help in pollination
(2) Help in protection of flower during bud condition
(3) Help in fertilization
(4) Help in seed germination
PM0311

41. Match the following with respect to aestivation in petals and select correct option :-

(a) Valvate	(i) Chinarose
(b) Twisted	(ii) *Calotropis*
(c) Imbricate	(iii) Pea
(d) Vexillary	(iv) *Cassia*

(1) a(ii), b(i), c(iv), d(iii)
(2) a(ii), b(iii), c(iv), d(i)
(3) a(i), b(ii), c(iii), d(iv)
(4) a(iv), b(iii), c(ii), d(i)
PM0312

42. Match the following

(a) Epiphyllous stamen	(i) *Citrus*
(b) Monoadelphous stamen	(ii) Pea
(c) Diadelphous stamen	(iii) Chinarose
(d) Polyadelphous stamen	(iv) Lily

(1) a(ii), b(i), c(iii), d(iv)
(2) a(i), b(ii), c(iii), d(iv)
(3) a(iv), b(iii), c(i), d(ii)
(4) a(iv), b(iii), c(ii), d(i)
PM0313

43. In which type of placentation, ovules are present on central axis
(1) Axile (2) Parietal
(3) Free central (4) Both 1 & 3
PM0314

44. The floral formula, $Br\oplus ⚥ \overset{\frown}{P_{(3+3)} A_{3+3}} \underline{G}_{(3)}$ belongs to:-
(1) Onion (2) Makoi
(3) Pea (4) Mustard
PM0226

45. Diadelphous stamens are found in :-
(1) Liliaceae (Onion)
(2) Fabaceae (Pea)
(3) Poaceae (Wheat)
(4) Malvaceae (Chinarose)
PM0227

46. Pneumatophores take part in :-
(1) Excretion (2) Feeding
(3) Respiration (4) Reproduction
PM0228

47. Gram belongs to the family :-
(1) Gramineae (2) Fabaceae
(3) Liliaceae (4) Solanaceae
PM0229

48. Ginger is :-
(1) Stem (2) Root
(3) Leaf (4) Fruit
PM0230

49. Inflorescence in members of Fabaceae is
(1) Racemose (2) Cymose
(3) Cyathium (4) Hypanthodium
PM0315

50. *Sesbania* belongs to
(1) Liliaceae (2) Fabaceae
(3) Solanaceae (4) Cruciferae
PM0316

51. In old classifications family leguminosae was classified into of three subfamilies. Which of the subfamily of leguminosae is now considered as Fabaceae
(1) Papilionoideae
(2) Caesalpinoidae
(3) Mimosoidae
(4) Brassicaeae
PM0317

52. Swollen placenta with oblique septum can be seen in
(1) Brassicaceae (2) Fabaceae
(3) Liliaceae (4) Solanaceae
PM0318

53. Colchicine a mitotic poison can be obtained from a plant of
(1) Brassicaceae (2) Fabaceae
(3) Solanaceae (4) Liliaceae
PM0319

54. Perianth is characteristic of
(1) Brassicaceae
(2) Fabaceae
(3) Solanaceae
(4) Liliaceae
PM0320

55. Match the following and select correct option

(a) Mustard	(i) Liliaceae
(b) Mulaithi	(ii) Solanaceae
(c) Ashwagandha	(iii) Fabaceae
(d) *Tulip*	(iv) Brassicaceae

(1) a(iv), b(iii), c(ii), d(i)
(2) a(iv), b(iii), c(i), d(ii)
(3) a(iii), b(iv), c(ii), d(i)
(4) a(i), b(ii), c(iii), d(iv)
PM0321

EXERCISE-III(B) [ANALYTICAL QUESTIONS]

56. Which is correct pair for edible part :–
(1) Tomato – Thalamus
(2) Mango – Cotyledons
(3) Guava – Endosperm
(4) Strawberry – Thalamus
PM0237

57. Edible part of banana is :-
(1) Epicarp
(2) Mesocarp and less developed endocarp
(3) Endocarp and less developed mesocarp
(4) Epicarp & mesocarp
PM0238

58. A small, dry, one-seeded fruit with its pericarp (fruit wall) fused with the seed-coat, developing from a monocarpellary gynoecium is called :-
(1) Cypsela (2) Siliqua
(3) Caryopsis (4) Capsule
PM0239

59. Flowers are zygomorphic in :-
(1) Mustard & Chilli (2) Radish & Datura
(3) Lily & Canna (4) Bean & Pea
PM0240

60. Dye 'Neel' is obtained from :-
(1) *Indigofera tinctoria*
(2) *Brassica oleracea*
(3) *Brassica rapa*
(4) *Capsella bursa pestoris*
PM0241

61. A floral formula represents :-
(1) Plant symmetry (2) Floral position
(3) Floral characters (4) Floral functions
PM0242

62. Bicarpellary, syncarpous gynoecium with bilocular ovary, axile swollen placenta and oblique septum occurs in:-
(1) Cruciferae (2) Solanaceae
(3) Fabaceae (4) Liliaceae
PM0243

63. Colchicine is obtained from :-
(1) *Atropa belladona*
(2) *Colchicum autumnale*
(3) *Withania somnifera*
(4) *Nicotiana tabacum*
PM0244

64. The leguminous plants are important in agriculture because :-
(1) They are disease resistant
(2) They require very little irrigation
(3) They help in nitrogen fixation
(4) Crops of legumes can be produced in a year
PM0248

65. In family fabaceae, 5 petals form a unique association, In which 3 different elements participate, these are standard (vexillum), wings (alae) & keel (carina). What is the number of these elements:-
(1) 1, 2, 2 respectively
(2) 2, 1, 2 respectively
(3) 1,1,3 respectively
(4) 2,2,1 respectively
PM0249

66. The ovules after fertilisation, develop into
(1) Seeds (2) Fruits
(3) Endosperm (4) Pricarp
PM0322

67. Seeds are endospermous in –
(1) Bean (2) Gram
(3) Pea (4) Castor
PM0323

68. In which of the following, membranous seed coat is fused with the fruit wall ?
(1) Pea (2) Gram
(3) Maize (4) Castor
PM0324

EXERCISE-III (Analytical Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	2	2	1	2	3	4	4	3	4	3	1	1	2	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	2	2	1	1	2	2	2	2	4	1	1	3	2	1
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	1	3	1	3	1	4	3	1	1	2	1	4	4	1	2
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	3	2	1	1	2	1	4	4	4	1	4	3	3	4	1
Que.	61	62	63	64	65	66	67	68							
Ans.	3	2	2	3	1	1	4	3							

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

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EXERCISE

Anatomy of Flowering plants

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) — Build Up Your Understanding

MERISTEM TO VASCULAR BUNDLES

1. A meristem may be defined as the group of cells which -
(1) Does not divide
(2) Conserve food
(3) Divide continuously to give rise to new cells.
(4) Elongate, mature and add to the group of cells.
PA0001

2. Root cap is not found in -
(1) Mustard (2) Pistia
(3) Sunflower (4) China rose
PA0004

3. The secondary meristem originates from-
(1) Promeristem
(2) Primary meristem
(3) Primary permanent tissue
(4) Secretory tissue
PA0006

4. The function of root cap is-
(1) Provide protection to root apex
(2) Storage of food products
(3) Absorption of nutrients
(4) None of the above
PA0007

5. Meristem which is present inside the vascular bundle is –
(1) Apical meristem
(2) Intercalary meristem
(3) Cork cambium
(4) Intra fascicular cambium
PA0248

6. Aerenchyma is helpful to plants by –
(1) Providing buoyancy to hydrophytes
(2) Promoting photosynthesis
(3) Give mechanical strength to plants
(4) Giving flexibility to plants
PA0011

7. Function of collenchyma is –
(1) Photosynthesis
(2) Mechanical support
(3) Both (1) and (2)
(4) Secretion
PA0012

8. In plants, which of the following cells are living
(1) Xylem vessels (2) Meristem
(3) Cork (4) Fibres
PA0013

9. Which of the following tissues form the main bulk of storage organ-
(1) Parenchyma (2) Collenchyma
(3) Sclerenchyma (4) Aerenchyma
PA0014

10. Grittness in pear fruit is due to
(1) Sclereids (2) Collenchyma
(3) Parenchyma (4) Meristem
PA0249

11. Mechanical tissue consisting of living cells is -
(1) Sclerenchyma
(2) Collenchyma
(3) Chlorenchyma
(4) Parenchyma
PA0016

12. Collenchyma differs from sclerenchyma in -
(1) Retaining protoplasm at maturity
(2) Having thick walls
(3) Having a lumen
(4) Being meristematic
PA0017

13. Which of the following tissue provide tensile strength to young dicot stem against bending & swaying-
(1) Parenchyma
(2) Collenchyma
(3) Sclerenchyma
(4) Sclereids
PA0018

14. Cell walls of sclerenchymatous cells are thickened due to deposition of -
(1) Cellulose (2) Pectin
(3) Lignin (4) Silica
PA0020

15. Which of following plant cells are without vacuoles without nuclei and are dead -
(1) Cambium cells (2) Xylem vessels
(3) Root hairs (4) Companion cells
PA0021

16. Maximum bordered pits are found in tracheids of
(1) Monocotyledons (2) Dicotyledons
(3) Pteridophytes (4) Gymnosperms
PA0022

17. The cell functionally associated with sieve tube element is -
(1) Phloem fibres
(2) Phloem parenchyma
(3) Companion cell
(4) Collenchyma
PA0023

18. Bast fibres are mostly found in -
(1) Secondary xylem
(2) Secondary phloem
(3) Primary phloem
(4) Primary xylem
PA0024

19. Vessels and companion cells are respectively present in the xylem and phloem of
(1) Gymnosperm (2) Pteridophyte
(3) Angiosperm (4) Bryophyte
PA0025

20. Phloem parenchyma is absent in -
(1) Dicot stem (2) Dicot leaf
(3) Monocot stem (4) Dicot root
PA0026

21. Localised cell wall thickenings in collenchyma is mainly due to deposition of -
(1) Cellulose (2) Pectin
(3) Lignin (4) Suberin
PA0250

22. The chief function of a xylem vessel in a plant body is to -
(1) Conduct sap
(2) Conduct mineral salts only
(3) Eliminate excess of water at night
(4) Translocate organic nutrients
PA0029

23. End walls of tracheids and vessels are, respectively
(1) Pitted & perforated
(2) Perforated & pitted
(3) Both perforated
(4) Both pitted
PA0030

24. Long and pointed sclerenchyma cells are
(1) Fibres
(2) Tracheae
(3) Wood parenchyma
(4) Sclereids
PA0032

25. P-protein is a constituent of
(1) Sieve tube elements
(2) Xylem parenchyma
(3) Parenchyma
(4) Pericycle
PA0034

26. When xylem and phloem are on same radius, the vascular bundles are said to be -
(1) Radial
(2) Conjoint
(3) Endarch
(4) Exarch
PA0035

27. A vascular bundle in which phloem is present on both the sides of the xylem and separated from it by strips of cambium is said to be -
(1) Collateral open
(2) Bicollateral open
(3) Radial
(4) Bicollateral closed
PA0036

28. The basic difference between stem and root is that xylem in stem is -
(1) Endarch
(2) Exarch
(3) Diarch
(4) Polyarch
PA0039

29. Which xylem element is living :-
(1) Vessels
(2) Tracheids
(3) Fibres
(4) Parenchyma
PA0040

PRIMARY INTERNAL STRUCTURE TO SECONDARY GROWTH

30. A tissue of epiphytes which is capable of absorbing water from air is known as -
(1) Cork (2) Velamen
(3) Epiblema (4) Hypodermis
PA0041

31. Collenchymatous hypodermis is characteristic feature of -
(1) Dicot stem
(2) Monocot stem
(3) Monocot as well as dicot stem
(4) Hydrophytes
PA0043

32. Innumerable (many) vascular bundles, lack of cambium and lack of a well demarcated pith is found in –
(1) Sugarcane, grass
(2) Sunflower, neem
(3) Radish, neem
(4) Pea, peepal
PA0044

33. **Cortex** and **pith** are not distinguished in -
(1) Monocot stem
(2) Monocot root
(3) Dicot stem
(4) Dicot root
PA0045

34. What is the characteristics of a vascular bundle of monocot stem -
(1) Open and surrounded by a sclerenchymatous bundle sheath
(2) Closed and not surrounded by bundle sheath
(3) Closed and surrounded by bundle sheath
(4) Open and not surrounded by a bundle sheath
PA0046

35. In dicot root
(1) Vascular bundles are scattered with cambium
(2) Vascular bundles are open and arranged in a ring
(3) Xylem and pholem are radial
(4) Xylem is always endarch
PA0047

36. A dicot root differs from a monocot root in which of the following-
(1) Presence of epiblema
(2) Presence of pericycle
(3) Presence of less-developed (poorly developed) pith
(4) Presence of radial vascular bundles
PA0048

37. Polyarch and exarch xylem is the characteristic of-
(1) Dicot stem
(2) Dicot root
(3) Monocot stem
(4) Monocot root
PA0251

38. Water cavity occurs in the vascular bundle of -
(1) Dicot stem
(2) Monocot root
(3) Monocot stem
(4) Dicot root
PA0050

39. In which of the following order, an exarch xylem develops -
(1) Centripetal
(2) Centrifugal
(3) Both centripetal & centrifugal
(4) Irregular
PA0051

40. Vascular bundles in ***Cucurbita*** stem are -
(1) Bicollateral & open
(2) Bicollateral & closed
(3) Collateral & open
(4) Amphivasal
PA0053

41. Position of xylem & phloem in leaf respectively -
(1) Abaxial & Adaxial
(2) Adaxial & Abaxial
(3) Both Adaxial
(4) Both abaxial
PA0054

42. In dicot stem, hypodermis is
(1) Parenchymatous
(2) Sclerenchymatous
(3) Collenchymatous
(4) Chlorenchymatous
PA0252

43. In leaves, the vascular bundles are
(1) Bicollateral & open
(2) Collateral & open
(3) Collateral & closed
(4) Radial & exarch
PA0056

44. Vascular bundles are scattered in ground tissue (Atactostele) in -
(1) Maize stem
(2) Sunflower stem
(3) Gram root
(4) Isobilateral leaf

PA0253

45. The hypodermis present in maize stem is -
(1) Parenchymatous
(2) Collenchymatous
(3) Sclerenchymatous
(4) Meristematic

PA0058

46. Passage cells are found in endodermis of-
(1) Dicot stem
(2) Monocot stem
(3) Orchid stem
(4) Monocot root

PA0059

47. Pith is produced by
(1) Ground meristem
(2) Procambium
(3) Collenchyma
(4) Protoderm

PA0060

48. Sugar transport elements of gymnosperms & pteridophytes are -
(1) Sieve cells
(2) Vessels
(3) Sieve tubes
(4) Sieve tube elements

PA0061

49. When protoxylem faces pericycle, it is called
(1) Endarch
(2) Diarch
(3) Exarch
(4) Polyarch

PA0062

50. Which wood conduct sap -
(1) Heart wood
(2) Sap wood
(3) Wood with lots of fibres and tyloses
(4) All of the above

PA0063

51. Phelloderm is formed by -
(1) Vascular cambium
(2) Phellogen
(3) Fascicular cambium
(4) Interfascicular cambium

PA0064

52. Dendrochronology is the study of determination of-
(1) Height of a tree
(2) Diameter of a tree
(3) Age of a tree with the help of annual rings
(4) Counting of the number of branches

PA0065

53. A timber merchant told his customer that log of wood which he was purchasing comes from a 20 years old tree, he told so by inspecting the -
(1) Diameter of log
(2) Thickness of the heart wood
(3) Number of cork layers
(4) Annual rings

PA0066

54. In trees, the annual rings represent
(1) Primary xylem
(2) Secondary xylem
(3) Secondary phloem
(4) Cambium

PA0068

55. Annual rings are formed due to the activity of-
(1) Intrastelar cambium
(2) Intercalary cambium
(3) Extrastelar cambium
(4) Primary cambium

PA0070

56. When a tree grows older which of the following increased rapidly -
(1) Heart wood (2) Sap wood
(3) Pith (4) Cortex

PA0071

57. Lenticels do not occur on-
(1) Stem (2) Root
(3) Leaf (4) Fruit
PA0072

58. External protective tissues are -
(1) Cortex and epidermis
(2) Cork and pericycle
(3) Cortex and pericycle
(4) Cork and epidermis
PA0073

59. Which of the following provides maximum mechanical strength to a tree trunk.
(1) Heart wood
(2) Sap wood
(3) Cork
(4) Late wood
PA0074

60. Extra stelar secondary growth in dicot stem occurs due to the activity of
(1) Intrafascicular cambium
(2) Interfascicular cambium
(3) Vascular cambium
(4) Cork cambium
PA0076

61. Normally secondary growth takes place in -
(1) Dicots & Monocots
(2) Gymnosperms & Monocots
(3) Dicots & Gymnosperms
(4) Only in dicots
PA0078

62. Formation of which tissue is example of dedifferentiation
(1) Interfascicular cambium
(2) Apical meristem
(3) Intrafascicular cambium
(4) Intercalary meristem
PA0080

63. What is the fate of primary phloem in dicot stem after sec growth
(1) Compresses outside and degenerates
(2) Compresses inside and degenerates
(3) Becomes part of sec phloem
(4) Modifies in sclerenchyma
PA0081

64. Which tissue remains more active during spring
(1) Cork cambium
(2) Vascular cambium
(3) Parenchyma
(4) Sclerenchyma
PA0082

65. Water conduction in stem of tree takes place mainly by-
(1) Heart wood (2) Sap wood
(3) Primary xylem (4) All of the above
PA0083

66. How many types of cells are present in vascular cambium of dicot stem
(1) Two types, fusiform & ray initials
(2) Only fusiform initials
(3) Only ray initials
(4) Three types fusiform, ray and medullary rays.
PA0084

67. Cork cambium is
(1) Always primary meristem
(2) Always secondary meristem
(3) May be secondary or primary meristem
(4) Partly primary & partly secondary meristem
PA0085

68. Normally in dicot stems, phellogen develops from
(1) Hypodermis
(2) Phellem
(3) Endodermal cells
(4) Epidermal & pericycle cells
PA0086

69. Suberin in chiefly deposited in the cells of
(1) Sclerenchyma
(2) Collenchyma
(3) Cork
(4) Phelloderm
PA0087

70. Which of the following is a meristematic tissue
(1) Phellem (2) Phellogen
(3) Phelloderm (4) Periderm
PA0088

71. Sea shore trees do not show annual rings because
(1) There is little climatic variations
(2) They belong to monocots
(3) There is low temperature
(4) Soil is sandy
PA0089

72. Secondary growth in dicots and gymnosperms occurs by
(1) Formation of vascular rays
(2) Thickening of tracheary elements
(3) Formation of meristematic cells in vascular region
(4) Development of meristematic cells in vascular & cortical regions
PA0090

73. The balloon like outgrowths of parenchyma in the lumen of a vessel are known as
(1) Hadrome (2) Tyloses
(3) Phellogen (4) Leptome
PA0091

74. Which of the following tissues originate from ray initials of cambium
(1) Tracheids & vessels
(2) Sieve tubes & companion cells
(3) Xylem & phloem fibres
(4) Radial rows of parenchyma
PA0092

75. Cork is an excellent material for making bottle stopper because it is
(1) Cheap
(2) Easily available
(3) Air tight
(4) Light
PA0093

76. In monocot stems, secondary growth doesnot occur because vascular bundles are
(1) Scattered (2) Open
(3) Closed (4) Radial
PA0094

77. Gymnosperm wood is non porous because it
(1) Lacks vessels
(2) Contains tracheae
(3) Has abundant fibres
(4) Contains no fibres
PA0095

78. Porous wood is characterised by
(1) Absence of tracheids
(2) Presence of vessels
(3) Absence of vessels
(4) Presence of sieve-tubes
PA0096

79. Secondary growth is the production of
(1) New tissues from intercalary meristem
(2) New conduction cells
(3) New tissues from lateral meristem
(4) New ground cells
PA0098

80. Each annual ring consists of two strips of
(1) Autumn & spring wood
(2) Heart wood & sap wood
(3) Xylem and phloem
(4) Cork & cortex
PA0099

81. Intrafascicular cambium is situated
(1) In between the two vascular bundles
(2) Inside the vascular bundles
(3) Outside the vascular bundles
(4) In pith
PA0100

82. An example of monocots showing secondary growth in stem is
(1) ***Lilium***
(2) ***Pea***
(3) ***Asparagus***
(4) ***Yucca***
PA0101

83. Vascular tissue having abundant vessels and fibres is
(1) Primary xylem
(2) Secondary xylem
(3) Protoxylem
(4) Metaxylem
PA0102

84. Monocot root is differ from dicot root in having :
(1) Open vascular bundles
(2) Scattered vascular bundles
(3) Large pith
(4) Radial vascular bundles

PA0104

85. Autumn wood can be differentiated from spring wood by :-
(1) Broad vessels and tracheids
(2) Narrow vessels and tracheids
(3) Red colour of xylem
(4) Cambium

PA0106

86. Vascular cambium forms :-
(1) Secondary xylem & Secondary phloem
(2) Primary xylem & Primary Phloem
(3) Only Secondary phloem
(4) Only Primary xylem

PA0108

87. There is no result of 'Girdling Experiment' in monocot plants, due to :-
(1) Presence of wax layer on the surface of its stem
(2) Stem is comparatively thin
(3) Phloem is inside xylem
(4) Vascular bundles are not in specific position

PA0109

88. Conjoint, Collateral, open vascular bundle and vascular bundles are arranged in a ring (Eustele) in :-
(1) Dicot stem
(2) Monocot stem
(3) Monocot root
(4) Dicot Root

PA0254

89. Radial vascular bundles are found in :
(1) Only dicot root
(2) Only monocot root
(3) Only Pteridophyte
(4) Roots of vascular plants

PA0111

90. Casparian strip is found in :-
(1) Epidermis
(2) Endodermis
(3) Endothecium
(4) Pericycle

PA0112

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**3**	**2**	**3**	**1**	**4**	**1**	**3**	**2**	**1**	**1**	**2**	**1**	**2**	**3**	**2**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**4**	**3**	**2**	**3**	**3**	**2**	**1**	**1**	**1**	**1**	**2**	**2**	**1**	**4**	**2**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**1**	**1**	**3**	**3**	**3**	**4**	**3**	**1**	**1**	**2**	**3**	**3**	**1**	**3**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**1**	**1**	**3**	**2**	**2**	**3**	**4**	**2**	**1**	**1**	**3**	**4**	**1**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**3**	**1**	**1**	**2**	**2**	**1**	**2**	**1**	**3**	**2**	**1**	**4**	**2**	**4**	**3**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**3**	**1**	**2**	**3**	**1**	**2**	**4**	**2**	**3**	**2**	**1**	**4**	**1**	**4**	**2**

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. A common structural feature of vessel elements and sieve tube elements is :-
(1) Presence of p-protein
(2) Enucleate condition
(3) Thick secondary walls
(4) Pores on lateral walls

PA0113

AIPMT 2007

2. For a critical study of secondary growth in plants, which one of the following pairs is suitable?
(1) Wheat and maiden hair fern
(2) Sugarcane and sunflower
(3) Teak and pine
(4) Deodar and fern

PA0116

3. Passage cells are thin-walled cells found in:-
(1) Central region of style through which the pollen tube grows towards the ovary.
(2) Endodermis of roots facilitating rapid transport of water from cortex to pericycle
(3) Phloem elements that serve as entry points for substances for transport to other plant parts
(4) Testa of seeds to enable emergence of growing embryonic axis during seed germination.

PA0117

AIPMT 2008

4. The length of different internodes in a culm of sugarcane is variable because of :
(1) Position of axillary buds
(2) Size of leaf lamina at the node below each internode
(3) Intercalary meristem
(4) Shoot apical meristem

PA0119

AIPMT 2009

5. In barley stem vascular bundles are :-
(1) Closed and radial
(2) Open and scattered
(3) Closed and scattered
(4) Open and in a ring

PA0120

6. Palisade parenchyma is *absent* in leaves of:-
(1) Gram
(2) *Sorghum*
(3) Mustard
(4) Soybean

PA0121

7. Reduction in vascular tissue, mechanical tissue and cuticle is characteristic of :-
(1) Hydrophytes
(2) Xerophytes
(3) Mesophytes
(4) Epiphytes

PA0122

8. Anatomically fairly old dicotyledonous root is distinguished from the dicotyledonous stem by :-
(1) Position of protoxylem
(2) Absence of secondary xylem
(3) Absence of secondary phloem
(4) Presence of cortex

PA0123

AIPMT-Pre 2010

9. Which one of the following is *not* a lateral meristem?
(1) Intercalary meristem
(2) Intrafascicular cambium
(3) Interfascicular cambium
(4) Phellogen

PA0124

10. The chief water conducting elements of xylem in gymnosperms are :
(1) Tracheids
(2) Vessels
(3) Fibres
(4) Transfusion tissue

PA0125

11. Heartwood differs from sapwood in :
(1) Being susceptible to pests and pathogens
(2) Presence of rays and fibres
(3) Absence of vessels and parenchyma
(4) Having dead and non-conducting elements

PA0126

AIPMT-Main 2010

12. Transport of food material in higher plants takes place through :
(1) Transfusion tissue (2) Tracheids
(3) Sieve elements (4) Companion cells

PA0127

AIPMT-Pre 2011

13. Ground tissue includes :-
(1) All tissues external to endodermis
(2) All tissues except epidermis and vascular bundles
(3) Epidermis and cortex
(4) All tissues internal to endodermis

PA0129

14. The cork cambium, cork and secondary cortex are collectively called :-
(1) Phelloderm (2) Phellogen
(3) Periderm (4) Phellem

PA0130

AIPMT-Main 2011

15. Some vascular bundles are described as open because these :
(1) Are not surrounded by pericycle
(2) Are surrounded by pericycle but no endodermis
(3) Are capable of producing secondary xylem and phloem.
(4) Possess conjunctive tissue between xylem and phloem.

PA0132

AIPMT-Pre 2012

16. Gymnosperms are also called soft wood spermatophytes because they lack :-
(1) Thick-walled tracheids
(2) Xylem fibres
(3) Cambium
(4) Phloem fibres

PA0134

17. Water containing cavities in vascular bundles are found in :-
(1) *Cycas* (2) *Pinus*
(3) Sunflower (4) Maize

PA0135

18. Closed vascular bundles lack :-
(1) Cambium
(2) Pith
(3) Ground tissue
(4) Conjuctive tissues

PA0136

19. Companion cells are closely associated with:-
(1) Trichomes
(2) Guard cells
(3) Sieve elements
(4) Vessel elements

PA0137

20. The common bottle cork is a product of :-
(1) Xylem
(2) Vascular Cambium
(3) Dermatogen
(4) Phellogen

PA0138

NEET-UG 2013

21. Age of a tree can be estimated by :
(1) Diameter of its heartwood
(2) Its height and girth
(3) Biomass
(4) Number of annual rings

PA0139

22. Interfascicular cambium develops from the cells of:
(1) Pericycle
(2) Medullary rays
(3) Xylem parenchyma
(4) Endodermis

PA0140

23. Lenticels are involved in :
(1) Photosynthesis
(2) Transpiration
(3) Gaseous exchange
(4) Food transport

PA0141

AIPMT 2014

24. You are given a fairly old piece of dicot stem and a dicot root. Which of the following anatomical structures will you use to distinguish between the two?
(1) Secondary xylem
(2) Secondary phloem
(3) Protoxylem
(4) Cortical cells

PA0143

25. Tracheids differ from other tracheary elements in:
(1) Having casparian strips
(2) Being imperforate
(3) Lacking nucleus
(4) Being lignified

PA0144

AIPMT 2015

26. A major characteristic of the monocot root is the presence of :
(1) Scattered vascular bundles
(2) Vasculature without cambium
(3) Cambium sandwiched between phloem and xylem along the radius
(4) Open vascular bundles

PA0145

27. In a ring girdled plant:
(1) The root dies first
(2) The shoot and root die together
(3) Neither root nor shoot will die
(4) The shoot dies first

PA0146

28. Vascular bundles in monocotyledons are considered closed because:
(1) Cambium is absent
(2) There are no vessels with perforations
(3) Xylem is surrounded all around by phloem
(4) A bundle sheath surrounds each bundle

PA0147

Re-AIPMT 2015

29. Read the different components from (a) to (d) in the list given below and tell the correct order of the components with reference to their arrangement from outer side to inner side in a woody dicot stem:
(a) Secondary cortex (b) Wood
(c) Secondary phloem (d) Phellem
The correct order is :
(1) (d), (c), (a), (b)
(2) (c), (d), (b), (a)
(3) (a), (b), (d), (c)
(4) (d), (a), (c), (b)

PA0148

NEET-I 2016

30. Specialised epidermal cells surrounding the guard cells are called :-
(1) Complementary cells
(2) Subsidiary cells
(3) Bulliform cells
(4) Lenticels

PA0149

NEET-II 2016

31. Cortex is the region found between :-
(1) Endodermis and pith
(2) Endodermis and vascular bundle
(3) Epidermis and stele
(4) Pericycle and endodermis

PA0150

32. The balloon-shaped structures called tyloses :-
(1) Are extensions of xylem parenchyma cells into vessels
(2) Are linked to the ascent of sap through xylem vessels
(3) Originate in the lumen of vessels
(4) Characterize the sapwood

PA0151

NEET(UG) 2017

33. The vascular cambium normally gives rise to :
(1) Primary phloem
(2) Secondary xylem
(3) Periderm
(4) Phelloderm

PA0153

34. Which of the following is made up of dead cells?
(1) Collenchyma
(2) Phellem
(3) Phloem
(4) Xylem parenchyma

PA0154

35. Identify the wrong statement in context of heartwood:
(1) It is highly durable
(2) It conducts water and minerals efficiently
(3) It comprises dead elements with highly lignified walls
(4) Organic compounds are deposited in it

PA0155

NEET(UG) 2018

36. Stomata in grass leaf are
(1) Dumb-bell shaped
(2) Kidney shaped
(3) Rectangular
(4) Barrel shaped

PA0156

37. Secondary xylem and phloem in dicot stem are produced by
(1) Apical meristems
(2) Vascular cambium
(3) Phellogen
(4) Axillary meristems

PA0157

38. Casparian strips occur in
(1) Epidermis
(2) Pericycle
(3) Cortex
(4) Endodermis

PA0158

39. Plants having little or no secondary growth are
(1) Grasses
(2) Deciduous angiosperms
(3) Conifers
(4) Cycads

PA0159

NEET(UG) 2019

40. Xylem translocates :-
(1) Water only
(2) Water and mineral salts only
(3) Water, mineral salts and some organic nitrogen only
(4) Water, mineral salts, some organic nitrogen and hormones

PA0242

41. Grass leaves curl inwards during very dry weather. Select the most appropriate reason from the following :
(1) Closure of stomata
(2) Flaccidity of bulliform cells
(3) Shrinkage of air spaces in spongy mesophyll
(4) Tyloses in vessels

PA0243

42. Phloem in gymnosperms lacks :
(1) Albuminous cells and sieve cells
(2) Sieve tubes only
(3) Companion cells only
(4) Both sieve tubes and companion cells

PA0244

43. Which of the statements given below is **not** true about formation of Annual Rings in trees?
(1) Annual ring is a combination of spring wood and autumn wood produced in a year.
(2) Differential activity of cambium causes light and dark bands of tissue - early and late wood respectively
(3) Activity of cambium depends upon variation in climate.
(4) Annual rings are not prominent in trees of temperate region.

PA0245

NEET(UG) 2019 (Odisha)

44. In the dicot root the vascular cambium originates from :-
(1) Tissue located below the phloem bundles and a portion of pericycle tissue above protoxylem.
(2) Cortical region.
(3) Parenchyma between endodermis and pericycle.
(4) Intrafascicular and interfascicular tissue in a ring.

PA0246

45. Regeneration of damaged growing grass following grazing is largely due to :-
(1) Lateral meristem
(2) Apical meristem
(3) Intercalary meristem
(4) Secondary meristem

PA0247

NEET(UG) 2020

46. The transverse section of a plant shows following
anatomical features:
(a) Large number of scattered vascular bundles surrounded by bundle sheath.
(b) Large conspicuous parenchymatous ground tissue.
(c) Vascular bundles conjoint and closed.
(d) Phloem parenchyma absent.
Identify the category of plant and its part :-
(1) Dicotyledonous root
(2) Monocotyledonous stem
(3) Monocotyledonous root
(4) Dicotyledonous stem

PA0255

47. Identify the **incorrect** statement.
(1) Due to deposition of tannins, resins, oils etc., heart wood is dark in colour
(2) Heart wood does not conduct water but gives mechanical support
(3) Sapwood is involved in conduction of water and minerals from root to leaf
(4) Sapwood is the innermost secondary xylem and is lighter in colour

PA0256

NEET(UG) 2020 (COVID-19)

48. Large, empty colourless cells of the adaxial epidermis along the veins of grass leaves are
(1) Lenticels
(2) Guard cells
(3) Bundle sheath cells
(4) Bulliform cells

PA0257

49. Which of the following statements about cork cambium is **incorrect**?
(1) It forms secondary cortex on its outerside
(2) It forms a part of periderm
(3) It is responsible for the formation of lenticels
(4) It is a couple of layers thick

PA0258

NEET(UG) 2021

50. Match **List-I** with **List-II.**

	List -I		List - II
(a)	Cells with active cell division capacity	(i)	Vascular tissues
(b)	Tissue having all cells similar in structure and function	(ii)	Meristematic tissue
(c)	Tissue having different types of cells	(iii)	Sclereids
(d)	Dead cells with highly thickened walls and narrow lumen	(iv)	Simple tissue

Select the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(ii)	(iv)	(i)	(iii)
(2)	(iv)	(iii)	(ii)	(i)
(3)	(i)	(ii)	(iii)	(iv)
(4)	(iii)	(ii)	(iv)	(i)

PA0259

51. Match **List -I** with **List - II.**

List -I		List - II	
(a)	Lenticels	(i)	Phellogen
(b)	Cork cambium	(ii)	Suberin deposition
(c)	Secondary cortex	(iii)	Exchange of gases
(d)	Cork	(iv)	Phelloderm

Choose the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iv)	(i)	(iii)	(ii)
(2)	(iii)	(i)	(iv)	(ii)
(3)	(ii)	(iii)	(iv)	(i)
(4)	(iv)	(ii)	(i)	(iii)

PA0260

52. Select the **correct** pair.

(1) Large colorless empty cells in the epidermis of grass leaves – Subsidiary cells

(2) In dicot leaves, vascular bundles are surrounded by large thick-walled cells – Conjunctive tissue

(3) Cells of medullary rays that form part of cambial ring – Interfascicular cambium

(4) Loose parenchyma cells rupturing the epidermis and forming a lens-shaped opening in bark – Spongy parenchyma

PA0261

Re-NEET(UG) 2021

53. Read A to D and tell the correct order of components from outer side to inner side in a young dicot stem.

(A) Cortex (B) Pericycle

(C) Epidermis (D) Pith

(1) C, D, B, A (2) A, B, C, D

(3) C, A, B, D (4) C, B, A, D

PA0279

54. During secondary growth in dicot stem, cork cambium or phellogen usually develops in

(1) Epidermal region

(2) Cortex region

(3) Pericycle region

(4) Pith region

PA0280

55. Transport of water and mineral in higher plants takes place through

(1) Sieve elements

(2) Companion cells

(3) Tracheids

(4) Transfusion tissue

PA0281

NEET(UG) 2022

56. Read the following statements about the vascular bundles :

(a) In roots, xylem and phloem in a vascular bundle are arranged in an alternate manner along the different radii.

(b) Conjoint closed vascular bundles do not possess cambium

(c) In open vascular bundles, cambium is present in between xylem and phloem

(d) The vascular bundles of dicotyledonous stem possess endarch protoxylem

(e) In monocotyledonous root, usually there are more than six xylem bundles present

Choose the **correct answer** from the options given below :

(1) (b), (c), (d) and (e) only

(2) (a), (b), (c) and (d) only

(3) (a), (c), (d) and (e) only

(4) (a), (b) and (d) only

PA0282

57. The anatomy of springwood shows some peculiar features. Identify the **correct** set of statements about springwood.

(a) It is also called as the earlywood

(b) In spring season cambium produces xylem elements with narrow vessels

(c) It is lighter in colour

(d) The springwood along with autumnwood shows alternate concentric rings forming annual rings

(e) It has lower density

Choose the **correct answer** from the options given below:

(1) (a),(c),(d) and (e) Only

(2) (a), (b) and (d) Only

(3) (c), (d) and (e) Only

(4) (a),(b),(d) and (e) Only

PA0283

NEET(UG) 2022 (OVERSEAS)

58. Select the **correct** statement related to the activity of cork cambium.

(1) The cork differentiated from cork cambium, is impervious to water due to deposition of tannins and resins.

(2) Cuts the cells only on the outer side.

(3) Cuts the cells on inner as well as outer side.

(4) The outer cells differentiate into phelloderm.

PA0284

59. Axillary buds are derived from the activity of:

(1) Secondary meristem

(2) Apical meristem

(3) Intercalary meristem

(4) Lateral meristem

PA0285

60. Which of the following is not a character of collenchyma tissue?

(1) They occur in layers below epidermis in dicotyledonous plants.

(2) They consist of cells with thick corners due to cellulose deposition.

(3) They are usually dead and without protoplasts.

(4) They provide mechanical support to the growing part of the plant.

PA0286

Re-NEET(UG) 2022

61. Initiation of lateral roots and vascular cambium during secondary growth takes place in cells of :

(1) Epiblema

(2) Cortex

(3) Endodermis

(4) Pericycle

PA0287

62. The type of tissue commonly found in the fruit wall of nuts is :

(1) Parenchyma

(2) Collenchyma

(3) Sclerenchyma

(4) Sclereid

PA0288

63. Interfascicular cambium is present between :

(1) Primary xylem and primary phloem

(2) Pericycle and endodermis

(3) Two vascular bundles

(4) Secondary xylem and secondary phloem

PA0289

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**3**	**2**	**3**	**3**	**2**	**1**	**1**	**1**	**1**	**4**	**3**	**2**	**3**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**4**	**1**	**3**	**4**	**4**	**2**	**3**	**3**	**2**	**2**	**1**	**1**	**4**	**2**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**3**	**1**	**2**	**2**	**2**	**1**	**2**	**4**	**1**	**4**	**2**	**4**	**4**	**1**	**3**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**2**	**4**	**4**	**1**	**1**	**2**	**3**	**3**	**2**	**3**	**1**	**1**	**3**	**2**	**3**
Que.	61	62	63												
Ans.	**4**	**4**	**3**												

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) [NCERT Based QUESTIONS]

1. Branch of botany related with study of internal structure of plants.
(1) Cytology
(2) Anatomy
(3) Physiology
(4) Ecology

PA0161

2. A tissue is a group of cells having a
(1) Common origin and dissimilar in function.
(2) Dissimilar origin and common in function.
(3) Dissimilar origin and common in function
(4) Common origin and usually perfoming a common function.

PA0162

3. In embryonic stage, cells are
(1) Collenchymatous
(2) Sclerenchymatous
(3) Meristematic
(4) Parenchymatous

PA0163

4. Apical meristem is present
(1) At the tips of roots
(2) At the tips of shoots
(3) In buds which are present in axils of leaves
(4) All of the above

PA0164

5. Which of the following is an example of primary meristem
(1) Phellogen
(2) Vascular cambium of root
(3) Interfascicular cambium
(4) Intrafascicular cambium

PA0165

6. Which of the following is/are example(s) of lateral meristems
(1) Fascicular vascular cambium
(2) Inter-fascicular cambium
(3) Cork cambium
(4) All of the above

PA0166

7. Example(s) of primary permanent tissue(s) is/are
(1) Parenchyma
(2) Collenchyma
(3) Sclerenchyma
(4) All of the above

PA0167

8. Which of the following statement(s) is/are true about parenchyma?
(1) The cells are generally isodiametric
(2) The cells may either be closely packed or have intercellular spaces.
(3) It performs various functions like photosynthesis, storage & secretion.
(4) All of the above

PA0168

9. Which of the following tissue provides mechanical support to the growing parts of the plant such as young stem and petiole of a leaf.
(1) Parenchyma (2) Collenchyma
(3) Sclereids (4) Fibres

PA0169

10. Living elements of xylem is
(1) Tracheid
(2) Vessel
(3) Xylem parenchyma
(4) Xylem fibre

PA0170

11. Companion cells are present in the phloem of
(1) Pteridophytes (2) Gymnosperms
(3) Angiosperms (4) Both 1 and 2

PA0171

12. Vessels differ from tracheids in having
(1) In being living
(2) Presence of perforation plates at both ends
(3) Enucleated condition
(4) All of the above

PA0172

13. Which of the following is/are bast fibre/s ?
(1) Jute (2) Flax
(3) Hemp (4) All of the above

PA0173

14. When a meristematic tissue "Intra fascicular cambium" is present inside a vascular bundle, the vascular bundle is called
(1) Conjoint (2) Open
(3) Closed (4) Radial
PA0174

15. Which of the following is not included in stomatal apparatus
(1) Stomatal aperture
(2) Guard cells
(3) Subsidiary cells
(4) Sclerenchymatous cells
PA0175

16. Consider the following statements.
(a) Phloem fibres are made up of sclerenchymatous cells
(b) Phloem parenchyma are generally present in monocots
(c) The first formed primary phloem consists of narrow sieve tube and is referred to as protophloem and the later formed phloem has bigger sieve tubes and is referred to as metaphloem
Which statement(s) is/are false ?
(1) Only a (2) Only b
(3) Only c (4) a, b, and c
PA0262

17. The outside of the epidermis is often covered with a waxy thick layer, called
(1) Hypodermis (2) Cuticle
(3) Root hair (4) Stem hair
PA0263

18. Cuticle is absent in
(1) Roots (2) Dicot Stem
(3) Leaves (4) Monocot stem
PA0264

19. In which plant vascular bundles are scattered in ground tissue and each vascular bundle is surrounded by sclerenchymatous bundle sheath
(1) Maize (2) Sunflower
(3) Gram (4) Ficus
PA0176

20. Pith is small or inconspicuous in
(1) Monocot root (2) Monocot stem
(3) Dicot root (4) Dicot stem
PA0177

21. The dicot root is identified from the monocot root by the presence of
(1) Exarch xylem
(2) 2-4 xylem bundles
(3) > 6 xylem bundles
(4) Large and well developed pith
PA0178

22. Parenchymatous cells with large intercellular spaces which occupy the central portion of the stem constitute
(1) Cortex
(2) Pith
(3) Hypodermis
(4) Epidermis
PA0265

23. In grasses, certain adaxial epidermal cells along the veins modify themselves into large, empty, colourless cells. These cells are called :-
(1) Bulliform cells
(2) Starch sheath cells
(3) Companion cells
(4) Complimentary cells
PA0266

24. In dicot stem, the cells of cambium present between primary xylem and primary phloem is the
(1) Interfascicular cambium
(2) Vascular cambium
(3) Intrafascicular cambium
(4) Cork cambium
PA0267

25. The innermost layer of cortex of dicot root is characterised by presence of suberin thickening. This suberin thickening occurs on
(1) Radial walls
(2) Transverse wall
(3) Tangential wall
(4) Both 1 & 3
PA0268

26. The parenchymatous cells lies between xylem & phloem of root is known as
(1) Cambium
(2) Conjunctive tissue
(3) Pith
(4) Pericycle
PA0269

27. Regarding to stele which of the following statement is correct ?
(1) All the tissues lies inner to pericycle
(2) All the tissues lies inner to endodermis
(3) All the tissues lies inner to hypodermis
(4) All the tissues lies inner to epidermis
PA0270

28. Complimentary cells are formed by the activity of
(1) Vascular cambium
(2) Inter fascicular cambium
(3) Phellogen
(4) Intra fascicular cambium
PA0181

29. Vascular cambium cuts off cells more
(1) Towards centre
(2) Towards periphery
(3) Both 1 and 2
(4) None of these
PA0182

30. In a dicot root, vascular cambium originates from
(1) Parenchymatous conjuctive tissue located just below phloem bundles
(2) Medullary rays
(3) A portion of pericycle tissue, lying opposite to protoxylem
(4) Both 1 and 3
PA0183

31. In a dicot root, the pericycle gives rise to
(1) Lateral roots
(2) Cork cambium
(3) A portion of vascular cambium
(4) All of the above
PA0184

EXERCISE-III(B) [Analytical QUESTIONS]

32. Select true statement
(1) Lenticels occur in woody trees
(2) Bark is a non-technical term
(3) Vascular cambium and cork cambium are examples of lateral meristems
(4) All of the above
PA0185

33. During secondary growth in dicot stem, At some places, the cambium forms a narrow band of parenchyma, which passes through the secondary xylem and secondary phloem in radial directions. These are called :-
(1) Sap wood
(2) Heart wood
(3) Secondary medullary rays
(4) Primary medullary rays
PA0271

34. Bark that is formed early in the season is called
(1) Late bark (2) Soft bark
(3) Hard bark (4) Ring bark
PA0272

35. At certain regions, the phellogen cuts off closely arranged parenchymatous cells on the outer side instead of cork cells. These are called :-
(1) Phellem
(2) Periderm
(3) Bark
(4) Complimentary cells
PA0273

36. The cells of secondary cortex are :-
(1) Sclerenchymatous (2) Parenchymatous
(3) Collenchymatous (4) Meristematic
PA0274

37. In dicot root, the vascular cambium is.
(1) Primary in origin
(2) Completely secondary in origin
(3) Both primary and secondary in origin
(4) Neither primary nor secondary in origin
PA0275

38. Due to continuous growth of secondary xylem which of the following get crushed gradually
(1) Primary phloem
(2) Earlier formed secondary phloem
(3) Either 1 or 2
(4) both 1 and 2
PA0276

39. After secondary growth what is the actual future of primary xylem ?
(1) Converts into secondary xylem
(2) Remains more or less intact in or around the centre
(3) Converts into secondary phloem
(4) Gets crushed
PA0277

40. In plants, during early embryonic condition-
(1) All cells of the embryo divide
(2) Meristematic activity is confined to single apical cell
(3) Meristematic activity is confined to a group of apical cells.
(4) Apical & lateral cells only divide

PA0186

41. Tissue which develops more due to scarcity of water or tissue which is lignified -
(1) Sclerenchyma (2) Collenchyma
(3) Parenchyma (4) Meristem

PA0188

42. A mature sieve tube differs from a vessel -
(1) In lacking a functional nucleus
(2) Absence of lignified walls
(3) Being nearly dead
(4) Lacking cytoplasm

PA0189

43. Sieve plates in angiosperms are -
(1) Oblique & in lateral walls
(2) Pitted & in end wall
(3) Oblique & in end wall
(4) Straight & in lateral wall

PA0190

44. According to Haberlandt theory, the part differentiated by protoderm is-
(1) Cortex
(2) Xylem & phloem
(3) Ground tissue system
(4) Epidermal tissue system

PA0192

45. T.S. of a material exhibits conjoint, collateral endarch and closed bundles scattered in a ground tissue what should be the material -
(1) Monocot root (2) Dicot root
(3) Monocot stem (4) Dicot stem

PA0194

46. In respect of many grasses, the presence of bulliform or motor cells in the upper epidermis of leaves is to:-
(1) Increase the surface area of the leaf
(2) Store large amount of water
(3) Check transpiration by reducing the surface area of the leaf
(4) Bear unicellular trichomes

PA0197

47. Heart wood of most of the woody trees, fails to conduct sap due to the obstruction by ?
(1) Excess secondary wall deposition
(2) Storing a variety of material by tyloses
(3) Deposition of reserved food material
(4) Ray parenchyma

PA0198

48. The trees growing in deserts will -
(1) Show alternate rings of xylem and sclerenchyma
(2) Show distinct annual rings
(3) Not show distinct annual rings
(4) Have only conjunctive tissue and pholem formed by the activity of cambium

PA0199

49. Sap wood differ from heart wood in being -
(1) Darker and non conducting
(2) Softer and non conducting
(3) Lighter and conducting
(4) Harder, darker and less conducting

PA0200

50. If a stem is girdled-
(1) Root dies first
(2) Shoot dies first
(3) Both die together
(4) None of the above die

PA0201

51. Spring wood (early wood) differs with autumn wood (late wood) in -
(1) Size of vessels and tracheids
(2) Thickness of cell wall
(3) Amount of wood
(4) All the above

PA0203

52. Most conspicuous annual rings are formed in -
(1) Temperate evergreen plants
(2) Tropical deciduous
(3) Temperate deciduous plants
(4) Tropical evergreen

PA0204

53. In dicot root which tissue becomes dead due to activity of phellogen
(1) All tissue outside cortex
(2) Tissue outside hypodermis
(3) Tissue outside endodermis
(4) Tissue outside pericycle

PA0205

54. Physiologically functional part of wood is
(1) Heart wood only
(2) Sap wood only
(3) Only primary wood
(4) Both heart wood & sap wood

PA0207

55. Which of the following is not a part of stomatal apparatus ?
(1) Stomatal aperture (2) Guard cells
(3) Lenticels (4) Subsidiary cells

PA0278

56. Which is not correct about heartwood
(1) It is formed of living cells
(2) It contains resins, tannin and other organic contents
(3) It is of dark coloured
(4) It lies in the central region of secondary xylem

PA0209

57. Outer lighter coloured region of wood of tree is
(1) Autumn wood (2) Spring wood
(3) Heart wood (4) Sap wood

PA0210

58. After two or three years of secondary growth the cortex in dicot roots
(1) Remains intact
(2) Is completely sloughed away
(3) Is largely lost
(4) Is converted into cork

PA0211

59. When secondary growth in thickness is initiated in a dicot root, which of the following happens first ?
(1) Cambial initials between xylem and phloem will divide
(2) Pericycle strands, outside the primary xylem will divide
(3) Periclinal division takes place, so that the cambium becomes circular
(4) Parenchymatous cells between xylem and phloem become meristematic

PA0212

60. Complementary cells of lenticels are
(1) Compact and suberised
(2) Closely arranged and non suberised
(3) Compact and lignified
(4) Loose and lignified

PA0213

61. In a woody dicotyledonous tree, which of the following parts will mainly consist of primary permanent tissues ?
(1) Stem and root
(2) All parts
(3) Shoot tips and root tips
(4) Flowers, fruits and leaves

PA0214

EXERCISE-III (Analytical Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	4	3	4	4	4	4	4	2	3	3	2	4	2	4
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	2	1	1	3	2	2	1	3	4	2	2	3	1	4
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	4	4	3	2	4	2	2	4	2	1	1	2	3	4	3
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	3	2	3	3	1	4	3	4	2	3	1	4	2	4	2
Que.	61														
Ans.	4														

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)
path to success

PRE-MEDICAL

ZOOLOGY

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EXERCISE

Structural Organisation in Animals (Animal Tissues)

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

NEPITHELIAL TISSUE

1. Epithelial tissue with thin flat cells appearing like packed tiles occurs on :-
(1) Inner lining of intestine
(2) Inner lining of stomach
(3) Inner lining of fallopian tubes
(4) Outer surface of Intestine

AT0001

2. Germinal Epithelium of ovary is formed of :-
(1) Columnar Epithelium
(2) Squamous Epithelium
(3) Cuboidal Epithelium
(4) Stratified Epithelium

AT0002

3. Epidermis of skin of vertebrates comprises:-
(1) Simple Epithelium
(2) Stratified Epithelium
(3) Transitional Epithelium
(4) Columnar Epithelium

AT0003

4. Inner lining of Blood vessels and heart is tesselleted Epithelium. Which is :-
(1) Simple squamous due to wavy appearance
(2) Simple squamous due to tile like appearance
(3) Simple cuboidal due to wavy appearance
(4) Simple columnar Epithelium

AT0004

5. Lining of larynx is :-
(1) Stratified ciliated columnar Epithelium
(2) Stratified squamous Epithelium
(3) Stratified cuboidal Epithelium
(4) Stratified columnar Epithelium

AT0005

6. Olfactory Epithelium (Scheneidarian membrane) is composed of :-
(1) Neuro sensory Epithelium
(2) Simple sq. Epithelium
(3) Simple cuboidal
(4) Germinal Epithelium

AT0006

7. Basement membrane can not be seen in :
(1) Streched Transitional Epithelium
(2) Sq. Epithelium
(3) Columnar Epithelium
(4) Unstreched transitional epithelium

AT0007

8. Stretchable & Water proof Epithelium :-
(1) Simple cuboidal
(2) Simple squamous
(3) Simple Columnar
(4) Transitional

AT0008

9. Mesothelium is :-
(1) Lining of coelom which originated from mesoderm
(2) Lining of coelom which originated from ectoderm
(3) Lining of heart which originated from Endoderm
(4) Lining of heart which originated from Mesoderm

AT0009

10. Lining of brain ventricle & central canal of spinal cord is called as:-
(1) Ependyma (2) Endothelium
(3) Mesothelium (4) Neurosensory

AT0010

11. This epithelium is made up of a single thin layer of flattened cells and is involved in diffusion, it is found in :-
(1) Walls of blood vessels
(2) Ducts of glands
(3) Tubular parts of nephrons
(4) All of these

AT0011

12. Exoskeleton (Eg feathers, nail, horn, hoofs) originated from :-
(1) Connective tissue proper
(2) Epithelium tissue
(3) Skeletal tissue
(4) Vascular tissue

AT0012

13. Germinative layer of Keratinized st. sq. Epithelium :-
(1) Cuboidal
(2) Squamous
(3) Pseudo stratified
(4) Transitional

AT0013

14. Mucus cells (Goblet cells) :-
(1) Unicellular gland
(2) Multicellular glands
(3) Endocrine glands
(4) Parietal cells of gastric glands

AT0014

15. Sweat glands are :-
(1) Merocrine
(2) Endocrine
(3) Holocrine
(4) Unicellular

AT0015

16. Ependyma is :-
(1) Ciliated pseudostratified columnar
(2) Ciliated columnar
(3) Ciliated cuboidal epithelium
(4) Non Ciliated Columnar

AT0016

17. Trachea consist of _____ epithelium :-
(1) Simple columnar
(2) PSCCGE
(3) Simple cuboidal
(4) Stratified cuboidal

AT0017

18. Lining of blood vessel and air sacs of lungs are made up of :-
(1) Squamous Epithelium
(2) Columnar Epithelium
(3) Cuboidal Epithelium
(4) Pseudo stratified Epithelium

AT0018

19. Lining of uterus (Endometrium) is :-
(1) St. squamous
(2) Simple squamous
(3) Simple columnar epithelium
(4) Ciliated Pseudostratified

AT0019

20. In Transitional Epithelium :-
(1) Inner most layer is Cuboidal cell layer
(2) Inner most layer is Columnar cell layer
(3) Inner most layer is Pear shaped cell layer
(4) Inner most layer is umbrella shaped cell layer

AT0020

21. Lining of sebaceous duct is composed of :-
(1) Cuboidal stratified Epithelium
(2) Startified squamous
(3) Simple columnar
(4) Simple squamous

AT0021

22. Choroid of eye lined by :-
(1) Cuboidal Epithelium
(2) Squamous Epithelium
(3) Ciliated Epithelium
(4) Columnar Epithelium

AT0022

23. Brush border Epithelium (Microvilli containing) found in:-
(1) PCT
(2) Loop of henle
(3) Collecting duct
(4) Bowman's capsule

AT0023

24. Epithelium of Retina & Thyoroid is made up of which type of cells :-
(1) Squamous + Cuboidal
(2) Columnar + Cuboidal
(3) Columnar + squamous
(4) Only Cuboidal

AT0024

25. Characteristic of simple epithelium is :-
(1) They are arranged in discrminately
(2) They make a definite layer
(3) Continue to devide and help in organ function
(4) Never divide

AT0025

26. Who is founder of microscopic anatomy :-
(1) Bichat
(2) Ruysch
(3) Malpighi
(4) Hartwig

AT0026

27. Tesselated epithelium is present in:-
(1) Ependymal membrane
(2) Endothelium
(3) Shnederian membrane
(4) Uterus

AT0027

28. Basement membrane of epithelium tissue is composed of:-
(1) Lypoprotein
(2) Polypeptide
(3) Mucopolysaccharide
(4) Mucopolysaccharide and glycoprotein

AT0028

29. Germinal epithelium is composed of :-
(1) Cubodial epithelium
(2) Columner epithelium
(3) Squamous epithelium
(4) Glandular epithelium

AT0029

30. Inner lining of vagina is composed of :-
(1) Stratified ciliated columner epithelium
(2) Cubodial epithelium
(3) Simple squamous epithelium
(4) Stratified squamous epithelium

AT0030

31. Secretory part of sweat gland is composed of :-
(1) Cubodial epithelium
(2) Columner epithelium
(3) Pseudostratified epithelium
(4) Squamous epithelium

AT0031

32. Glands of vertebrates are originated from :-
(1) Ectodermal
(2) Endodermal
(3) Mesodermal
(4) All the above

AT0032

33. Select the false statement with respect to epithelial tissue.
(1) It has a free surface
(2) It faces body fluids sometimes
(3) It faces the external environment sometimes
(4) it sometimes forms middle structure part of organs

AT0033

34. Gall bladder lined by :-
(1) Simple columner epithelium
(2) Stratified columner epithelium
(3) Brush border columner epithelium
(4) Brush border cuboidal epithelium

AT0034

35. Which one is a apocrine gland :-
(1) Oil gland
(2) Mammary gland
(3) Goblet cell
(4) Parotid gland

AT0035

36. Inner lining of stomach, rectum and colon is made of:-
(1) Simple squamous epi.
(2) Simple cuboidal epi.
(3) Simple columnar epi.
(4) Pseudostratified epi.

AT0036

37. Wall of Bowman's capsule in nephron is made up of :-
(1) Cuboidal epithelium
(2) Columnar epithelium
(3) Squamous epithelium
(4) Glandular epithelium

AT0037

38. Lining of salivary glands is made up of :-
(1) Stratified Squamous epithelium
(2) Stratified Cuboidal epithelium
(3) Stratified columner epithelium
(4) Transitional epithelium

AT0038

39. Duct of mammary gland is composed of:-
(1) Stratified cuboidal epithelium
(2) Stratified columnar epithelium
(3) Stratified squamous epithelium
(4) Pseudostratified epithelium

AT0039

40. Which of the following is made up of cube like cells?
(1) Epithelium of fallopian tubes
(2) Epithelium of PCT
(3) Epithelium of stomach
(4) Epithelium of alveoli

AT0040

41. Sweat glands of human being originate from:-
(1) Ectoderm (2) Mesoderm
(3) Endoderm (4) All the above

AT0041

42. Mesothelium or peritoneum originate from:-
(1) Ectoderm (2) Endoderm
(3) Ectomesoderm (4) Mesoderm

AT0042

43. Vesicles of thyroid gland is composed of:-
(1) Simple squamous epithelium
(2) Simple cuboidal epithelium
(3) Stratified squamous epithelium
(4) Stratified cuboidal epithelium

AT0043

44. Which gland secretes chemical by simple difusion:-
(1) Apocrine gland (2) Holocrine gland
(3) Merocrine gland (4) Oil gland
AT0044

45. Compound squamous epithelium occurs in
(1) Stomach (2) Pharynx
(3) Intestine (4) Trachea.
AT0045

46. Epithelial tissue is
(1) Protective covering
(2) Reproductive structure
(3) Nerve cells
(4) Corpuscles.
AT0046

47. Stratified and nonkeratinised squamous epithelium occurs in
(1) Epidermis of skin
(2) Vagina and cervix
(3) Buccal cavity
(4) Both 2 and 3.
AT0047

48. Basement membrane is formed of
(1) Epidermal cells
(2) Endodermal cells
(3) Both 1 and 2
(4) None of the above but present below epithelial cells.
AT0048

49. Regeneration after injury is absent in
(1) Nervous tissue
(2) Skin epidermis
(3) Tendon
(4) Smooth muscles.
AT0049

50. Brush border epithelium occurs in
(1) Trachea (2) Stomach
(3) Small intestine (4) Oesophagus
AT0050

51. Adjacent epithelial cells are held together by means of
(1) Liposomes
(2) Glyoxisomes/glyoxysomes
(3) Desmosomes
(4) Microsomes.
AT0051

52. Which of the following is not an endocrine gland ?
(1) Thyroid (2) Thymus
(3) Adrenal (4) Salivary
AT0052

53. Simple epithelium is made of
(1) Noncellular layer of hyaluronic acid
(2) Actively dividing cells
(3) Loosely arranged cells
(4) Compactly packed single layer of cells.
AT0053

54. Sebaceous glands are
(1) Apocrine (2) Holocrine
(3) Merocrine (4) Endocrine
AT0054

55. Characteristic of epithelial tissues is
(1) Never produce glands
(2) Cells can undergo rapid divisions
(3) Abundant vascularisation
(4) Large intercellular spaces.
AT0055

CONNECTIVE TISSUE

56. Volkmann's canal inter connect :-
(1) Bone marrow
(2) 3rd & 4th ventricle of Brain
(3) Central canals & 4th ventricle
(4) Haversian canals
AT0056

57. Our heart consists of :-
(i) Epithelial tissue (ii) Connective tissue
(iii) Muscular tissue (iv) Nervous tissue
(1) Only ii (2) i & iii only
(3) ii, iii & iv only (4) All of these
AT0057

58. Supportive connective tissue means :-
(1) Tendon (2) Cartilage & Bone
(3) Ligaments (4) Blood & Lymph
AT0058

59. Inter vertebral disc are composed of :-
(1) Hyaline cartilage
(2) Elastic cartilage
(3) White fibrous cartilage
(4) Calcified cartilage
AT0059

60. Epiglottis is composed of :-
(1) Hyaline cartilage
(2) White fibro cartilage
(3) Both
(4) Elastic cartilage
AT0060

61. Calcified cartilage found in :-
(1) Head of femur and humerus in human
(2) Diaphysis (shaft of long Bone)
(3) Articular surface of long Bone
(4) Sternum
AT0061

62. Decalcified Bone is :-
(1) Bone with only organic matter
(2) Bone with only Inorganic matter
(3) Bone without living cells
(4) Bone without peristomium
AT0062

63. Femur & Humerus are :-
(1) Membranous Bone
(2) Investing Bone
(3) Cartilagenous Bone
(4) Sesamoid Bone
AT0063

64. Patella is largest :-
(1) Membranous Bone
(2) Cartilage Bone
(3) Heterotypic Bone
(4) Sesamoid Bone
AT0064

65. Epiphysis & Diaphysis of bone is :-
(1) End and shaft of long bone respectively
(2) Shaft & end of long bone respectively
(3) Head & neck of long bone
(4) Spongy bone only
AT0065

66. Clavicle is :-
(1) Membranous bone
(2) Cartilagenous bone
(3) Visceral bone
(4) Sesamoid bone
AT0066

67. Haversian canal contain :-
(1) Blood vessels and Nerves
(2) Blood vessels only
(3) Lymphocyte only
(4) Connective tissue only
AT0067

68. All the following cells produces collagen except :-
(1) Osteoblast
(2) Chondroblast
(3) Fibroblast
(4) Mast cells
AT0068

69. Alveoli has :-
(1) Yellow fibrous connective tissue
(2) White fibrous connective tissue
(3) Areolar connective tissue
(4) Adipose connective tissue
AT0069

70. Wharton jelly in umblical cord is :-
(1) Mucoid connective tissue
(2) Reticular connective tissue
(3) Areolar connective tissue
(4) Adipose connective tissue
AT0070

71. Vitreous humour is :-
(1) Reticular
(2) Areolar
(3) Adipose
(4) Mucoid connective tissue
AT0071

72. Fibroblast secretes :-
(1) Matrix (2) Fibres
(3) Both 1 and 2 (4) Cells
AT0072

73. Scavanger cells of alveoli called :-
(1) Melanophage
(2) Monocytes / Macrophage
(3) Dust cell
(4) Microglial cell
AT0073

74. Mast cell secret :-
(1) Anticoagulant : Heparin
(2) Vasodilator : Histamine
(3) Vaso constrictor : Serotonin
(4) All of the above
AT0074

75. Matrix of cartilage produced by :-
(1) Chondrocytes (2) Chondroclasts
(3) Osteocytes (4) Histiocytes
AT0075

76. Which of following is lack of blood supply :-
(1) Bone (2) Cartilage
(3) Connective tissue (4) All
AT0076

77. In Hyaline cartilage matrix is :-
(1) Granular
(2) Transparent
(3) Agranular
(4) Semi transparent
AT0077

78. Sprain of body is due to pulling of :-
(1) Muscles (2) Ligaments
(3) Tendon (4) Nerves
AT0078

79. Haversian canal occur in :-
(1) Humerus (2) Pubis
(3) Scapula (4) Clavicles
AT0079

80. Protein present in cartilage & bone :-
(1) Chondrin & ossein respectively
(2) Chondrotin sulphate
(3) Cartilagein
(4) None
AT0080

81. Which type of connective tissue present in the wall of bronchiole :-
(1) White fibrous C.T. (2) Areolar C. T.
(3) Yellow fibrous C. T. (4) Reticular C. T.
AT0081

82. Macrophages of spleen are :-
(1) Microgleal cell
(2) Dust cell
(3) Reticulo endothelial cell
(4) Monocyte cell
AT0082

83. Tela subcutanea of Human is composed of :-
(1) Mucoid C. T. (2) Adipose C. T.
(3) Areolar C. T. (4) Pigmented C. T.
AT0083

84. Skeletal tissue originated from which embryonic germinal layer :-
(1) Ectoderm (2) Mesoderm
(3) Endoderm (4) All the above
AT0084

85. Scavanger cell of connective tissue proper is called as-
(1) Fibroblast cell (2) Mast cell
(3) Plasma cell (4) Macrophages
AT0085

86. Septa which connect skin with underlaying muscle are made up of :-
(1) Epithelium tissue
(2) Yellow fibrous C. T.
(3) Adipose C. T.
(4) Areolar C. T.
AT0086

87. Which protein is present in largest amount in human body :-
(1) Collagen (2) Elastin
(3) Albumin (4) Keratin
AT0087

88. Endosteum is composed of :-
(1) White fibrous C. T. (2) Reticular C. T.
(3) Yellow fibrous C. T. (4) Areolar C. T.
AT0088

89. Matrix of connective tissue proper is secreted by-
(1) Mast cell (2) Fibroblast cell
(3) Fibrocyte cell (4) All the above
AT0089

90. Yellow fibers are present in :-
(1) Arrange in bundles
(2) Singly and branched
(3) Singly and unbranched
(4) Unbranched & arrange in bundles
AT0090

91. Arzyrophill fibers are present in :-
(1) In spleen (2) In tendons
(3) In ligament (4) In blood vessel
AT0091

92. Strongest ligament of human body is :-
(1) Ligamentum flava
(2) Ilio-femoral Ligament
(3) Ligamentum nuchae
(4) Ligamentum arteriosis
AT0092

93. The covering of articular cartilage is made up of:-
(1) Areolar C.T.
(2) Yellow fibrous C.T.
(3) White fibrous C.T.
(4) Reticular C.T.
AT0093

94. Maximum cartilage of larynx are the example of–
(1) Calcified cartilage
(2) Elastic cartilage
(3) White fibro cartilage
(4) Hyaline cartilage
AT0094

95. Which of the following are specialised connective tissue :-
(1) Cartilage (2) Bone
(3) Blood (4) All
AT0095

96. Cytoplasmic process of osteocytes are present in
(1) Central canal (2) Volkman canal
(3) Haversion canal (4) Canaliculi
AT0096

97. Condrin is composed of :–
(1) Condrotin– 6–sulphate and ossein
(2) Dextrin
(3) Condrotin– 6–sulphate and hyluronic acid
(4) Condrotin– 6–sulphate and condrocyte)

AT0097

98. Histiocyte of brain is :–
(1) Reticular cell (2) Microglial cell
(3) Hessel's corpuscle (4) Monocyte

AT0098

99. Most of the cells present in areolar connective tissue are :–
(1) Mast cell (2) Plasma cell
(3) Fibroblast (4) Macrophages

AT0099

100. Cartilage is present in :-
(1) Between adjacent bones of vertebral column and limb
(2) In middle of the long bone
(3) Both
(4) None

AT0100

101. Spleen and lymph nodes are made up of :–
(1) Areolar C.T.
(2) White fibrous C.T.
(3) Reticular fibrous C.T.
(4) Mucoid C.T.

AT0101

102. Which structure composed of yellow fibrous cartilage :–
(1) Thyroid
(2) Cricoid
(3) Epiglottis
(4) Tracheal rings

AT0102

103. Heparin is :–
(1) Protein
(2) Fat
(3) Carbohydrate
(4) Mucopolysacchride

AT0103

104. Transverse channels present in long bones of mammals :–
(1) Canaliculi
(2) Haversian's canal
(3) Volkmann's canal
(4) Vascular canal

AT0104

105. Which cartilage present on the end of long bone:-
(1) Hyaline cartilage (2) Fibrous cartilage
(3) Calcified cartilage (4) Elastic cartilage

AT0105

106. Which of the following have hard and non pliable ground substance :-
(1) Cartilages (2) Bones
(3) Both (4) Areolar tissues

AT0106

107. Histamine is secreted by :-
(1) Fibroblasts (2) Plasma cell
(3) Mast cells (4) Lymphocytes

AT0107

108. Mammalian pinna is supported by
(1) Hyaline cartilage
(2) Calcified cartilage
(3) Elastic cartilage
(4) White fibrous connective tissue

AT0108

109. Fibres present in the form of bundles are
(1) Elastic (2) Reticular
(3) Elastic and reticular (4) Collagen

AT0109

110. Which one is unrelated ?
(1) Keratin (2) Elastin
(3) Dextrin (4) Collagen
AT0110

111. Protein present in cartilage is
(1) Cartilagin (2) Chondrin
(3) Ossein (4) Casein
AT0111

112. Ends of two long bones are 'connected' by
(1) Cartilage (2) Muscles
(3) Ligaments (4) Tendons
AT0112

113. Regeneration of cartilage can occur from its
(1) Matrix
(2) Plasma
(3) Perichondrium
(4) A piece without perichondrium
AT0113

114. Mast cells occur in
(1) Connective tissue (2) Epithelial tissue
(3) Skeletal tissue (4) Nervous tissue.
AT0114

115. White fibrous tissue is
(1) Nervous (2) Muscular
(3) Ligaments (4) Tendons.
AT0115

116. Loose conective tissue is
(1) Areolar (2) Bone
(3) Blood (4) Cartilage.
AT0116

117. Ligament is
(1) Modified white fibrous tissue
(2) Solid white fibrous tissue
(3) Modified elastic connective tissue
(4) Cartilage
AT0117

118. Cartilage present in trachea, larynx and bronchi is
(1) Fibrous (2) Elastic
(3) Hyaline (4) Calcified.
AT0118

119. Cartilage is
(1) Nonvascular
(2) Harder than bone
(3) Highly vascular
(4) Covered by periosteum
AT0119

120. An anticoagulant is
(1) Heparin (2) Hirudin
(3) EDTA (4) All the above
AT0120

121. Collagen and elastin are formed by
(1) Macrophages (2) Fibroblasts
(3) Mast cells (4) Chondrocytes
AT0121

122. Which is not a component of areolar tissue
(1) Macrophage (2) Plasma cell
(3) Schwann cell (4) Adipose cell
AT0122

123. Bones are mainly formed of
(1) Calcium and Magnesium
(2) Calcium and Phosphorus
(3) Calcium and Sulphur
(4) Calcium and Iron
AT0123

124. Nasal septum gets damaged. Its recovery requires cartilage called :
(1) Fibrous cartilage
(2) Elastic cartilage
(3) Hyaline cartilage
(4) Calcified cartilage
AT0124

125. What will happen if ligaments are cut or broken:-
(1) Bones will move freely at joints
(2) No movement at joint
(3) Bone will become unfix
(4) Bone will become fixed

AT0125

126. Which one of the following contains the largest quantity of extracellular material :-
(1) Striated muscle
(2) Areolar tissue
(3) Stratified epithelium
(4) Myelinated nerve fibres

AT0126

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**4**	**3**	**2**	**1**	**1**	**1**	**1**	**4**	**1**	**1**	**1**	**2**	**1**	**1**	**1**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**2**	**1**	**3**	**1**	**1**	**1**	**1**	**4**	**2**	**3**	**2**	**4**	**1**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**4**	**4**	**3**	**2**	**3**	**3**	**2**	**1**	**2**	**1**	**4**	**2**	**3**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**1**	**4**	**4**	**1**	**3**	**3**	**4**	**4**	**2**	**2**	**4**	**4**	**2**	**3**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**1**	**3**	**4**	**1**	**1**	**1**	**4**	**1**	**1**	**4**	**3**	**3**	**4**	**1**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**2**	**4**	**2**	**1**	**1**	**3**	**3**	**3**	**2**	**4**	**4**	**1**	**2**	**4**	**2**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**1**	**2**	**3**	**4**	**4**	**4**	**3**	**2**	**3**	**1**	**3**	**3**	**4**	**3**	**1**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**2**	**3**	**3**	**4**	**3**	**2**	**3**	**3**	**1**	**4**	**1**	**3**	**3**	**1**	**4**
Que.	121	122	123	124	125	126									
Ans.	**2**	**3**	**2**	**3**	**3**	**2**									

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Areolar connective tissue joins –
(1) Fat body with muscles
(2) Integument with muscles
(3) Bones with muscles
(4) Bones with bones

AT0127

2. Mast cells secrete –
(1) Hippurin (2) Myoglobin
(3) Histamine (4) Hemoglobin

AT0128

AIPMT 2007

3. In which one of the following preparations are you likely to come across cell junctions most frequently?
(1) Hyaline cartilage
(2) Ciliated epithelium
(3) Thrombocytes
(4) Tendon

AT0130

AIPMT 2009

4. The cell junctions called tight, adhering and gap junctions are found in :-
(1) Neural tissue
(2) Muscular tissue
(3) Connective tissue
(4) Epithelial tissue

AT0131

5. The kind of tissue that forms the supportive structure in our pinna (external ears) is also found in :-
(1) Tip of the nose
(2) Vertebrae
(3) Nails
(4) Ear ossicles

AT0132

6. The epithelial tissue present on the inner surface of bronchioles and fallopian tubes is :-
(1) Squamous (2) Cuboidal
(3) Glandular (4) Ciliated

AT0133

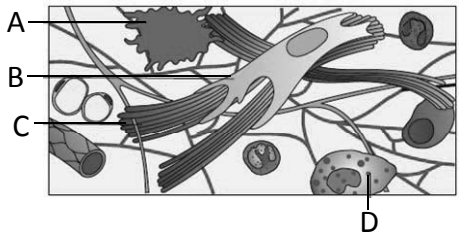
AIPMT-Pre 2010

7. The kind of epithelium which forms the inner walls of blood vessels is :
(1) squamous epithelium
(2) cuboidal epithelium
(3) columnar epithelium
(4) ciliated columnar epithelium

AT0134

AIPMT-Mains 2012

8. Given below is the diagrammatic sketch of a certain type of connective tissue. Identify the parts labelled A, B, C and D, and select the right option about them.

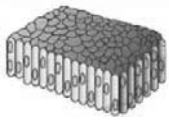


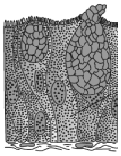
Options :

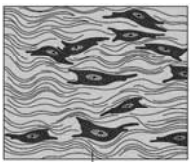
	Part-A	Part-B	Part-C	Part-D
(1)	Macro-phage	Collagen fibres	Fibroblast	Mast cell
(2)	Mast cell	Collagen fibres	Fibroblast	Macro-phage
(3)	Macro-phage	Fibroblast	Collagen fibres	Mast cell
(4)	Mast cell	Macro-phage	Fibroblast	Collagen fibres

AT0137

9. The four sketches (A, B, C and D) given below, represent four different types of animal tissues. Which one of these is correctly identified in the options given, along with its correct location and function?

(A) 

(B) 

(C) 

(D)

		Tissue	Location	Function
(1)	(D)	Smooth muscle tissue	Heart	Heart contraction
(2)	(A)	Columnar epithelium	Nephron	Secretion and absorption
(3)	(B)	Glandular epithelium	Intestine	Secretion
(4)	(D)	Collagen fibres	cartilage	Attach skeletal muscles to bones

AT0138

10. The supportive skeletal structures in the human external ears and in the nose tip are examples of:-

(1) bone (2) cartilage
(3) ligament (4) areolar tissue

AT0139

AIPMT 2014

11. Choose the correctly matched pair :-

(1) Tendon–Specialized connective tissue
(2) Adipose tissue – Dense connective tissue
(3) Areolar tissue – Loose connective tissue
(4) Cartilage–Loose connective tissue

AT0140

Re-AIPMT 2015

12. The function of the gap junction is to :

(1) stop substance from leaking across a tissue
(2) performing cementing to keep neighbouring cells together
(3) Facilitate communication between adjoining cells by connecting the cytoplasm for rapid transfer of ions, small molecules and some large molecules
(4) separate two cells from each other.

AT0141

NEET-I 2016

13. Which type of tissue correctly matches with its location ?

Tissue	Location
(1) Smooth muscle	Wall of intestine
(2) Areolar tissue	Tendons
(3) Transitional epithelium	Tip nose
(4) Cuboidal epithelium	Lining of stomach

AT0142

14. Connective tissues are derived from embryonic

(1) Ectoderm (2) Endoderm
(3) Endo mesoderm (4) Mesoderm

AT0371

NEET(UG) - 2019

15. The ciliated epithelial cells are required to move particles or mucus in a specific direction. In humans, these cells are mainly present in :

(1) Bile duct and Bronchioles
(2) Fallopian tubes and Pancreatic duct
(3) Eustachian tube and Salivary duct
(4) Bronchioles and Fallopian tubes

AT0372

NEET(UG) - 2019 (Odisha)

16. Match the following cell structure with its characteristic feature:

(a) Tight junctions (i) Cement neighbouring cells together to form sheet

(b) Adhering Junctions (ii) Transmit information through chemical to another cells

(c) Gap junctions (iii) Establish a barrier to prevent leakage of fluid across epithelial cells

(d) Synaptic junctions (iv) Cytoplasmic channels to facilitate communication between adjacent cells

Select correct option from the following

(1) (a)-(ii), (b)-(iv), (c)-(i), d-(iii)
(2) (a)-(iv), (b)-(ii), (c)-(i), d-(iii)
(3) (a)-(iii), (b)-(i), (c)-(iv), d-(ii)
(4) (a)-(iv), (b)-(iii), (c)-(i), d-(ii)

AT0373

NEET(UG) 2020

17. Goblet cells of alimentary canal are modified from :

(1) Compound epithelial cells
(2) Squamous epithelial cells
(3) Columnar epithelial cells
(4) Chondrocytes

AT0375

18. Cuboidal epithelium with brush border of microvilli is found in :

(1) Eustachian tube
(2) Lining of intestine
(3) Ducts of salivary glands
(4) Proximal convoluted tubule of nephron

AT0376

19. Which of the following is the most abundant protein in the animals ?

(1) Insulin
(2) Haemoglobin
(3) Collagen
(4) Lectin

AT0377

NEET(UG) 2021

20. Identify the types of cell junctions that help to stop the leakage of the substances across a tissue and facilitation of communication with neighbouring cells via rapid transfer of ions and molecules.

(1) Gap junctions and Adhering junctions, respectively.
(2) Tight junctions and Gap junctions, respectively.
(3) Adhering junctions and Tight junctions, respectively.
(4) Adhering junctions and Gap junctions, respectively.

AT0378

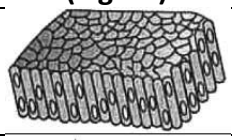
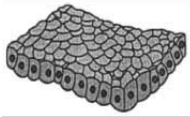
NEET(UG) 2021 (Paper-2)

21. Which is not a function of muscular tissue ?

(1) Locomotion and change in body postures
(2) Transportation of food through digestive tract
(3) Transportation of gametes through genital tract
(4) Transmit different kinds of stimuli

AT0503

22. Match the following and choose the correct combination.

	Column I (Figure)	Column II (Character)
a.		i. Component of connective tissue
b.		ii. Found in duct of glands
c.		iii. Secretion and absorption
d.		iv. Functioning cannot be directly controlled

(1) a–ii, b–iii, c–i, d–iv

(2) a–iii, b–iv, c–ii, d–i

(3) a–iv, b–iii, c–ii, d–i

(4) a–i, b–ii, c–iv, d–iii

AT0504

NEET(UG) 2022

23. Which of the following is present between the adjacent bones of the vertebral column?

(1) Cartilage

(2) Areolar tissue

(3) Smooth muscle

(4) Intercalated discs

AT0505

24. Which of the following is **not** a connective tissue?

(1) Adipose tissue (2) Cartilage

(3) Neuroglia (4) Blood

AT0506

25. Match **List -I** with **List - II**.

List-I	List-II
(a) Bronchioles	(i) Dense Regular Connective Tissue
(b) Goblet cell	(ii) Loose Connective Tissue
(c) Tendons	(iii) Glandular Tissue
(d) Adipose Tissue	(iv) Ciliated Epithelium

Choose the **correct answer** from the options given below:

(1) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

(2) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

(3) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

(4) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)

AT0507

NEET(UG) 2022 (OVERSEAS)

26. Which of the following types of epithelium lines the walls of blood vessels?

(1) Squamous epithelium

(2) Cuboidal epithelium

(3) Columnar epithelium

(4) Ciliated epithelium

AT0508

27. Ear wax secreting cells have which type of epithelium?

(1) Exocrine glandular epithelium

(2) Compound epithelium

(3) Endocrine glandular epithelium

(4) Columnar epithelium

AT0509

28. Match **List - I** with **List – II**

List – I	List - II
(a) Adhering junctions	(i) Establish a barrier that that prevents leakage of extracellular fluid across a layer of cells
(b) Tight junctions	(ii) Functions like rivets and fasten cells together into strong sheets
(c) Gap junctions	(iii) Pass information through neuro-transmitters from one cell to another
(d) Synaptic junctions	(iv) Provide cytoplasmic channels from one cell to adjacent cell for communication

Choose the **correct answer** from the options given below:
(1) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)
(2) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
(3) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
(4) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

AT0510

NEET(UG) 2022

29. Which of the following types of epithelium is present in the bronchioles and Fallopian tubes?
(1) Simple squamous epithelium
(2) Simple columnar epithelium
(3) Ciliated epithelium
(4) Stratified squamous epithelium

AT0511

30. Choose the **correct** statement about a muscular tissue :
(1) Skeletal muscle fibres are uninucleated and found in parallel bundles.
(2) Intercalated discs allow the cardiac muscle cells to contract as a unit.
(3) The walls of blood vessels are made up of columnar epithelium.
(4) Smooth muscles are multinucleated and involuntary.

AT0512

31. Choose the **correct** statements :
(a) Bones support and protect softer tissues and organs
(b) Weight bearing function is served by limb bones
(c) Ligament is the site of production of blood cells.
(d) Adipose tissue is specialised to store fats.
(e) Tendons attach one bone to another.
Choose **the most appropriate answer** from the options given below :
(1) (a), (b) and (d) only
(2) (b), (c) and (e) only
(3) (a), (c) and (d) only
(4) (a), (b) and (e) only

AT0513

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	3	2	4	1	4	1	3	3	2	3	3	1	4	4
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	3	4	3	2	4	2	1	3	4	1	1	2	3	2
Que.	31														
Ans.	1														

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT Based QUESTIONS)

1. How many of the following junctions are found in epithelium tissue?
Tight junction, Gap junction, Adhering and Inter digitation.
(1) Four (2) Three (3) Two (4) One
AT0151

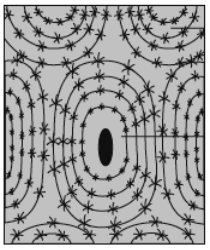
2. Read the following (A-D) statements
A. It is made of more than one layer (multi-layered) of cells.
B. It has a limited role in secretion and absorption.
C. Their main function is to provide protection against chemical and mechanical stress
D. It covers the dry surface of the skin and the moist surface of buccal cavity.
How many of the above statements are correct for compound epithelium?
(1) Four (2) Three (3) Two (4) One
AT0152

3. How many of the following substances are secreted by exocrine glands?
mucus, thyroxine, saliva, earwax, insulin, oil, milk, digestive enzymes,melatonin and adrenalin:-
(1) Four (2) Five (3) Six (4) Seven
AT0153

4. Which connective tissues are present beneath the skin?
A. Areolar tissue
B. Adipose tissue
C. Dense irregular connective tissue
(1) Only B (2) Only A
(3) Only A and B (4) All A, B and C
AT0154

5. Read the following (A-D) statements :-
A. Connective tissue are most abundant and widely distributed in the body of complex animals
B. They are named connective tissues because of their special function of linking and supporting other tissues/organs of the body
C. They range from soft connective tissues to specialised types, which include cartilage, bone, adipose and blood
D. The cells of connective tissue secrete modified polysaccharides, which accumulate between cells and fibres and act as matrix
How many of the following statements are correct?
(1) Four (2) Three (3) Two (4) One
AT0155

6. Identify the given below tissue with its type and select the right option for the two together



Option :

	Tissue	Type
(1)	Cartilage	Specialised connective tissue
(2)	Tendon	Dense irregular connective tissue
(3)	Ligament	Dense regular connective tissue
(4)	Bone	Specialised connective tissue

AT0156

7. Which of the following is incorrect statement for the simple columnar epithelium?
(1) It is composed of a single layer of tall and slender cells
(2) Their nuclei are located at the base
(3) Free surface may have microvilli
(4) They are found in the walls of blood vessels and air sac of lungs

AT0157

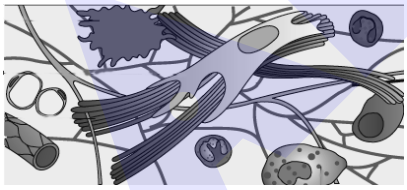
8. Connective tissues includes :-
(a) Cartilage (b) Bone
(c) Adipose tissue (d) Blood
(1) a, b, and d (2) a, b and c
(3) b and d (4) All a,b,c and d

AT0158

9. In multicellular animals a group of similar cells along with intercellular substances perform a specific function such an organisation is called :-
(1) Tissue (2) Organ
(3) Body (4) Organ system

AT0159

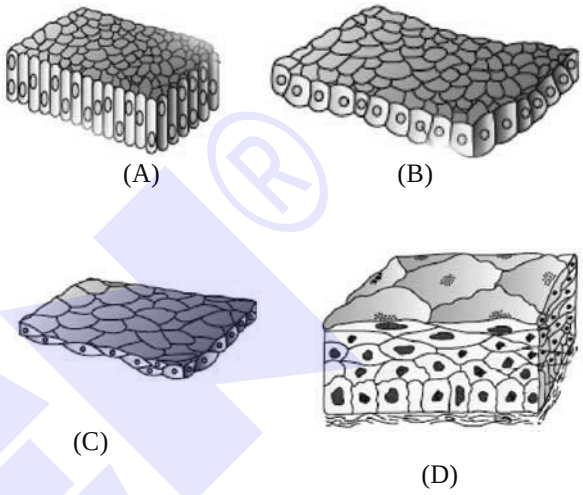
10. Identify the figure of animal tissue given below, along with it's correct location :-



Tissue	Location
(1) Dense regular Connective tissue	Heart
(2) Dense irregular Connective tissue	At bone joints
(3) Adipose tissue	Beneath skin
(4) Areolar connective tissue	Beneath skin

AT0160

11. The four sketches (A, B, C and D) given below represent four different types of animal tissues. Which one of these is correctly identified in the option given along with its correct location and function?



		Tissue	Location	Function
1.	B	Simple squamous epithelium	Fallopian tube	Transport of gamete
2.	C	Simple cuboidial epithelium	Wall of blood Vessels and air sac of lungs	Diffusion boundary
3.	D	Compound epithelium	Skin	Protection
4.	A	Simple columnar Epithelium	Tubular part of nephron	Secretion

AT0161

12. Read the following (A - D) Statements :-

(A) Tight junctions help to stop substances from leaking across a tissue

(B) Adhering junctions perform cementing to keep neighbouring cells together.

(C) The simple epithelium consists of two or more cell layers and has protective function.

(D) The columnar epithelium is made of a single layer of flattened cells with irregular boundaries

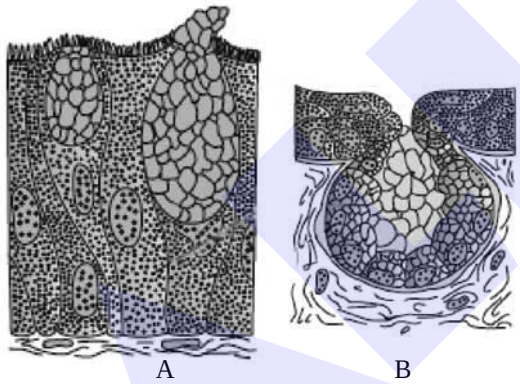
How many of the above statements are correct?

(1) Four (2) Three

(3) Two (4) One

AT0162

13. Identify the glands (A) and (B) shown below and select the right option for location and function :-



		Gland	Location	Function
1.	A	Unicellular Gland	Alveoli	Secrete Saliva
2.	B	Multicellular gland	Oesophagus	Secrete enzyme
3.	A	Multicellular gland	Alimentary Canal	Secrete Mucous
4.	B	Multicellular gland	Buccal Cavity	Secrete Saliva

AT0163

14. Which of the following is correct match of epithelial tissue ?

(1)	Squamous epithelium	Bronchioles and fallopian tube
(2)	Columnar epithelium	Ducts of glands and tubular part of nephron
(3)	Cuboidial epithelium	Walls of blood vessels and air sacs of lungs
(4)	Compound epithelium	Buccal cavity and pharynx

AT0164

15. Read the following (A - D) statements :-

(A) Areolar tissue present beneath the skin

(B) Adipose tissue is a type of dense connective tissue

(C) Tendons attach one bone to another

(D) Ligaments attach skeletal muscles to bones

How many of the above statements are incorrect?

(1) Four (2) Three

(3) Two (4) One

AT0165

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

16. Ligament connects :

(1) Bone to bone

(2) Bone to muscle

(3) Muscle to muscle

(4) Both 2 and 3

AT0166

17. Which of the following pair is example of dense regular connective tissue ?

(1) Ligament and tendon

(2) Perichondrium and pericardium

(3) Ligament and pericardium

(4) Perichondrium and tendon

AT0167

18. The tissue which forms the basic structure of lymphoid organs, spleen etc, is :
(1) Lymphoid tissue (2) Cartilage tissue
(3) Elastic tissue (4) Areolar tissue
AT0168

19. Haversian canal is situated in
(1) Glandular connective tissue
(2) Skeletal connective tissue
(3) Fibrous connective tissue
(4) Nervous tissue
AT0169

20. Stratified squammous epithelium is found in :
(1) Pharynx
(2) Trachea
(3) Ileum
(4) Bowman's capsule
AT0170

21. Collagen fibres are secreted by :
(1) Mast cells (2) Macrophage
(3) Histiocytes (4) Fibroblasts
AT0171

22. Haversian canal is found in the bone of :
(1) Mammals (2) Reptiles
(3) Aves (4) Pices
AT0172

23. Tendons and ligaments are specialized types of
(1) Nervous tissue
(2) Epithelial tissue
(3) Muscular tissue
(4) Fibrous connective tissue
AT0173

24. Which one of the following is transparent tissue?
(1) Tendon (2) Ligament
(3) Fibrous cartilage (4) Hyaline cartilage
AT0174

25. Ciliated epithelium is present in
(1) Trachea (2) Ureter
(3) Intestine (4) Stomach
AT0175

26. Difference between bone and cartilage is
(1) Haversian canal (2) Blood vessel
(3) Microvilli (4) Both 1 and 2
AT0176

27. Least regeneration power is present in
(1) Nervous tissue
(2) Connective tissue
(3) Epithelial tissue
(4) Muscular tissue
AT0177

28. Which of the following cells of connective tissue secrete antibodies?
(1) Mast cells (2) Reticular cells
(3) adipose cells (4) Plasma cells
AT0178

29. The cavities of brain are lined by
(1) Cuboidal cells
(2) Polygonal cells
(3) Ependymal cells
(4) Simple squamous cells
AT0179

30. Ligament is mainly made up of
(1) Reticulin (2) Elastin
(3) Myosin (4) Collagen
AT0180

31. Which is a sesamoid bone?
(1) Patella (2) Femur
(3) Ulna (4) Pubis
AT0181

32. Mammary glands are modified :
(1) Holocrine
(2) Merocrine
(3) Sebaceous glands
(4) Sweat glands
AT0182

33. The main function of ligament is :
(1) Joining of two bones
(2) Joining of muscles
(3) Joining of muscle to bone
(4) Joining of muscle to nerves

AT0183

34. The type of epithelium found in blood vessels and stomach is
(1) Stratified cuboidal in both
(2) Stratified columnar and simple cuboidal
(3) Simple squamous and simple columnar
(4) Transitional epithelium

AT0184

35. Haversian canals are found in the :
(1) Bones of birds
(2) Bones of mammals
(3) Bones of frog
(4) Cartilage

AT0185

36. Volkmann's canals are found in :
(1) Bones of birds
(2) Bones of amphilbians
(3) Bones of mammals
(4) Cartilage of mammals

AT0186

37. An example of merocrine gland is
(1) Sebaceous gland
(2) Pineal gland
(3) Salivary gland
(4) Mammary gland

AT0187

38. Bones formed by ossification of a tendon is called
(1) Membrane bone
(2) Sesamoid bone
(3) Dermal bone
(4) Cartilage

AT0188

39. Epithelial tissues are arise from :
(1) Ectoderm (2) Endoderm
(3) Mesoderm (4) All the aboves

AT0189

40. White adipose tissue contains :
(1) Multilocular fat cells
(2) Bilocular fat cells
(3) Unilocular fat cells
(4) alocular fat cells

AT0190

41. In human fibrous cartilage is found abundantly
(1) Hyaline cartilage of joints
(2) Nostrils
(3) Intervertebral discs
(4) External ear

AT0191

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	1	3	3	1	4	4	4	1	4	3	3	4	4	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	1	1	2	1	4	1	4	4	1	4	1	4	3	2
Que.	31	32	33	34	35	36	37	38	39	40	41				
Ans.	1	4	1	3	2	3	3	2	4	3	3				

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EXERCISE

Frog

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) — Build Up Your Understanding

1. Functional kidney of frog is :
(1) Pronephric (2) Mesonephric
(3) Metanephric (4) Absent
AT0326

2. Bidder's canal in frog is found in :
(1) Kidney (2) Testes
(3) Urinary bladder (4) Cloaca
AT0327

3. Which of the following is the function of kidney in frog ?
(1) Excretion
(2) Osmoregulation
(3) Haemopoiesis in larva
(4) All of the above
AT0328

4. In male frog ureter transfer :
(1) Urine (2) Sperms
(3) Both 1 and 2 (4) None
AT0329

5. Cortex and medulla region in frog kidney.
(1) Less distinct
(2) More distinct
(3) Absent
(4) Very less distinct
AT0330

6. Excretory product of frog is :-
(1) Urea
(2) Ammonia
(3) Uric acid
(4) Amino acids
AT0331

7. Pyramids in kidney of frog are :-
(1) Two (2) Five
(3) Ten (4) Absent
AT0332

8. Teeth of frog are :-
(1) Pleurodont (2) Thecodont
(3) Heterodont (4) Acrodont
AT0333

9. Lower jaw is toothless is :
(1) Cockroach (2) Man
(3) Rabbit (4) Frog
AT0334

10. The venous system of frog differs from that of rabbit in the presence of :-
(1) Hepatic portal system
(2) Renal portal system
(3) Hepatic vein
(4) Three vena cava
AT0335

11. Three chambered heart is found in:-
(1) Frog (2) Butterfly
(3) Crocodile (4) Fish
AT0336

12. Absence of thumb is feature of :-
(1) Rabbit (2) Man
(3) Frog (4) Monkey
AT0337

13. Dorsal part of frog is..... and ventral part is .....
(1) Olivegreen, uniformly pale yellow
(2) Olivegreen, uniformly dark yellow
(3) Olivegreen, nonuniformly pale yellow
(4) Olivegreen, nonuniformly dark yellow
AT0338

14. Common Indian bull frog is :-
(1) *Rana tigrina* (2) *Rana essulenta*
(3) *Rana silvatica* (4) *Rana goliath*
AT0339

15. Summer sleep of frog is called :-
(1) Hibernation (2) Aestivation
(3) Both (4) Salivation
AT0340

16. Head of frog is .... and its anterior conical part is called :-
(1) circular, snout
(2) triangular, snout
(3) rectangular, snout
(4) pentagonal, snout

AT0341

17. Select the true statement regarding frog (*Rana tigrina*):-
(1) Frog is a homeothermal animal
(2) Frog drinks about 5 litres H_2O per day
(3) poisonous glands are not found on the body of frog.
(4) A very long tail is present in posterior part of frog's body.

AT0342

18. Frog belong to order :-
(1) Urodela (2) Apoda
(3) Caudata (4) Anura

AT0343

19. Vocal sacs are found in :-
(1) male frog (2) female frog
(3) both (4) none

AT0344

20. The glands present in the skin of toad are :-
(1) mucous and poisonous
(2) sweat and mammary
(3) sweat and sebaceous
(4) mucous and sweat

AT0345

21. A hibernating frog respires with :-
(1) Lung (2) Diaphragm
(3) Buccal epithelium (4) Skin

AT0346

22. Which of the following trait is not characteristic of frog?
(1) Thin, scaleless skin
(2) Aquatic reproduction
(3) Amniote egg
(4) Cutaneous respiration

AT0347

23. Neck is absent in frog. This helps frog in :-
(1) catching prey
(2) respiration
(3) swimming in water
(4) jumping on ground

AT0348

24. A frog lives in water or near water because:
(1) it can get its food easily in water
(2) its hindlimbs are webbed and help in swimming
(3) it can see through its transparent eyelids while swimming
(4) It respires through the skin

AT0349

25. *Rana tigrina* is zoological name of :-
(1) Frog (2) Leopard
(3) Lizard (4) Earthworm

AT0350

26. Frog belongs to amphibian because :-
(1) tail is not found in it
(2) lungs are found in it
(3) its tadpoles are aquatic in nautre
(4) it lives in water as well as on land

AT0351

27. Skull of frog is :-
(1) Tricondylic (2) Monocondylic
(3) Dicondylic (4) Polyconylic

AT0352

28. Which of the following found in frog?
(1) five fingers and four toes
(2) four fingers and five toes
(3) five fingers and five toes
(4) four fingers and four toes

AT0353

29. Frog reproduces :-
(1) in water
(2) on trees
(3) in sand
(4) on lotus flowers in water

AT0354

30. Number of cranial nerves found in frog :-
(1) 10 (2) 12 (3) 20 (4) 24
AT0355

31. The third eyelid in frog is called :-
(1) Pineal eye
(2) Lower eyelid
(3) Nictitating membrane
(4) Upper eyelid
AT0356

32. Alimentary canal in frog terminates into
(1) Cloaca (2) Stomach
(3) Ileum (4) Duodenum
AT0357

33. The liquified semidigested acidic food is known as :-
(1) Bile (2) Bolus
(3) Chyme (4) Faeces
AT0358

34. Skin helps in exchange of gases because :-
(1) It is kept moist by the mucus and water
(2) It is thin
(3) It is richly supplied with blood
(4) All of these
AT0359

35. Air enters into the lungs through the
(1) Skin (2) Buccal cavity
(3) Mouth (4) Cloaca
AT0360

36. Pericardium is a
(1) Thin, transparent and two layered sac.
(2) Thick, cuticular and two layered sac.
(3) Thick, transparent and three-layered sac.
(4) Thin, opaque and four layered sac.
AT0361

37. Kidneys in adult frog are :-
(1) Pronephric (2) Metanephric
(3) Mesonephric (4) All of these
AT0362

38. In frogs, urine is temporarily stored in
(1) Kidneys (2) Urinary bladder
(3) Ureters (4) Cloaca
AT0363

39. In frogs, heartbeat is controlled by :-
(1) Cerebellum
(2) Spinal cord
(3) Medulla oblongata
(4) Mid-brain
AT0364

40. Vasa-efferentia in male frog opens into
(1) Vas deferens
(2) Bidder's canal
(3) Cloaca
(4) Urinogenital duct
AT0365

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	1	4	3	3	1	4	4	4	2	1	3	1	1	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	3	4	1	1	4	3	4	4	1	4	3	2	1	3
Que.	31	32	33	34	35	36	37	38	39	40					
Ans.	3	1	3	4	2	1	3	2	3	2					

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT (Mains) 2011

1. Frogs differ from the humans in possessing:

(1) Thyroid as well as parathyroid

(2) Paired cerebral hemispheres

(3) Hepatic portal system

(4) Nucleated red blood cells

AT0391

AIPMT 2017

2. Select the correct route for the passage of sperms in male frog :-

(1) Testes $\rightarrow$ Vasa efferentia $\rightarrow$ Kidney $\rightarrow$ Seminal vesicle $\rightarrow$ Urinogenital duct $\rightarrow$ Cloaca

(2) Testes $\rightarrow$ Vasa efferentia $\rightarrow$ Bidder's canal $\rightarrow$ Ureter $\rightarrow$ Cloaca

(3) Testes $\rightarrow$ Vasa efferentia $\rightarrow$ Kidney $\rightarrow$ Bidder's canal $\rightarrow$ Urinogenital duct $\rightarrow$ Cloaca

(4) Testes $\rightarrow$ Bidder's canal $\rightarrow$ Kidney $\rightarrow$ Vasa efferentia $\rightarrow$ Urinogenital duct $\rightarrow$ Cloaca

AT0366

3. Frog's heart when taken out of the body continous to beat for sometimes.

Select the best option from the following statements

(a) Frog is a poikilotherm

(b) Frog does not have any coronary circulation

(c) Heart is "Myogenic" in nature

(d) Heart is autoexcitable

Option :-

(1) Only d (2) a and b

(3) c and d (4) Only c

AT0367

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3
Ans.	4	3	3

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Body of frog is divisible into :
(1) Head and trunk (2) Head and tail
(3) Head and neck (4) Head, trunk & tail
AT0392

2. Read the following four statement about sense organs of *Rana tigrina* :–
(1) Frog has simple eyes possessing only one unit
(2) External ear is present in frog
(3) External ear is absent in frog and only tympanum can be seen externally
(4) Eyes and internal ear are well organised structures and the rest are cellular aggregation
How many of the above statements are correct?
(1) 4 (2) 1 (3) 2 (4) 3
AT0393

3. Female frogs do not have :
(1) Tympanum
(2) Nictitating membrane
(3) Vocal sacs and copulatory pads
(4) Hibernation and aestivation
AT0394

4. Frogs are :
(1) Carnivorous (2) Herbivorous
(3) Omnivorous (4) Sanguivores
AT0395

5. Find out correct match for respiration in frog :-

	In Water	On land
(1)	Lungs	Skin
(2)	Cutaneous	Pulmonary
(3)	Buccal-cavity	Lungs
(4)	Pulmonary	Buccal-cavity

AT0396

6. In the heart of frog sinus venosus joins to the :
(1) Right atrium (2) Left atrium
(3) Right ventricle (4) Left ventricle
AT0397

7. Venous connection between kidney and lower parts of body in Indian bull frog is known as :
(1) Hepatic portal system
(2) Hypophyseal portal system
(3) Renal portal system
(4) Coronary circulation
AT0398

8. Find out the incorrect option for frog :
(1) Enucleated RBC
(2) WBC present
(3) Nucleated RBC
(4) Platelets present
AT0399

9. The mid brain of frog is charecterised by :
(1) Two pairs of optic lobe
(2) One optic lobe
(3) Three optic lobes
(4) A pair of optic lobes
AT0400

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

10. Excretory waste of frog is :
(1) Ammonia (2) Urea
(3) TMAO (4) Uric acid
AT0401

11. In frog partially digested food called chyme is passed from stomach to :
(1) Duodenum (2) Ileum
(3) Jejunum (4) Rectum
AT0402

12. Which one of the following is common in both male and female frog?
(1) Bidder's canal (2) Vocal sac
(3) Cloaca (4) Copulatory pad
AT0403

13. The larva of *Rana tigrina* is
(1) Tornaria (2) Tadpole
(3) Trochophore (4) Ascidian
AT0404

14. Which of the following feature is not found in Indian bull frog?
(1) External fertilisation
(2) Indirect development
(3) Metamorphosis
(4) Internal fertilisation
AT0405

15. The system for control and coordination is highly developed in the frog, it includes:
(1) Both neural system and endocrine glands
(2) Only neural system
(3) Only endocrine glands
(4) None
AT0406

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	4	3	1	2	1	3	1	4	2	1	3	2	4	1

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EXERCISE

Cockroach (Periplaneta americana)

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

INTRODUCTION AND MORPHOLOGY

1. Zoological name of cockroach is :
(1) *Glossina palpalis*
(2) *Periplaneta americana*
(3) *Musca nebulo*
(4) *Apis indica*
AT0219

2. Diagonistic feature of insects is :
(1) Segmented body
(2) Chitin in body wall
(3) Three pair of legs
(4) One pair compound eyes
AT0220

3. Which are the two common indian cockroaches?
(1) *Periplaneta americana* and *Blatta indica*
(2) *Periplaneta indica* and *Blatta orientalis*
(3) *Periplaneta orientalis* and *Blatta americana*
(4) *Periplaneta americana* and *Blatta orientalis*
AT0221

4. Characteristic of group insecta is :
(1) Joined appendages
(2) 3 pair of jointed legs
(3) Chitinous exoskeleton
(4) Compound eyes
AT0222

5. Scientist who gave the name *Periplaneta* is:
(1) Linneous (2) K.N. Bahel
(3) Burmeister (4) D. Gir
AT0223

6. Tergum is joined on the sides by :
(1) Pleuron (2) Sternum
(3) Alimentary canal (4) Muscles
AT0224

7. The plate situated between the eyes and passing below that on the head of cockroach is called :
(1) Vertex (2) Frons
(3) Epicranium (4) Gena
AT0225

8. The dorsal plate of skeleton found on the abdomen of cockroach is called :
(1) Pleuron (2) Sternum
(3) Tergum (4) Vertex
AT0226

9. Outer border of tergum bends downwards in cockroach and attaches with :
(1) Muscles (2) Sternum
(3) Pleura (4) Fat body cells
AT0227

10. Mandibles of cockroach are :
(1) Short with grinding teeth
(2) Long and pointed
(3) short without teeth
(4) long and coiled
AT0228

11. Head of cockroach according to its position is known as :
(1) Hypopharynx (2) Hypocyrebral
(3) Hypognathus (4) Supragnathus
AT0229

12. Number of visible sternum present at the abdomen of female cockroach is :
(1) 6 (2) 7 (3) 8 (4) 9
AT0230

13. Tongue like structure in *Periplaneta* is :
(1) Maxilla (2) Hypopharynx
(3) Labium (4) Labrum
AT0231

14. Which structure is known as lower lip of cockroach ?
(1) Labrum (2) Labium
(3) Mantum (4) Submentum
AT0232

15. Wings of cockroach are mainly helpful in :
(1) Egg laying (2) Preying
(3) Finding the mate (4) Protection
AT0233

16. *Periplaneta americana* differs from *Blata orientalis* in :
(1) Well developed wings
(2) Wings absent
(3) Only first pair wings developed
(4) Second pair wing developed
AT0234

17. Number of segments in cockroach leg :
(1) 3 (2) 5 (3) 6 (4) 9
AT0235

18. Undeveloped wings are found in :
(1) Housefly (2) Cockroach
(3) Mosquito (4) Blatta
AT0236

19. Pseudopodia of *Amoeba* are similar to :
(1) Legs of cockroach
(2) Teeth in rabbit
(3) Spicules of *Leucosolenia*
(4) Suckers of *Taenia*
AT0237

20. Plantulae are found in cockroach upon :
(1) Pretarsus (2) Femur
(3) Trochanter (4) Coxa
AT0238

21. Most swollen segment in leg cockroach is :
(1) Tarsus (2) Coxa
(3) Femur (4) Trochanter
AT0239

22. In cockroach arolium is helpful in :
(1) In digestion (2) Respiration
(3) Locomotion (4) Reproduction
AT0240

23. Main character for the distinction between male and female cockroach :
(1) Antennae (2) Mandibles
(3) Anal cerci (4) Anal style
AT0241

24. Anal styles are found in :
(1) Housefly
(2) Female cockroach
(3) Male cockroach
(4) Both male & female cockroach
AT0242

25. Body segments are definite and well marked in :
(1) *Hydra* (2) *Taenia*
(3) *Ascaris* (4) Cockroach
AT0243

26. In cockroach the audioreceptors are situated on :
(1) On legs (2) Antenna
(3) Sensory receptor (4) Anal cerci
AT0244

27. The gynovalvular plates in female cockroach are modification of :
(1) 7th tergum (2) 7th sternum
(3) 8th Tergum (4) 8 sternum
AT0245

28. Stink glands are found in :
(1) Only in males
(2) Only in female
(3) In both
(4) None
AT0246

29. Exoskeleton of cockroach is made up of :
(1) Cartilage (2) Cuticle
(3) Chitin (4) Amino acids
AT0247

30. Cockroach and other insects have exoskeleton made up of :
(1) Keratin (2) Spongin
(3) Chitin (4) Cuticle
AT0248

31. In which part of cockroach is present completely developed endoskeleton and exoskeleton both ?
(1) In head region
(2) Thoracic region
(3) Abdominal region
(4) In head & thoracic regions
AT0249

BODY CAVITY, BODY WALL, DIGESTION, RESPIRATION, CIRCULATION AND EXCRETION

32. The body cavity of cockroach is called :
(1) Pseudocoel (2) Coelom
(3) Hydrocoel (4) Haemocoel
AT0250

33. Which cells secrete wax located at the outer surface of body wall ?
(1) Trophocytes (2) Oenocytes
(3) Trichogen (4) Mycetocytes
AT0251

34. The fatbody of cockroach contains :
(1) Oenocytes (2) mycetocytes
(3) Trophocytes (4) All the above
AT0252

35. Hepatic caecae in cockroach are derived from :
(1) Crop (2) Gizzard
(3) Midgut (4) Proctodaeum
AT0253

36. Saliva of cockroach contains enzyme :
(1) Lipase (2) Amylase
(3) Pepsin (4) Trypsin
AT0254

37. Salivary glands of cockroach open on :
(1) Maxilla (2) Hypopharynx
(3) Labium (4) Labrum
AT0255

38. Mouth part of cockroach are suited for :
(1) Piercing (2) Absorbing
(3) Cutting & chewing (4) Drinking
AT0256

39. Cockroach is :
(1) Omnivorous (2) Herbivorous
(3) Carnivorous (4) Sanguivorous
AT0257

40. In cockroach food is crushed in which part :
(1) Crop (2) Gizzard
(3) Mesenteron (4) Oesophagus
AT0258

41. In which part of alimentary canal of cockroach is invagination of cuticle found ?
(1) Anterior part
(2) In midpart
(3) In posterior part
(4) Both in antherior and posterior part
AT0259

42. The inner layer of gizzard of cockroach is covered by :
(1) By cuticle
(2) By mucous membrane
(3) By endoepithelium
(4) By peritrophic membrane
AT0260

43. Maximum digestion takes place in which part of cockroach ?
(1) In crop (2) In Gizzard
(3) In mesenteron (4) In oesophagous
AT0261

44. Oxygen is carried to the tissues of cockroach by which organ :
(1) Skin
(2) Trachea
(3) Plasma
(4) Respiratory pigment
AT0262

45. Allary muscles in cockroach are associated or connected with :
(1) Trachea (2) Heart
(3) Legs (4) Alimentary canal
AT0263

46. Number of pairs of spiracles in cockroach are :
(1) 4 (2) 6
(3) 8 (4) 10
AT0264

47. In cockroach O_2 is carried to tissue by :
(1) Haemoglobin and haemocyanin
(2) Blood plasma
(3) Tracheal tubes
(4) Diffusion through integument
AT0265

48. Blood of cockroach does not contain haemoglobin because :
(1) It respires through atmosphere
(2) Respires through book lungs
(3) It does not respire
(4) It has some other means to carry oxygen direct into the tissues
AT0266

49. Give the name of blood vessel, which arises from first chamber of heart in cockroach :
(1) Nephrocyte
(2) Fenestrae
(3) Ostia
(4) Anterior aorta
AT0267

50. Number of chambers in the heart of cockroach :
(1) 5 (2) 9 (3) 13 (4) 16
AT0268

51. Blood circulation in insects :
(1) Flows in arteries and veins
(2) With red blood corpuscles
(3) Open type
(4) Absent
AT0269

52. Heart of cockroach is :
(1) Four chamberd
(2) Vertral to gut
(3) Longitudinal & beaded
(4) Three chambered
AT0270

53. The colour of haemolyph of cockroach is :
(1) Yellow (2) Red
(3) Green (4) Colourless
AT0271

54. Physiologically the heart of cockroach is :
(1) Neurogenic (2) myogenic
(3) Epigenic (4) Agenic
AT0272

55. Main excretory product of cockroach is :
(1) Urea (2) Ammonia
(3) Uric acid (4) Amino acid
AT0273

56. Function of Malpighian tubules of cockroach :
(1) Digestion (2) Respiration
(3) Excretion (4) Reproduction
AT0274

57. Exeretory organs of cockroach are :
(1) Trachea
(2) Kidney
(3) Nephridia
(4) Malpighian tubules
AT0275

NERVOUS SYSTEM, COMPOUND EYE, REPRODUCTION AND DEVELOPEMENT

58. The nerve cord of cockroach is :
(1) Double, ventral and solid
(2) Double dorsal and hollow
(3) Single, dorsal and solid
(4) Single, ventral and hollow
AT0276

59. In cockroach which is helpful in sexual attraction?
(1) Hormone ecdyson (2) Pheromone
(3) Juvenile hormone (4) Anal cerci
AT0277

60. Ommatidia are found in :
(1) Eyes of birds (2) Eye of frog
(3) Eye of insects (4) Eye of rabbit
AT0278

61. Structural units found in the compound eye of cockroach are called :
(1) Rhabdom (2) Cone cells
(3) Ommatidia (4) Simple eye
AT0279

62. What type of vision is found in cockroach ?
(1) Mosaic (2) Super position
(3) Binocular (4) None of them
AT0280

63. Ommatidia are units in the eyes of :
(1) Amphibians (2) Mammals
(3) Insects (4) Fishes
AT0281

64. Apposition image in eye of insects is formed in :
(1) Dim light
(2) Bright Light
(3) ocelli
(4) None
AT0282

65. Eggs which have yolk in the centre surrounded by cytoplasm are called :
(1) Centrolecithal
(2) Homolecithal
(3) Microlecithal
(4) Alecithal
AT0283

66. Ootheca is formed in cockroach by :
(1) Phallic Gland
(2) Conglobate gland
(3) Utricular gland
(4) Collaterial Gland
AT0284

67. Ootheca of Cockroach has fertilized eggs, this numbers is :
(1) 6 (2) 8 (3) 16 (4) 24
AT0285

68. From egg laying to the development of adult cockroach. How many moluting occur?
(1) 13 times (2) 9 times
(3) 6 times (4) 3-4 times
AT0286

69. The type of egg in cockroach is called :
(1) Microlecithal
(2) Centrolecithal
(3) Isolecithal
(4) Telolecithal

AT0287

70. Sexual dimorphism is distinct in :
(1) *Hydra* (2) Earthworm
(3) Sponge (4) Cockroach

AT0288

71. Conglobate gland is found in the reproductive organs of :
(1) Earth worm
(2) Housefly
(3) Male cockroach
(4) Female cockroach

AT0289

72. Number of moultings in cockroach after hatching and development of complete animal are :
(1) Less than 7
(2) Upto 8
(3) Upto 9
(4) more than 10

AT0290

73. How many ovarioles are found in each overy of cockroach ?
(1) 3 (2) 6 (3) 8 (4) 16

AT0291

74. Collaterial glands of cockroach help in :
(1) Fertilization
(2) Formation of ootheca
(3) Copulation
(4) Formation of oothecal chamber

AT0292

75. In the life history of cockroach (*Periplaneta*) there is:
(1) No Metamorphosis
(2) Gradual metamorphosis
(3) Complete metamorphosis
(4) Anamorphosis

AT0293

76. Juvenile of cockroach is known as :
(1) Tadepole (2) Amocyte
(3) Nymph (4) Naid

AT0294

77. Life time of cockroach in general is :
(1) Approximately 1 year
(2) 3 to 3.5 years approx
(3) 5 to 7.5 years approx
(4) 10 years approx

AT0295

78. In which of the following moulting is not found ?
(1) *Hydra* (2) Mosquito
(3) Housefly (4) Cockroach

AT0296

79. Life history of cockroach represents :
(1) Ametaboly (2) Holometaboly
(3) Paurometaboly (4) Hypermetaboly

AT0297

80. Common feature between cockroach and earthworm is :
(1) Hermaphroditism
(2) Moulting of cuticle
(3) Excretion by nephridia
(4) Ventral nerve cord

AT0298

81. Which has/have chitinous exo-skeleton ?
(1) Cockroach (2) Mosquito
(3) Butterfly (4) All of the above

AT0299

82. Cockroach is :

(1) Nocturnal and omnivorous

(2) Diurinal and omnivorous

(3) Nocturnal and carnivorous

(4) None

AT0300

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**3**	**4**	**2**	**3**	**1**	**2**	**3**	**3**	**1**	**3**	**2**	**2**	**2**	**4**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**1**	**2**	**4**	**1**	**1**	**2**	**3**	**4**	**3**	**4**	**4**	**2**	**3**	**3**	**3**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**4**	**2**	**4**	**3**	**2**	**2**	**3**	**1**	**2**	**4**	**1**	**1**	**2**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**3**	**4**	**4**	**3**	**3**	**3**	**4**	**1**	**3**	**3**	**4**	**1**	**2**	**3**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**3**	**1**	**3**	**2**	**1**	**4**	**3**	**1**	**2**	**4**	**3**	**4**	**3**	**2**	**2**
Que.	76	77	78	79	80	81	82								
Ans.	**3**	**2**	**1**	**3**	**4**	**4**	**1**								

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2009

1. Uric acid is the chief nitrogenous component of the excretory products of :-
(1) Frog
(2) Man
(3) Earthworm
(4) Cockroach

AT0301

AIPMT 2011

2. Which of the following correctly state as it happens in the common cockroach ?
(1) Malpighian tubules are excretory organs projecting out from the colon.
(2) Oxygen is transported by haemoglobin in blood.
(3) Nitrogenous excretory product is urea.
(4) The food is grinded by mandibles and gizzard

AT0302

AIPMT 2015

3. The terga, sterna and pleura of cockroach body are joined by :
(1) Muscular tissue
(2) Arthrodial membrane
(3) Cartilage
(4) Cementing glue

AT0305

Re-AIPMT 2015

4. The body cells in cockroach discharge their nitrogenous waste in the haemolymph mainly in the form of :
(1) Calcium carbonate (2) Ammonia
(3) Potassium urate (4) Urea

AT0306

NEET 2017 (Regional)

5. Select the incorrect option with respect to features present in three animals :

	Characters	Cockroach	Earth worm	Frog
(1)	Blood vascular body	Open	Closed	Closed
(2)	Body surface	Dry	Moist	Moist
(3)	Eyes	Compound	Absent	Simple
(4)	Development	Direct	Indirect	Indirect

AT0309

6. Which of the following structures does not open into the genital chamber of female cockroaches?
(1) A single median oviduct
(2) Spermatheca
(3) A pair of anal cerci
(4) A pair of collateral glands

AT0310

NEET(UG) 2018

7. Which of the following features is used to identify a male cockroach from a female cockroach ?
(1) Presence of a boat shaped sternum on the 9th abdominal segment
(2) Presence of caudal styles
(3) Forewings with darker tegmina
(4) Presence of anal cerci

AT0311

NEET(UG) 2019

8. Select the correct sequence of organs in the alimentary canal of cockroach starting from mouth:
(1) Pharynx → Oesophagus → Crop → Gizzard → Ileum → Colon → Rectum
(2) Pharynx → Oesophagus → Gizzard → Crop → Ileum → Colon → Rectum
(3) Pharynx → Oesophagus → Gizzard → Ileum → Crop → Colon → Rectum
(4) Pharynx → Oesophagus → Ileum → Crop → Gizzard → Colon → Rectum

AT0374

NEET(UG) 2020

9. If the head of cockroach is removed, it may live for few days because:

(1) the head holds a 1/3rd of a nervous system while the rest is situated along the dorsal part of its body.

(2) the supra-oesophageal ganglia of the cockroach are situated in ventral part of abdomen.

(3) the cockroach does not have nervous system.

(4) the head holds a small proportion of a nervous system while the rest is situated along the ventral part of its body.

AT0379

NEET (UG) 2020 (COVID-19)

10. In cockroach, identify the parts of the foregut in correct sequence :-

(1) Mouth → Oesophagus → Pharynx → Crop → Gizzard

(2) Mouth → Crop → Pharynx → Oesophagus → Gizzard

(3) Mouth → Gizzard → Crop → Pharynx → Oesophagus

(4) Mouth → Pharynx → Oesophagus → Crop → Gizzard

AT0380

11. Match the following columns with reference to cockroach and select the correct option :

Column - I	**Column - II**
(a) Grinding of the food particles	(i) Hepatic caecal
(b) Secrete gastric juice	(ii) 10th segment
(c) 10 pairs	(iii) Proventriculus
(d) Anal cerci	(iv) Spiracles
	(v) Alary muscles

(1) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

(2) (a)-(iv), (b)-(iii), (c)-(v), (d)-(ii)

(3) (a)-(i), (b)-(iv), (c)-(iii), (d)-(ii)

(4) (a)-(ii), (b)-(iii), (c)-(i), (d)-(iv)

AT0381

NEET(UG) 2021

12. Which of the following characteristics is **incorrect** with respect to cockroach?

(1) A ring of gastric caeca is present at the junction of midgut and hind gut.

(2) Hypopharynx lies within the cavity enclosed by the mouth parts.

(3) In females, 7th - 9th sterna together form a genital pouch.

(4) 10th abdominal segment in both sexes, bears a pair of anal cerci.

AT0382

NEET(UG) 2021 (Paper-2)

13. Select the correct statement about *Periplenata*.

(1) Grinding of food is carried out by gizzard and mandibles.

(2) Six to eight hepatic caecae occurs at the junction of midgut and hindgut.

(3) A pair of anal cerci are found only in males.

(4) All of the above.

AT0514

NEET(UG) 2022

14. Tegmina in cockroach, arises from:

(1) Mesothorax

(2) Metathorax

(3) Prothorax and Mesothorax

(4) Prothorax

AT0515

NEET(UG) 2022 (OVERSEAS)

15. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**

Assertion (A) : With the help of several ommatidia, a cockroach can perceive several images of an object, ie, mosaic vision.

Reason (R) : Mosaic vision gives more sensitivity but less resolution.

In the light of the above statements, choose the **most appropriate** answer from the option given below :

(1) **(A)** is not correct but **(R)** is correct

(2) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(3) Both **(A)** and **(R)** are correct but **(R)** is not the correct explantation of **(A)**

(4) **(A)** is correct but **(R)** is not correct

AT0516

16. Match **List–I** with **List-II** regarding the organs of Cockroach:

List–I	**List–II**
(a) Crop	(i) grinding the food particles
(b) Proventriculus	(ii) secretion of digestive juice
(c) Hepatic caecae	(iii) removal of nitrogenous waste
(d) Malpighian tubules	(iv) storage of food

Choose the **correct answer** from the options given below:

(1) (a) – (iv), (b) – (i), (c) – (ii), (d) – (iii)

(2) (a) – (iii), (b) – (ii), (c) – (i), (d) – (iv)

(3) (a) – (ii), (b) – (iv), (c) – (i), (d) – (iii)

(4) (a) – (i), (b) – (iv), (c) – (iii), (d) – (ii)

AT0517

17. Excretion in cockroach is performed by all, EXCEPT :

(1) Urecose glands

(2) Malpighian tubules

(3) Fat body

(4) Hepatic caeca

AT0518

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	4	2	3	4	3	2	1	4	4	1	1	1	1	2
Que.	16	17													
Ans.	1	4													

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT Based QUESTIONS)

1. Which of the following incorrect statement about cockroach
(1) Nymph grows by moulting about 13 times to reach the adult form
(2) Next to last nymphal stage has wing pad
(3) Many species of cockroaches are wild and are no economic importance
(4) Have pair of compound eyes and two pair of antenna

AT0383

2. How many filamentous malphigian tubules are in cockroach?
(1) 100 – 150 (2) 50 – 100
(3) 150 – 200 (4) 200 – 250

AT0384

3. Identify the A, B, C and D in the given diagram and choose the correct option :

(A)
(B)
(C)
(D)

	A	B	C	D
1	Hypopharynx	Mandible	Labrum	Maxilla
2	Labrum	Maxilla	Mandible	Hypopharynx
3	Hypopharynx	Labrum	Maxilla	Mandible
4	Mandible	Hypopharynx	Labrum	Maxilla

AT0385

4. Choose the correct statement regarding cockroach
(1) Sperms are store in the ootheca
(2) fertilization occurs in seminal vessicles
(3) Anal style found in female cockroach
(4) Pair of spermatheca present in 6th segment

AT0386

5. A pair of testis in cockroach lie in -
(1) 2 – 6 abdominal segment
(2) 4 – 7 abdominal segment
(3) 4 – 6 abdominal segment
(4) 6 – 8 abdominal segment

AT0387

6. Exo-skeleton plates of cockroach are connected by thin flexible membrane that is known as
(1) Arthrodial membrane
(2) Peritoneal membrane
(3) Pleural membrane
(4) Perichordial membrane

AT0388

7. Match the column I and II correctly.

	Column-I		Column-II
(A)	Ovary	(i)	10th segment
(B)	Gizzard	(ii)	Excretary organ
(C)	Malpighian tubules	(iii)	Grinding of food
(D)	Anal cerci	(iv)	2-6th abdominal segment

(1) A-i, B-ii, C-iii, D-iv
(2) A-ii, B-iii, C-iv, D-i
(3) A-iv, B-iii, C-ii, D-i
(4) A-iii, B-iv, C-i, D-ii

AT0389

8. How many oothecae are produced by female cockroach?
(1) 14 – 16 (2) 9 – 10
(3) 12 – 13 (4) 1 – 4

AT0390

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

9. Conglobate gland in present in :
(1) Female cockroach (2) Earthworm
(3) male cockroach (4) honey bee

AT0315

10. Alary muscle is associated with

(1) Heart and circulation

(2) Malpighian tubules and excretion

(3) Mandibles

(4) Maxilla

AT0316

11. Common feaure in earthworm and cockroach is :

(1) Cuticle (exoskeleton)

(2) Solid and ventral nerve cord

(3) Nephridia

(4) Malpighian tubules

AT0317

12. The peculiar pungent smell of cockroach is produced by the secretions of :

(1) Pheromones

(2) Flame cells

(3) Abdominal glands

(4) Cervical glands

AT0318

13. The genus *Blatta* is associated with called :

(1) Cockroach

(2) Butterfly

(3) Mosquito

(4) Earthworm

AT0319

14. Male cockroach and female cockroach can be differentiated by :

(1) Ocelli

(2) Anal cerci

(3) Anal styles

(4) Compound Eye

AT0320

15. Stink gland is found in :

(1) 4th and 5th terga of cockroach

(2) 5th and 6th terga of cockroach

(3) 5th and 6th sterna of cockroach

(4) 4th and 5th sterna of cockroach

AT0321

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	1	1	4	3	1	3	2	3	1	2	1	1	3	2

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

BOTANY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Cell : The unit of life

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

INTRODUCTION TO EUKARYOTIC CELL (CELL WALL, CELL MEMBRANE)

1. Cell membrane is composed of :-
(1) Proteins and cellulose
(2) Proteins and phospholipids
(3) Proteins and carbohydrates
(4) Proteins, phospholipids and some carbohydrates
CL0001

2. Carbohydrates are present in the plasmalemma in the form of :–
(1) Hemicellulose (2) Cellulose
(3) Starch (4) Glycoprotein
CL0002

3. Carbohydrates which are present in the cell membrane take part in :–
(1) Transport of substance
(2) Cell recognition
(3) Attachment to microfilament
(4) Attachment to microtubules
CL0004

4. Plasma membrane is fluid structure due to presence of :–
(1) Carbohydrates (2) Lipid
(3) Glycoprotein (4) Polysaccharide
CL0005

5. The chemical substance abundantly present in middle lamella is :–
(1) Cutin (2) Chitin
(3) Lignin (4) Pectin
CL0006

6. Which of the following is capable of growth and gradually diminishes as the cell matures?
(1) Primary cell wall
(2) Secondary cell wall
(3) Middle lamella
(4) Cell membrane
CL0007

7. The fluid nature of the membrane is helpful in function of :-
(1) Cell growth (2) Cell division
(3) Endocytosis (4) All the above
CL0008

8. Plasma membrane is :–
(1) Selectively permeable
(2) Permeable
(3) Impermeable
(4) Semipermeable
CL0009

9. The Singer and Nicolson's Model of Plasma membrane differs from the Robertson's model in the-
(1) Number of lipid layers
(2) Arrangement of proteins
(3) Arrangement of lipid layers
(4) Absence of proteins
CL0010

10. Ingestion of large molecules by a cell is called -
(1) Diffusion (2) Osmosis
(3) Exocytosis (4) Endocytosis
CL0012

11. In fluid mosaic model of plasma membrane:-
(1) Upper layer is non-polar and hydrophilic
(2) Polar layer is hydrophobic
(3) Phospholipids form a bimolecular layer in middle part
(4) Proteins form a middle layer
CL0013

12. The main lipid components of the plant cell membrane are :-
(1) Phosphodiester
(2) Glycocalyx
(3) Peptidoglycan
(4) Phosphoglyceride
CL0015

EUKARYOTIC CELL (ENDOMEMBRANE SYSTEM)

13. Rough E.R. mainly responsible for:-
(1) Protein synthesis
(2) Cell wall formation
(3) Lipid synthesis
(4) Cholesterol synthesis
CL0017

14. Mitochondrial DNA is :-
(1) Naked (2) Circular
(3) Double stranded (4) All the above
CL0018

15. Golgibody orginates from :-
(1) E. R. (2) Mitochondria
(3) Nucleus (4) Proplastid
CL0019

16. Which cell organelle synthesises steroids ?
(1) E. R. (2) Golgibody
(3) Peroxisomes (4) Lysosomes
CL0020

17. Which of the following provides mechanical support and shape to the cell ?
(1) Golgi complex (2) Centrioles
(3) Lysosomes (4) E.R.
CL0021

18. Hydrolytic enzymes are abundantly found in which cell organelles ?
(1) Ribosome
(2) Lysosome
(3) Golgi body
(4) Endoplasmic reticulum
CL0023

19. The smooth E.R. is mainly made up of :–
(1) Cisternae
(2) Tubules
(3) Vesicle
(4) All the above
CL0028

20. Which of the following is known as **"System of membranes"** ?
(1) Lysosome
(2) E.R.
(3) Mitochondria
(4) Chloroplast
CL0029

21. Ribophorins occur on the surface of :–
(1) Rough E.R. (2) Smooth E.R.
(3) Golgi body (4) Lysosome
CL0031

22. At which pH lysosomal enzymes become active ?
(1) pH – 5 (2) pH – 7
(3) pH – 8 (4) pH – 10
CL0032

23. Main function of golgi–complex is :–
(1) Fermentation
(2) Phosphorylation
(3) Respiration
(4) Packaging of materials for secretion
CL0034

24. Which cell organelle(s) take(s) part in the formation of lysosomes ?
(1) Endoplasmic reticulum
(2) Golgi bodies
(3) Both 1and 2
(4) Mitochondria
CL0040

25. A single unit membrane organelle is :-
(1) Ribosome
(2) Mitochondria
(3) Chloroplast
(4) Lysosome
CL0045

26. Cisternae are found -
(1) Only in mitochondria
(2) Only in Endoplasmic Reticulum
(3) In Endoplasmic Reticulum and Golgi body
(4) Only in Golgi body
CL0047

27. Which of the following is the site of lipid synthesis?
(1) Rough ER
(2) Smooth ER
(3) Golgi bodies
(4) Ribosome
CL0049

28. Detoxification of lipid soluble drugs and other harmful compounds, in endoplasmic reticulum is carried out by :-
(1) Cytochrome P450
(2) Cytochrome bf
(3) Cytochrome c
(4) Cytochrome a_1–a_3

CL0052

29. Anthocyanin pigment is found in :–
(1) Chromoplasts (2) Amyloplasts
(3) Cytoplasm (4) Cell sap

CL0065

30. Golgibody is concerned with :-
(1) Respiration (2) Secretion
(3) Excretion (4) Digestion

CL0081

EUKARYOTIC CELL (MITOCHONDRIA, PLASTIDS)

31. Power house of cell is :-
(1) Nucleus (2) DNA
(3) Mitochondria (4) ATP

CL0022

32. Which of the following sets of cell organelles contain DNA ?
(1) Mitochondria, peroxisome
(2) Plasma membrane, ribosome
(3) Mitochondria, chloroplast
(4) Chloroplast, dictyosome

CL0024

33. Semiautonomous cell organelle is :–
(1) Mitochondria (2) Ribosome
(3) Golgi body (4) Peroxisome

CL0025

34. Which cell organelle releases oxygen ?
(1) Mitochondria (2) Golgi–body
(3) Chloroplast (4) Ribosome

CL0026

35. The cell organelles having abundance of oxidizing enzymes is :–
(1) Golgi body
(2) Endoplasmic reticulum
(3) Centrioles
(4) Mitochondria

CL0033

36. Aerobic respiration is performed by :-
(1) Mitochondria (2) Chloroplast
(3) Ribosome (4) Golgibody

CL0037

37. Ground substance present inside the mitochondria is called :-
(1) Stroma (2) Matrix
(3) Cell sap (4) Cytoplasm

CL0039

38. ATP factories of cells are –
(1) Chloroplast (2) Mitochondria
(3) Ribosome (4) Nucleus

CL0043

39. Cristae are found in :-
(1) Surface of grana
(2) Surface of plasma membrane.
(3) Membrane of Mitochondria
(4) Nuclear Membrane

CL0044

40. Double layered organelles are -
(1) Ribosomes
(2) Mitochondria
(3) Lysosomes
(4) Centrioles

CL0046

41. Chlorophyll in chloroplasts is located in –
(1) Grana
(2) Only in stroma thylakoids
(3) Stroma
(4) Both grana and stroma

CL0051

42. Elaioplasts are absent in :-
(1) **Potato**
(2) ***Cocos nucifera*** (Coconut)
(3) ***Arachis hypogea*** (Ground nut)
(4) ***Helianthus annuus*** (Sunflower)

CL0053

43. In higher plants, the chloroplasts are :-
(1) Discoidal or oval
(2) Spiral
(3) Cup shaped
(4) Reticulate

CL0054

44. Mitochondria and chloroplast are considered to be endosymbionts of cell because they :–
(1) Possess their own nucleic acid
(2) Have capacity of ATP synthesis
(3) Do not reproduce
(4) All the above
CL0056

45. Non pigmented part of chloroplast is called :-
(1) Thylakoids (2) Grana
(3) Stroma (4) Lamellae
CL0073

46. Which of following is not common in chloroplasts & mitochondria ?
(1) Both are present in animal cells
(2) Both contain their own genetic material
(3) Both are present in eukaryotic cells
(4) Both are present in plant cells
CL0074

EUKARYOTIC CELL (RIBOSOME, CYTOSKELETON, CILIA, FLAGELLA, CENTROSOME AND CENTRIOLE, MICROBODIES)

47. During germination of seeds which cell organelle converts fatty acid into soluble carbohydrate ?
(1) Peroxisome (2) Glyoxysome
(3) Golgi body (4) Lysosome
CL0042

48. DNA is not found in :–
(1) Nucleus (2) Mitochondria
(3) Chloroplast (4) Ribosome
CL0055

49. Self duplication does not occur in :–
(1) Mitochondria (2) Centrioles
(3) Chloroplast (4) Ribosome
CL0058

50. In which of the following tubulin protein is not present?
(1) Plasma membrane
(2) Cilia
(3) Flagella
(4) Microtubules
CL0059

51. The peroxisomes are associated with the phenomenon of :–
(1) Krebs cycle
(2) Degradation of H_2O
(3) Anaerobic respiration
(4) Photorespiration and degradation of H_2O_2
CL0060

52. Which of the following termed as highly specialised peroxisomes ?
(1) Glyoxysomes (2) Mitochondria
(3) Golgibody (4) Lysosomes
CL0061

53. "Palade particles" are :–
(1) Ribosomes
(2) Golgi vesicles
(3) Lysosomes
(4) Peroxisomes
CL0062

54. Polysome is a chain of :–
(1) Pinosomes (2) Phagosomes
(3) Microsomes (4) Ribosomes
CL0064

55. Basal body is :-
(1) Centriole like
(2) Plastid like
(3) Ribosome like
(4) Mitochondria like
CL0067

56. Prokaryotic ribosomes are 70S, S refers to:-
(1) Svedberg unit (2) Smallest unit
(3) Smooth (4) Speed
CL0068

57. Microtubules are composed of :-
(1) Actin protein (2) Myosin protein
(3) Tubulin protein (4) Dynein protein
CL0231

58. Arrangement of microtubules in centriole is:-
(1) 9 + 2 (2) 2 + 9
(3) 11 + 0 (4) 9 + 0
CL0070

59. Smallest cell organelle is :-
(1) Lysosome (2) Centrosome
(3) Ribosome (4) Golgibody
CL0072

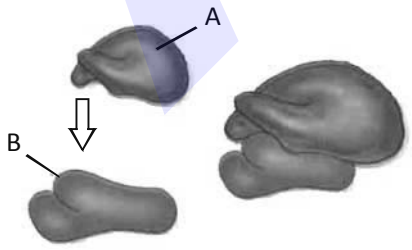
60. 70 S type of ribosomes are found in :-
(1) Prokaryotic cells
(2) Prokaryotic cells, chloroplasts and mitochondria
(3) Mitochondria
(4) Nucleus, mitochondria
CL0075

61. The Ribosomes are made up of -
(1) DNA + Protein
(2) RNA + Protein
(3) DNA + RNA
(4) Only protein
CL0077

62. Cilia and flagella both -
(1) have 9 + 2 arrangement of microtubules
(2) are protective structure of cells
(3) are only present in protozoa animals
(4) are outgrowth structures of cytoplasm
CL0079

63. In which one of the following would you expect to find glyoxysomes ?
(1) Endosperm of wheat
(2) Endosperm of castor
(3) Palisade cells in leaf
(4) Root hairs
CL0082

64. Here 'S' (Svedberg's unit) stands for sedimentation coefficient then what are [A] & [B] for eukaryotic cell.



(1) A – 40S B – 60S
(2) A – 60S B – 40S
(3) A – 80S B – 60S
(4) A – 40S B – 80S
CL0083

EUKARYOTIC CELL (NUCLEUS, CHROMOSOME)

65. Genome is :-
(1) Part of chromosome
(2) Half part of a chromosome
(3) Total DNA in cell
(4) Total chromosomes in a gamete
CL0084

66. Nucleolar organizer region is a :-
(1) Primary constriction
(2) Secondary constriction
(3) Tertiary constriction
(4) Centriole
CL0085

67. Kinetochore is present on :-
(1) Mitochondria
(2) Peroxisome
(3) Chromosome
(4) Flagella
CL0086

68. Chromosomes are composed of :-
(1) DNA, RNA, Histones, Non histones
(2) DNA and Histones
(3) DNA and RNA
(4) DNA, RNA and Histones
CL0088

69. Which part of chromosome is concern with ageing of organism?
(1) Centromere (2) Telomere
(3) Kinetochore (4) Satellite
CL0089

70. The non–sticky chromosomal ends are known as–
(1) Chromatids
(2) Centromeres
(3) Satellites
(4) Telomeres
CL0090

71. The protein nucleoplasmin occurs on :-
(1) Nuclear pore
(2) Sieve cells
(3) Nucleolus
(4) Hetero chromatin
CL0093

72. Salivary gland chromosome is concerned with :-
(1) vitellogenesis
(2) formation of ribosomes
(3) lipid systhesis
(4) metamorphosis in some insects
CL0232

73. Part of chromosome after secondary constriction is called :–
(1) Centromere
(2) Telomere
(3) Satellite
(4) Nucleolar organiser
CL0098

74. If the centromere is close to chromosome's end and the two arms are unequal then the chromosome is called as :-
(1) Metacentric (2) Submetacentric
(3) Acrocentric (4) Telocentric
CL0100

75. Hetero-chromatin is :-
(1) Darkly stained part of chromatin
(2) Lightly stained part of cristae
(3) Lightly stained part of grana
(4) Scattered lobes in cytoplasm
CL0102

76. Chromosome with centromere at one end, is :-
(1) Metacentric (2) Submetacentric
(3) Telocentric (4) Acrocentric
CL0103

77. Nucleus is absent in :-
(1) Cell of vascular cambium
(2) Root hair cell
(3) Companion cell
(4) Members of mature sieve tube
CL0106

78. The telomeres of eukaryotic chromosomes consist of short sequences of –
(1) Cytosine rich repeats
(2) Adenine rich repeats
(3) Guanine rich repeats
(4) Thymine rich repeats
CL0107

79. Protein synthesis in an animal cell occurs –
(1) On ribosomes present in cytoplasm as well as in mitochondria
(2) On ribosomes present in the nucleolus as well as in cytoplasm
(3) Only on ribosomes attached to the nuclear envelope and endoplasmic reticulum
(4) Only on the ribosomes present in cytosol
CL0110

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	4	2	2	4	1	4	1	2	4	3	4	1	4	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	4	2	2	2	1	1	4	3	4	3	2	1	4	2
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	3	1	3	4	1	2	2	3	2	1	1	1	1	3
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	1	2	4	4	1	4	1	1	4	1	1	3	4	3	2
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	2	1	2	2	4	2	3	1	2	4	1	4	3	3	1
Que.	76	77	78	79											
Ans.	3	4	3	1											

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Which of the following statements regarding mitochondrial membrane is **not** correct ?
(1) The outer membrane resembles a sieve
(2) The outer membrane is permeable to all kinds of molecules.
(3) The enzymes of the electron transfer chain are embedded in the outer membrane.
(4) The inner membrane is highly convoluted forming a series of infoldings.

CL0111

2. Which of the following statements regarding cilia is **not** correct?
(1) Cilia contain an outer of nine doublet microtubules surrounding two single microtubules.
(2) The organized beating of cilia is controlled by fluxes of Ca^{2+} across the membrane.
(3) Cilia are hair-like cellular appendages.
(4) Microtubules of cilia are composed of tubulin.

CL0112

AIPMT 2007

3. Which one of the following is not a constituent of cell membrane ?
(1) Phospholipids (2) Cholesterol
(3) Glycolipids (4) Proline

CL0113

4. Select the **wrong** statement from the following :
(1) The chloroplasts are generally much larger than mitochondria
(2) Both chloroplasts and mitochondria contain an inner and an outer membrane
(3) Both chloroplasts and mitochondria have an internal compartment, the thylakoid space bounded by the thylakoid membrane
(4) Both chloroplasts and mitochondria contain DNA

CL0114

AIPMT 2008

5. Polysome is formed by :-
(1) A ribosome with several subunits
(2) Ribosomes attached to each other in a linear arrangement
(3) Several ribosomes attached to a single mRNA
(4) Many ribosomes attached to a strand of endoplasmic reticulum

CL0115

6. Vacuole in a plant cell :-
(1) Lacks membrane and contains air
(2) Lacks membrane and contains water and excretory substances
(3) Is membrane-bound and contains storage proteins and lipids
(4) is membrane-bound and contains water and excretory substances

CL0116

7. In germinating seeds, fatty acids are degraded **exclusively** in the:-
(1) Peroxisomes (2) Mitochondria
(3) Proplastids (4) Glyoxysomes

CL0117

8. Keeping in view the "fluid mosaic model" for the structure of cell membrane, which one of the following statements is **correct** with respect to the movement of lipids and proteins from one lipid monolayer to the other (described as flipflop movement) ?
(1) While proteins can flip-flop, lipids can not
(2) Neither lipids, nor proteins can flip-flop
(3) Both lipids and proteins can flip-flop
(4) While lipids can rarely flip–flop,proteins can not

CL0118

AIPMT 2009

9. Plasmodesmata are :-
(1) Connections between adjacent cells
(2) Lignified cemented layers between cells
(3) Locomotary structures
(4) Membranes connecting the nucleus with plasmalemma

CL0119

10. Middle lamella is composed mainly of :-
(1) Phosphoglycerides (2) Hemicellulose
(3) Muramic acid (4) Calcium pectate

CL0120

11. Cytoskeleton is made up of :-
(1) Proteinaceous filaments
(2) Calcium carbonate granules
(3) Callose deposits
(4) Cellulosic microfibrils

CL0121

AIPMT Pre. 2010

12. The plasma membrane consists mainly of :
(1) proteins embedded in a carbohydrate bilayer
(2) phospholipids embedded in a protein bilayer
(3) proteins embedded in a phospholipid bilayer
(4) proteins embedded in a polymer of glucose molecules

CL0122

13. Which one of the following structures between two adjacent cells is an effective transport pathway ?
(1) Plasmalemma
(2) Plasmodesmata
(3) Plastoquinones
(4) Endoplasmic reticulum

CL0123

14. Which one of the following has its own DNA ?
(1) Peroxisome (2) Mitochondria
(3) Dictyosome (4) Lysosome

CL0124

15. The main arena of various types of activities of a cell is:
(1) Nucleus
(2) Plasma membrane
(3) Mitochondrian
(4) Cytoplasm

CL0125

16. Algae have cell wall made up of:
(1) Cellulose, hemicellulose and pectins
(2) Cellulose, galactans and mannans
(3) Hemicellulose, *pectins* and proteins
(4) Pectins, cellulose and proteins

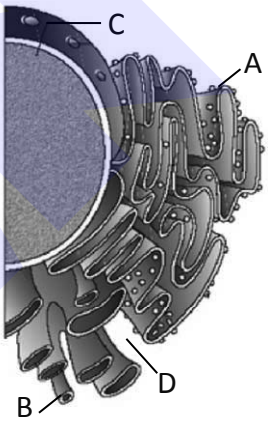
CL0126

AIPMT Mains 2010

17. An elaborate network of filamentous proteinaceous structures present in the cytoplasm which helps in the maintenance of cell shape is called :
(1) Endosplasmic Reticulum
(2) Plasmalemma
(3) Cytoskeleton
(4) Thylakoid

CL0127

18. Identify the components labelled A, B ,C and D in the diagram below from the list (i) to (viii) given with



Components :
(i) Cristae of mitochondria
(ii) Inner membrane of mitochondria
(iii) Cytoplasm
(iv) Smooth endoplasmic reticulum
(v) Rough endoplasmic reticulum
(vi) Mitochondrial matrix
(vii) Cell vacuole
(viii) Nucleus

The correct component are :

	A	B	C	D
(1)	(i)	(iv)	(viii)	(vi)
(2)	(vi)	(v)	(iv)	(vii)
(3)	(v)	(i)	(iii)	(ii)
(4)	(v)	(iv)	(viii)	(iii)

CL0128

AIPMT-Pre 2011

19. Important site for formation of glycoproteins and glycolipids is :-
(1) Vacuole (2) Golgi apparatus
(3) Plastid (4) Lysosome
CL0130

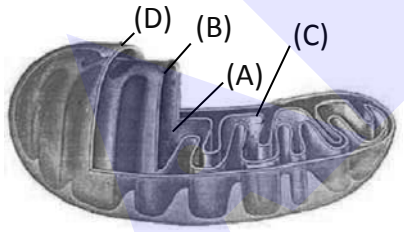
20. Peptide synthesis inside a cell takes place in :-
(1) Chloroplast (2) Mitochondria
(3) Chromoplast (4) Ribosomes
CL0131

21. In eubacteria, a cellular component that resembles eukaryotic cell is :-
(1) Plasma membrane (2) Nucleus
(3) Ribosomes (4) Cell wall
CL0132

AIPMT-Mains 2011

22. Which one of the following is not considered as a part of the endomembrane system ?
(1) Lysosome (2) Golgi complex
(3) Peroxisome (4) Vacuole
CL0133

23. The figure below shows the structure of a mitochondrion with its four parts labelled (A), (B), (C) and (D). Select the part correctly matched with its function.



(1) Part (A) : Matrix - major site for respiratory chain enzymes
(2) Part (D) : Outer membrane - gives rise to inner membrane by splitting
(3) Part (B) : Inner membrane - forms infoldings called cristae
(4) Part (C) : Cristae - possess single circular DNA molecule and ribosomes
CL0134

AIPMT-Pre 2012

24. Select the correct statement from the following regarding cell membrane :-
(1) Lipids are arranged in a bilayer with polar heads towards the inner part
(2) Fluid mosaic model of cell membrane was proposed by Singer and Nicolson
(3) Na^+ and K^+ ions move across cell membrane by passive transport
(4) Proteins make up 60 to 70% of the cell membrane
CL0136

25. What is true about ribosomes ?
(1) These are found only in eukaryotic cells
(2) These are self-splicing introns of some RNAs
(3) The prokaryotic ribosomes are 80S where "S" stands for sedimentation coefficient
(4) These are composed of ribonucleic acid and proteins
CL0137

26. Ribosomal RNA is actively synthesized in :-
(1) Nucleoplasm (2) Ribosomes
(3) Lysosomes (4) Nucleolus
CL0138

AIPMT-Mains 2012

27. Which one of the following cellular parts is correctly described ?
(1) Ribosomes - those on chloroplasts are larger (80S) while those in the cytoplasm are smaller (70S)
(2) Lysosomes-optimally active at a pH of about 8.5
(3) Thylakoids-flattened membranous sacs forming the grana of chloroplasts
(4) Centrioles - sites for active RNA synthesis
CL0139

28. Which one of the following structures is an organelle within an organelle?
(1) ER (2) Mesosome
(3) Ribosome (4) Peroxisome
CL0140

NEET-UG 2013

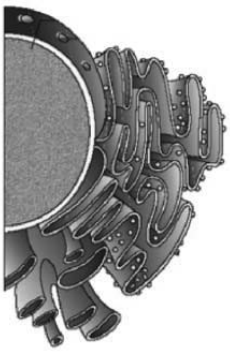
29. The Golgi complex plays a major role :
(1) in post translational modification of proteins and glycosidation of lipids
(2) in trapping the light and transforming it into chemical energy
(3) in digesting proteins and carbohydrates
(4) as energy transferring organelles

CL0141

30. A major site for synthesis of lipids is :
(1) Nucleoplasm (2) RER
(3) SER (4) Symplast

CL0142

31. Which one of the following organelle in the figure correctly matches with its function ?



(1) Rough endoplasmic reticulum, protein synthesis
(2) Rough endoplasmic reticulum, formation of glycoproteins
(3) Golgi apparatus, protein synthesis
(4) Golgi apparatus, formation of glycolipids

CL0143

AIPMT 2014

32. The solid linear cytoskeletal elements having a diameter of 6 nm and made up of a single type of monomer are known as :
(1) Microtubules
(2) Microfilaments
(3) Intermediate filaments
(4) Lamins

CL0146

33. The osmotic expansion of a cell kept in water is chiefly regulated by :
(1) Mitochondria (2) Vacuoles
(3) Plastids (4) Ribosomes

CL0147

34. Match the following and select the **correct** answer :

(a) Centriole		(i)	Infoldings in mitochondria
(b) Chlorophyll		(ii)	Thylakoids
(c) Cristae		(iii)	Nucleic acids
(d) Ribozymes		(iv)	Basal body cilia or flagella

	(a)	(b)	(c)	(d)
(1)	(iv)	(ii)	(i)	(iii)
(2)	(i)	(ii)	(iv)	(iii)
(3)	(i)	(iii)	(ii)	(iv)
(4)	(iv)	(iii)	(i)	(ii)

CL0148

AIPMT 2015

35. DNA is **not** present in :-
(1) Ribosomes (2) Nucleus
(3) Mitochondria (4) Chloroplast

CL0149

36. Nuclear envelope is a derivative of :-
(1) Membrane of Golgi complex
(2) Microtubules
(3) Rough endoplasmic reticulum
(4) Smooth endoplasmic reticulum

CL0150

37. The structures that are formed by stacking of organized flattened membranous sacs in the chloroplasts are :
(1) Grana (2) Stroma lamellae
(3) Stroma (4) Cristae

CL0151

38. The chromosomes in which centromere is situated close to one end are:
(1) Acrocentric (2) Telocentric
(3) Sub-metacentric (4) Metacentric

CL0152

39. Select the **correct** matching in the following pairs:
(1) Smooth ER – Synthesis of lipids
(2) Rough ER– Synthesis of glycogen
(3) Rough ER – Oxidation of fatty acids
(4) Smooth ER – Oxidation of phospholipids

CL0154

Re-AIPMT 2015

40. Which of the following structures is **not** found in prokaryotic cells?
(1) Plasma membrane
(2) Nuclear envelope
(3) Ribosome
(4) Mesosome

CL0155

41. Which of the following are **not** membrane-bound?
(1) Mesosomes
(2) Vacuoles
(3) Ribosomes
(4) Lysosomes

CL0156

42. Cellular organelles with membranes are :
(1) Lysosomes, Golgi apparatus and mitochondria
(2) Nuclei, ribosomes and mitochondria
(3) Chromosomes, ribosomes and endoplasmic reticulum
(4) Endoplasmic reticulum, ribosomes and nuclei

CL0157

43. A protoplast is a cell :
(1) without cell wall
(2) without plasma membrane
(3) without nucleus
(4) undergoing division

CL0158

44. Match the columns and identify the correct option:

	Column-I		Column-II
(a)	Thylakoids	(i)	Disc-shaped sacs in Golgi apparatus
(b)	Cristae	(ii)	Condensed structure of DNA
(c)	Cisternae	(iii)	Flat membranous sacs in stroma
(d)	Chromatin	(iv)	Infoldings in mitochondria

	(a)	(b)	(c)	(d)
(1)	(iii)	(iv)	(ii)	(i)
(2)	(iv)	(iii)	(i)	(ii)
(3)	(iii)	(iv)	(i)	(ii)
(4)	(iii)	(i)	(iv)	(ii)

CL0159

NEET-I 2016

45. Mitochondria and chloroplast are :-
(a) semi-autonomous organelles
(b) formed by division of pre-existing organelles and they contain DNA but lack protein synthesizing machinery
Which one of the following options is **correct** ?
(1) Both (a) and (b) are correct
(2) (b) is true but (a) is false
(3) (a) is true but (b) is false
(4) Both (a) and (b) are false

CL0162

46. Microtubules are the constituents of :-
(1) Cilia, Flagella and Peroxisomes
(2) Spindle fibres, Centrioles and Cilia
(3) Centrioles, Spindle fibres and Chromatin
(4) Centrosome, Nucleosome and Centrioles

CL0163

47. A complex of ribosomes attached to a single strand of RNA is known as :-
(1) Polysome
(2) Polymer
(3) Polypeptide
(4) Okazaki fragment

CL0164

48. Which one of the following cell organelles is enclosed by a single membrane ?
(1) Mitochondria (2) Chloroplasts
(3) Lysosomes (4) Nuclei

CL0165

49. Water soluble pigments found in plant cell vacuoles are :-
(1) Xanthophylls (2) Chlorophylls
(3) Carotenoids (4) Anthocyanins

CL0166

NEET-II 2016

50. A cell organelle containing hydrolytic enzymes is:-
(1) Ribosome (2) Mesosome
(3) Lysosome (4) Microsome

CL0167

NEET(UG) 2017

51. Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP ?
(1) Ribosome (2) Chloroplast
(3) Mitochondrion (4) Lysosome

CL0170

NEET(UG) 2018

52. Which of the following is true for nucleolus?
(1) Larger nucleoli are present in dividing cells.
(2) It is a membrane-bound structure.
(3) It takes part in spindle formation.
(4) It is a site for active ribosomal RNA synthesis.

CL0172

53. The Golgi complex participates in
(1) Fatty acid breakdown
(2) Formation of secretory vesicles
(3) Respiration in bacteria
(4) Activation of amino acid

CL0173

54. Which of the following events does ***not*** occur in rough endoplasmic reticulum ?
(1) Protein folding
(2) Protein glycosylation
(3) Cleavage of signal peptide
(4) Phospholipid synthesis

CL0174

55. Select the ***incorrect*** match :
(1) Lampbrush chromosomes – Diplotene bivalents
(2) Allosomes – Sex chromosomes
(3) Submetacentric chromosomes – L-shaped chromososmes
(4) Polytene chromosomes – Oocytes of amphibians

CL0175

NEET(UG) 2019

56. The shorter and longer arms of a submetacentric chromosome are referred to as :-
(1) s-arm and l-arm respectively
(2) p-arm and q-arm respectively
(3) q-arm and p-arm respectively
(4) m-arm and n-arm respectively

CL0223

57. Which of the following pair of organelles does not contain DNA ?
(1) Mitochondria and Lysosomes
(2) Chloroplast and Vacuoles
(3) Lysosomes and Vacuoles
(4) Nuclear envelope and Mitochondria

CL0224

58. Which of the following statements is **not** correct?
(1) Lysosomes have numerous hydrolytic enzymes.
(2) The hydrolytic enzymes of lysosomes are active under acidic pH.
(3) Lysosomes are membrane bound structures.
(4) Lysosomes are formed by the process of packaging in the endoplasmic reticulum.

CL0225

59. The concept of " *Omnis cellula-e cellula*" regarding cell division was first proposed by:
(1) Rudolf Virchow
(2) Theodore Schwann
(3) Schleiden
(4) Aristotle

CL0226

60. Which of the following statements regarding mitochondria is **incorrect**?

(1) Outer membrane is permeable to monomers of carbohydrates, fats and proteins.

(2) Enzymes of electron transport are embedded in outer membrane.

(3) Inner membrane is convoluted with infoldings.

(4) Mitochondrial matrix contains single circular DNA molecule and ribosomes.

CL0227

NEET(UG) 2019 (Odisha)

61. Which of the following cell organelles is present in the highest number in secretory cells ?

(1) Mitochondria

(2) Golgi complex

(3) Endoplasmic reticulum

(4) Lysosomes

CL0228

62. Non-membranous nucleoplasmic structures in nucleus are the site for active synthesis of:-

(1) Protein synthesis (2) mRNA

(3) rRNA (4) tRNA

CL0229

63. Match the column-I with column-II :-

Column-I	**Column-II**
(a) Golgi apparatus	(i) Synthesis of protein
(b) Lysosomes	(ii) Trap waste and excretory products
(c) Vacuoles	(iii) Formation of glycoproteins and glycolipids
(d) Ribosomes	(iv) Digesting biomolecules

Choose the right match from options given below :-

(1) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

(2) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)

(3) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

(4) (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

CL0230

NEET(UG) 2020

64. Which is the important site of formation of glycoproteins and glycolipids in eukaryotic cells ?

(1) Polysomes

(2) Endoplasmic reticulum

(3) Peroxisomes

(4) Golgi bodies

CL0233

NEET(UG) 2020 (COVID-19)

65. The biosynthesis of ribosomal RNA occurs in :

(1) Ribosomes

(2) Golgi apparatus

(3) Microbodies

(4) Nucleolus

CL0234

66. The size of Pleuropneumonia - like Organism (PPLO) is :

(1) 0.02 μm (2) 1-2 μm

(3) 10-20 μm (4) 0.1 μm

CL0235

67. Match the following columns and select the correct option :

Column - I	**Column - II**
(a) Smooth endoplasmic reticulum	(i) Protein synthesis
(b) Rough endoplasmic reticulum	(ii) Lipid synthesis
(c) Golgi complex	(iii) Glycosylation
(d) Centriole	(iv) Spindle formation

(1) (a)-(ii), (b)-(i), (c)-(iii). (d)-(iv)

(2) (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)

(3) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)

(4) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

CL0236

NEET(UG) 2021

68. When the centromere is situated in the middle of two equal arms of chromosomes, the chromosome is referred as :
(1) Metacentric
(2) Telocentric
(3) Sub-metacentric
(4) Acrocentric

CL0237

69. Match **List -I** with **List - II.**

List –I		List –II	
(a)	Cristae	(i)	Primary constriction in chromosome
(b)	Thylakoids	(ii)	Disc-shaped sacs in Golgi apparatus
(c)	Centromere	(iii)	Infoldings in mitochondria
(d)	Cisternae	(iv)	Flattened membranous sacs in stroma of plastids

Choose the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iv)	(iii)	(ii)	(i)
(2)	(i)	(iv)	(iii)	(ii)
(3)	(iii)	(iv)	(i)	(ii)
(4)	(ii)	(iii)	(iv)	(i)

CL0238

70. Which of the following is an **incorrect** statement?
(1) Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles.
(2) Microbodies are present both in plant and animal cells.
(3) The perinuclear space forms a barrier between the materials present inside the nucleus and that of the cytoplasm.
(4) Nuclear pores act as passages for proteins and RNA molecules in both directions between nucleus and cytoplasm.

CL0239

71. The organelles that are included in the endomembrane system are:
(1) Endoplasmic reticulum, Mitochondria, Ribosomes and Lysosomes
(2) Endoplasmic reticulum, Golgi complex, Lysosomes and Vacuoles
(3) Golgi complex, Mitochondria, Ribosomes and Lysosomes
(4) Golgi complex, Endoplasmic reticulum, Mitochondria and Lysosomes

CL0240

NEET(UG) 2021 (Paper-2)

72. Match the columns.

Column I	Column II
a. Endoplasmic reticulum	i. Stack of cisternae
b. Sphaerosomes	ii. Stores oil
c. Dictyosomes	iii Synthesis and storage of lipids
d. Peroxisomes	iv. Photorespiration
e. Elaioplasts	v. Detoxification of drugs

(1) a–v, b–iii, c–i, d–iv, e–ii
(2) a–v, b–iii, c–ii, d–iv, e–i
(3) a–ii, b–iii, c–i, d–iv, e–v
(4) a–iii, b–v, c–i, d–iv, e–ii

CL0282

73. Which of the following is the incorrect matching of three items and their grouping category ?
(1) ER, Golgi body, lysosome – Endomembrane system
(2) Chromoplast, chloroplast, leucoplast – Plastids
(3) Amyloplast, elaioplast, aleuroplast – Leucoplast
(4) Abrin, ricin, concanavalin – Toxins

CL0283

74. The middle lamella is
(1) A lignified layer which glues the neighbouring cells together.
(2) A membrane which connects cell membrane and cell wall.
(3) A structure which connects the cytoplasm of neighbouring cells.
(4) A layer which holds the different neighbouring cells together.

CL0284

NEET(UG) 2022

75. Match **List-I** with **List-II**.

List-I	List-II
(a) Metacentric chromosome	(i) Centromere situated close to the end forming one extremely short and one very long arms
(b) Acrocentric chromosome	(ii) Centromere at the terminal end
(c) Sub-metacentric chromosome	(iii) Centromere in the middle forming two equal arms of chromosomes
(d) Telocentric chromosome	(iv) Centromere slightly away from the middle forming one shorter arm and one longer arm

Choose the **correct answer** from the options given below:

(1) (a)-(i),(b)-(iii),(c)-(ii),(d)-(iv)
(2) (a)-(ii),(b)-(iii),(c)-(iv),(d)-(i)
(3) (a)-(i),(b)-(ii),(c)-(iii),(d)-(iv)
(4) (a)-(iii),(b)-(i),(c)-(iv),(d)-(ii)

CL0285

76. Which of the following statements with respect to Endoplasmic Reticulum is **incorrect?**

(1) SER is devoid of ribosomes
(2) In prokaryotes only RER are present
(3) SER are the sites for lipid synthesis
(4) RER has ribosomes attached to ER

CL0286

77. Given below are two statements :

Statement I:
Mycoplasma can pass through less than 1 micron filter size.

Statement II:
Mycoplasma are bacteria with cell wall

In the light of the above statements, choose the **most appropriate** answer from the options given below:

(1) Both **Statement I** and **Statement II** are incorrect
(2) **Statement I** is correct but **Statement II** is incorrect
(3) **Statement I** is incorrect but **Statement II** is correct
(4) Both **Statement I** and **Statement II** are correct

CL0287

NEET(UG) 2022 (OVERSEAS)

78. Given below are two statements :

Statements-I : Membrane-bound organelles of the endomembrane system coordinate cellular functions.

Statement-II : Mitochondria and chloroplasts are not considered a part of the endomembrane system.

In the light of the above statements choose the **most appropriate** answer from the options given below :

(1) **Statement-I** is incorrect but **Statement-II** is correct
(2) Both **Statement-I** and **Statement-II** are correct
(3) Both **Statement-I** and **Statement-II** are incorrect
(4) **Statement-I** is correct but **Statement-II** is incorrect

CL0288

79. Match **List - I** with **List - II**

List – I	List - II
(a) Chromoplasts	(i) Proteins
(b) Amyloplasts	(ii) Oil and fats
(c) Elaioplasts	(iii) Starch
(d) Aleuroplasts	(iv) Carotene

Choose the **correct answer** from the options given below :

(1) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(2) (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)
(3) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
(4) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

CL0289

Re-NEET(UG) 2022

80. If the pH in lysosomes is increased to alkaline, what will be the outcome?

(1) Hydrolytic enzymes will function more efficiently

(2) Hydrolytic enzymes will become inactive

(3) Lysosomal enzymes will be released into the cytoplasm

(4) Lysosomal enzymes will be more active

CL0290

EXERCISE-II (Previous Year Questions) ANSWER KEY

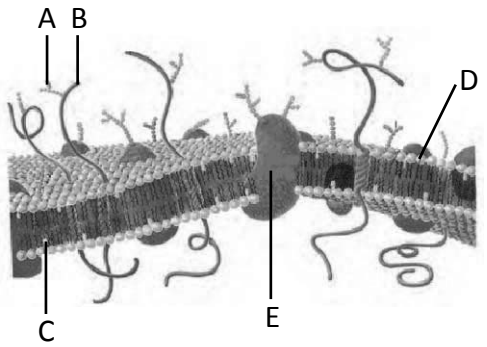
Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**3**	**2**	**4**	**3**	**3**	**4**	**4**	**4**	**1**	**4**	**1**	**3**	**2**	**2**	**4**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**3**	**4**	**2**	**4**	**1**	**3**	**3**	**2**	**4**	**4**	**3**	**3**	**1**	**3**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**2**	**2**	**1**	**1**	**3**	**1**	**1**	**1**	**2**	**3**	**1**	**1**	**3**	**3**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**2**	**1**	**3**	**4**	**3**	**3**	**4**	**2**	**4**	**4**	**2**	**3**	**4**	**1**	**2**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**2**	**3**	**1**	**4**	**4**	**4**	**1**	**1**	**3**	**1**	**2**	**1**	**4**	**4**	**4**
Que.	76	77	78	79	80										
Ans.	**2**	**2**	**2**	**1**	**2**										

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) NCERT BASED QUESTIONS

1. The figure given below shows the structure of plasma membrane, with its parts labelled from A to E, Identify the correct :-



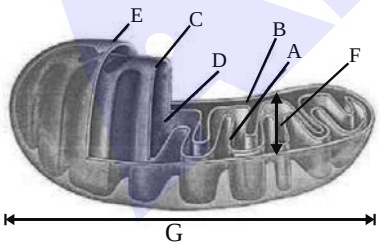
(1) A $\rightarrow$ 52 percent of erythrocyte membrane
(2) B and D $\rightarrow$ Movement of these can be measured as fluidity of membrane
(3) C $\rightarrow$ Help in facilitated transport of polar molecules
(4) D $\rightarrow$ Its polar tail contains saturated hydrocarbons

CL0182

2. Contractile vacuole :-
(1) is a membrane less structure
(2) is formed by engulfing the food
(3) is important for osmoregulation
(4) is called suicidal bag of cell

CL0241

Q. No. 3 to 7 are based on given diagram :-



3. Which represents aqueous compartments ?
(1) A, B (2) D, C
(3) A, D (4) B, D

CL0184

4. What is the average value of labelled F ?
(1) 0.2 µm (2) 0.5 µm
(3) 1.0 µm (4) 4.1 µm

CL0185

5. Cristae are infoldings of ..... , present toward the .....
(1) E and B (2) B and C
(3) C and D (4) F and D

CL0186

6. Single, circular DNA molecule is found in :-
(1) B (2) D (3) E (4) C

CL0187

7. D contains :-
(i) few RNA molecules (ii) 70s ribosome
(iii) Enzymes (iv) Circular DNA
Options :-
(1) ii, iv (2) i, ii, iv
(3) ii, iii, iv (4) i, ii, iii, iv

CL0188

8. (a) granular structure
(b) first observed under the electron microscope as dense particles by George Palade
(c) composed of RNA and proteins
(d) not surrounded by any membrane
Above given statements are true for which cell organelle?
Options :-
(1) Nucleolus (2) Ribosome
(3) Lysosome (4) Chloroplast

CL0189

9. Find **incorrect** statement with regard to centrosome and centrioles :-
(a) Centrosome is surrounded by amorphous pericentriolar material
(b) In centrosome, both centrioles lie parallel to each other in which each has an organisation like the cartwheel
(c) Centrioles are made up of nine unevenly spaced peripheral fibrils of tubulin
(d) Hub is the central proteinaceous part of centriole
(e) Proteinaceous radial spokes connect hub to peripheral triplets
Options :-
(1) a,b, e (2) only b
(3) b, c (4) All are correct

CL0190

10. .....observed that all plant tissues are made up of cells. At the same time....., studied different type of animal cells.
(1) Rudolf Virchow and Robert Brown respectively
(2) Mathias Schleiden and Theodore Schwann respectively
(3) Theodore Schwann and Mathias Schleiden respectively
(4) Robert Hooke and Schleiden respectively

CL0242

11. According to fluid-mosaic model, the quasi-fluid nature of.....enables lateral movement of.....within the overall bilayer. This ability to move within the membrane is measured as its...
(i) Carbohydrates
(ii) Lipids
(iii) Proteins
(iv) Fluidity
(v) Selective permeability
Correct sequence is :-
(1) ii, iii, iv (2) iii, i, iv
(3) iii, ii, v (4) i, ii, iv

CL0243

12. One of the most important functions of the plasma membrane is :-
(1) Formation of nuclear membrane
(2) Transport of molecules across it
(3) Exocytosis
(4) Detoxification

CL0244

13. .....can not pass through the lipid bilayer, they require a carrier protein of the membrane to facilitate their transport across the membrane
(1) Nonpolar molecules
(2) Polar molecules
(3) Hydrophobic molecules
(4) Both (2) and (3)

CL0245

14. Na^+/K^+ pump is an example of :-
(1) Passive transport (2) Osmosis
(3) Active transport (4) Simple diffusion

CL0246

15. Mark the incorrect match for transport of molecules across the membrane :-
(1) Neutral solute – simple diffusion
(2) Water – osmosis
(3) Non polar molecules – facilitate diffusion
(4) ATP utilized – active transport

CL0247

16. Mitochondria :-
(a) are easily visible under the microscope (without specifically stained)
(b) are typically sausage-shaped or cylindrical
(c) are double membrane bound structures
(d) have two aqueous compartments
Options :-
(1) a, d correct and b, c incorrect
(2) a, b correct and c,d incorrect
(3) a incorrect and b, c, d correct
(4) a, d incorrect and b, c correct

CL0248

17. Inner mitochondrial membrane forms infoldings called :-
(1) Thylakoid (2) Cisternae
(3) Oxysomes (4) Cristae

CL0249

18. The number of mitochondria per cell is variable, depending on :-
(1) Size of cells
(2) Shape of cells
(3) Physiological activity of cells
(4) Type of genes present in mitochondrial DNA

CL0250

19. Which one of the following is not a component of endomembrane system ?
(a) Endoplasmic reticulum
(b) Golgibody
(c) Lysosome
(d) Vacuole
(e) Nucleus
Options :-
(1) Both a and c (2) Only c
(3) d and e both (4) Only e

CL0251

20. Membrane bound vesicular structures formed by the process of packaging in the Golgi apparatus and filled with hydrolytic enzymes, are called :-
(1) Contractile vacuoles
(2) Food vacuoles
(3) Lysosomes
(4) Centrosome

CL0252

21. Eukaryotes have 80S, while prokaryotes have 70S ribosomes in cytoplasm. Here "S":-
(a) denotes sedimentation coefficient
(b) is an indirect measure of density
(c) is an indirect measure of size
Options :-
(1) a only (2) a and b only
(3) b and c only (4) a, b and c

CL0253

22. In r-RNA, ''r'' stands for :-
(1) Reversible (2) Ribozyme
(3) Ribosomal (4) Recognition

CL0254

23. Interphase nucleus has a loose and indistinct network of nucleoprotein fibres called chromatin, but during different stages of cell division, cells show "*structured chromosomes*" in place of the:-
(1) Nucleus (2) Plastids
(3) Mitochondria (4) Vacuole

CL0255

24. Nucleus as a "cell organelle" was first described by.....as early as.....
(1) Robert Hooke, 1665
(2) Robert Brown, 1831
(3) Flemming, 1931
(4) Strasburger, 1831

CL0256

25. Space between parallel nuclear membranes is called perinuclear space which is :-
(1) 10–50 nm (2) 0.1 – 0.4 μm
(3) 10 – 50 Å (4) 1 – 4 nm

CL0257

26. A single human cell has approximately.....long thread of DNA distributed among its....chromosomes:-
(1) 2 cm, 46 (2) 2 metre, 46
(3) 2 cm, 23 (4) 2 metre, 23

CL0258

27. The physico-chemical approach to study and understand living organisms is called -
(1) Physiochemical biology
(2) Reductionist biology
(3) Fundamental biology
(4) Biochemical biology

CL0259

28. Regarding to cell membrane find out the odd one -
(1) Fluid mosaic model is widely accepted model
(2) Quasi fluid nature of lipids enables the lateral movement of proteins
(3) All types of molecules can easily pass through membrane
(4) Fluid nature of membrane is also important for cell growth & formation of intercellular junctions

CL0260

29. Which type of solutes may move across plasma membrane from higher to lower concentration along concentration gradient without help of transmembrane proteins?
(1) Positively charged solutes
(2) Negatively charged solutes
(3) Neutral solutes
(4) Any of the above

CL0261

30. Select out the wrong statement -
(1) Neutral solute can move according to concentration gradient across the nonpolar lipid bilayer
(2) Water can also move according to concentration gradient across the plasma membrane.
(3) Non polar molecules can not pass through non polar lipid bilayer
(4) Na^+ & K^+ can move across membrane through active transport

CL0262

31. Which of the following is not a function of cell wall ?
(1) Protection from mechanical damage and infection
(2) Cell to cell interaction
(3) Barrier to undesirable macromolecules
(4) Secretion
CL0263

32. Which of the following components is not a constituent of algal cell wall ?
(1) Cellulose (2) Galactans
(3) Mannans (4) Chitin
CL0264

33. Endoplasmic reticulum helps in :-
(1) The transport of substances
(2) Synthesis of lipoproteins
(3) Synthesis of glycogen
(4) All of the above
CL0265

34. Regarding to endoplasmic reticulum which of the following statements are wrong ?
(1) ER divides the intra cellular space into two distinct compartments
(2) RER frequently observed in cells actively involved in secretion
(3) In animals steroidal hormones are synthesized in RER
(4) SER is the major site of lipid synthesis
CL0266

35. Golgi complex receives proteins for modification from RER at which face ?
(1) Cis face (2) Trans face
(3) Concave face (4) Maturing face
CL0267

36. Classification of plastids into chloroplast, chromoplast and leucoplast is based on -
(1) Stored food (2) Pigments
(3) Structure (4) Size
CL0268

37. Chloroplast of higher plants contains -
(1) Only chlorophyll
(2) Only carotenoids
(3) Both chlorophyll and carotenoids
(4) Phycobillins
CL0269

38. Regarding to cilia and flagella which of the following statements is incorrect ?
(1) Cilia is small and flagella is long
(2) Cilia can move either cell or surrounding fluid
(3) Flagella is responsible for movement of surrounding fluid
(4) Cilia work like oars
CL0270

39. Plasma membrane covers the central core of the flagella and cilia this central core is known as -
(1) Bridge (2) Axoneme
(3) Radial spoke (4) Arms
CL0271

40. Radial spokes of flagella helps in connection between-
(1) Peripheral triplets
(2) Central singlet microtubules
(3) Peripheral doublet and central sheath
(4) Two successive peripheral doublets
CL0272

41. Match the following -

(A)	Robert Brown	(I)	Ribonucleo proteins
(B)	Flemming	(II)	Nucleus as cell organelle
(C)	Palade	(III)	Packaging of materials
(D)	Camillo Golgi	(IV)	Staining of nucleus material

Options :-
(1) A - (II) B - (IV) C - (I) D - (III)
(2) A - (II) B - (IV) C - (III) D - (I)
(3) A - (I) B - (II) C - (III) D - (IV)
(4) A - (IV) B - (III) C - (II) D - (I)
CL0273

42. Classification of chromosomes is based on -
(1) the size of satellite
(2) Number of telomeres
(3) Position of centromere
(4) Position of secondary constriction
CL0274

43. Chromosome with centromere slightly away from center is known as -
(1) Metacentric (2) Submetacentric
(3) Acrocentric (4) Telocentric
CL0275

44. Find out the incorrect about secondary constriction -
(1) Non staining
(2) Constant position
(3) Known as satellite
(4) Present in some chromosomes
CL0276

45. Match the column I and II and choose correct option :-

Column-I		Column-II	
(A)	Plasma membrane	(I)	Helps in cell division of animal cells
(B)	Centriole	(II)	Protein synthesis
(C)	Ribosomes	(III)	Not present in animal cell
(D)	Plastids	(IV)	Rich in hydrolytic enzymes
(E)	Lysosome	(V)	Barrier between cytoplasm and outer environment, in an animal cell.

Options :-
(1) A – V , B – I, C – II, D – III, E – IV
(2) A – V , B – III, C – II, D – I, E – IV
(3) A – IV , B – III, C – II, D – I, E – V
(4) A – II , B – IV, C – III, D – I, E – V
CL0277

46. Which of the following is not the function of cell wall ?
(i) Provides shape to the cell.
(ii) Protects the cell from mechanical damage and infection.
(iii) Helps in cell to cell connection.
(iv) Provides barrier to undesirable macromolecules.
(v) Helps in cell recognition
Options :-
(1) only (iii) (2) only (iv)
(3) only (ii), (iii) & (v) (4) only (v)
CL0278

47. (A) Unicellular organisms are capable of independent existence.
(B) Cell is the fundamental structural and functional unit of all unicellular organisms only.
(C) All cells arise from pre-existing cells.
(D) The cytoplasm is the main arena of cellular activities of cells.
Options :-
(1) Statements A, C and D are correct
(2) Statements A, B and D are not correct
(3) Statements A, B and C are correct
(4) Statements B, C and D are not correct
CL0279

48. Which one of the following statements is not correct for the vacuoles ?
(1) Contractile vacuoles are helpful in excretion
(2) Food vacuoles are formed by engulfing the food particles
(3) Sap vacuole is bound by tonoplast
(4) Tonoplast facilitates the transport of ions against the concentration gradient into cytoplasm
CL0280

49. Which of the following is true for mitochondria?
(A) Mitochondrial ribosome is smaller than prokaryotic ribosome
(B) Single stranded circular DNA is present in matrix
(C) Protein synthesis occurs in Mitochondrial matrix
(D) Outer membrane is highly folded and form cristae
Options :-
(1) A, C and D only
(2) A, B and D only
(3) Only C
(4) A and D only
CL0281

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

50. Which of the following are **correct** for the cell which has naked ds circular DNA?
(a) Both 70S and 80S ribosomes
(b) Histone absent
(c) Compartmentalisation of cytoplasm absent
(d) Always diploid
Options :-
(1) a and d (2) b and c
(3) a and c (4) b and d
CL0192

51. Which of the following is/are function(s) of Golgi complex ?
(I) Modification of lipids and proteins
(II) Detoxification
(III) Formation of acrosome
(IV) Glycogen synthesis & breakdown
Choose the correct option –
(1) I and II are incorrect
(2) I and III are correct
(3) II is incorrect and remaining are correct
(4) II and III are incorrect
CL0193

52. If living cells, similar to those found on earth, were found on another planet, where there was no oxygen, then which cell organelle would most probably be absent ?
(1) Ribosomes
(2) Golgi apparatus
(3) Mitochondria
(4) Endoplasmic Reticulum
CL0196

53. Plant and prokaryotic cells are similar with each other but differ from animal cells :-
(1) In possessing 70 S ribosomes
(2) In possessing cell wall
(3) In possessing mitochondria
(4) In possessing chloroplasts
CL0197

54. Ratio of protein and lipid in the membrane of erythrocytes of human being is :-
(1) 1.8 (2) 1.3 (3) 0.80 (4) 0.60
CL0198

55. A student done the cell fractionation of a tissue and forgot to label his tubes. The content of one tube when studied showed organelles bounded by membrane with activity of catalase enzyme. These organelles could be :-
(1) SER (2) Chloroplast
(3) Lysosome (4) Peroxisome
CL0200

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	3	4	2	3	2	4	2	3	2	1	2	2	3	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	4	3	4	3	4	3	1	2	1	2	2	3	3	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	4	4	4	3	1	2	3	3	2	3	1	3	2	3	1
Que.	46	47	48	49	50	51	52	53	54	55					
Ans.	4	1	4	3	2	2	3	2	2	4					

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

BOTANY

PRE-MEDICAL

NURTURE COURSE

Exercise

Cell Cycle and Cell Division

English Medium

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

INTRODUCTION TO SIGNIFICANCE OF MITOSIS

1. In a slow dividing normal cell :
(1) G_1 phase is more longer than S phase
(2) S phase is more longer than G_1 phase
(3) Both phases are equal in duration
(4) Can't be determined
NCD0001

2. In which order, cytokinesis occurs in plants ?
(1) Centripetal (2) Centrifugal
(3) Oblique (4) Equatorial
NCD0002

3. Nuclear envelope reappears at :-
(1) Metaphase (2) Prophase
(3) Anaphase (4) Telophase
NCD0004

4. How many chromosomes shall be present in a diploid cell at mitotic anaphase if its egg cell has ten chromosomes?
(1) 10 (Ten) (2) 20 (Twenty)
(3) 30 (Thirty) (4) 40 (Forty)
NCD0006

5. In human cell how many chromosome present in mitotic metaphase plate ?
(1) 23 (2) 46 (3) 22 (4) 44
NCD0008

6. Gap between division phase and start of DNA-replication is called :-
(1) G_1 - phase (2) G_2 - phase
(3) M - phase (4) Interkinesis
NCD0009

7. Spindle fibers which extend from pole to kinetochores are :–
(1) Chromosomal fibers
(2) Continuous fibers
(3) Supporting fibers
(4) Astral rays
NCD0011

8. Reappearance of nuclear membrane & nucleolus along with thining & elongation in chromosomes are diagnostic characters for the :-
(1) Anaphase (2) Metaphase
(3) Interphase (4) Telophase
NCD0015

9. Which stage of cell cycle is characterised by DNA replication and synthesis of Histones ?
(1) S-phase (2) G_1-phase
(3) G_2-phase (4) M-phase
NCD0016

10. Longest phase of mitosis is :–
(1) Prophase (2) Metaphase
(3) Anaphase (4) Telophase
NCD0018

11. Smallest phase of mitosis is –
(1) Prophase (2) Metaphase
(3) Anaphase (4) Telophase
NCD0019

12. Synthesis of proteins for formation of spindle fibres takes place in -
(1) G_1-phase (2) S-phase
(3) G_2 - phase (4) M-phase
NCD0020

13. Prophase which follows the S and G_2 phases of interphase, is the first stage of :-
(1) Meiosis-II
(2) Karyokinesis
(3) Interphase
(4) G_1 phase
NCD0022

14. The two asters together with spindle fibres form:-
(1) Mitotic apparatus
(2) Metaphase plate
(3) Astral rays
(4) Centrosome

NCD0023

15. In prophase, centrosome which had undergone duplication during interphase, begins to move towards :
(1) Same pole of the cell
(2) Opposite poles of the cell
(3) One towards centre while another towards pole
(4) Both towards centre

NCD0024

16. During prophase each centrosome radiates out microtubules called :
(1) Mitotic apparatus
(2) Spindle apparatus
(3) Asters
(4) Spindle fibres

NCD0025

17. Telophase is :
(1) Final stage of karyokinesis
(2) Final stage of mitosis
(3) Mid stage of karyokinesis
(4) First stage of cytokinesis

NCD0026

18. Cytokinesis is :
(1) Formation of cell wall
(2) Formation of cell membrane
(3) Separation of nucleoplasm
(4) Division of cytoplasm

NCD0027

19. During mitosis ER and nucleolus begin to disappear at :
(1) Early prophase (2) Late prophase
(3) Early metaphase (4) Late metaphase

NCD0032

20. At metaphase, chromosomes are attached to the spindle fibres by their :-
(1) Centromere
(2) Satellites
(3) Secondary constrictions
(4) Kinetochores

NCD0035

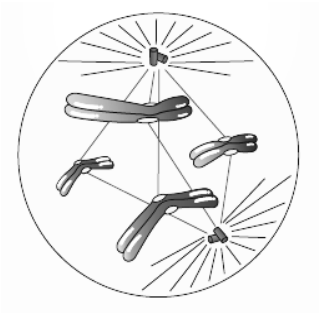
21. Which stage of cell cycle is marked by initiation of condensation of chromosomal material ?
(1) Prophase (2) Metaphase
(3) G_2–phase (4) S–phase

NCD0059

22. In which phase of mitosis, chromosomes lose their individuality?
(1) Prophase (2) Metaphase
(3) Anaphase (4) Telophase

NCD0061

23. Identify the following diagram :-



(1) Transition to Metaphase
(2) Transition to Anaphase-II
(3) Transition to Metaphase-I
(4) Transition to Anaphase

NCD0072

24. In which phase of mitosis, cell does not have nucleolus ?
(1) Interphase (2) Telophase
(3) Late prophase (4) All of these
NCD0087

25. It is said that the one cycle of cell division in human cells takes 24 hours. Which phase of the cycle, do you think occupies the maximum part of cell cycle?
(1) Prophase (2) Interphase
(3) Anaphase (4) Metaphase
NCD0056

MEIOSIS, SIGNIFICANCE OF MEIOSIS

26. Which part of plant is suitable for the study of meiosis ?
(1) Root apex (2) Ovary
(3) Anther (4) Shoot apex
NCD0003

27. Slipping of chiasmata towards the ends of bivalent is called :-
(1) Terminalisation
(2) Diakinesis
(3) Interkinesis
(4) Synapsis
NCD0005

28. "Bouquet-stage" occur in which sub stages of prophase – I ?
(1) Leptotene (2) Zygotene
(3) Pachytene (4) Diplotene
NCD0007

29. In meiosis, division of centromere occurs during:-
(1) Interphase (2) Anaphase - I
(3) Anaphase - II (4) Metaphase - I
NCD0010

30. The longest phase in meiotic division is :-
(1) Prophase – I
(2) Metaphase - I
(3) Prophase – II
(4) Anaphase - I
NCD0012

31. Meiosis can take place in :-
(1) Prokaryotic cell
(2) Haploid cell
(3) Both haploid & diploid cell
(4) Diploid cell
NCD0014

32. At anaphase-II, sister chromatids move towards opposite poles of the cell by :
(1) Contraction in spindle fibre attached to kinetochores
(2) Shortening of microtubules attached to kinetochores
(3) Lengthening of microtubules attached to kinetochores
(4) Relaxation in spindle fibre attached to kinetochores
NCD0017

33. When synapsis is complete all along the chromosome, the cell is said to have entered a stage called :-
(1) Zygotene (2) Pachytene
(3) Diplotene (4) Diakinesis
NCD0021

34. In which one of the following stages, the four chromatids of each bivalent chromosomes becomes distinct and clearly appears as tetrads.
(1) Leptotene (2) Zygotene
(3) Pachytene (4) Diplotene
NCD0028

35. Which one of the following statements is incorrect for interkinesis ?
(1) It is the stage between the two subphases of a meiotic division
(2) There is no replication of DNA
(3) DNA replicate but chromosome number remains same
(4) It is generally short lived
NCD0029

36. Synapsis occurs between :-
(1) Two homologous chromosomes
(2) A male and a female gamete
(3) mRNA and ribosomes
(4) Spindle fibres and centromere
NCD0030

37. During gamete formation, the enzyme recombinase participates during :-
(1) Prophase-I (2) Prophase-II
(3) Metaphase-I (4) Anaphase-II
NCD0036

38. The complex formed by a pair of synapsed homologous chromosomes is called :
(1) Axoneme (2) Equatorial plate
(3) Kinetochore (4) Bivalent
NCD0040

39. "X-shaped structures" occurs during which phase of meiotic division ?
(1) Prophase I (2) Metaphase I
(3) Anaphase II (4) Telophase I
NCD0088

40. Which phase is marked by terminalization of chiasmata?
(1) Diakinesis (2) Pachytene
(3) Diplotene (4) Zygotene
NCD0089

41. In which phase of meiosis the chromosomes do undergo some dispersion but they do not reach the extremely extended state of the interphase nucleus?
(1) Prophase-I (2) Metaphase-I
(3) Telophase-I (4) Prophase-II
NCD0057

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	2	4	4	2	1	1	4	1	1	3	3	2	1	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	1	4	2	4	1	4	1	3	2	3	1	1	3	1
Que.	31	32	33	34	35	36	37	38	39	40	41				
Ans.	4	2	2	3	3	1	1	4	1	1	3				

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2014

1. During which phase(s) of cell cycle, amount of DNA in a cell remains at 4C level if the initial amount is denoted as 2C ?

(1) G_0 and G_1 (2) G_1 and S
(3) Only G_2 (4) G_2 and M

NCD0041

2. In 'S' phase of the cell cycle :-

(1) Amount of DNA doubles in each cell.
(2) Amount of DNA remains same in each cell.
(3) Chromosome number is increased.
(4) Amount of DNA is reduced to half in each cell.

NCD0042

3. The enzyme recombinase is required at which stage of meiosis ?

(1) Pachytene (2) Zygotene
(3) Diplotene (4) Diakinesis

NCD0043

AIPMT 2015

4. A somatic cell that has just completed the S phase of its cell cycle, as compared to gamete of the same species, has :

(1) same number of chromosomes but twice the amount of DNA
(2) twice the number of chromosomes and four times the amount of DNA
(3) four times the number of chromosomes and twice the amount of DNA
(4) twice the number of chromosomes and twice the amount of DNA

NCD0044

Re-AIPMT 2015

5. Arrange the following events of meiosis in correct sequence :

(a) Crossing over
(b) Synapsis
(c) Terminalisation of chiasmata
(d) Disappearance of nucleolus

(1) (b), (c), (d), (a) (2) (b), (a), (d), (c)
(3) (b), (a), (c),](d) (4) (a), (b), (c), (d)

NCD0045

NEET-I 2016

6. Spindle fibres attach on to :-

(1) Telomere of the chromosome
(2) Kinetochore of the chromosome
(3) Centromere of the chromosome
(4) Kinetosome of the chromosome

NCD0046

7. In meiosis crossing over is initiated at :

(1) Pachytene (2) Leptotene
(3) Zygotene (4) Diplotene

NCD0047

NEET-II 2016

8. During cell growth, DNA synthesis takes place in:-

(1) G_2 phase (2) M phase
(3) S phase (4) G_1 phase

NCD0048

9. Match the stages of meiosis in **Column–I** to their characteristic features in **Column–II** and select the correct option using the codes given below :

Column-I		Column-II	
a	Pachytene	i	Pairing of homologous chromosomes
b	Metaphase-I	ii	Terminalization of chiasmata
c	Diakinesis	iii	Crossing over takes place
d	Zygotene	iv	Chromosomes align at equatorial plate

Codes :

	a	b	c	d
(1)	ii	iv	iii	i
(2)	iv	iii	ii	i
(3)	iii	iv	ii	i
(4)	i	iv	ii	iii

NCD0049

NEET(UG) 2017

10. Which of the following options gives the correct sequence of events during mitosis ?

(1) Condensation $\rightarrow$ nuclear membrane disassembly $\rightarrow$ arrangement at equator $\rightarrow$ centromere division $\rightarrow$ segregation $\rightarrow$ telophase

(2) Condensation $\rightarrow$ crossing over $\rightarrow$ nuclear membrane disassembly $\rightarrow$ segregation $\rightarrow$ telophase

(3) Condensation $\rightarrow$ arrangement at equator $\rightarrow$ centromere division $\rightarrow$ segregation $\rightarrow$ telophase

(4) Condensation $\rightarrow$ nuclear membrane disassembly $\rightarrow$ crossing over $\rightarrow$ segregation $\rightarrow$ telophase

NCD0050

NEET(UG) 2018

11. The stage during which separation of the paired homologous chromosomes begins is

(1) Pachytene (2) Diplotene

(3) Diakinesis (4) Zygotene

NCD0051

NEET(UG) 2019

12. The **correct** sequence of phases of cell cycle is :

(1) $M \rightarrow G_1 \rightarrow G_2 \rightarrow S$

(2) $G_1 \rightarrow G_2 \rightarrow S \rightarrow M$

(3) $S \rightarrow G_1 \rightarrow G_2 \rightarrow M$

(4) $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$

NCD0052

13. Cells in G_0 phase:

(1) exit the cell cycle

(2) enter the cell cycle

(3) suspend the cell cycle

(4) terminate the cell cycle

NCD0053

NEET(UG) 2019 (Odisha)

14. After meiosis-I, the resultant daughter cells have:-

(1) Same amount of DNA as in the parent cell in S phase

(2) Twice the amount of DNA in comparison to haploid gamete.

(3) Same amount of DNA in comparison to haploid gamete

(4) Four times the amount of DNA in comparison to haploid gamete

NCD0054

15. Crossing over takes place between which chromatids and in which stage of the cell cycle ?

(1) Non-sister chromatids of non-homologous chromosomes at Zygotene stage of prophase I.

(2) Non-sister chromatids of homologous chromosomes at Pachytene stage of prophase I.

(3) Non-sister chromatids of homologous chromosomes at Zygotene stage of prophase I.

(4) Non-sister chromatids of non-homologous chromosomes at Pachytene stage of prophase I.

NCD0055

NEET(UG) 2020

16. Match the following with respect to meiosis:

(a) Zygotene	(i) Terminalization
(b) Pachytene	(ii) Chiasmata
(c) Diplotene	(iii) Crossing over
(d) Diakinesis	(iv) Synapsis

Select the **correct** option from the following:

	(a)	**(b)**	**(c)**	**(d)**
(1)	(ii)	(iv)	(iii)	(i)
(2)	(iii)	(iv)	(i)	(ii)
(3)	(iv)	(iii)	(ii)	(i)
(4)	(i)	(ii)	(iv)	(iii)

NCD0073

17. Identify the **correct** statement with regard to G_1 phase (Gap 1) of interphase.
(1) Nuclear Division takes place.
(2) DNA synthesis or replication takes place.
(3) Reorganisation of all cell components takes place.
(4) Cell is metabolically active, grows but does not replicate its DNA.

NCD0074

18. Some dividing cells exit the cell cycle and enter vegetative inactive stage. This is called quiescent stage (G_0). This process occurs at the end of :
(1) G_2 phase (2) M phase
(3) G_1 phase (4) S phase

NCD0075

19. Dissolution of the synaptonemal complex occurs during :
(1) Leptotene (2) Pachytene
(3) Zygotene (4) Diplotene

NCD0076

NEET(UG) 2020 (Covid-19)

20. Attachment of spindle fibers to kinetochores of chromosomes becomes evident in :
(1) Anaphase
(2) Telophase
(3) Prophase
(4) Metaphase

NCD0077

21. In a mitotic cycle, the correct sequence of phases is
(1) S, G_1, G_2, M
(2) G_1, S, G_2, M
(3) M, G_1, G_2, S
(4) G_1, G_2, S, M

NCD0078

22. During Meiosis-I, in which stage synapsis takes place ?
(1) Pachytene
(2) Zygotene
(3) Diplotene
(4) Leptotene

NCD0079

23. Match the following events that occur in their respective phases of cell cycle and select the correct option :

(a) G_1 phase	(i) Cell grows and organelle duplication
(b) S phase	(ii) DNA replication and chromosome duplication
(c) G_2 phase	(iii) Cytoplasmic growth
(d) Metaphase in M-phase	(iv) Alignment of chromosomes

(1) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(2) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)
(3) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(4) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

NCD0080

NEET(UG) 2021

24. Which of the following stages of meiosis involves division of centromere ?
(1) Metaphase I (2) Metaphase II
(3) Anaphase II (4) Telophase II

NCD0081

25. Match **List -I** with **List - II.**

List -I		List -II	
(a)	S phase	(i)	Proteins are synthesized
(b)	G_2 phase	(ii)	Inactive phase
(c)	Quiescent stage	(iii)	Interval between mitosis and initiation of DNA replication
(d)	G_1 phase	(iv)	DNA replication

Choose the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iii)	(ii)	(i)	(iv)
(2)	(iv)	(ii)	(iii)	(i)
(3)	(iv)	(i)	(ii)	(iii)
(4)	(ii)	(iv)	(iii)	(i)

NCD0082

26. The fruit fly has 8 chromosomes (2n) in each cell. During interphase of Mitosis if the number of chromosomes at G_1 phase is 8, what would be the number of chromosomes after S phase ?
(1) 8 (2) 16 (3) 4 (4) 32
NCD0083

27. The centriole undergoes duplication during:
(1) S-phase (2) Prophase
(3) Metaphase (4) G_2 phase
NCD0084

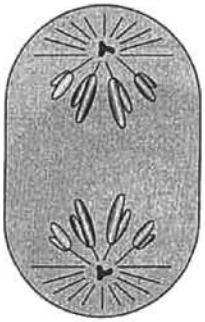
28. Which stage of meiotic prophase shows terminalisation of chiasmata as its distinctive feature?
(1) Leptotene (2) Zygotene
(3) Diakinesis (4) Pachytene
NCD0085

NEET(UG) 2021 (Paper-2)

29. The synaptonemal complex formed by a pair of synapsed homologous chromosomes is called
(1) Bivalent (2) Tetravalent
(3) Tetrad (4) Both (1) and (3)
NCD0094

30. Which is incorrect statement about meiosis?
(1) Meiosis involves two sequential cycles of nuclear and cell division called meiosis I and meiosis II but only a single cycle of DNA replication.
(2) Meiosis I is initiated after parental chromosome have replicated to produce sister chromatids at the S-phase.
(3) Meiosis involves pairing of non-homologous chromosomes and recombination between them.
(4) Four haploid cells are formed at the end of meiosis-II.
NCD0095

31. The following figure represents



(1) Metaphase
(2) Transition to metaphase
(3) Anaphase
(4) Telophase
NCD0096

NEET(UG) 2022

32. The appearance of recombination nodules on homologous chromosomes during meiosis characterizes:
(1) Bivalent
(2) Sites at which crossing over occurs
(3) Terminalization
(4) Synaptonemal complex
NCD0097

33. Which one of the following never occurs during mitotic cell division ?
(1) Movement of centrioles towards opposite poles
(2) Pairing of homologous chromosomes
(3) Coiling and condensation of the chromatids
(4) Spindle fibres attach to kinetochores of chromosomes
NCD0098

34. Select the **incorrect** statement with reference to mitosis:
(1) Spindle fibres attach to centromere of chromosomes.
(2) Chromosomes decondense at telophase.
(3) Splitting of centromere occurs at anaphase.
(4) All the chromosomes lie at the equator at metaphase.
NCD0099

35. Regarding Meiosis, which of the statements is **incorrect** ?

(1) DNA replication occurs in S phase of Meiosis-II

(2) Pairing of homologous chromosomes and recombination occurs in Meiosis-I

(3) Four haploid cells are formed at the end of Meiosis-II

(4) There are two stages in Meiosis, Meiosis-I and II

NCD0100

NEET(UG) 2022 (OVERSEAS)

36. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R).**

Assertion (A) : The growth of multicellular organism is due to mitosis.

Reason (R) : Mitosis is also called as equational division and it offers genetic stability.

In the light of the above statements, choose the **correct** answer from the options given below :

(1) **(A)** is not correct but **(R)** is correct

(2) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(3) Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**

(4) **(A)** is correct but **(R)** is not correct

NCD0101

37. In prophase I of Meiosis, chromosomes start pairing together and synapsis takes place. This process occurs during which of the following stage?

(1) Diplotene (2) Leptotene

(3) Zygotene (4) Pachytene

NCD0102

38. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R).**

Assertion (A) : The beginning of diplotene is recognised by the dissolution of the synaptonemal complex and formation of X shaped structures called chiasmata.

Reason (R) : In oocytes of some vertebrates, diplotene can last for months or years.

In the light of the above statements, choose the correct answer from the options given below :

(1) **(A)** is not correct but **(R)** is correct

(2) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(3) Both **(A)** and **(R)** are correct but **(R)** not the correct explanation of **(A)**

(4) **(A)** is correct but **(R)** is not correct

NCD0103

39. The oocytes of some vertebrates get arrested for years or months in:

(1) diplotene (2) Diakinesis

(3) Metaphase – I (4) Telophase – I

NCD0104

40. Select the **correct** sequence of events occurring during Prophase-I of Meiosis-I.

(a) Nuclear envelope breakdown

(b) Synaptonemal complex formation

(c) Compaction of chromosomes

(d) Terminalisation of chiasmata

(e) Crossing over

Choose the **most appropriate** answer from the options given below :

(1) (c) → (a) → (b) → (d) → (e)

(2) (b) → (c) → (a) → (d) → (e)

(3) (c) → (a) → (b) → (e) → (d)

(4) (c) → (b) → (e) → (d) → (a)

NCD0105

Re-NEET(UG) 2022

41. Which stage of meiosis can last for months or years in the oocytes of some verterbrates ?
(1) Leptotene (2) Pachytene
(3) Diplotene (4) Diakinesis
NCD0106

42. In meiosis, crossing over and exchange of genetic material between homologous chromosomes are catalyzed by the enzyme.
(1) Phosphorylase (2) Recombinase
(3) Transferase (4) Polymerase
NCD0107

43. Identify the **correct** sequence of events during Prophase I of meiosis :
(a) Synapsis of homologous chromosomes
(b) Chromosomes become gradually visible under microscope
(c) Crossing over between non-sister chromatids of homologous chromosomes
(d) Terminalisation of chiasmata
(e) Dissolution of synaptonemal complex
Choose the **correct answer** from the options given below :
(1) (a), (b), (c), (d), (e)
(2) (b), (c), (d), (e), (a)
(3) (b), (a), (c), (e), (d)
(4) (a), (c), (d), (e), (b)
NCD0108

44. Bivalent or Tetrad formation is a characteristic feature observed during :
(1) Synaptonemal complex in zygotene stage
(2) Chiasmata in Diplotene stage
(3) Synaptonemal complex in Pachytene stage
(4) Chiasmata in zygotene stage
NCD0109

45. With respect to metaphase, which of the following statements is incorrect ?
(1) Complete disintegration of nuclear envelope takes place
(2) Chromosomes are highly condensed
(3) Metaphase chromosomes are made up of four sister chromatids held together by centromere
(4) Chromosomes lie at the equator of the cell
NCD0110

NEET(UG) 2023

46. The process of appearance of recombination nodules occurs at which sub stage of prophase I in meiosis ?
(1) Pachytene (2) Diplotene
(3) Diakinesis (4) Zygotene
NCD0111

47. Which of the following stages of meiosis involves division of centromere ?
(1) Metaphase II (2) Anaphase II
(3) Telophase (4) Metaphase I
NCD0112

48. Among eukaryotes, replication of DNA takes place in -
(1) S phase (2) G_1 phase
(3) G_2 phase (4) M phase
NCD0113

49. Match **List I** with **List II** :

List I	List II
A. M Phase	I. Proteins are synthesized
B. G_2 Phase	II. Inactive phase
C. Quiescent stage	III. Interval between mitosis and initiation of DNA replication
D. G_1 Phase	IV. Equational division

Choose the correct answer from the options given below:
(1) A-IV, B-II, C-I, D-III
(2) A-IV, B-I, C-II, D-III
(3) A-II, B-IV, C-I, D-III
(4) A-III, B-II, C-IV, D-I
NCD0114

50. Select the correct statements.

A. Tetrad formation is seen during Leptotene.

B. During Anaphase, the centromeres split and chromatids separate.

C. Terminalization takes place during Pachytene.

D. Nucleolus, Golgi complex and ER are reformed during Telophase.

E. Crossing over takes place between sister chromatids of homologous chromosome.

Choose the **correct** answer from the options given below:

(1) B and D only (2) A, C and E only
(3) B and E only (4) A and C only

NCD0115

51. Given below are two statements:

Statement I : During G_0 phase of cell cycle, the cell is metabolically inactive.

Statement II : The centrosome undergoes duplication during S phase of interphase.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below :

(1) Both **Statement I** and **Statement II** are incorrect.

(2) **Statement I** is correct but **Statement II** is incorrect.

(3) **Statement I** incorrect but **Statement II** is correct.

(4) Both **Statement I** and **Statement II** are correct.

NCD0116

NEET(UG) 2023 (MANIPUR)

52. The dissolution of synaptonemal complex occurs during :

(1) Pachytene (2) Diplotene
(3) Diakinesis (4) Leptotene

NCD0117

53. During which stages of mitosis and meiosis, respectively does the centromere of each chromosome split ?

(1) Mataphase, Metaphase II
(2) Prophase, Telophase I
(3) Telophase, Anaphase I
(4) Anaphase, Anaphase II

NCD0118

54. Which one of the following is the quiescent stage of cell cycle ?

(1) M (2) G_2 (3) G_1 (4) G_0

NCD0119

55. Select **correct** sequence of substages of Prophase-I of Meiotic division :

(A) Zygotene (B) Pachytene
(C) Diakinesis (D) Leptotene
(E) Diplotene

Choose the **correct** answer from the options given below :

(1) (D), (B), (A), (E), (C)
(2) (A), (B), (D), (E), (C)
(3) (D), (A), (B), (E), (C)
(4) (A), (D), (B), (C), (E)

NCD0120

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	1	1	2	3	2	1	3	3	1	2	4	3	2	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	4	3	4	4	2	2	4	3	3	1	1	3	4	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	2	2	1	1	2	3	3	1	4	3	2	3	1	3
Que.	46	47	48	49	50	51	52	53	54	55					
Ans.	1	2	1	2	1	3	2	4	4	3					

EXERCISE-III

Master Your Understanding

Exercise-III(A) NCERT BASED QUESTIONS

1. Following are the events occurs during meiosis:

(A) Appearance of chiasmata

(B) Synapsis

(C) Terminalisation of Chiasmata

(D) Use of recombinase enzyme

Choose the correct sequence :-

(1) A $\longrightarrow$ B $\longrightarrow$ C $\longrightarrow$ D

(2) B $\longrightarrow$ D $\longrightarrow$ A $\longrightarrow$ C

(3) D $\longrightarrow$ C $\longrightarrow$ B $\longrightarrow$ A

(4) B $\longrightarrow$ C $\longrightarrow$ A $\longrightarrow$ D

NCD0058

2. Match the columns

	Column–I		Column–II
A.	Leptotene	(i)	Condensation of chromatin start
B.	Zygotene	(ii)	Recombination nodule formation
C.	Pachytene	(iii)	Synapsis
D.	Diplotene	(iv)	Terminalisation of chiasmata
E.	Diakinesis	(v)	Dissolution of Synaptonemal complex

(1) A–i, B–iii, C–ii, D–v, E –iv

(2) A–i, B–ii, C–iii, D–v, E–iv

(3) A–v, B–iii, C–ii, D–i, E–iv

(4) A–iii, B–ii, C–v, D–iv, E–i

NCD0060

3. Which of the following events does not occur during meiosis-I ?

(1) Pairing of homologous chromosomes

(2) Separation of homologous chromosomes

(3) Crossing over between homologous chromosomes.

(4) Splitting of centromere.

NCD0062

4. What is evolutionary advantage provided by meiosis ?

(1) Increases the genetic variability

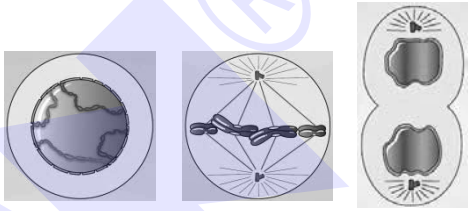
(2) Increases the complexity of organisms

(3) Increases the chromosome's size

(4) Increases the chromosomal number

NCD0064

5. The figures below show three stages (A, B, C) of mitotic division. Select the option giving correct identification together with what it represents ?



A B C

Options :-

(1) B –Individual chromosomes can no longer be seen

(2) A–Initiation of condensation of chromosomal material

(3) C –Initiation of assembly of mitotic spindle

(4) B –Chromosomes consist of one chromatid

NCD0065

6. Which of the following is/are **correct** with respect to reduction division ?

(A) Diakinesis is marked by appearance of chiasmata

(B) Duplication of centrioles occur in anaphase-I

(C) Sister chromatids of homologous chromosomes exhibit crossing over

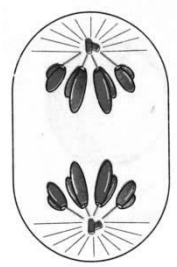
(D) Interkinesis is short lived phase which is followed by prophase-II, a much simpler phase than prophase-I

(1) A, B (2) B, D

(3) A, C (4) Only D

NCD0066

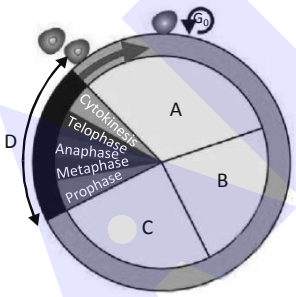
7. What is **correct** about following stage of mitotic division ?



(1) Crossing over has been occurred between homologous chromosomes
(2) Centrioles divide and move to opposite poles
(3) Each chromosome consists of two chromatids
(4) Daughter chromosomes move to opposite poles.

NCD0067

8. Identify A,B,C and D in the given diagram depicting cell cycle and select the **correct** option:-



	A	B	C	D
(1)	G_0	G_1	S	G_2
(2)	G_1	S	G_2	M
(3)	G_1	G_0	S	M
(4)	S	G_0	G_1	G_2

NCD0068

9. Select the **correct** option :-

	I		II
(a)	Synapsis aligns homologous chromosomes	(i)	Anaphase-I
(b)	Synthesis of tubulin protein	(ii)	Zygotene
(c)	Action of enzyme recombinase	(iii)	G_2-phase
(d)	Centromeres split and chromatids move towards opposite poles	(iv)	Anaphase-II
		(v)	Pachytene

	(a)	**(b)**	**(c)**	**(d)**
(1)	(ii)	(iii)	(v)	(iv)
(2)	(i)	(ii)	(v)	(iii)
(3)	(ii)	(iii)	(iv)	(i)
(4)	(ii)	(i)	(iii)	(iv)

NCD0070

10. Leptotene, zygotene, pachytene, diplotene and diakinesis are 5 phases of prophase–I. Which one is the longest in human oogenesis?

(1) Zygotene (2) Leptotene
(3) Diplotene (4) Diakinesis

NCD0086

11. Cell cycle involves -
(1) Duplication of genome
(2) Synthesis of cell constituents
(3) Division of cell
(4) All the above

NCD0090

12. During poleward movement of chromosomes in anaphase, centromere of each daughter chromosome remains directed towards -
(1) Pole
(2) Equatorial plate
(3) Lateral wall
(4) Pole sometimes and towards equatorial plate sometimes

NCD0091

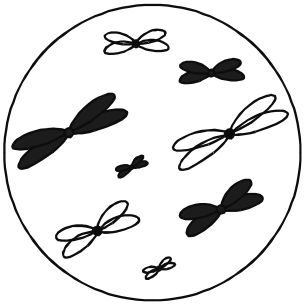
Exercise-III(B) ANALYTICAL QUESTIONS

13. Once nerve cells become mature, they do not usually undergo cell division. Based on your knowledge of the cell cycle, you would predict that mature nerve cell is present in which phase of cell cycle ?

(1) G_2-phase (2) M-phase
(3) G_1-phase (4) G_0 phase

NCD0063

14. Which of the following options **correctly** describes the cell as shown in figure ?



(1) 8 chromosomes ; 8 homologous pairs
(2) 16 chromosomes ; 4 homologous pairs
(3) 8 chromosomes ; 4 homologous pairs
(4) 16 chromosomes ; 8 homologous pairs

NCD0069

15 Many cells function properly and divide mitotically even though they do not have :-
(1) Plasma membrane (2) Cytoskeleton
(3) Mitochondria (4) Plastids

NCD0071

16. The centriole undergone duplication during .....(i)..... of cell cycle and beings to move towards opposite poles of the cell during the .....(ii)..... of the cell cycle.

Choose the correct option :-

(1) (i) G_2 phase (ii) Anaphase
(2) (i) S phase (ii) Prophase
(3) (i) G_1 phase (ii) Prophase
(4) (i) G_2 phase (ii) Prophase

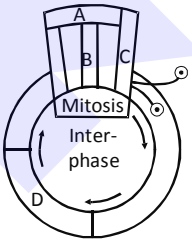
NCD0092

17. Which statement is not true ?

(1) Growth of multicellular organisms occurs by mitosis.
(2) In meiosis nuclear division occurs twice but DNA replication only once.
(3) In animals, meiosis occurs in diploid cell.
(4) All four cells produced by meiosis are always genetically similar

NCD0093

18. Given below is a schematic break-up of the phases/stages of cell cycle :-



Which one of the following is the correct indication of the stage/phase in the cell cycle ?

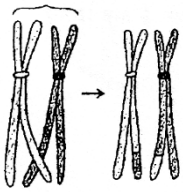
(1) A – Cytokinesis
(2) B – Metaphase
(3) C – Karyokinesis
(4) D – Synthetic phase

NCD0031

19. Select the correct option with respect to mitosis
(1) Chromatids separate but remain in the centre of the cell in anaphase.
(2) Chromatids start moving towards oposite poles in telophase.
(3) Golgi complex and endoplasmic reticulum are still visible at the end of prophase.
(4) Chromosomes move to the spindle equator and get aligned along equatorial plate in metaphase

NCD0034

20. Given below is the representation of a certain event at a particular stage of a type of cell division. Which is this stage ?



(1) Prophase of Mitosis
(2) Both prophase and metaphase of mitosis
(3) Prophase I during meiosis
(4) Prophase II during meiosis

NCD0037

21. Identify the meiotic stage in which the homologous chromosomes separate while the sister chromatids remain associated at their centromeres :-

(1) Anaphase I (2) Anaphase II
(3) Metaphase I (4) Metaphase II

NCD0038

22. A stage in cell division is shown in the figure. Select the answer which gives correct identification of the stage with its characterstics.

(1)	Telophase	Endoplasmic reticulum and nucleolus not reformed yet.
(2)	Telophase	Nuclear envelop reforms, golgi complex reforms.
(3)	Late anaphase	Chromosomes move away from equatorial plate, golgi complex not present.
(4)	Cytokinesis	Cell plate formed, mitochondria distributed between two daughter cells.

NCD0039

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	1	4	1	2	4	4	2	1	3	4	1	4	3	4
Que.	16	17	18	19	20	21	22								
Ans.	2	4	4	4	3	1	2								

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EXERCISE

Biomolecules (Protoplasm)

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

1. Decreasing order of organic compound in protoplasm is:-
(1) Protein, lipid, Nucleic acid, Vitamin
(2) Protein, Nucleic acid, carbohydrate, lipid
(3) Carbohydrate, Lipid, Nucleic acid and vitamin
(4) None of these
BM0001

2. Which is odd -
(1) Chitin - Carbohydrate
(2) Pectin - Protein
(3) Steroid - Lipid
(4) Wax - Lipid
BM0002

3. Glycogen is stored in -
(1) Liver and muscles (2) Liver only
(3) Muscles only (4) Pancreas
BM0003

4. Which one is a disaccharide ?
(1) Galactose (2) Fructose
(3) Maltose (4) Dextrin
BM0004

5. Which element is normally absent in proteins ?
(1) C (2) N
(3) S (4) P
BM0005

6. Which substance is not a carbohydrate ?
(1) Starch (2) Glycogen
(3) Wax (4) Glucose
BM0006

7. To get quick energy one should use -
(1) Carbohydrate (2) Fats
(3) Vitamins (4) Proteins
BM0007

8. Which is not polysaccharide ?
(1) Sucrose
(2) starch
(3) Glycogen
(4) cellulose
BM0009

9. Common in feather and Silk is-
(1) Carbohydrate (2) Fats
(3) Protein (4) Nucleic acid
BM0010

10. Monosaccharide is -
(1) Pentose Sugar (2) Hexose Sugar
(3) Only Glucose (4) all the above
BM0011

11. Sugar which is found in haemolymph of insects is -
(1) Maltose (2) Lactose
(3) Trehalose (4) Galactose
BM0012

12. Which substance is most abundant in cell ?
(1) Carbohydrates (2) Proteins
(3) Water (4) Fats
BM0013

13. Proteins present in cells are very important because-
(1) They provide definite shape to cell
(2) They function as biocatalyst
(3) They yield energy
(4) They are stored food
BM0014

14. Dipeptide is-
(1) Structure of two peptide bonds
(2) Two amino acids linked by one peptide bond
(3) bond between one amino acid and one peptide
(4) None
BM0015

15. Which amino acid is non essential for human body?
(1) Glycine (2) Phenylalanine
(3) Arginine (4) Methionine
BM0016

16. Nails, horns and hooves contain -
(1) Chitin (2) Keratin
(3) Both (4) None
BM0017

17. Glycogen is -
(1) Polymer of amino acids
(2) Polymer of fatty acids
(3) Unsaturated fats
(4) Polymer of glucose
BM0019

18. Carbohydrate is -
(1) Polymers of fatty acid
(2) Polymer of amino acids
(3) Polyhydroxy aldehyde or ketone
(4) None
BM0020

19. In which form, food is stored in animal body ?
(1) Glucose (2) Glycogen
(3) Cellulose (4) ATP
BM0021

20. Which compound produces more than twice the amount of energy as compared to carbohydrates?
(1) Protein (2) Fats
(3) Vitamins (4) Glucose
BM0022

21. Which protein is found in maximum amount ?
(1) Catalase
(2) Zinc carbonic anhydrase
(3) Transferase
(4) RUBISCO
BM0055

22. Which one of the following is polysaccharide?
(1) Sucrose (2) Lactose
(3) Glycogen (4) Glucose
BM0024

23. Starving person will first use :-
(1) Fats (2) Glycogen
(3) Blood protein (4) Muscle protein
BM0025

24. Units of proteins which unite in long chains to form proteins, are called-
(1) Sugar (2) Purines
(3) Pyrimidines (4) Amino acids
BM0026

25. Milk protein is-
(1) Lactogen (2) Myosin
(3) Casein (4) Pepsin
BM0027

26. Chemically enzymes are :-
(1) Fats (2) Carbohydrates
(3) Hydrocarbons (4) Proteins
BM0028

27. Most simple amino acid is-
(1) Tyrosine (2) Lysine
(3) Glycine (4) Aspartic acids
BM0029

28. The amino acids which are not synthesized in the body are called :
(1) Non-essential (2) Essential
(3) Deaminated (4) All of them
BM0030

29. Which of the following will be different in different animals :-
(1) Fats (2) Carbohydrates
(3) Proteins (4) Vitamins
BM0031

30. Fats in the body are formed when :-
(1) Glycogen is formed from glucose
(2) Sugar level becomes stable in blood
(3) Extra glycogen storage in liver and muscles is stopped
(4) All of them
BM0032

31. For body growth and repair one needs :-
(1) Carbohydrates (2) Fats
(3) Proteins (4) Vitamins
BM0033

32. In India the best source for proteins in herbivorous persons is-
(1) Pulses (2) Potato
(3) Egg (4) Meat
BM0034

33. Proteins are polymer of :
(1) Amino acids (2) Natural proteins
(3) Enzymes (4) nucleic acids
BM0035

34. Which is sweet in taste, but is not sugar-
(1) Starch
(2) Saccharine
(3) Lactose
(4) Protein

BM0036

35. Translocation of sugars in flowering plants occurs in the form of -
(1) Glucose (2) Sucrose
(3) Fructose (4) Maltose

BM0038

36. Sucrose is composed of -
(1) Glucose & Fructose
(2) Glucose & Glycogen
(3) Two molecules of Glucose
(4) Glycogen & Fructose

BM0039

37. Which of the following amino acid is essential -
(1) Alanine (2) Glycine
(3) Tryptophan (4) Tyrosine

BM0040

38. Which of the following disaccharides will give two molecules of glucose on hydrolysis-
(1) Maltose (2) Sucrose
(3) Lactose (4) None

BM0041

39. Which of the following sugar is found in ATP
(1) Deoxyribose (2) Ribose
(3) Trehalose (4) Glucose

BM0043

40. Deficiency of protein leads to -
(1) Rickets (2) Scurvy
(3) Kwashiorkor (4) Carotenemia

BM0044

41. Lactose is composed of -
(1) Glucose + galactose
(2) Glucose + fructose
(3) Glucose + glucose
(4) Glucose + mannose

BM0045

42. True statement for cellulose molecule -
(1) β - 1'- 4" linkage. unbranched
(2) β - 1'- 4" linkage. branched
(3) α - 1' - 4" linkage, branched
(4) β - 1' - 6" linkage unbranched

BM0046

43. Variations in proteins are due to -
(1) Sequence of amino acids
(2) Number of amino acids
(3) R - group
(4) None

BM0047

44. Sweetest sugar among the naturally occuring sugars is :-
(1) Glucose (2) Fructose
(3) Sucrose (4) Saccharine

BM0049

45. Histone is a basic protein due to -
(1) Alanine & glycine
(2) Methionine & serine
(3) Tryptophan & tyrosine
(4) Lysine & Arginine

BM0050

46. Sugar with five membered ring called -
(1) Pyranose (2) Furanose
(3) Dextrorotatory (4) Laevortatory

BM0051

47. Which sugar occurs only in mammals ?
(1) Trehalose (2) Galactose
(3) Lactose (4) Mannose

BM0052

48. Which sugar does not give Benedict's test ?

(1) Glucose (2) Maltose

(3) Fructose (4) Sucrose

BM0053

49. Amylose and Amylopectin chains occur in -

(1) Glycogen

(2) Starch

(3) Cellulose

(4) Chitin

BM0054

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	2	1	3	4	3	1	1	3	4	3	3	2	2	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	4	3	2	2	4	3	2	4	3	4	3	2	3	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	1	1	2	2	1	3	1	2	3	1	1	1	2	4
Que.	46	47	48	49											
Ans.	2	3	4	2											

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2007

1. Which monosaccharide does not show optical isomerism :
(1) Dihydroxy acetone
(2) Glyceraldehyde
(3) Erythrose
(4) Ribose

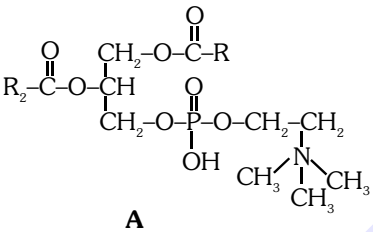
BM0056

2. Which one of the following is not a constituent of cell membrane ?
(1) Phospholipids (2) Cholesterol
(3) Glycolipids (4) Proline

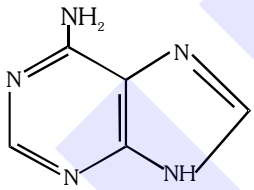
BM0057

AIPMT (Pre.) 2011

3. Which one of the following structural formulae of two organic compounds is correctly identified along with its related function ?



A



B

(1) B : adenine - a nucleotide that makes up nucleic acids
(2) A : Triglyceride - major source of energy
(3) B : Uracil - a component of DNA
(4) A : Lecithin - a component of cell membrane

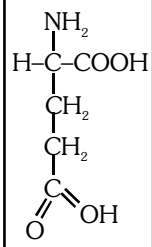
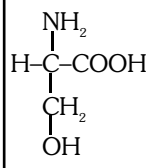
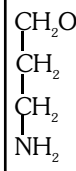
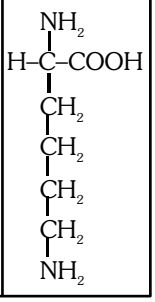
BM0060

AIPMT (Pre.) 2012

4. Which one of the following sets of monoseccharides forms sucrose?
(1) β-D-Glucopyranose and α-D-fructofuranose
(2) α-D-Glucopyranose and β-D-fructopyranose
(3) α-D-Galactopyranose and α-D-Glucopyranose
(4) α-D-Glucopyranose and β-D-fructofuranose

BM0061

5. Which one out of A - D given below correctly represents the structural formula of the basic amino acid ?

A	B	C	D
			

Options
(1) A (2) B
(3) C (4) D

BM0062

6. Which one is the most abundant protein in the animal world ?
(1) Collagen
(2) Insulin
(3) Trypsin
(4) Haemoglobin

BM0063

NEET-UG 2013

7. The most abundant intracellular cation is :
(1) K^+ (2) Na^+
(3) Ca^{++} (4) H^+

BM0064

8. Macro molecule chitin is :
(1) Simple polysaccharide
(2) Nitrogen containing polysacchairde
(3) Phosphorus containing polysaccharide
(4) Sulphur containing polysaccharide

BM0065

AIPMT 2014

9. Which one of the following is a non - reducing carbohydrate ?
(1) Maltose
(2) Sucrose
(3) Lactose
(4) Ribose

BM0066

Re-AIPMT 2015

10. The chitinous exoskeleton of arthropods is formed by the polymerisation of :
(1) lipoglycans
(2) keratin sulphate and chondroitin sulphate
(3) D-glucosamine
(4) N-acetyl glucosamine

BM0067

NEET-I 2016

11. One of the major components of cell wall of most fungi is :-
(1) Chitin (2) Peptidoglycan
(3) Cellulose (4) Hemicellulose

BM0069

12. A typical fat molecule is made up of :-
(1) Three glycerol molecules and one fatty acid molecule
(2) One glycerol and three fatty acid molecules
(3) One glycerol and one fatty acid molecule
(4) Three glycerol and three fatty acid molecules

BM0070

NEET-II 2016

13. Which of the following is the least likely to be involved in stabilizing the three–dimensional folding of most proteins?
(1) Hydrophobic interaction
(2) Ester bonds
(3) Hydrogen bonds
(4) Electrostatic interaction

BM0071

NEET (UG) 2017

14. Which of the following are not polymeric ?
(1) Proteins (2) Polysaccharides
(3) Lipids (4) Nucleic acids

BM0075

NEET (UG) 2018

15. The two functional groups characteristic of sugars are
(1) hydroxyl and methyl
(2) carbonyl and methyl
(3) carbonyl and phosphate
(4) carbonyl and hydroxyl

BM0076

16. Which of the following is an amino acid derived hormone ?
(1) Epinephrine (2) Ecdysone
(3) Estradiol (4) Estriol

BM0077

NEET (UG) 2019

17. Which of the following glucose transporters is insulin-dependent ?
(1) GLUT I (2) GLUT II
(3) GLUT III (4) GLUT IV

BM0125

18. Concanavalin A is :
(1) an alkaloid (2) an essential oil
(3) a lectin (4) a pigment

BM0126

NEET (UG) 2019 (Odisha)

19. Which of the following organic compounds is the main constituent of Lecithin ?
(1) Arachidonic acid (2) Phospholipid
(3) Cholesterol (4) Phosphoprotein

BM0127

20. "Ramachandran plot" is used to confirm the structure of :-
(1) RNA (2) Proteins
(3) Triacylglycerides (4) DNA

BM0128

NEET (UG) 2020

21. Match the following :
(a) Inhibitor of catalytic activity (i) Ricin
(b) Possess peptide bonds (ii) Malonate
(c) Cell wall material in fungi (iii) Chitin
(d) Secondary metabolite (iv) Collagen

Choose the **correct** option from the following :

	(a)	**(b)**	**(c)**	**(d)**
(1)	(ii)	(iii)	(i)	(iv)
(2)	(ii)	(iv)	(iii)	(i)
(3)	(iii)	(i)	(iv)	(ii)
(4)	(iii)	(iv)	(i)	(ii)

BM0129

22. Identify the basic amino acid from the following.
(1) Valine
(2) Tyrosine
(3) Glutamic Acid
(4) Lysine

BM0130

23. Which of the following is the most abundant protein in the animals ?
(1) Insulin
(2) Haemoglobin
(3) Collagen
(4) Lectin

BM0131

24. Identify the substances having glycosidic bond and peptide bond, respectively in their structure :
(1) Inulin, insulin
(2) Chitin, Cholesterol
(3) Glycerol, trypsin
(4) Cellulose, lecithin

BM0132

NEET (UG) 2020 (COVID-19)

25. Identify the statement which is **incorrect**.
(1) Sulphur is an integral part of cysteine.
(2) Glycine is an example of lipids.
(3) Lecithin contains phosphorus atom in its structure.
(4) Tyrosine possesses aromatic ring in its structure.

BM0133

NEET (UG) 2021

26. Which of the following are **not** secondary metabolites in plants ?
(1) Morphine, codeine
(2) Amino acids, glucose
(3) Vinblastin, curcumin
(4) Rubber, gums

BM0134

27. Match **List - I** with **List - II.**

List -I		List – II	
(a)	Protein	(i)	C = C double bonds
(b)	Unsaturated fatty acid	(ii)	Phosphodiester bonds
(c)	Nucleic acid	(iii)	Glycosidic bonds
(d)	Polysaccharide	(iv)	Peptide bonds

Choose the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iv)	(i)	(ii)	(iii)
(2)	(i)	(iv)	(iii)	(ii)
(3)	(ii)	(i)	(iv)	(iii)
(4)	(iv)	(iii)	(i)	(ii)

BM0135

28. Identify the **incorrect** pair.
(1) Alkaloids - Codeine
(2) Toxin - Abrin
(3) Lectins - Concanavalin A
(4) Drugs - Ricin

BM0136

29. Following are the statements with reference to 'lipids'.
(a) Lipids having only single bonds are called unsaturated fatty acids.
(b) Lecithin is a phospholipid.
(c) Trihydroxy propane is glycerol.
(d) Palmitic acid has 20 carbon atoms including carboxyl carbon.
(e) Arachidonic acid has 16 carbon atoms.
Choose the **correct** answer from the options given below.
(1) (a) and (b) only (2) (c) and (d) only
(3) (b) and (c) only (4) (b) and (e) only

BM0137

NEET(UG) 2021 (Paper-2)

30. Which of the following organic compound is correctly related with its function ?
(1) Uridine – A nucleotide that makes up RNA
(2) Phosphoglycerides – A component of cell membrane
(3) Serine – A non-protein amino acid
(4) GLUT-4 – Inhibits glucose transport into cells

BM0158

NEET(UG) 2022

31. Exoskeleton of arthropods is composed of:
(1) Cellulose
(2) Chitin
(3) Glucosamine
(4) Cutin

BM0159

32. Read the following statements on lipids and find out **correct** set of statements:
(a) Lecithin found in the plasma membrane is a glycolipid
(b) Saturated fatty acids possess one or more c = c bonds
(c) Gingely oil has lower melting point, hence remains as oil in winter
(d) Lipids are generally insoluble in water but soluble in some organic solvents
(e) When fatty acid is esterified with glycerol, monoglycerides are formed

Choose the **correct answer** from the options given below:
(1) (a), (d) and (e) only
(2) (c), (d) and (e) only
(3) (a), (b) and (d) only
(4) (a), (b) and (c) only

BM0160

33. A dehydration reaction links two glucose molecules to produce maltose. If the formula for glucose is $C_6H_{12}O_6$ then what is the formula for maltose ?
(1) $C_{12}H_{24}O_{12}$
(2) $C_{12}H_{22}O_{11}$
(3) $C_{12}H_{24}O_{11}$
(4) $C_{12}H_{20}O_{10}$

BM0161

NEET(UG) 2022 (OVERSEAS)

34. Given below are two statements :
Statement – I : Cellulose is a polymeric polysaccharide.
Statement – II : The building blocks of cellulose are glucose molecules.
In the light of the above statements, choose the **correct** answer from the options given below :
(1) **Statement - I** is incorrect but **Statement – II is** correct
(2) Both **Statement - I** and **Statement – II** are correct
(3) Both **Statement - I** and **Statement – II** are incorrect
(4) **Statement - I** is correct but **Statement - II** is incorrect

BM0162

35. Which of the following bond is formed as a result of reaction of carboxyl group of one amino acid with amino group of other amino acid with elimination of water?
(1) Hydrogen Bond
(2) Glycosidic Bond
(3) Peptide Bond
(4) Phosphodiester Bond

BM0163

Re-NEET(UG) 2022

36. Match **List - I** with **List - II** :

List - I	**List - II**
(a) Adenine	(i) Pigment
(b) Anthocyanin	(ii) Polysaccharide
(c) Chitin	(iii) Alkaloid
(d) Codeine	(iv) Purine

Choose the **correct answer** from the options given below :
(1) (a) - (iv), (b) - (i), (c) - (ii), (d) - (iii)
(2) (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)
(3) (a) - (iii), (b) - (i), (c) - (iv), (d) - (ii)
(4) (a) - (i), (b) - (iv), (c) - (iii), (d) - (ii)

BM0164

37. Primary proteins are also called as polypeptides because :

(1) They are linear chains

(2) They are polymers of peptide monomers

(3) Successive amino acids are joined by peptide bonds

(4) They can assume many conformations

BM0165

38. Given below are two statements:

Statement I :

Amino acids have a property of ionizable nature of $-NH_2$ and $-COOH$ groups, hence have different structures at different pH.

Statement II :

Amino acids can exist as Zwitterionic form at acidic and basic pH.

In the light of the above statements, choose the **most appropriate answer** from the options given below:

(1) Both **Statement I** and **Statement II** are correct

(2) Both **Statement I** and **Statement II** are Incorrect

(3) **Statement I** is correct but **Statement II** is incorrect

(4) **Statement I** is incorrect but **Statement II** is correct

BM0166

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	4	4	4	4	1	1	2	2	4	1	2	2	3	4
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	4	3	2	2	2	4	3	1	2	2	1	4	3	2
Que.	31	32	33	34	35	36	37	38							
Ans.	2	2	2	2	3	1	3	1							

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT Based QUESTIONS)

1. Which of the following compound is present in acid soluble pool when we analyse chemical composition?
(1) Protein (2) Lipid
(3) Glucose (4) Carotenoid
BM0138

2. Which of the following elements present most abundantly on earth crust?
(1) Carbon (2) Hydrogen
(3) Oxygen (4) Silicon
BM0139

3. If $-NH_2$ group and –COOH group are attached on same carbon in any amino acid, then these types of amino acids are known as :
(1) α-AA (2) β-AA
(3) γ-AA (4) All
BM0140

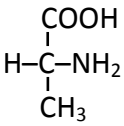
4. Variations in amino acids depend on :
(1) Side group (2) Ester group
(3) Complexity of cell (4) None of them
BM0141

5. How many carbon atoms are found in arachidonic acid?
(1) 16 (2) 18 (3) 20 (4) 22
BM0142

6. Which of the following AA is basic ?
(1) Valine (2) Lysine
(3) Glutamic acid (4) Glycine
BM0143

7. How many total carbons are found in palmitic acid?
(1) 15 (2) 16 (3) 17 (4) 18
BM0144

8. Lipid may be :
(1) Monoglyceride
(2) Diglyceride
(3) Triglyceride
(4) All the above
BM0145

9. 

This amino acid is :
(1) Serine (2) Alanine
(3) Glycine (4) Arginine
BM0146

10. Which functional group is common in fatty acid & amino acid ?
(1) –COOH (2) $-NH_2$
(3) –OH (4) All
BM0147

11. In proteins, amino acids are attached together by :
(1) Peptide bond (2) Amide bond
(3) Ester bond (4) 1 & 2 both
BM0148

12. Proteins can act as :
(1) transporter of nutrients across cell membrane
(2) Hormones
(3) Enzymes
(4) All
BM0149

13. Which of the following is homopolysaccharide?
(1) Cellulose (2) Starch
(3) Glycogen (4) All
BM0150

14. All the elements present in a sample of earth's crust are also present in a sample of living tissue, but which of the following element is higher in any living organism than in earth's crust?
(1) Hydrogen, Oxygen, Carbon and Silicon.
(2) Hydrogen, Oxygen, Carbon, Nitrogen and Silicon
(3) Hydrogen, Oxygen, Carbon, Nitrogen and Sulphur.
(4) Hydrogen, Oxygen, Carbon, Nitrogen, Sulphur and Sodium
BM0151

15. Pigments are considered as the secondary metabolites, having some particular functions. Which of the following is an example of pigments?
(1) Carotenoids
(2) Codeine
(3) Concanavalin-A
(4) Curcumin

BM0152

16. Which of the following can not be considered as the example of polymeric substances?
(1) Rubber (2) Gums
(3) Cellulose (4) Vinblastin

BM0153

17. Select the correctly matched.
(1) Anthocyanins - Alkaloids
(2) Carotenoids - Toxins
(3) Ricin - Drugs
(4) Lemon grass oil - Essential oils.

BM0154

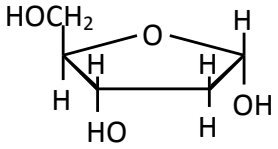
18. Which of the following amino acid having H(Hydrogen) as R group?
(1) Glycine (2) Alanine
(3) Serine (4) Leucine

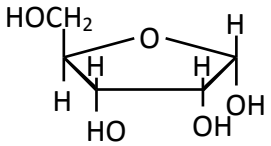
BM0155

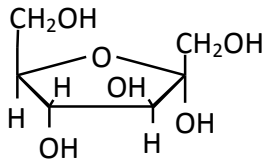
19. Physical and chemical properties of amino acids depend on
(1) Amino group
(2) Carboxylic group
(3) R-group
(4) All of the above

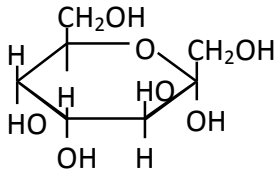
BM0156

20. Which of the following represents the structure of Ribose ?

(1) 

(2) 

(3) 

(4) 

BM0157

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

21. Which element is present negligible in human body?
(1) O (2) C (3) H (4) Si

BM0080

22. Which of the following compound is found in acid soluble pool during analysis of a living tissue?
(1) Protein (2) Lipid
(3) Polysaccharide (4) Monosaccharide

BM0081

23. Which of the following is not a macromolecule?
(1) Amino acid
(2) Nucleotide
(3) Monosaccharide
(4) All the above

BM0082

24. α-amino acids are those, which –
(1) Participates in protein synthesis
(2) –COOH group and $-NH_2$ group are attached on same carbon
(3) 20 types
(4) All the above are correct

BM0084

25. Which of the following is correct statement?
(1) Amino acids may be considered as substituted methane
(2) α-AA have difference only in R group
(3) In serine, R-group is hydroxy methyl
(4) All the above

BM0085

26. What is the R group in Glycine?
(1) $-CH_2-OH$ (2) $-H$
(3) $-CH_3$ (4) None of them
BM0086

27. Which of the following is acidic amino acid?
(1) Valine (2) Glutamic acid
(3) Arginine (4) Lysine
BM0087

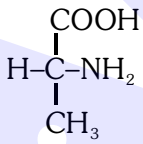
28. Which of the following is aromatic AA?
(1) Tyrosine (2) Tryptophan
(3) Phenyl alanine (4) All the above
BM0088

29. Which of the following is component of simple lipid?
(1) Glycerol (2) Glycol
(3) Fatty acid (4) both 1 & 3
BM0090

30. The lipid which is found in cell membrane is
(1) Phospholipid (2) Lecithin
(3) 1 & 2 both (4) Palmitic acid
BM0092

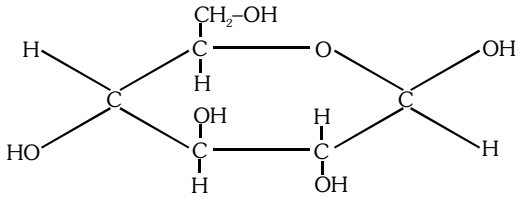
31. Heterocyclic ring is found in which compound?
(1) N-bases
(2) Ring strucuture of monosaccharides
(3) Protein
(4) 1 & 2 both
BM0093

32. Following structure is related to which AA?



(1) Glycine (2) Alanine
(3) Serine (4) Tyrosine
BM0094

33. Following structure is –



(1) α-Glucose (2) β-Glucose
(3) Ribose (4) Deoxyribose
BM0095

34. Which of the following is secondary metabolites?
(1) Rubber (2) Alkaloids
(3) Terpenoids (4) All the above
BM0096

35. Which of the following statement is correct?
(1) Lipid is biomacromolecule
(2) Lipid has <1000 daltons molecular weight
(3) Proteins are heteropolymer
(4) All the above are correct except (1)
BM0097

36. DNA is –
(1) Biomacromolecule
(2) Acidic in nature
(3) Polymer of nucleotide
(4) All the above
BM0098

37. All the following statements about the structure of glycogen are true, except :-
(1) Branched chains occur, after every ten residues
(2) It is a copolymer of glucose and mannose
(3) It contains α–1, 4–glycosidic linkages
(4) It contains α–1, 6–glycosidic linkages
BM0101

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	3	1	1	3	2	2	4	2	1	4	4	4	3	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	4	4	1	4	2	4	4	4	4	4	2	2	4	4	3
Que.	31	32	33	34	35	36	37								
Ans.	4	2	2	4	4	4	2								

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

BOTANY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Photosynthesis in Higher plants

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

INTRODUCTION TO HOW MANY PIGMENTS ARE INVOLVED IN PHOTOSYNTHESIS

1. Oxygen which is liberated during photosynthesis comes from -
(1) Carbondioxide
(2) Water
(3) Chlorophyll
(4) Phosphoglyceric acid
PS0001

2. In which of the following process, the light energy is converted into chemical energy?
(1) Digestive action
(2) Respiration
(3) Photosynthesis
(4) Fermentation
PS0002

3. During photosynthesis the oxygen in glucose comes from :-
(1) Water
(2) Carbon dioxide
(3) O_2 in air
(4) Both from water and CO_2
PS0003

4. Name the scientist, who first pointed out by bell jar experiment that plants purify foul air :-
(1) Engelmann (2) Robert Hooke
(3) Priestley (4) Ruben & Kamen
PS0011

5. Moll's half leaf experiment explains that :-
(1) Carbon dioxide is essential for photosynthesis
(2) Chlorophyll and water are necessary for photosynthesis
(3) Light and water are essential for photosynthesis
(4) All the above are correct
PS0013

6. Oxygen during photosynthesis comes from water was proved with the help of O^{18} experiment by:-
(1) Ruben and Kamen (2) Hill
(3) Warburg (4) Blackman
PS0014

7. Name the scientist who pointed out the importance of different wavelengths of light using a green algae and aerobic bacteria :–
(1) Priestley (2) Ingenhousz
(3) R. Hill (4) Englemann
PS0015

8. Photosynthesis is :-
(1) Oxidative, exergonic, catabolic
(2) Redox-reaction, endergonic, anabolic
(3) Reductive, exergonic, anabolic
(4) Reductive, endergonic, catabolic
PS0017

9. The significance of light and chlorophyll in photosynthesis was discovered by :-
(1) Priestley (2) Ingenhousz
(3) Englemann (4) Blackman
PS0018

10. Which one of the following pigment does not occur in the chloroplast?
(1) Carotene (2) Xanthophyll
(3) Chlorophyll-b (4) Anthocyanin
PS0022

11. Chlorophyll contains :-
(1) Fe (2) Mg (3) K (4) Mn
PS0023

12. Which pigment is water soluble?
(1) Chlorophyll (2) Carotene
(3) Anthocyanin (4) Xanthophyll
PS0024

13. Chlorophyll is present :–
(1) In the grana of chloroplasts
(2) On the surface of chloroplasts
(3) Dispersed through out the chloroplasts
(4) In the stroma of chloroplasts
PS0026

14. Which colour of light gives maximum absorption peak by chlorophyll-a ?
(1) Blue light (2) Green light
(3) Violet light (4) Red light
PS0027

15. The formula of chlorophyll-a is :-
(1) $C_{35}H_{72}O_5N_4$ Mg (2) $C_{55}H_{70}O_3N_4$ Mg
(3) $C_{55}H_{72}O_5N_4$ Mg (4) $C_{51}H_{70}O_6N_4$ Mg
PS0029

16. The number of pigment molecules in photosystem is:
(1) 250 - 400 (2) 300 - 900
(3) 500 - 600 (4) 50 -100
PS0030

17. The main difference between chlorophyll-a and b is:
(1) Chlorophyll-a is a linear chain compound and b is branched chain
(2) Chlorophyll-a has no Mg^+ ion in center of molecule
(3) In chlorophyll-a there is $–CH_3$ group whereas in b it is –CHO group
(4) All of the above
PS0031

18. Basic common structure of all chlorophyll comprises of :-
(1) Cytochrome system (2) Flavoproteins
(3) Porphyrin system (4) Plastocyanin
PS0034

19. What is the by product of bacterial photosynthesis?
(1) O_2 (2) CO_2 (3) S (4) H_2S
PS0035

20. Which of the following chlorophyll is lack of phytol tail?
(1) Chl-a (2) Chl-b
(3) Chl-c (4) Chl-e
PS0038

21. Universal chlorophyll is :-
(1) Chl-a (2) Chl-b
(3) Chl-c (4) Chl-e
PS0040

22. Which one of the following is precursor of protochlorophyll?
(1) Acetyl COA
(2) Succinyl COA
(3) Oxlaoacetic acid
(4) α-ketoglutarate
PS0042

23. Photosynthesis is an oxidation reduction process, the materials that is oxidised is :-
(1) CO_2 (2) NADP
(3) H_2O (4) PGA
PS0060

24. During photosynthesis :-
(1) Water is reduced & CO_2 is oxidized
(2) CO_2 is reduced & water is oxidized
(3) Both CO_2 & water get reduced
(4) Both CO_2 & water get oxidized
PS0068

25. Which photosynthetic pigment converts nascent oxygen to molecular oxygen ?
(1) Chlorophyll-a (2) Carotenoids
(3) Phycobilins (4) Chlorophyll-b
PS0070

26. Hill reaction occurs in :–
(1) High altitude plants only
(2) Total darkness
(3) Presence of ferricyanide
(4) Absence of water
PS0071

27. Photosynthetically active radiation (PAR) represents the following range of wavelength :-
(1) 400–700 nm (2) 500–600 nm
(3) 450–950 nm (4) 340–450 nm
PS0119

28. Which one of the following categories of organisms do not evolve oxygen during photosynthesis ?
(1) Red algae
(2) Photosynthetic bacteria
(3) C_4 plants with Kranz anatomy
(4) Blue green algae
PS0123

29. The site for dark reaction of photosynthesis is :-
(1) Stroma (2) Grana
(3) Intergrana (4) Mitochondria
PS0025

WHAT IS LIGHT REACTION AND THE ELECTRON TRANSPORT

30. Discovery of Emerson effect has shown the existence of :–
(1) Two distinct photosystems
(2) Light and dark reactions of photosynthesis
(3) Photophosphorylation
(4) Photorespiration
PS0010

31. Wavelength of light responsible for Emerson's enhancement effect :–
(1) only 680 nm↑
(2) only 680 nm↓
(3) infra red wavelength
(4) Both 680 nm↑ and 680 nm↓
PS0019

32. The process of photo-phosphorylation take place in :-
(1) Chloroplast (2) Ribosomes
(3) Mitochondria (4) Cell-wall
PS0020

33. In pigment system -I, reaction centre is :-
(1) P-600 (2) P-680
(3) P-700 (4) P-720
PS0033

34. Which of the following is the site of photolysis of water ?
(1) Stroma of chloroplast
(2) Cristae of chloroplast
(3) Ribosome of chloroplast
(4) Lumen surface of thylakoid membrane
PS0041

35. The first step in photosynthesis is :-
(1) Joining of three carbon atoms to from glucose
(2) Formation of ATP
(3) Ionization of water
(4) Excitement of an electron of chlorophyll by a photon of light.
PS0043

36. The product of light reaction is :-
(1) ATP & NADPH(H^+)
(2) NADPH(H^+) & glucose
(3) Only ATP
(4) O_2 & glucose
PS0044

37. Which one of the following concerns with photophosphorylation ?
(1) ADP + AMP $\longrightarrow$ ATP
(2) ADP + Inorganic PO_4 $\xrightarrow{\text{Light energy}}$ ATP
(3) ADP + Inorganic PO_4 $\longrightarrow$ ATP
(4) AMP + Inorganic PO_4 $\longrightarrow$ ATP
PS0046

38. During photochemical reaction of photosynthesis–
(1) Liberation of O_2 takes place
(2) Formation of ATP and $NADPH_2$ take place
(3) Liberation of O_2, formation of ATP, and $NADPH_2$ takes place
(4) Assimilation of CO_2 takes place
PS0049

39. Which of the following is excited molecule during photosynthesis ?
(1) Chlorophyll (2) Oxygen
(3) Carbondioxide (4) Water
PS0051

40. During splitting of H_2O, H^+ is ultimately captured by :-
(1) Chlorophyll (2) NADP
(3) O_2 (4) Cytochrome
PS0053

41. At the time of splitting of H_2O, which initially captures the electron :-
(1) Chlorophyll (2) NADP
(3) OH^- (4) Cytochrome
PS0054

42. In cyclic photophosphorylation which one of the following is formed ?
(1) NADP & ATP
(2) ATP
(3) NADH + H^+ and O_2
(4) NADPH + H^+, ATP and O_2
PS0055

43. Photooxidation of water in photosynthesis is associated with :-
(1) Cytochrome b_6
(2) Pigment system - I
(3) Pigment system - II
(4) Plastocyanin
PS0057

44. During ATP synthesis electron pass through:-
(1) Water (2) Cytochromes
(3) O_2 (4) CO_2
PS0058

45. Which pigment system immediately donates e^- for the reduction of NADP ?
(1) PS-II (2) PS-I
(3) CO_2 (4) Plastoquinone
PS0059

46. Which element are presents in OEC (Oxygen evolving complex) ?
(1) Mn^{++} (2) Cl^-
(3) Ca^{++} (4) All
PS0063

WHERE ARE THE ATP AND NADPH USED

47. The path of CO_2 in the dark reactions of photosynthesis was sucessfully traced by the use of the :–
(1) $^{18}O_2$ (2) $^{14}CO_2$
(3) ^{32}P (4) X - rays
PS0009

48. Which of the following protein is most abundant on the earth?
(1) Catalase (2) RuBisCO
(3) Amylase (4) Pepsin
PS0039

49. The function of ATP in photosynthesis is the transfer of energy from the :-
(1) Dark reaction to the light reaction
(2) Light reaction to the dark reaction
(3) Chloroplasts to mitochondria
(4) Mitochondria to chloroplasts
PS0047

50. In photosynthesis, hydrogen is transferred from the light reactions to dark reactions by :–
(1) NAD (2) DNA
(3) ATP (4) NADP
PS0048

51. NADPH(H^+) is also called :-
(1) Real power
(2) Oxidising agent
(3) Power house of energy
(4) Reducing power

PS0052

52. Fixation of 1 CO_2 requires :–
(1) 6NADPH(H^+) & 3ATP
(2) 2NADPH(H^+) & 3ATP
(3) 4NADPH(H^+) & 3ATP
(4) 5NADPH(H^+) & 3ATP

PS0056

53. Connecting link between light phase and dark phase of photosynthesis, is :-
(1) Only ATP (2) Only NADPH(H^+)
(3) Only NADH + H^+ (4) ATP & NADPH(H^+)

PS0069

54. In photosynthesis CO_2 combines with :-
(1) RUBP (2) ATP
(3) ADP (4) PGA

PS0072

55. During the dark reactions of photosynthesis:–
(1) Water splits
(2) CO_2 is reduced to organic compounds
(3) Chlorophyll is activated
(4) Stable C_6-sugar is broken into three carbon sugars

PS0073

56. The enzyme that fixes atmospheric CO_2 in C_4 plants is :–
(1) PEP carboxylase (2) Hexokinase
(3) RUBP oxygenase (4) Hydrogenase

PS0075

57. During photosynthesis when PGA is changed into phosphoglyceraldehyde which of the following reaction occur ?
(1) Oxidation (2) Reduction
(3) Electrolysis (4) Hydrolysis

PS0076

58. Carbon refixation in C_4 plants occurs in chloroplasts of :–
(1) Palisade tissue
(2) Spongy Mesophyll
(3) Bundle sheath cells
(4) Gaurd cells

PS0077

59. Tropical plants like sugarcane show high efficiency of CO_2 fixation because of :–
(1) Calvin cycle
(2) Hatch - Slack cycle
(3) Cyclic photophosphorylation
(4) TCA Cycle

PS0078

60. "Kranz" type of anatomy is found in :–
(1) C_4 plant
(2) C_3 plant
(3) Succulent plants
(4) All of the above

PS0079

61. Which of the following is C_4 plants ?
(1) Maize
(2) *Atriplex*
(3) Sugarcane
(4) All of the above

PS0081

62. Which pair is wrong ?
(1) C_3 plant-Maize
(2) Calvin cycle-PGA
(3) Hatch and Slack cycle - Maize
(4) C_4-plant- Kranz Anatomy

PS0124

63. C_4 plants are found among :-
(1) Only gramineae family
(2) Only monocots
(3) Only dicots
(4) Monocots as well as dicots

PS0083

64. In case of C_4 pathway, the first step is :-
(1) CO_2 combines with RUBP
(2) CO_2 combines with PGA
(3) CO_2 combines with PEP
(4) CO_2 combines with PGAL
PS0084

65. In dark reaction, first reaction is the :-
(1) Carboxylation (2) Decarboxylation
(3) Dehydrogenation (4) Deamination
PS0085

66. Number of ATP molecules required for regeneration phase of RUBP during synthesis of 1 glucose molecule :-
(1) 6 (2) 12 (3) 18 (4) 30
PS0086

67. Isotopes employed to study the process of photosynthesis reaction.
(1) S^{35} and P^{32} (2) C^{14} and O^{18}
(3) N^{14} and Co^{60} (4) N^{14} and O^{18}
PS0087

68. Chloroplast is present in bundle sheath cells of :-
(1) C_3 - plants
(2) C_4 plants
(3) CAM plants
(4) Photorespiring plants
PS0088

69. CO_2 is accepted by RUBP in C_4 plants in :-
(1) Mesophyll cells
(2) Bundle sheath cells
(3) Stomatal gaurd cells
(4) Epidermal cells
PS0089

70. Bundle sheath chloroplasts of C_4 plant are :
(1) Large & agranal (2) Large & granal
(3) Small & agranal (4) Small & granal
PS0090

71. In addition to the 12 molecules of NADPH(H^+), the energy required for the synthesis of one mole of hexose by C_3 and C_4 pathway is
(1) 18 & 18 molecules of ATP respectively
(2) 30 & 30 molecules of ATP respectively
(3) 18 & 30 molecules of ATP respectively
(4) 30 & 18 molecules of ATP respectively
PS0094

72. How many Calvin cycles would generate one molecule of glucose/hexose ?
(1) One cycle (2) Three cycles
(3) Six cycles (4) Twelve cycles
PS0096

73. CAM - plants are :-
(1) Succulent xerophyte
(2) Hydrophytes
(3) Epiphytes
(4) Mesophytes
PS0097

74. The first stable product of Calvin cycle and Hatch stack pathway are :-
(1) 4-C and 3-C compounds respectively
(2) 4-C and 6-C compounds respectively
(3) 3-C and 4-C compounds respectively
(4) 5-C and 4 - C compounds respectively
PS0098

75. Which of the following was used during discovery of Calvin cycle ?
(1) *Spirogyra*
(2) *Volvox*
(3) *Chlamydomonas*
(4) *Chlorella*
PS0099

PHOTORESPIRATION & FACTOR AFFECTING PHOTOSYNTHESIS

76. Which one of the following have high CO_2 compensation point ?
(1) C_2 plants
(2) C_3 plants
(3) C_4 plants
(4) CAM plants
PS0102

77. First stable product of photorespiration is :-
(1) PGAL
(2) Glycerate
(3) Glycine
(4) Phosphoglycolate
PS0106

78. Photorespiration is favoured by :-
(1) Low light intensity
(2) Low O_2 & high CO_2
(3) Low temperature
(4) High O_2 & Low CO_2

PS0110

79. C_2 - Cycle is also known as :-
(1) Glycolate cycle (2) Calvin cycle
(3) Kreb's cycle (4) TCA - cycle

PS0111

80. Compensation point means :-
(1) When the rate of photosynthesis is equal to rate of respiration
(2) When there is neither photosynthesis nor respiration
(3) When the entire food manufactured in photosynthesis remains unutilized
(4) When availability of water equalise with necessity of water.

PS0112

81. What does not occur in photorespiration
(1) Utilization of O_2
(2) Production of CO_2
(3) Synthesis of ATP
(4) Use of ATP

PS0114

82. DCMU is an inhibitor of :-
(1) PS-I (2) PS-II
(3) Calvin cycle (4) Kreb's cycle

PS0115

83. Main factor which limits the rate of photosynthesis on a clear day is :-
(1) Chlorophyll (2) Light
(3) CO_2 (4) Water

PS0116

84. Which one of the following is wrong in relation to photorespiration ?
(1) It occurs in chloroplast
(2) It occurs in daytime only
(3) It is a characterisitic of C_4 plants
(4) It is a characteristic of C_3 plants

PS0118

85. The law of limiting factor for photosynthesis was given by :–
(1) R. Hill (2) Krebs
(3) Calvin (4) Blackman

PS0004

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	3	2	3	1	1	4	2	2	4	2	3	1	1	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	3	3	3	3	1	2	3	2	2	3	1	2	1	1
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	4	1	3	4	4	1	2	3	1	2	1	2	3	2	2
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	4	2	2	2	4	4	2	4	1	2	1	2	3	2	1
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	4	1	4	3	1	1	2	2	2	1	3	3	1	3	4
Que.	76	77	78	79	80	81	82	83	84	85					
Ans.	2	4	4	1	1	3	2	3	3	4					

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. In photosystem-I, the first electron acceptor is :-
(1) Plastocyanin
(2) An iron-sulphur protein
(3) Ferredoxin
(4) Cytochrome

PS0125

2. During photorespiration, the oxygen consuming reaction(s) occur in
(1) Grana of chloroplasts and peroxisomes
(2) Stroma of chloroplasts
(3) Stroma of chloroplasts and mitochondria
(4) Stroma of chloroplasts and peroxisomes

PS0126

AIPMT 2007

3. The first acceptor of electrons from an excited chlorophyll molecule of photosystem II is :-
(1) Quinone
(2) Cytochrome
(3) Iron-sulphur protein
(4) Ferredoxin

PS0127

4. In the leaves of C_4 plants, malic acid formation during CO_2 fixation occurs in the cells of :-
(1) Epidermis
(2) Mesophyll
(3) Bundle Sheath
(4) Phloem

PS0128

AIPMT 2008

5. In leaves of C_4 plants malic acid synthesis during CO_2 fixation occurs in :-
(1) Bundle sheath
(2) Guard cells
(3) Epidermal cells
(4) Mesophyll cells

PS0129

6. The C_4 plants are photosynthetically more efficient than C_3 plants because :-
(1) The CO_2 efflux is not prevented
(2) They have more chloroplasts
(3) The CO_2 compensation point is more
(4) CO_2 generated during photorespiration is trapped and recycled through PEP carboxylase

PS0130

7. Electrons from excited chlorophyll molecule of photosystem II are accepted first by :-
(1) Quinone (2) Ferredoxin
(3) Cytochrome –b (4) Cytochrome –f

PS0131

AIPMT 2009

8. Oxygenic photosynthesis occurs in :-
(1) *Oscillatoria* (2) *Rhodospirillum*
(3) *Chlorobium* (4) *Chromatium*

PS0132

9. Cyclic photophosphorylation results in the formation of :-
(1) ATP and NADPH
(2) ATP, NADPH and O_2
(3) ATP
(4) NADPH

PS0133

AIPMT-Pre 2010

10. PGA as the first CO_2 fixation product was discovered in photosynthesis of :
(1) Bryophyte (2) Gymnosperm
(3) Angiosperm (4) Alga

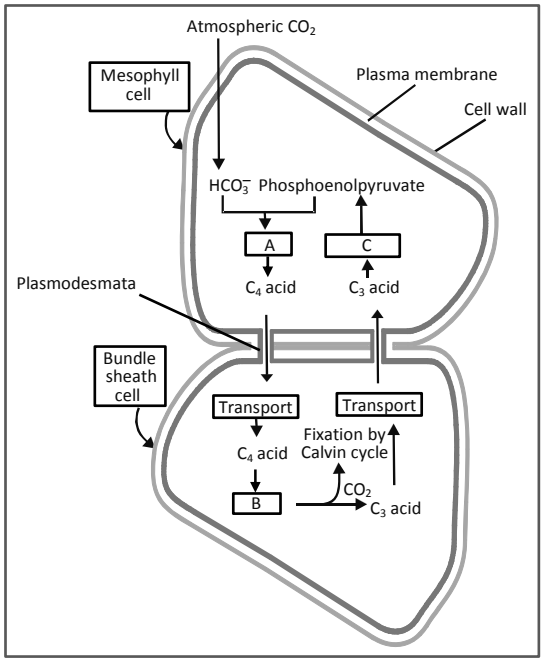
PS0134

11. C_4 plants are more efficient in photosynthesis than C_3 plants due to :
(1) Higher leaf area
(2) Presence of larger number of choloplasts in the leaf cells
(3) Presence of thin cuticle
(4) Lower rate of photorespiration

PS0135

AIPMT-Mains 2010

12. Study the pathway given below :



In which of the following options correct words for all the three blanks A, B and C are indicated ?

	A	B	C
(1)	Fixation	Transamination	Regeneration
(2)	Fixation	Decarboxylation	Regeneration
(3)	Carboxylation	Decarboxylation	Reduction
(4)	Decarboxylation	Reduction	Regeneration

PS0136

13. Read the following four statements, A, B, C and D and select the right option having both correct statements.

Statements :

(A) Z scheme of light reaction takes place in presence of PSI only.

(B) Only PSI is functional in cyclic photophosphorylation

(C) Cyclic photophosphorylation results into synthesis of ATP and NADPH(H^+)

(D) Stroma lamellae lack PSII as well as NADP reductase

Options :

(1) A and B (2) B and C

(3) C and D (4) B and D

PS0137

14. CAM helps the plants in :-

(1) Conserving water

(2) Secondary growth

(3) Disease resistance

(4) Reproduction

PS0138

AIPMT-Mains 2011

15. In Kranz anatomy, the bundle sheath cells have:

(1) thick walls, many intercellular spaces and few chloroplasts

(2) thin walls, many intercellular spaces and no chloroplasts.

(3) thick walls, no intercellular spaces and large number of chloroplasts.

(4) thin walls, no intercellular spaces and several chloroplasts.

PS0139

AIPMT-Pre 2012

16. A process that makes important difference between C_3 and C_4 plants is :-

(1) Photosynthesis

(2) Photorespiration

(3) Transpiration

(4) Glycolysis

PS0140

17. The correct sequence of cell organelles during photorespiration is :-

(1) Chloroplast-mitochondria-peroxisome

(2) Chloroplast-vacuole-peroxisome

(3) Chloroplast-Golgibodies-mitochondria

(4) Chloroplast-Rough endoplasmic reticulum-Dictyosomes

PS0141

AIPMT 2014

18. Anoxygenic photosynthesis is characteristic of :

(1) *Rhodospirillum* (2) *Spirogyra*

(3) *Chlamydomonas* (4) *Ulva*

PS0142

Re-AIPMT 2015

19. Chromatophores take part in :

(1) Respiration

(2) Photosynthesis

(3) Growth

(4) Movement

PS0143

20. In photosynthesis, the light-independent reactions take place at :
(1) Stromal matrix
(2) Thylakoid lumen
(3) Photosystem-I
(4) Photosystem-II

PS0144

NEET-I 2016

21. Emerson's enhancement effect and red drop have been instrumental in the discovery of :-
(1) Photophosphorylation and non-cyclic electron transport
(2) Two photosystems operating simultaneously
(3) Photophosphorylation and cyclic electron transport
(4) Oxidative phosphorylation

PS0145

22. In a chloroplast the highest number of protons are found in :-
(1) Stroma
(2) Lumen of thylakoids
(3) Inter membrane space
(4) Antennae complex

PS0146

23. A plant in your garden avoids photorespiratory losses, has improved water use efficiency shows high rates of photosynthesis at high temperatures and has improved efficiency of nitrogen utilisation. In which of the following physiological groups would you assign this plant?
(1) C_3
(2) C_4
(3) CAM
(4) Nitrogen fixer

PS0147

NEET-II 2016

24. The process which makes major difference between C_3 and C_4 plants is :-
(1) Photorespiration
(2) Respiration
(3) Glycolysis
(4) Calvin cycle

PS0148

NEET(UG) 2017

25. With reference to factors affecting the rate of photosynthesis, which of the following statements is not correct ?
(1) Increasing atmospheric CO_2 concentration up to 0.05% can enhance CO_2 fixation rate
(2) C_3 plants respond to higher temperatures with enhanced photosynthesis while C_4 plants have much lower temperature optimum
(3) Tomato is a greenhouse crop which can be grown in CO_2 - enriched atmosphere for higher yield
(4) Light saturation for CO_2 fixation occurs at 10% of full sunlight

PS0152

26. Phosphoenol pyruvate (PEP) is the primary CO_2 acceptor in:
(1) C_4 plants
(2) C_2 plants
(3) C_3 and C_4 plants
(4) C_3 plants

PS0153

NEET(UG) 2018

27. Which of the following is **not** a product of light reaction of photosynthesis ?
(1) ATP
(2) NADH
(3) NADPH
(4) Oxygen

PS0159

28. Oxygen is **not** produced during photosynthesis by:-
(1) Green sulphur bacteria
(2) *Nostoc*
(3) *Cycas*
(4) *Chara*

PS0160

NEET(UG) 2019 (Odisha)

29. In Hatch and Slack pathway, the primary CO_2 acceptor is -
(1) Oxaloacetic acid
(2) Phosphoglyceric acid
(3) Phosphoenol pyruvate
(4) RuBisCO

PS0241

30. One scientist cultured *Cladophora* in a suspension of *Azotobacter* and illuminated the culture by splitting light through a prism. He observed that bacteria accumulated mainly in the region of:
(1) Violet and green light
(2) Indigo and green light
(3) Orange and yellow light
(4) Blue and red light

PS0242

NEET(UG) 2020

31. In light reaction, plastoquinone facilitates the transfer of electrons from :
(1) PS-I to ATP synthase
(2) PS-II to $Cytb_6f$ complex
(3) $Cytb_6f$ complex to PS-I
(4) PS-I to $NADP^+$

PS0243

32. The oxygenation activity of RuBisCo enzyme in photorespiration leads to the formation of :
(1) 1 molecule of 4-C compound and 1 molecule of 2-C compound.
(2) 2 molecules of 3-C compound
(3) 1 molecule of 3-C compound
(4) 1 molecule of 6-C compound

PS0244

NEET(UG) 2020 (COVID-19)

33. During non-cyclic photophosphorylation, when electrons are lost from the reaction centre at PS II, what is the source which replaces these electrons?
(1) Oxygen
(2) Water
(3) Carbon dioxide
(4) Light

PS0245

34. Which of the following statements is **incorrect**?
(1) RuBisCO is a bifunctional enzyme
(2) In C_4 plants, the site of RuBisCO activity is mesophyll cell
(3) The substrate molecule for RuBisCO activity is a 5-carbon compound
(4) RuBisCO action requires ATP and NADPH

PS0246

NEET(UG) 2021

35. The first stable product of CO_2 fixation in sorghum is :
(1) Pyruvic acid
(2) Oxaloacetic acid
(3) Succinic acid
(4) Phosphoglyceric acid

PS0247

36. Which of the following statements is **incorrect** ?
(1) Both ATP and NADPH + H^+ are synthesized during non-cyclic photophosphorylation.
(2) Stroma lamellae have PS I only and lack NADP reductase.
(3) Grana lamellae have both PS I and PS II.
(4) Cyclic photophosphorylation involves both PS I and PS II.

PS0248

NEET(UG) 2021 (Paper-2)

37. Match the columns and choose the correct option.

Column I	**Column II**
a. Visible light	i. 0.1–1.0 nm
b. Ultraviolet radiation	ii. 400-700 nm
c. X-rays	iii. Longer than 700 nm
d. Infrared radiation	iv. 100-400 nm

(1) a–i, b–ii, c–iv, d–ii
(2) a–iii, b–ii, c–i, d–iv
(3) a–iv, b–iii, c–ii, d–i
(4) a–ii, b–iv, c–i, d–iii

PS0287

38. Separation of leaf pigments of any green plants can be carried out by
(1) X-ray radiography
(2) Paper chromatography
(3) Half-leaf experiment
(4) Variegated leaf experiment

PS0288

39. In the plastid, the site of dark and light reaction is
(1) Grana and stroma respectively
(2) Grana and matrix respectively
(3) Matrix and grana respectively
(4) Stroma and grana respectively

PS0289

40. The maximum absorption of light by chlorophyll occurs in which region of the absorption spectrum.
(1) Red and green
(2) Yellow and green
(3) Blue and red
(4) Brown and red

PS0290

41. Non-cyclic photophosphorylation results in the formation of
(1) ATP and NADH + H^+
(2) ATP only
(3) ATP and NADPH + H^+
(4) ATP, ADP and NADH + H^+

PS0291

NEET(UG) 2022

42. Given below are two statements :
Statement I: The primary CO_2 acceptor in C_4 plants is phosphoenolpyruvate and is found in the mesophyll cells.
Statement II: Mesophyll cells of C_4 plants lack RuBisCo enzyme.
In the light of the above statements, choose the correct answer from the options given below:
(1) Both **Statement I** and **Statement II** are incorrect
(2) **Statement I** is correct but **Statement II** is incorrect
(3) **Statement I** is incorrect but **Statement II** is correct
(4) Both **Statement I** and **Statement II** are correct

PS0292

43. Which one of the following is **not true** regarding the release of energy during ATP synthesis through chemiosmosis? It involves :
(1) Breakdown of electron gradient
(2) Movement of protons across the membrane to the stroma
(3) Reduction of NADP to $NADPH_2$ on the stroma side of the membrane
(4) Breakdown of proton gradient

PS0293

44. What is the role of large bundle sheath cells found around the vascular bundles in C_4 plants ?
(1) To increase the number of chloroplast for the operation of Calvin cycle
(2) To enable the plant to tolerate high temperature
(3) To protect the vascular tissue from high light intensity
(4) To provide the site for photorespiratory pathway

PS0294

NEET(UG) 2022 (OVERSEAS)

45. The products of light reaction in photosynthesis are:
(1) ATP, NADPH, O_2 and H_2O
(2) ATP, NADPH and H_2O
(3) ATP, NADPH and CO_2
(4) ATP, NADPH and O_2

PS0295

Re-NEET(UG) 2022

46. When one CO_2 molecule is fixed as one molecule of triose phosphate, which of the following photochemically made, high energy chemical intermediates are used in the reduction phase ?
(1) 1 ATP + 1 NADPH
(2) 1 ATP + 2 NADPH
(3) 2 ATP + 1 NADPH
(4) 2 ATP + 2 NADPH

PS0296

47. Identify the correct statements regarding chemiosmotic hypothesis :

(a) Splitting of the water molecule takes place on the inner side of the membrane.

(b) Protons accumulate within the lumen of the thylakoids.

(c) Primary acceptor of electron transfers the electrons to an electron carrier.

(d) NADP reductase enzyme is located on the stroma side of the membrane.

(e) Protons increase in number in stroma.

Choose the **correct answer** from the options given below:

(1) (a), (b) and (e) (2) (a), (b) and (d)

(3) (b), (c) and (d) (4) (b), (c) and (e)

PS0297

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**4**	**1**	**2**	**4**	**2**	**1**	**1**	**3**	**4**	**2**	**2**	**4**	**1**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**1**	**1**	**2**	**1**	**2**	**2**	**2**	**1**	**2**	**1**	**2**	**1**	**3**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**2**	**3**	**2**	**2**	**2**	**4**	**4**	**2**	**4**	**3**	**3**	**4**	**1**	**1**	**4**
Que.	46	47													
Ans.	**1**	**2**													

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) NCERT BASED QUESTIONS

1. "Only green part of the plants could release oxygen" this is shown by –
(1) Priestley
(2) Moll
(3) Ingenhousz
(4) Julius Von Sachs

PS0163

2. In Calvin cycle which step involve utilisation of 2 molecules of ATP for phosphorylation and two of $NADPH_2$ per CO_2 molecule fixed?
(1) Regeneration
(2) Carboxylation
(3) Reduction
(4) All of above

PS0164

3. Which character make C_4 plants special ?
(1) Special type of leaf anatomy
(2) They can tolerate high temperature
(3) Show response to high light intensities
(4) All of the above

PS0165

4. Most abundant enzyme in the world is –
(1) Collagen
(2) RuBisCO
(3) PEPcase
(4) Pyruvate dikinase

PS0166

5. For every CO_2 molecule entering the Calvin cycle, required energy is :-
(1) 3 ATP and 2 NADPH
(2) 2 ATP and 3 NADPH
(3) 3 ATP and 3 NADPH
(4) 2 ATP and 2 NADPH

PS0168

6. In C_4 plants, bundle sheath cells are characterised by :-
(1) Large number of chloroplasts
(2) Thick walls impervious to gaseous exchange
(3) No intercellular spaces
(4) All the above

PS0169

7. In C_4 plants photorespiration does not occur, due to:-
(1) Presence of RubisCO enzyme
(2) Presence of high light intensity
(3) Increased concentration of CO_2 at RuBisCO enzyme site
(4) Presence of bundle sheath cells.

PS0171

8. In photosynthesis during ATP formation accumulation of protons occurs :-
(1) in lumen of thylakoid
(2) in stroma of chloroplast
(3) in periplastidial space
(4) at outer surface of thylakoid

PS0172

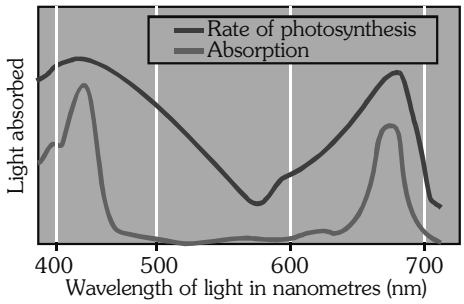
9. By using the bell jar, which of the following showed that sunlight is essential to plant process that purifies the air?
(1) Joseph Priestley
(2) Julius Von Sachs
(3) T.W. Engelmann
(4) Jan Ingenhousz

PS0173

10. Radioisotopic technique was used to prove some facts about :-
(1) light reaction of photosynthesis
(2) biosynthetic phase of photosynthesis
(3) Both (1) and (2)
(4) Different shapes of chloroplasts in plants

PS0174

11. Represented below is the graph showing action spectrum of photosynthesis superimposed on absorption spectrum of chlorophyll-a. Which one of the following is **correct** for this ?



(1) There is a complete one to one overlap between the absorption and action spectrum
(2) By this overlapping it can be concluded that chlorophyll-a is the chief pigment of photosynthesis
(3) This overlapping shows that only chlorophyll-a absorb the entire light energy
(4) These graphs show that photosynthesis occurs only in the wavelengths of blue and red light

PS0190

12. The plants with Hatch and Slack pathway are adapted to :-
(1) humid temperate regions
(2) dry temperate regions
(3) humid tropical regions
(4) dry tropical regions

PS0176

13. Which of the following is correct?
(1) The C_3 and C_4 plants respond similarly to CO_2 concentrations
(2) At low light conditions C_4 plats show increase in the rates of photosynthesis
(3) C_4 plants not respond to high temperature
(4) The C_3 and C_4 plants respond differently to CO_2 concentrations

PS0249

14. Word dark reaction for biosynthetic phase of photosynthesis is misnomer word because :-
(1) Dark reaction occur during dark
(2) Dark reaction occur during day
(3) Dark reaction is completely free from light
(4) Dark reaction occur during short dark intervals

PS0178

15. Photosynthetic photosystem is consist of :-
(1) Reaction centre only
(2) LHC only
(3) Both LHC & reaction centre
(4) Proteins only

PS0179

16. In grana lamellae, presence of which of the following specify that 'z' scheme found only in grana lamellae?
(1) PS-I, PS-II
(2) PS-II & NADP reductase
(3) PS-I & NADP reductase
(4) Mg^{++}

PS0180

17. An elegant experiment with an aquatic plant showed that in bright sunlight, small bubbles were formed around the green parts while in the dark they did not. It was done by :-
(1) Jan Ingenhousz (2) Von Sachs
(3) Priestley (4) Van Niel

PS0183

18. Based on his studies of purple & green bacteria who demonstrated that photosynthesis is essentially a light dependent reaction in which hydrogen from a suitable oxidisable compound reduces CO_2 to carbohydrates?
(1) Van Niel (2) Von Sachs
(3) Calvin (4) Priestley

PS0184

19. Which of following is correct about dark reaction?
(1) It is not directly light driven but are dependent on products of light reaction (ATP & NADPH)
(2) It occurs in stroma of chloroplast by enzymatic reactions
(3) Both (1) & (2)
(4) It occurs in stroma lamellae

PS0185

20. Which of the following is most crucial step of Calvin cycle?
(1) Carboxylation
(2) Reduction
(3) Regeneration
(4) Glycolytic reversal

PS0186

21. How many ATP are required for regeneration of RUBP in one Calvin cycle?
(1) 6 ATP (2) 1 ATP
(3) 3 ATP (4) 12 ATP

PS0187

22. Find out the **correct match** from the following table :-

	Column-I	Column-II	Column-III
(i)	Photochemical phase	Photosystem II	Oxygen release
(ii)	Paper Chromatography	Chlorophyll-b	Yellow orange
(iii)	Carotenoids	Chief pigment	Red light absorption

(1) (i) only (2) (i) and (ii)
(3) (iii) only (4) (ii) and (iii)

PS0192

23. During photosynthesis, plants mainly utilise the red and blue regions of visible spectrum, for the first time it was concluded by :
(1) Jan Ingenhousz
(2) Joseph Priestley
(3) T.W. Engelmann
(4) Cornelius Van Niel

PS0250

24. Which of the following conclusions regarding photosynthesis was proved by using radioisotopic techniques ?
(1) Light is essential
(2) O_2 comes from H_2O and not from CO_2
(3) Glucose is stored as starch
(4) Exchange of gases with environment

PS0251

25. The dark reactions of the photosynthesis :
(1) occur in darkness
(2) are not light dependent
(3) are not directly light driven
(4) occur in membrane system of chloroplast

PS0252

26. Electrons from which of following reduces $NADP^+$ to $NADPH+H^+$ during Z-scheme of photosynthesis?
(1) Photosystem-I
(2) Water
(3) Carbon dioxide
(4) Photosystem-II

PS0253

27. During photosynthesis the stroma lamellae of chloroplast could perform :
(1) the process of dark reaction in which ATP utilised
(2) the process of light reaction which produce $NADPH+H^+$
(3) the process of dark reaction which utilise $NADPH+H^+$
(4) the process of light reaction which produce ATP

PS0254

28. Which of the following statements are correct regarding synthesis of ATP in chloroplast during photosynthesis ?

(A) Splitting of water in stroma helps in creation of proton gradient

(B) Cytochrome complex helps in the release of protons in the lumen of thylakoid by accepting electrons from hydrogen carrier.

(C) Movement of protons across the membrane to the stroma through the F_0 of the ATP synthease is coupled with ATP synthesis.

(D) Reduction of $NADP^+$ to $NADPH+H^+$ is also a cause for creation of proton gradient.

(1) All statements are correct

(2) C and D

(3) A and B

(4) B, C and D

PS0255

29. What is the correct ratio of ATP utilisation in steps of Calvin cycle?

(1) Reduction : Regeneration :: 1 : 1

(2) Reduction : Regeneration :: 2 : 1

(3) Reduction : Regeneration :: 2 : 2

(4) Reduction : Regeneration :: 1 : 2

PS0256

30. The cells of C_4 plants those are rich in RuBisCO enzyme, also have which of the following characteristic (s)?

(1) Intercellular spaces absent

(2) Thick walls impervious to gaseous exchange

(3) Large number of chloroplast

(4) All of the above

PS0257

31. The productivity is better in C_4 plants because :

(1) They increase the intracellular concentration of CO_2 in mesophyll cells

(2) In these plants RuBisCO has much greater affinity for O_2 than for CO_2

(3) These plants can prevent competitive binding phenomena related to RuBisCO

(4) These plants minimise the carboxylase activity of RuBisCO

PS0258

32. C_3 plants respond to higher CO_2 concentration by showing increased rates of photosynthesis because:

(1) Current availability of CO_2 levels is limiting to the C_3 plants

(2) C_3 plants show saturation at about 360 $\mu\ell L^{-1}$ concentration of CO_2

(3) These plants responds to high CO_2 concentration even in low light conditions

(4) In these plants RuBisCO shows only carboxylation

PS0259

33. $2H_2A + CO_2 \rightarrow 2A + CH_2O + H_2O$

in this given equation H_2A represents to :

(1) Suitable reducible compounds

(2) Suitable oxidisable compound

(3) Suitable buffer

(4) Both (1) and (2)

PS0260

34. The membrane system of chloroplast is responsible for :

(1) Trapping the light energy

(2) Synthesis of ATP & NADPH

(3) Enzymatic reactions for CO_2 incorporation

(4) Both (1) and (2)

PS0261

35. How does PS-II supply electrons continuously ?
(1) by removing electrons from photon
(2) by removing electrons from H_2O
(3) by removing electrons from CO_2
(4) by removing electrons from constituent carotenoids

PS0262

36. Which of the following is not always required for chemiosmosis ?
(1) Membrane (2) Proton pump
(3) OEC (4) ATP synthase

PS0263

37. Classification of biosynthetic phase of dark reaction as C_3 & C_4 is primarily based on.
(1) Initial CO_2 fixation
(2) Final CO_2 assimilation
(3) First CO_2 receptor
(4) Number of ATP get consumed

PS0264

38. Which of the following is not special about C_4 plants?
(1) Responsiveness to high light intensities
(2) Lack of photorespiration
(3) Greater productivity
(4) Scotoactive stomata

PS0265

39. Which of the following is not a plant factor regulating photosynthesis ?
(1) Age of leaf
(2) Number of mesophyll cells
(3) Atmospheric CO_2 concentration
(4) Amount of chlorophyll

PS0266

40. CO_2 is the major limiting factor for photosynthesis because the concentration of CO_2 is very low in the atmosphere which is :-
(1) between 0.01 and 0.02 per cent
(2) between 0.02 and 0.03 per cent
(3) between 0.03 and 0.04 per cent
(4) between 0.06 and 0.07 per cent

PS0267

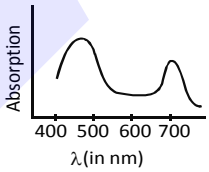
41. (a) Formation of ATP and NADPH
(b) Use of ATP (c) Reduction of PGA
(d) Water splitting (e) Oxygen release
Which of the above processes are included in the dark reaction of photosynthesis ?
(1) a, b and c (2) c and e
(3) b and c (4) b, c and e

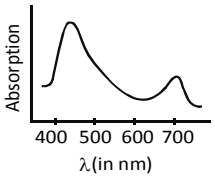
PS0268

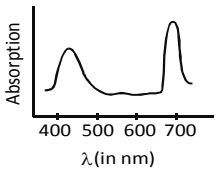
42. Which of the following statements is correct in relation to the photosynthesis ?
(1) It is the redox reaction during which reduction of H_2O and oxidation of CO_2 occurs
(2) First of all it started in *Chlorella*
(3) It converts light energy into chemical energy in night
(4) Photosynthesis results in synthesis of sugar

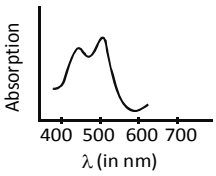
PS0269

43. Regarding to given curves select the incorrect identification :-

(A)


(B)


(C)


(D)


(1) A is the absorption spectrum of chl-a
(2) B is the absorption spectrum of the chl-b
(3) C is the absorption spectrum of chl-b
(4) D is the absorption spectrum of carotenoids.

PS0270

44. Which of the following step(s) of Calvin cycle require(s) both ATP and NADPH(H^+) ?
(1) Carboxylation and regeneration
(2) Carboxylation
(3) Reduction
(4) Regeneration

PS0271

45. During photosynthesis, fixation of one CO_2 molecule in maize (A) and tomato (B) plant require :-
(1) [A] - 5 ATP & 2 NADPH + $2H^+$
[B] - 3 ATP & 2 NADPH + $2H^+$
(2) [A] - 3 ATP & 2 NADPH + $2H^+$
[B] - 3 ATP & 2 NADPH + $2H^+$
(3) [A] - 2 ATP & 2 NADPH + $2H^+$
[B] - 3 ATP & 2 NADPH + $2H^+$
(4) [A] - 30 ATP & 12 NADPH + $12H^+$
[B] - 18 ATP & 12 NADPH + $12H^+$

PS0272

46. How many carbons are present in primary CO_2 acceptor in *Sorghum* ?
(1) 5 (2) 4
(3) 3 (4) 2

PS0273

47. How many electrons are required to produce sufficient reducing power [NADPH + H^+] to fix 6 CO_2 molecules to form glucose?
(1) 6 electrons (2) 12 electrons
(3) 18 electrons (4) 24 electrons

PS0274

48. Which of the following is correct for photosynthesis?
(1) use light energy to drive the synthesis of organic compounds
(2) primary source of all food on earth
(3) responsible for release of oxygen into the atmosphere
(4) All of the above

PS0275

49. Studies by which of the following scientists showed that the green substance in plants is located in special bodies within plant cells?
(1) T.W. Engelmann
(2) Julius Von Sachs
(3) Cornelius Van Niel
(4) Joseph Priestley

PS0276

50. Action spectrum of photosynthesis roughly resembles the :-
(1) absorption spectrum of chlorophyll a
(2) absorption spectrum of chlorophyll b
(3) both (1) and (2)
(4) absorption spectrum of carotenoids

PS0277

51. Which of the following is correct for the carbon reactions of photosynthesis ?
(1) They occur in the membranous system of chloroplast
(2) They are not light dependent
(3) They synthesize sugar, ATP and NADPH
(4) They are not directly light driven

PS0278

52. $2H_2O \longrightarrow 4H^+ + O_2 + 4e^-$
Above reaction is a part of :-
(1) biosynthetic phase of photosynthesis in C_3 plants
(2) Z-Scheme of light reaction of photosynthesis
(3) Hatch and slack pathway
(4) Cyclic photophosphorylation

PS0279

53. Respectively during the creaction of proton gradient and breakdown of proton gradient in chloroplast, protons move :-
(1) from the stroma to cytoplasm and from the cytoplasm to stroma
(2) from the cytoplasm to stroma and from stroma to cytoplasm
(3) from the thylakoid lumen to stroma and from the stroma to thylakoid lumen
(4) from the stroma to thylakoid lumen and from the thylakoid lumen to stroma

PS0280

54. In photosynthesis (Choose the correct one):-
(1) Phosphorylation can occur in light reaction only
(2) Phosphorylation can occur in biosynthetic phase only
(3) Phosphorylation can occur in both light reaction and biosynthetic phase
(4) Phosphorylation not occurs at all

PS0281

55. Which of the following is a probable reason that why cyclic photophosphorylation takes place in photosynthesis?
(1) To supply extra carbondioxide to Calvin cycle
(2) To ulilise the light of wavelength of 680 nm which is not utilised in noncyclic photophosphorylation
(3) To produce extra NADPH for biosynthetic phase
(4) To meet the difference in number of ATP and NADPH

PS0282

56. C_4 plants are special plants having Kranz anatomy in their leaves, here term 'Kranz' is a reflection of :-
(1) large number of chloroplasts in mesophyll cells
(2) capacity to tolerate high temperatures
(3) absence of chloroplasts in bundle sheath cells
(4) ring like arrangement of cells

PS0283

57. During the dark reaction of photosynthesis in C_4 plants (Choose the correct one) :-
(1) Regeneration step occurs in mesophyll cell only
(2) Regeneration step occurs in bundle sheath cell only
(3) Regeneration steps occur in both mesophyll cell and bundle sheath cell
(4) There is no step of regeneration

PS0284

58. $\text{RuBP+...A...} \xrightarrow{\text{RuBisCO}} 2 \times \text{Phosphoglycerate}$

$\text{RuBP+...B...} \xrightarrow{\text{RuBisCO}} \text{Phosphoglycerate + Phosphoglycolate}$

Choose correct match for A and B from given options :-
(1) A = NADPH, B = CO_2
(2) A = O_2, B = CO_2
(3) A = CO_2, B = O_2
(4) A = CO_2, B = NADPH

PS0285

59. Before the discovery of RuBP as primary acceptor of CO_2 in Calvin cycle, it was believed that the primary acceptor would be :-
(1) a 6-carbon compound
(2) a 2-carbon compound
(3) a 3-carbon compound
(4) a 4-carbon compound

PS0286

EXERCISE-III(B) ANALYTICAL QUESTIONS

60. Glycolate accumulates in chloroplast at :-
(1) Low temp.
(2) Low CO_2
(3) Visible light illumination
(4) High CO_2

PS0189

61. For the synthesis of one molecule of sucrose, how may ATP molecules are required in reduction step of Calvin cycle?
(1) 24 ATP (2) 18 ATP
(3) 2 ATP (4) 12 ATP

PS0175

62. Which of the following is the product of oxidation during photosynthesis ?
(1) Carbondioxide (2) Glucose
(3) Water (4) Oxygen

PS0191

63. In Calvin cycle, CO_2 is fused with primary acceptor molecule to form 3C compound phosphoglycerate. If in this reaction CO_2 provides one carbon then how many carbons are present in primary acceptor molecule ?
(1) Five carbons (2) Two carbons
(3) Six carbons (4) Three carbons
PS0194

64. In photosynthesis, NADPH + H^+ are oxidised in :-
(1) Calvin cycle
(2) noncyclic photophosphorylation
(3) cyclic photophosphorylation
(4) Z-scheme
PS0195

65. Enzyme, which can catalyse both carboxylation and oxygenation of RuBP in the chloroplast, is **not** found in which of the following cells ?
(1) Mesophyll cells of C_4 plants
(2) Mesophyll cells of C_3 plants
(3) Mesophyll cells of CAM plants
(4) Bundle sheath cells of C_4 plants
PS0196

66. The product of light reaction of photosynthesis, which is not common between cyclic and non cyclic photophosphorylation and is not utilized in Calvin cycle, is :-
(1) O_2 (2) ATP
(3) $NADPH_2$ (4) O_2 and ATP
PS0197

67. Which phase of Calvin cycle does/do not use any energy rich molecule ?
(1) Carboxylation only
(2) Carboxylation and reduction
(3) Reduction and regeneration
(4) Reduction only
PS0201

68. The C_4 plants differ from C_3 plants with reference to the :-
(1) Primary acceptor of CO_2 in dark reaction
(2) Type of end product of photosynthesis
(3) Number of $NADPH_2$ that are consumed in synthesis of hexose
(4) Type of pigments involved in photosynthesis.
PS0202

69. The common feature between non-cyclic and cyclic photophosphorylation is :-
(1) Proton gradient formation
(2) Release of O_2
(3) Formation of NADPH + H^+
(4) Photolysis of water
PS0204

70. The second acceptor of CO_2 in C_4 plants is :-
(1) PEP (2) Malate
(3) Aspartate (4) RuBP
PS0205

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	3	4	2	1	4	3	1	4	3	2	4	4	2	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	1	1	3	1	2	1	3	2	3	1	4	4	2	4
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	1	2	4	2	3	1	4	3	3	3	4	3	3	1
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	3	4	4	2	3	4	2	4	3	4	4	3	3	2	2
Que.	61	62	63	64	65	66	67	68	69	70					
Ans.	1	4	1	1	1	1	1	1	1	4					

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path to success

PRE-MEDICAL

BOTANY

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EXERCISE

Respiration in Plants

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

INTRODUCTION TO AEROBIC RESPIRATION (KREBS CYCLE)

1. Energy obtained by a cell from catabolic reaction is stored immediately in the form of
(1) Pyruvic acid (2) Glucose
(3) ATP (4) DNA
CR0001

2. Number of ATP produced from one pyruvic acid during conversion to acetyl Co-A –
(1) 6 (2) 3 (3) 12 (4) 15
CR0004

3. The formation of Acetyl Co-A from pyruvic acid is the result of its :-
(1) Reduction
(2) Dehydration
(3) Phosphorylation
(4) Oxidative decarboxylation
CR0007

4. Pyruvate dehydrogenase complex is used in converting –
(1) Pyruvate to glucose
(2) Glucose to pyruvate
(3) Pyruvic acid to lactic acid
(4) Pyruvate to acetyl Co-A
CR0009

5. The first member or acceptor of acetyl Co-A in TCA cycle is :-
(1) Oxalo succinic acid
(2) Oxalo acetic acid
(3) Citric acid
(4) Cis aconitic acid
CR0010

6. Excess of ATP inhibits the enzyme :-
(1) Phosphofructokinase
(2) Hexokinase
(3) Aldolase (Lyases)
(4) Pyruvate decarboxylase
CR0011

7. End product of glycolysis is :-
(1) Citric acid
(2) Glyceraldehyde
(3) Phosphoglyceraldehyde
(4) Pyruvic acid
CR0012

8. Respiration in plants :-
(1) Occurs only during day
(2) Results in the formation of vitamins
(3) Occurs both during day and night
(4) Often requires CO_2
CR0014

9. The end products of respiration in plants are :-
(1) CO_2, H_2O and energy
(2) Starch and O_2
(3) Sugar and O_2
(4) H_2O and energy
CR0015

10. Common immediate source of energy in cellular activity is :-
(1) glucose (2) aldohexose
(3) ATP (4) NAD
CR0017

11. The net gain of ATP molecules by glycolysis is -
(1) Zero (2) Two (3) Four (4) Eight
CR0019

12. Respiratory enzymes are localised in :-
(1) Ribosomes (2) Chloroplast
(3) Mitochondria (4) Chromoplast
CR0023

13. The organism in which Kreb's cycle does not occur in mitochondria is :-
(1) Yeast (2) *E.coli*
(3) *Ulothrix* (4) Plants
CR0025

14. The first preferred respiratory substrate is :-
(1) Glucose (2) Fats
(3) Proteins (4) Polypeptides
CR0027

15. Respiration occurs in :-
(1) All living cells both in day and night
(2) Non green cells only in day
(3) Non green cells in both day and night
(4) All living cells in day only
CR0028

16. Respiration may take place –
(1) In the presence of O_2
(2) In the absence of O_2
(3) In the presence or absence of O_2
(4) Only in the presence of CO_2
CR0034

17. The common phase between aerobic & anaerobic respiration is :-
(1) TCA cycle
(2) Kreb's cycle
(3) Glycolysis
(4) Photo respiration
CR0035

18. The enzyme which converts glucose to glucose-6-phosphate -
(1) Phosphorylase
(2) Gluco-phosphorylase
(3) Hexokinase
(4) Phosphoglucomutase
CR0036

19. Product formed by the activity of malic dehydrogenase is :-
(1) Fumaric acid
(2) Malic acid
(3) Oxaloacetic acid
(4) Succinic acid
CR0043

20. Which of the following is 5-carbon compound of Kreb's cycle ?
(1) Citric acid
(2) Fumaric acid
(3) Oxalosuccinic acid
(4) α - Ketoglutaric acid
CR0044

21. SLP net gain of ATP from one molecule of glucose during glycolysis or EMP pathway–
(1) 2 ATP (2) 6 ATP
(3) 36 ATP (4) 38 ATP
CR0063

22. Which enzyme breaks the fructose-1, 6-bisphosphate ?
(1) Hexokinase
(2) Phosphatase
(3) Aldolase
(4) Phosphofructokinase
CR0065

23. Acceptor of acetyl Co-A in Krebs-cycle is :-
(1) Malic acid
(2) Fumaric acid
(3) α–ketoglutaric acid
(4) Oxalo acetic acid
CR0066

24. In which one of the following do the two names refer to one and the same thing ?
(1) Krebs cycle and Calvin cycle
(2) Tricarboxylic acid cycle and citric acid cycle
(3) Citric acid cycle and Calvin cycle
(4) Tricarboxylic acid cycle and urea cycle
CR0072

AEROBIC RESPIRATION (ETS) TO REPIRATORY QUOTIENT

25. Which component of ETS is mobile carrier ?
(1) UQ (CO-Q) (2) Cyt-a
(3) Cyt-b (4) Cyt-f
CR0002

26. R.Q. is less than one at the time of respiration of–
(1) Starch (2) Sugarcane
(3) Glucose (4) Ground nut
CR0003

27. Conversion of pyruvic acid into ethyl alcohol is mediated by –
(1) Phosphatase
(2) Dehydrogenase
(3) Decarboxylase & dehydrogenase
(4) Catalase
CR0006

28. Which of the following is link between carbohydrate and fat metabolism ?
(1) CO_2 (2) Acetyl Co-A
(3) Pyruvic acid (4) Citric acid
CR0008

29. In the electron transport chain during terminal oxidation, the cytochrome, which donates electrons to O_2 is ?
(1) Cytochrome-b
(2) Cytochrome-C
(3) Cytochrome-a_3
(4) Cytochrome-f
CR0013

30. The incomplete breakdown of sugars in anaerobic respiration results in the formation of :-
(1) Fructose and water
(2) Glucose and CO_2
(3) Alcohol and CO_2
(4) Water and CO_2
CR0016

31. Cytochromes are concerned with :-
(1) Protein synthesis
(2) Cellular digestion
(3) Cell division
(4) Cell-respiration
CR0020

32. In respiration pyruvic acid is :-
(1) Formed only when oxygen is available
(2) One of the products of Krebs cycle
(3) Broken down into Acetyl Co-A and CO_2
(4) Oxidised into Alcohol
CR0021

33. Number of ATP molecules formed during aerobic respiration in break down of one glucose molecule via malate aspartate shuttle, is :-
(1) 38 (2) 18 (3) 28 (4) 4
CR0024

34. What causes R.Q. to vary ?
(1) Respiratory Substrate
(2) Light & O_2
(3) Respiratory Product
(4) Temperature
CR0026

35. When the evolution of CO_2 is more than the intake of O_2, the respired substrate should be :-
(1) Fatty acid (2) organic acid
(3) Glucose (4) Polysaccharides
CR0033

36. Which of the following ETS complex is inhibited by cyanide ?
(1) Complex II (2) Complex V
(3) Complex IV (4) Complex III
CR0038

37. How many molecules of ATP are produced per molecule of $FADH_2$ oxidised ?
(1) One (2) Two (3) Three (4) four
CR0039

38. How many ATP molecules produced from the complete oxidation of a molecule of acetyl Co-A ?
(1) 38 ATP (2) 15 ATP
(3) 12 ATP (4) 4 ATP
CR0041

39. How many ATP equivalents are produced by the oxidation of succinate into fumarate?
(1) 1 ATP (2) 2 ATP
(3) 3 ATP (4) 4 ATP
CR0042

40. How many net ATP generates in aerobic respiration via glycerol phosphate shuttle in eukaryotes ?
(1) 38 ATP (2) 36 ATP
(3) 40 ATP (4) 80 ATP
CR0060

41. During protoplasmic respiration, the R.Q. [Respiratory Quotient] will be :-
(1) between 1 and 2
(2) between 2 and 3
(3) between 0 and 1
(4) between 3 and 4
CR0221

42. Anaerobic respiration takes place in :-
(1) Ribosome (2) Mitochondria
(3) Cytoplasm (4) Vacuole
CR0068

43. During the formation of bread, it becomes porous due to release of CO_2 by the action of :-
(1) Yeast (2) Bacteria
(3) Virus (4) Protozoans
CR0069

44. Chemiosmotic theory of ATP synthesis in the chloroplast and mitochondria is based on :-
(1) Proton gradient
(2) Accumulation of K ions
(3) Accumulation of Na ions
(4) Accumulation of Cl ions
CR0077

45. Curd formation is the result of :-
(1) aerobic respiration
(2) glycolysis only
(3) lactic acid fermentation
(4) alcoholic fermentation
CR0200

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	2	4	4	2	1	4	3	1	3	2	3	2	1	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	3	3	3	4	1	3	4	2	1	4	3	2	3	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	4	3	1	1	2	3	2	3	2	2	3	3	1	1	3

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2007

1. The overall goal of glycolysis, Krebs cycle and the electron transport system is the formation of:-
(1) Nucleic acids
(2) ATP in small stepwise units
(3) ATP in one large oxidation reaction
(4) Sugars

CR0085

2. All enzymes of TCA cycle are located in the mitochondrial martix except one which is located in inner mitochondrial membrane in eukaryotes and in cytosol in prokaryotes. This enzyme is:-
(1) Succinate dehydrogenase
(2) Lactate dehydrogenase
(3) Isocitrate dehydrogenase
(4) Malate dehydrogenase

CR0086

3. Which one of the following mammalian cells are not capable of metabolising glucose to carbon-dioxide aerobically ?
(1) Red blood cells
(2) White blood cells
(3) Unstriated muscle cells
(4) Liver cells

CR0087

AIPMT 2008

4. The chemiosmotic coupling hypothesis of oxidative phosphorylation proposes that adenosine triphosphate (ATP) is formed because :-
(1) A proton gradient forms across the inner membrane
(2) There is a change in the permeability of the inner mitochondrial membrane toward adenosine diphosphate (ADP)
(3) High energy bonds are formed in mitochondrial proteins
(4) ADP is pumped out of the matrix into the intermembrane space

CR0089

5. The energy-releasing process in which the substrate is oxidised without an external electron acceptor is called :-
(1) Aerobic respiration (2) Glycolysis
(3) Fermentation (4) Photorespiration

CR0090

AIPMT 2009

6. Aerobic respiratory pathway is appropriately termed :-
(1) Parabolic (2) Amphibolic
(3) Anabolic (4) Catabolic

CR0092

AIPMT-Pre 2010

7. The energy-releasing metabolic process in which substrate is oxidised without an external electron acceptor is called :
(1) Glycolysis
(2) Fermentation
(3) Aerobic respiration
(4) Photorespiration

CR0093

AIPMT-Mains 2011

8. In mitochondria, protons accumulate in the :
(1) Matrix
(2) Outer membrane
(3) Inner membrane
(4) Intermembrane space

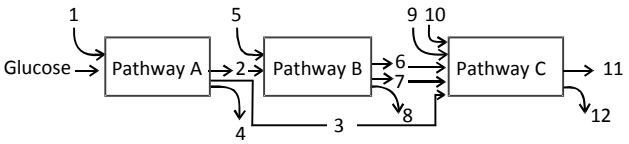
CR0097

NEET-UG 2013

9. Which of the metabolites is common to respiration mediated breakdown of fats, carbohydrates and proteins ?
(1) Acetyl CoA
(2) Glucose–6–phosphate
(3) Fructose1,6–bisphosphate
(4) Pyruvic acid

CR0100

10. The three boxes in this diagram represent the three major biosynthetic pathways in aerobic respiration. Arrows represent net reactants or products.



Arrow numberd 4, 8 and 12 can all be :

(1) FAD^+ or $FADH_2$

(2) NADH

(3) ATP

(4) H_2O

CR0102

AIPMT 2014

11. In which one of the following processes CO_2 is **not** released ?

(1) Aerobic respiration in plants

(2) Aerobic respiration in animals

(3) Alcoholic fermentation

(4) Lactate fermentation

CR0103

AIPMT 2015

12. Cytochromes are found in :-

(1) Outer wall of mitochondria

(2) Cristae of mitochondria

(3) Lysosomes

(4) Matrix of mitochondria

CR0201

NEET-II 2016

13. Which of the following biomolecules is common to respiration-mediated breakdown of fats, carbohydrates and proteins ?

(1) Pyruvic acid

(2) Acetyl CoA

(3) Glucose-6-phosphate

(4) Fructose 1,6-bisphosphate

CR0105

NEET(UG) 2017

14. Which statement is wrong for Krebs' cycle ?

(1) There is one point in the cycle where FAD^+ is reduced to $FADH_2$

(2) During conversion of succinyl CoA to succinic acid, a molecule of GTP is synthesised

(3) The cycle starts with condensation of acetyl group (acetyl CoA) with pyruvic acid to yield citric acid

(4) There are three points in the cycle where NAD^+ is reduced to NADH + H^+

CR0110

NEET(UG) 2018

15. What is the role of NAD^+ in cellular respiration ?

(1) It functions as an enzyme

(2) It functions as an electron carrier

(3) It is a nucleotide source for ATP synthesis

(4) It is the final electron acceptor for anaerobic respiration

CR0116

16. Which of these statements is **incorrect** ?

(1) Enzymes of TCA cycle are present in mitochondrial matrix.

(2) Glycolysis occurs in cytosol.

(3) Glycolysis operates as long as it is supplied with NAD that can pick up hydrogen atoms.

(4) Oxidative phosphorylation takes place in outer mitochondrial membrane.

CR0117

NEET(UG) 2019

17. Respiratory Quotient (RQ) value of tripalmitin is :

(1) 0.9 (2) 0.7

(3) 0.07 (4) 0.09

CR0195

18. Conversion of glucose to glucose-6-phosphate, the first irreversible reaction of glycolysis, is catalyzed by :
(1) Aldolase
(2) Hexokinase
(3) Enolase
(4) Phosphofructokinase

CR0196

NEET(UG) 2019 (Odisha)

19. Where is respiratory electron transport system (ETS) located in plants ?
(1) Mitochondrial matrix
(2) Outer mitochondrial membrane
(3) Inner mitochondrial membrane
(4) Intermembrane space

CR0199

NEET(UG) 2020

20. The number of substrate level phosphorylations in one turn of citric acid cycle is :
(1) Three (2) Zero (3) One (4) Two

CR0202

NEET(UG) 2020 (COVID-19)

21. Pyruvate dehydrogenase activity during aerobic respiration requires :-
(1) Calcium (2) Iron
(3) Cobalt (4) Magnesium

CR0203

NEET(UG) 2021

22. Which of the following statements is **incorrect** ?
(1) During aerobic respiration, role of oxygen is limited to the terminal stage.
(2) In ETC (Electron Transport Chain), one molecule of NADH + H^+ gives rise to 2 ATP molecules, and one $FADH_2$ gives rise to 3 ATP molecules.
(3) ATP is synthesized through complex V.
(4) Oxidation-reduction reactions produce proton gradient in respiration.

CR0204

NEET(UG) 2021 (Paper-2)

23. In glycolysis, ATP is synthesised during the conversion of
(1) Glucose to glucose 6-phosphate
(2) Fructose 6-phosphate to fructose 1, 6-bisphosphate
(3) 1,3-bisphosphoglyceric acid to 3-phosphoglyceric acid
(4) Both (2) and (3)

CR0222

NEET(UG) 2022

24. What is the net gain of ATP when each molecule of glucose is converted to two molecules of pyruvic acid ?
(1) Six (2) Two
(3) Eight (4) Four

CR0223

25. What amount of energy is released from glucose during lactic acid fermentation?
(1) More than 18%
(2) About 10%
(3) Less than 7%
(4) Approximately 15%

CR0224

NEET(UG) 2022 (OVERSEAS)

26. Match **List - I** with **List - II**

List – I	**List - II**
(a) ETS complex-I	(i) Cyt bc_1
(b) ETS complex-II	(ii) Cyt a, a_3 and 2 copper centres
(c) ETS complex-III	(iii) NADH dehydrogenase
(d) ETS complex-IV	(iv) Ubiquinone and FADH dehydrogenase

Choose the **correct answer** from the options given below:
(1) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(2) (a)-(iii), (b)-(ii), (c).(i), (d)-(iv)
(3) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)
(4) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

CR0225

27. Identify the cytochrome which acts as a mobile carrier for the transfer of electrons between complex III and IV?

(1) Cytochrome-a_3

(2) Cytochrome-b, c_1

(3) Cytochrome-c

(4) Cytochrome-a

CR0226

Re-NEET(UG) 2022

28. The number of time(s) decarboxylation of isocitrate occurs during single TCA cycle is :

(1) One

(2) Two

(3) Three

(4) Four

CR0227

29. The 5-C compound formed during TCA cycle is:

(1) α-ketoglutaric acid

(2) Oxalosuccinic acid

(3) Succinic acid

(4) Fumaric acid

CR0228

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	1	1	1	3	2	2	4	1	3	4	2	2	3	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Ans.	4	2	2	3	3	4	2	3	2	3	3	3	2	1	

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) NCERT BASED QUESTIONS

1. Glycolysis is present in :-
(1) Plants and animals only.
(2) Plants, animals and fungi only.
(3) Animals only.
(4) All living organisms.
CR0165

2. The RQ for proteins is :
(1) 1 (2) 0.7
(3) 0.9 (4) 0
CR0127

3. Glycerol would enter the respiratory pathway only after being converted to –
(1) Fatty acid (2) Acetyl CoA
(3) PGAL (4) Pyruvic acid
CR0128

4. Final Decarboxylation in Krebs cycle occur between–
(1) Citric acid and α-ketoglutaric acid
(2) α-ketoglutaric acid and succinic acid
(3) Succinic acid and malic acid
(4) Malic acid and oxalo acetic acid
CR0129

5. Pyruvate, which is formed by the glycolytic catabolism of carbohydrates in the cytosol, after it enters mitochondrial matrix, undergoes :-
(1) Oxidative carboxylation
(2) Oxidative decarboxylation
(3) Reductive carboxylation
(4) Carboxylation
CR0130

6. The products formed from glycolysis are :-
(1) Pyruvate, CO_2, ATP
(2) Pyruvate, ATP, $NADH+H^+$
(3) Acetyl CoA, ATP, $NADH+H^+$
(4) Acetyl CoA, ATP, H_2O
CR0167

7. During conversion of succinyl Co-A to succinic acid a molecule of GTP is formed, this process is known as :-
(1) Oxidative phosphorylation
(2) Substrate level phosphorylation
(3) Photophosphorylation
(4) Terminal oxidation
CR0133

8. In Glycolysis, glucose form two molecules of pyruvic acid, this is called :-
(1) Complete oxidation
(2) Partial oxidation
(3) Photooxidation
(4) Terminal oxidation
CR0134

9. How many ATP molecules are directly synthesised in glycolysis?
(1) 6ATP (2) 4ATP (3) 36ATP (4) 8ATP
CR0135

10. When carbohydrates are used as substrate & anaerobically oxidised; the value of RQ will be :-
(1) 1 (2) 0
(3) ∞ (4) less than 1
CR0137

11. Which act as final hydrogen acceptor in ETS ?
(1) Oxygen (2) NAD^+
(3) FAD (4) $NADP^+$
CR0138

12. Number of ATP produced when 1 molecule of pyruvic acid is used as respiratory substrate?
(1) 15 (2) 12 (3) 3 (4) 36
CR0139

13. Which of the following is the energy yielding step of glycolysis?
(1) Glucose $\rightarrow$ Glucose-6-phosphate
(2) BPGA $\rightarrow$ PGA
(3) Fructose 1, 6 biphosphate $\rightarrow$ PGAL
(4)Phosphoglycerate$\rightarrow$phosphoenolpyruvate

CR0140

14. The passing on of the electrons removed as part of the hydrogen atoms to molecular oxygen with synthesis of ATP, the site of this process located–
(1) in the matrix of the mitochondria
(2) in the cytoplasm
(3) in the intermembrane space of mitochondria
(4) on the inner membrane of the mitochondria

CR0141

15. In TCA cycle, isomerisation of citrate is followed by how many decarboxylation(s) to form succinic acid?
(1) Two (2) Three
(3) One (4) Four

CR0142

16. In glycolysis there is no :-
(1) oxidation
(2) decarboxylation
(3) dehydrogenation
(4) splitting of C-C bonds

CR0146

17. Which of the following is not an intermediate of Krebs cycle ?
(1) OAA
(2) α-ketoglutarate
(3) Malate
(4) PGAL

CR0168

18. What is the product of two decarboxylations and two oxidation of isocitric acid ?
(1) α-ketoglutaric acid
(2) Succinyl Co A
(3) Succinic acid
(4) Fumaric acid

CR0148

19. The respiratory quotient depends upon the:-
(1) Type of respiratory substrate used during respiration
(2) Amount of respiratory substrate used during respiration
(3) Duration of respiration
(4) Type of coenzymes used during respiration

CR0171

20. In mitochondrial ETS, cytochrome 'C' acts as a mobile carrier for transfer of electrons between :-
(1) Complex III and IV
(2) Complex I and II
(3) Complex II and III
(4) Complex IV and V

CR0173

21. The energy released by oxidation of respiratory substrates :
(A) Comes out in a single step to increase the possibility of maximum ATP production
(B) is not used directly
(C) is used directly in the energy requiring processes of the organisms
(D) is trapped as chemical energy in the energy currency of the cell
(1) C and D are incorrect
(2) B and D are correct
(3) A and B are correct
(4) A and D are incorrect

CR0205

22. How many ATP molecules and during which steps, are directly synthesised in EMP pathway from one glucose molecule?

(1) 4 ATP, 2 in each PEP to pyruvic acid and BiPGA to PGA

(2) 8 ATP, 4 in each PEP to pyruvic acid and BiPGA to PGA

(3) 2 ATP, 1 in each Glucose to Glucose-6-P and Fructose-6-P to Fructose 1, 6 BiPGA

(4) 4 ATP, 2 in each Glucose to Glucose-6-P and Fructose-6-P to Fructose 1, 6 BiPGA

CR0206

23. Which of the following enzyme(s) is/are involved in the conversion of pyruvic acid into CO_2 and ethanol?

(1) Pyruvic acid dehydrogenase

(2) Alcohol decarboxylase

(3) Both (1) and (2)

(4) Pyruvic acid decarboxylase

CR0207

24. The complete oxidation of one molecule of pyruvate by the stepwise removal of all the hydrogen atoms:

(1) leaving six molecules of CO_2

(2) leaving two molecules of CO_2

(3) leaving four molecules of CO_2

(4) leaving three molecules of CO_2

CR0208

25. In aerobic respiration, the ultimate or final electron acceptor is :

(1) Atomic oxygen

(2) Molecular oxygen

(3) Cytochrome a_3

(4) Water

CR0209

26. Fermentation differs from aerobic respiration :

(1) in having partial breakdown of glucose

(2) in producing less ATP per glucose

(3) in having slow oxidation of $NADH_2$ to NAD^+

(4) All of the above

CR0210

27. Complete oxidation of which of the following respiratory substrate evolve less volume of CO_2 as compare to volume of O_2 consumed ?

(1) Fats

(2) Proteins

(3) Carbohyrates

(4) Both (1) and (2)

CR0211

28. What is the significance of respiration ?

(1) Production of cellular energy currency

(2) Provides carbon skeleton as precursor for synthesis of various chemicals

(3) loss of weight

(4) Both (1) and (2)

CR0212

29. Plants donot present great demands for gaseous exchange in leaf because :

(1) They are autotrophic

(2) Photosynthesis and respiration work mutually

(3) In plants there is less need of energy

(4) Plants are regulators

CR0213

30. Select out the correct sequence of glycolytic steps:

(1) PGAL $\rightarrow$ 3-PGA $\rightarrow$ 1,3-BiPGA $\rightarrow$ PEP

(2) PGAL $\rightarrow$ 1,3-BiPGA $\rightarrow$ PEP $\rightarrow$ 3-PGA

(3) PGAL $\rightarrow$ 1,3-BiPGA $\rightarrow$ 3-PGA $\rightarrow$ PEP

(4) PGAL $\rightarrow$ PEP $\rightarrow$ 1,3-BiPGA $\rightarrow$ 2-PGA

CR0214

31. During respiration of Yeast which of the following enzyme is not used in oxygen stressed conditions ?

(1) Enolase

(2) Pyruvic acid decarboxylase

(3) Alcohol dehydrogenase

(4) Aconitase

CR0215

32. How much amount of energy present in glucose, get released during lactic acid and alcohol fermentation?
(1) 7 percent
(2) less than seven percent
(3) more than seven percent
(4) always 2 percent

CR0216

33. TCA cycle starts with condensation of acetyl group with :
(1) OAA (2) Water
(3) NAD (4) both (1) and (2)

CR0217

34. During TCA which of the following intermediate is a result of two successive decarboxylations ?
(1) Oxalosuccinic acid
(2) α-ketoglutaric acid
(3) Succinyl Co-A
(4) Cis aconitic acid

CR0218

35. Which of the following ETC complex is directly involved in reduction of oxygen ?
(1) complex-I
(2) complex-II
(3) complex-III
(4) complex-IV

CR0219

36. When proteins are respiratory substrates the ratio of CO_2/O_2 would be about :
(1) 1.0 (2) 0.7
(3) 0.9 (4) 1.3

CR0220

EXERCISE-III(B) ANALYTICAL QUESTIONS

37. At how many steps CO_2 is released in aerobic respiration?
(1) One or two
(2) Three
(3) Five
(4) Twelve

CR0152

38. Green plants kept in light produce ATP from the glucose, this process is :
(1) Photophosphorylation
(2) Hill reaction
(3) Oxidative phosphorylation
(4) β-oxidation

CR0154

39. $FADH_2$ produced in Kreb's-cycle from –
(1) Isocitrate (2) α-ketoglutarate
(3) succinate (4) malate

CR0156

40. Aerobic respiration is how many times useful than anaerobic respiration ?
(1) 2 (2) 8 (3) 19 (4) 38

CR0158

41. RQ is less than one for :-
(1) Proteins and organic acids
(2) Fatty acids and organic acids
(3) Fatty acids and proteins
(4) Organic acids and carbohydrates

CR0170

42. The step in which $NADH+H^+$ is not produced is:-
(1) Succinyl-CoA $\rightarrow$ Succinate
(2) Pyruvate $\rightarrow$ Acetyl-CoA
(3) α-ketoglutarate $\rightarrow$ Succinyl-CoA
(4) Malate $\rightarrow$ OAA

CR0162

43. Which intermediate of Krebs cycle is used as a substrate for amino acid biosynthesis ?
(1) Citric acid (2) α-ketoglutarate
(3) Succinyl-CoA (4) Isocitric acid

CR0163

44. Which of the following is a common feature between glycolysis and Krebs cycles?
(1) Release of CO_2.
(2) Formation of $FADH_2$.
(3) Site of the processes.
(4) Dehydrogenation.

CR0164

45. In lactic acid fermentation, the final electron acceptor is –
(1) Acetaldehyde (2) Ethyl alcohol
(3) NADH + H^+ (4) Pyruvic acid
CR0126

46. How many molecules of CO_2 are released in Krebs cycle per glucose molecule ?
(1) Two (2) Three
(3) Four (4) Six
CR0166

47. After entry of pyruvic acid in mitochondrial matrix, which of the following does not take place?
(1) oxidation
(2) decarboxylation
(3) oxidative decarboxylation
(4) ATP mediated phosphorylation
CR0147

48. What is incorrect about anaerobic respiration?
(1) Partial breakdown of glucose
(2) Net gain of 2ATP
(3) Rapid oxidation of NADH + H^+ to NAD^+
(4) Reduction of pyruvic acid
CR0149

49. How many NADH+H^+ are formed in per turn of Krebs cycle ?
(1) Two (2) Three
(3) Four (4) Five
CR0169

50. During alcoholic fermentation by yeast two molecules of glucose produce -
(1) 3 molecules of ethanol + 3 molecules of CO_2
(2) 6 molecules of ethanol + 6 molecules of CO_2
(3) 2 molecules of ethanol + 2 molecules of CO_2
(4) 4 molecules of ethanol + 4 molecules of CO_2
CR0172

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	3	3	2	2	2	2	2	2	3	1	1	2	4	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	4	2	1	1	2	1	4	4	2	4	4	4	2	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	4	2	4	3	4	3	2	3	3	3	3	1	2	4	4
Que.	46	47	48	49	50										
Ans.	3	4	3	2	4										

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

BOTANY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Plant growth and Development

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

INTRODUCTION TO DEVELOPMENT

1. Auxanometer is meant for measuring -
(1) Respiratory activity
(2) Photosynthetic activity
(3) Growth activity
(4) Osmotic pressure
PG0009

2. In plants, growth is -
(1) Restricted to certain regions or structure
(2) Irreversible
(3) Change in size
(4) All the above
PG0011

3. Plant growth is primarily affected by two climatic factors which are :-
(1) Light and temperature
(2) Temperature and relative humidity
(3) Light and wind
(4) Rainfall and temperature
PG0012

4. In a growing plant, the first phase during the process of growth is -
(1) Cell division
(2) Cell enlargement
(3) Cell differentiation
(4) Cell maturation
PG0013

5. The maximum growth rate occurs in :-
(1) Exponential phase (2) Stationary phase
(3) Senescent phase (4) Lag phase
PG0039

PLANT GROWTH REGULATORS TO SEED DORMANCY

6. Primary precursor of IAA is :-
(1) Phenyl alanine (2) Tyrosine
(3) Tryptophan (4) Leucin
PG0001

7. The biological activity of IAA is tested by :-
(1) α - amylase test
(2) *Avena* curvature test
(3) Endosperm activity test
(4) Chlorophyll preservation test
PG0002

8. Indole, 3 acetic acid, called as auxin was first isolated from :-
(1) Human urine (2) Corn germ oil
(3) *Fusarium* (4) *Rhizopus*
PG0003

9. Stem elongation is affected by :-
(1) Gibberellin and florigen
(2) Auxin and gibberellin
(3) Florigen and cytokinin
(4) Florigen and auxin
PG0005

10. Apical dominance means :-
(1) Suppression of growth of apical bud by axillary buds
(2) Suppression of growth of axillary buds by the presence of apical bud.
(3) Stimulation of growth of axillary buds by removal of apical bud
(4) Inhibition of growth of axillary buds by removal of apical bud.
PG0006

11. Which of the following is not a natural occuring plant hormone ?
(1) 2, 4 - D (2) GA_2
(3) Gibberellin (4) I.A.A
PG0008

12. Auxin is mainly produced by -
(1) Apical root meristem
(2) Root cambium
(3) Apical shoot meristem
(4) Phloem in shoot tip
PG0010

13. Plants bend toward the light because -
(1) They need light for photosynthesis
(2) They need light for respiration
(3) Light attracts them
(4) Cells on the shaded side elongate more
PG0015

14. Growth hormone acts -
(1) Always as growth promoters
(2) Always as growth inhibitors
(3) Some as promoters and some as inhibitors
(4) Rarely as growth inducers
PG0017

15. The movement of auxin is -
(1) Acropetal (2) Basipetal
(3) Lateral (4) Centripetal
PG0018

16. Which growth hormone is responsible for apical dominance ?
(1) Auxin (2) Cytokinin
(3) Gibberellin (4) Ethylene
PG0019

17. Which of the following induces femaleness in plants ?
(1) Ethylene (2) Ethanol
(3) ABA (4) Gibberellin
PG0021

18. Agent orange is-
(1) Biodegradable insecticide
(2) Dioxin weedicide (2,4-D + 2,4,5-T)
(3) Biofertilizer
(4) Biopesticide
PG0022

19. Richmond - Lang effect is due to :-
(1) Cytokinin (2) Auxin
(3) ABA (4) Ethylene
PG0023

20. Photoperiodic stimulus is picked up by :
(1) Phytochrome (2) Phytohormone
(3) Enzyme (4) Vernalin
PG0025

21. Which of the following plant hormone substitutes for long photoperiod in flowering plant ?
(1) Auxin
(2) Gibberellin
(3) Cytokinin
(4) Ethylene
PG0026

22. Cytokinin -
(1) Is a hormone whose main function is to induce the cell division
(2) Induce bolting
(3) Induce senescence
(4) Causes dormancy
PG0028

23. Bolting hormone is -
(1) Auxin (2) Gibberellin
(3) ABA (4) Ethylene
PG0029

24. Gibberellins do not cause -
(1) Shortening of genetically tall plants
(2) Stimulation of seed germination
(3) Promotion of parthenocarpy
(4) Induction of α-amylase synthesis in barley
PG0031

25. Gibberellins can promote seed germination because of their influence on :
(1) Rate of cell division
(2) Production of hydrolyzing enzymes
(3) Synthesis of abscisic acid
(4) Absorption of water through hard seed coat.
PG0032

26. Which of the following is a coconut milk factor ?
(1) Auxin (2) ABA
(3) Morphactin (4) Cytokinin
PG0033

27. In germinating seeds amylase, proteases, lipases are stimulated by :-
(1) Auxin (2) Gibberellin
(3) Cytokinin (4) Ethylene
PG0034

28. Which one of the following is a gaseous plant hormone ?
(1) Auxin (2) Gibberellin
(3) Ethylene (4) Cytokinin
PG0036

29. Apical dominance can be overcome by application of :–
(1) Auxin (2) Gibberellin
(3) Cytokinin (4) Florigen
PG0038

30. Dormancy of seed is broken by :-
(1) Auxin (2) Gibberellins
(3) Ethylene (4) Cytokinin
PG0040

31. In tissue culture, differentiation of shoot is controlled by :-
(1) Light Intensity
(2) Temperature shock
(3) Low Auxin to high CK ratio
(4) High auxin to low CK ratio
PG0041

32. Among the following which helps in ripening of fruits?
(1) Methane (2) Ethylene
(3) CO_2 (4) CO
PG0043

33. Abscisic acid induces :-
(1) Shoot elongation
(2) Cell elongation and cell wall formation
(3) Cell division
(4) Leaf fall and dormancy
PG0044

34. Which of the following is growth inhibitor ?
(1) IAA (2) ABA (3) NAA (4) GA_3
PG0046

35. Abscisic acid treatment results in -
(1) Leaf expansion (2) Stem elongation
(3) Stomatal closure (4) Root elongation
PG0047

36. Natural cell division inducing factor occurs in -
(1) Coconut milk
(2) Corn kernels
(3) Both (1) and (2)
(4) Heated t - RNA
PG0048

37. Which is a stress hormone ?
(1) Benzyl aminopurine (BAP)
(2) Dichlorophenoxy acetic acid
(3) Ethylene
(4) Abscisic acid
PG0050

38. Seed dormancy is due to the :-
(1) Ethylene (2) Abscisic acid
(3) IAA (4) Starch
PG0051

39. Hormone responsible to induce senescence:–
(1) ABA (2) Auxin
(3) GA (4) Cytokinin
PG0052

40. Long day plants produce flowers when they exposed to :-
(1) Any duration of light
(2) Light period longer than a critical day length
(3) Light period longer than 12 hrs.
(4) Short photoperiods than critical day length

PG0054

41. Which plant is LDP ?
(1) Tobacco (2) *Glycine max*
(3) *Xanthium* (4) *Spinach*

PG0056

42. Wheat & henbane are :-
(1) SDP (2) DNP
(3) LNP (4) LDP

PG0057

43. In short day plants (SDP) flowering is induced by:-
(1) Long night
(2) Photoperiod less than 12 hours
(3) Photoperiod shorter than critical value and uninterrupted long night.
(4) Long photoperiod and interrupted long night.

PG0058

44. Which pigment absorbs the red and far–red light?
(1) Cytochrome (2) Phytochrome
(3) Carotenoid (4) Chlorophyll

PG0060

45. Cell elongation in internodal regions of the green plants takes place due to :-
(1) Ethylene
(2) Indole acetic acid
(3) Cytokinin
(4) Gibberellins

PG0061

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	4	1	1	1	3	2	1	2	2	1	3	4	3	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	1	2	1	1	2	1	2	1	2	4	2	3	3	2
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	2	4	2	3	3	4	2	1	2	4	4	3	2	4

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. How does pruning help in making the hedge dense
(1) The apical shoot grows faster after pruning
(2) It releases wound hormones
(3) It induces the differentiation of new shoots from the rootstock
(4) It frees axillary buds from apical dominance

PG0063

2. Parthenocarpic tomato fruits can be produced by?
(1) raising the plants from vernalized seeds
(2) treating the plants with phenylmercuric acetate
(3) removing androecium of flowers before pollen grains are released
(4) treating the plants with low concentrations of gibberellic acid and auxins

PG0064

3. An enzyme that can stimulate germination of barley seeds is
(1) Protease
(2) Invertase
(3) α amylase
(4) Lipase

PG0065

AIPMT 2007

4. Which one of the following pairs, is not correctly matched ?
(1) IAA - Cell wall elongation
(2) Abscisic acid – Stomatal closure
(3) Gibberellic acid – Leaf fall
(4) Cytokinin – Cell division

PG0066

5. "Foolish seeding" disease of rice led to the discovery of :-
(1) IAA (2) GA
(3) ABA (4) 2, 4-D

PG0068

AIPMT 2008

6. Senescence as an active developmental cellular process in the growth and functioning of a flowering plant, is indicated in :-
(1) Annual plants
(2) Floral parts
(3) Vessels and tracheid differentiation
(4) Leaf abscission

PG0069

7. Importance of day length in flowering of plants was first shown in:-
(1) Cotton (2) *Petunina*
(3) *Lemna* (4) Tobacco

PG0070

AIPMT 2009

8. One of the synthetic auxin is :-
(1) IAA (2) GA
(3) IBA (4) NAA

PG0071

9. Which one of the following acids is a derivative of carotenoids ?
(1) Indole–3–acetic acid
(2) Gibberellic acid
(3) Abscisic acid
(4) Indole butyric acid

PG0072

10. The annular and spirally thickened conducting elements generally develop in the protoxylem when the root or stem is :-
(1) Differentiating
(2) Maturing
(3) Elongating
(4) Widening

PG0073

AIPMT-Pre 2010

11. Phototropic curvature is the result of uneven distribution of :
(1) Gibberellin (2) Phytochrome
(3) Cytokinins (4) Auxin

PG0074

12. Photoperiodism was first characterised in :
(1) Tobacco (2) Potato
(3) Tomato (4) Cotton

PG0075

AIPMT-Mains 2010

13. Root development is promoted by :
(1) Auxin
(2) Gibberellin
(3) Ethylene
(4) Abscisic acid

PG0076

AIPMT-Mains 2012

14. Which one of the following generally acts as an antagonist to gibberellins ?
(1) ABA (2) IAA
(3) Zeatin (4) Ethylene

PG0077

15. Vernalisation stimulates flowering in :
(1) Carrot
(2) Ginger
(3) Zamikand
(4) Turmeric

PG0078

16. Through their effect on plant growth regulators, what do the temperature and light control in the plants?
(1) Closure of stomata
(2) Fruit elongation
(3) Apical dominance
(4) Flowering

PG0079

AIPMT 2014

17. Dr. F. Went noted that if coleoptile tips were removed and placed on agar for one hour, the agar would produce a bending when placed on one side of freshly-cut coleoptile stumps. Of what significance is this experiment ?
(1) It made possible the isolation and exact identification of auxin.
(2) It is the basis for quantitative determination of small amounts of growth-promoting substances.
(3) It supports the hypothesis that IAA is auxin.
(4) It demonstrated polar movement of auxins.

PG0080

18. A few normal seedlings of tomato were kept in a dark room. After a few days they were found to have become white-coloured like albinos. Which of the following terms will you use to describe them?
(1) Mutated
(2) Embolised
(3) Etiolated
(4) Defoliated

PG0081

19. Which one of the following growth regulators is known as stress hormone ?
(1) Abscissic acid
(2) Ethylene
(3) GA_3
(4) Indole acetic acid

PG0082

AIPMT 2015

20. Typical growth curve in plants is :-
(1) Linear
(2) Stair-steps shaped
(3) Parabolic
(4) Sigmoid

PG0083

21. What causes a green plant exposed to the light on only one side, to bend toward the source of light as it grows ?
(1) Green plants seek light because they are phototropic
(2) Light stimulates plant cells on the lighted side to grow faster
(3) Auxin accumulates on the shaded side, stimulating greater cell elongation there
(4) Green plants need light to perform photosynthesis

PG0084

Re-AIPMT 2015

22. Auxin can be bioassayed by :
(1) Lettuce hypocotyl elongation
(2) *Avena* coleoptile curvature
(3) Hydroponics
(4) Potometer

PG0085

NEET-I 2016

23. The *Avena* curvature is used for bioassay of:
(1) ABA (2) GA_3
(3) IAA (4) Ethylene
PG0086

NEET-II 2016

24. You are given a tissue with its potential for differentiation in an artificial culture. Which of the following pairs of hormones would you add to the medium to secure shoots as well as roots ?
(1) Auxin and abscisic acid
(2) Gibberellin and abscisic acid
(3) IAA and gibberellin
(4) Auxin and cytokinin
PG0087

25. Phytochrome is a :-
(1) Lipoprotein (2) Chromoprotein
(3) Flavoprotein (4) Glycoprotein
PG0088

NEET(UG) 2017

26. Fruit and leaf drop at early stages can be prevented by the application of:
(1) Ethylene (2) Auxins
(3) Gibberellic acid (4) Cytokinins
PG0092

NEET(UG) 2019

27. What is the site of perception of photoperiod necessary for induction of flowering in plants ?
(1) Lateral buds (2) Pulvinus
(3) Shoot apex (4) Leaves
PG0174

28. It takes very long time for pineapple plants to produce flowers. Which combination of hormones can be applied to artificially induce flowering in pineapple plants throughout the year to increase yield?
(1) Auxin and Ethylene
(2) Gibberellin and Cytokinin
(3) Gibberellin and Abscisic acid
(4) Cytokinin and Abscisic acid
PG0175

NEET(UG) 2019 (Odisha)

29. Removal of shoot tips is a very useful technique to boost the production of tea-leaves. This is because:-
(1) Gibberellins prevent bolting and are inactivated
(2) Auxins prevent leaf drop at early stages
(3) Effect of auxins is removed and growth of lateral buds is enhanced.
(4) Gibberellins delay senescence of leaves.
PG0176

30. In order to increase the yield of sugarcane crop, which of the following plant growth regulators should be sprayed?
(1) Ethylene (2) Auxins
(3) Gibberellins (4) Cytokinins
PG0177

NEET(UG) 2020

31. The process of growth is maximum during :
(1) Dormancy
(2) Log phase
(3) Lag phase
(4) Senescence
PG0178

32. Name the plant growth regulator which upon spraying on sugarcane crop, increases the length of stem, thus increasing the yield of sugarcane crop.
(1) Abscisic acid
(2) Cytokinin
(3) Gibberellin
(4) Ethylene
PG0179

33. Which of the following is **not** an inhibitory substance governing seed dormancy?
(1) Para-ascorbic acid
(2) Gibberellic acid
(3) Abscisic acid
(4) Phenolic acid
PG0180

NEET(UG) 2020 (COVID-19)

34. Who coined the term 'Kinetin' ?
(1) Skoog and Miller
(2) Darwin
(3) Went
(4) Kurosawa
PG0181

35. Inhibitory substances in dormant seeds cannot be removed by subjecting seeds to :
(1) Gibberellic acid
(2) Nitrate
(3) Ascorbic acid
(4) Chilling conditions

PG0182

36. Match the following concerning the activity/function and the phytohormone involved:-

(a) Fruit ripener	(i) Abscisic acid
(b) Herbicide	(ii) GA_3
(c) Bolting agent	(iii) 2, 4-D
(d) Stress hormone	(iv) Ethephon

Select the correct option from following :-
(1) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(2) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)
(3) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(4) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)

PG0183

NEET(UG) 2021

37. Plants follow different pathways in response to environment or phases of life to form different kinds of structures. This ability is called :
(1) Elasticity (2) Flexibility
(3) Plasticity (4) Maturity

PG0184

38. The site of perception of light in plants during photoperiodism is :
(1) Shoot apex (2) Stem
(3) Axillary bud (4) Leaf

PG0185

39. The plant hormone used to destroy weeds in a field is :
(1) IAA (2) NAA (3) 2,4-D (4) IBA

PG0186

NEET(UG) 2021 (Paper-2)

40. Which of the following is incorrectly matched pair?
(1) Ethylene – Cousins
(2) Kinetin – Skoog and Miller
(3) Gibberellic acid – F.W. Went
(4) Auxin – Darwin and Darwin

PG0211

41. Match the columns I and II, and choose the correct combination from the options given.

Column I	**Column II**
a. Zeatin	i.Tracheary element
b. Differentiation	ii.Secondary xylem
c. Auxin	iii.Cytokinin
d. Redifferentiation	iv.Indole

(1) a–iii, b–i, c–ii, d–iv
(2) a–iii, b–ii, c–i, d–iv
(3) a–iii, b–i, c–iv, d–ii
(4) a–iv, b–iii, c–ii, d–i

PG0212

NEET(UG) 2022

42. Production of Cucumber has increased manifold in recent years. Application of which of the following phytohormones has resulted in this increased yield as the hormone is known to produce female flowers in the plants:
(1) Gibberellin
(2) Ethylene
(3) Cytokinin
(4) ABA

PG0213

43. Which one of the following plants does **not** show plasticity ?
(1) Coriander (2) Buttercup
(3) Maize (4) Cotton

PG0214

44. The gaseous plant growth regulator is used in plants to :
(1) promote root growth and root hair formation to increase the absorption surface
(2) help overcome apical dominance
(3) kill dicotyledonous weeds in the fields
(4) speed up the malting process

PG0215

NEET(UG) 2022 (OVERSEAS)

45. The living differentiated cells, that lost the capacity to divide anymore, can regain the capacity of division under certain conditions.
This phenomenon is termed as :
(1) Maturation (2) Differentiation
(3) Dedifferentiation (4) Redifferentiation
PG0216

46. Which hormone is used to induce immediate stomatal closure in leaves?
(1) Gibberellin (2) Abscisic Acid
(3) Auxin (4) Cytokinin
PG0217

47. Removal of apical dominance by decapitation is utilised for :
(1) Early senescence
(2) Hedge making
(3) Preparing weed-free lawns
(4) Suppressing the activity of intercalary meristem
PG0218

48. Which of the following is the **correct** equation of exponential growth?
(1) $N_t = N_0 e^{rpt}$ (2) $N_t = N_0 e^{rst}$
(3) $N_t = N_0 e^{rt}$ (4) $N_t = N_0 e^{rnt}$
PG0219

Re-NEET(UG) 2022

49. Which of the following growth regulators is an adenine derivative ?
(1) Auxin (2) Cytokinin
(3) Ethylene (4) Abscisic acid
PG0220

50. The phenomenon by which the undividing parenchyma cells start to divide mitotically during plant tissue culture is called as :
(1) Differentiation
(2) Dedifferentiation
(3) Redifferentiation
(4) Secondary growth
PG0221

51. The ability of plants to follow different pathways in response to environment leading to formation of different kinds of structures is called :
(1) Redifferentiation (2) Development
(3) Plasticity (4) Differentiation
PG0222

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	4	3	3	2	4	4	4	3	2	4	1	1	1	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	4	2	3	1	4	3	2	3	4	2	2	4	1	3	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	2	3	2	1	3	3	3	4	3	3	3	2	3	1	3
Que.	46	47	48	49	50	51									
Ans.	2	2	3	2	2	3									

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) NCERT BASED QUESTIONS

1. Which of the following is a characteristic feature of meristematic cells ?
(1) Cells are rich in protoplasm
(2) Cell walls are primary in nature
(3) Presence of large conspicuous nuclei
(4) All of the above

PG0109

2. Who isolated Auxin from tip of coleptiles of oat sedlings?
(1) Chales Darwin (2) Kogl
(3) F.W. Went (4) Skoog

PG0110

3. 'Bakane' disease of rice seedlings was caused by *Gibberella fujikuroi* which is –
(1) a Bacteria (2) an Algae
(3) a Protista (4) a Fungus

PG0111

4. Hormone, which is sprayed on young conifers to hasten the maturity peiod and early seed production, is –
(1) Ethylene (2) ABA
(3) Gibberellin (4) Cytokinin

PG0112

5. Ethylene is used to initiate flowering and for synchronising fruit set in –
(1) Rice (2) Potato
(3) Pineapple (4) Cherry

PG0113

6. Growth is measured by a variety of parameters, among following which is not included in these?
(1) Fresh weight (2) Dry weight
(3) Surface area (4) Cell type

PG0114

7. Spraying sugarcane crop with gibberellins increases the length of the stem, thus increasing the yield by as much as :-
(1) 30 tonnes per acre
(2) 40 tonnes per acre
(3) 20 tonnes per acre
(4) 50 tonnes per acre

PG0115

8. Among the following which is not present naturally in plants?
(1) Auxin (2) Gibberellin
(3) Kinetin (4) Zeatin

PG0116

9. Among the following which is not a function of ethylene?
(1) Breaks bud and seed dormancy
(2) Promotes root growth
(3) Delay senescence
(4) Initiate flowering

PG0117

10. Plants follow different pathways in response to environment to form different kinds of structures, that is called :-
(1) Plasticity
(2) Senescence
(3) Photoperiodism
(4) Vernalisation

PG0118

11. Which causes fruits like apple to elongate & improve its shape ?
(1) Ethylene
(2) Gibberellins
(3) Auxin
(4) ABA

PG0119

12. 2, 4-D is a :-
(1) Synthetic auxin
(2) Natural auxin
(3) Synthetic cytokinin
(4) Natural cytokinin

PG0120

13. Which of the following increases the tolerance of plants to various kind of stresses?
(1) ABA
(2) Ethylene
(3) Auxin
(4) Cytokinin

PG0121

14. Which of following is used to speed up the malting process in brewing industry ?
(1) Auxin (2) GA_3
(3) Kinetin (4) ABA

PG0122

15. Cells/tissues arising out of the same meristem have different structures at maturity, this phenomenon in plants is called :-
(1) Open growth
(2) Open differentiation
(3) Indeterminate growth
(4) Determinate differentiation

PG0123

16. The gaseous plant growth regulator ethylene could fit in the group of :-
(1) Plant growth inhibitors
(2) Plant growth promoters
(3) Both (1) and (2)
(4) Neither inhibitors nor promoters

PG0124

17. Which of the following physiological effects, is common to both Auxin and Ethylene?
(1) Sprouting of potato tuber
(2) Petiole elongation in deep water rice plants
(3) Flowering in pineapple
(4) Weed killing

PG0125

18. Which of the following is not correctly matched?
(1) Delay leaf senescence $\Rightarrow$ Cytokinin
(2) Induce rooting in a twig $\Rightarrow$ Auxin
(3) Induce growth in axillary bud $\Rightarrow$ Auxin
(4) Quickly ripen a fruit $\Rightarrow$ Ethylene

PG0127

19. Regarding factors affecting the development, PGR is the :-
(1) Extrinsic control
(2) Intrinsic intra cellular control
(3) Neither intrinsic nor extrinsic control
(4) Intrinsic intercellular control

PG0131

20. Arithmetic growth is related to :-
(1) $L_t = L_0e^{rt}$ (2) $W_1 = W_0e^{rt}$
(3) $L_t = L_0 + rt$ (4) $L_0 = L_te^{rt}$

PG0138

21. The site of perception of light/dark duration are the:-
(1) meristems
(2) floral buds
(3) mature leaves
(4) lateral buds

PG0140

22. Which statement is not correct about ethylene ?
(1) Synthesized in large amount by tissues undergoing senescence.
(2) Enhances respiration rate during ripening of the fruits
(3) Breaks dormany in peanut seeds
(4) Promotes male flowers in cucumber

PG0144

23. Which of the following plant growth regulators is responsible for respiratory climactic ?
(1) Auxin (2) Ethylene
(3) ABA (4) Cytokinin

PG0146

24. (i) Promote nutrient mobilisation
(ii) Overcome the apical dominance
(iii) Lateral shoot growth
All the above physiological effects are related to which of the following plant growth regulators?
(1) Auxins (2) Gibberellins
(3) Abscisic acid (4) Cytokinins

PG0148

25. Which of the following statements are correct regarding growth?
(A) In plants, the form of growth is open and localised
(B) Swelling of piece of wood in water is considered as growth since it involve the increase in size
(C) Growth is accompanied by metabolic processes
(D) Growth, at a cellular level, is a result of increase in the amount of protoplasm
(1) All the statements are correct
(2) A and B
(3) B, C and D
(4) A, C and D

PG0187

26. Meristematic phase of growth is characterised by :
(1) Increased vacuolation
(2) Maximal size in terms of protoplasmic modifications
(3) Cells those are rich in protoplasm and having thin cell walls with abundant plasmodesmata
(4) Cell enlargement

PG0188

27. Which of the following is/are related to the type of growth in which both the progeny cells, arise from mother cell, retain the ability to divide?
(A) Sigmoid curve
(B) expressed as $W_1 = W_0 + rt$
(C) Linear curve
(D) Three phases - Lag, exponential and stationary
(1) A and D
(2) A, B and D
(3) Only C
(4) B and C

PG0189

28. Match the following :

(A) Auxin	(i) Derivatives of carotenoids
(B) Gibberellin	(ii) Gas
(C) Cytokinin	(iii) Adenine derivatives
(D) Ethylene	(iv) Terpenes
(E) Abscisic acid	(v) Indole compounds

(1) A - i, B - ii, C - iii, D - iv, E - v
(2) A - ii, B - i, C - v, D - iii, E - iv
(3) A - v, B - iv, C - iii, D - ii, E - i
(4) A - iv, B - iii, C - i, D - ii, E - v

PG0190

29. Match the following :

(A) Human urine	(i) Ethylene
(B) Coconut milk	(ii) GA_3
(C) Ripened oranges	(iii) Auxin
(D) *Gibberella fujikuroi*	(iv) Cytokinin

(1) A - iii, B - iv, C - i, D - ii
(2) A - i, B - ii, C - iii, D - iv
(3) A - iv, B - iii, C - ii, D - i
(4) A - ii, B - i, C - iv, D - iii

PG0191

30. Match the following :

(A) Cytokinin	(i) Weed free lawns
(B) Auxin	(ii) Brewing industry
(C) Abscissic acid	(iii) Root hair formation
(D) Ethylene	(iv) Overcome apical dominance
(E) Gibberellin	(v) Stress hormone

(1) A - iv, B - i, C - v, D - ii, E - iii
(2) A - i, B - ii, C - v, D - iii, E - iv
(3) A - iii, B - iv, C - v, D - i, E - ii
(4) A - iv, B - i, C - v, D - iii, E - ii

PG0192

31. Which of the following occur naturally in plants?
(1) 2, 4-dichlorophenoxyacetic acid
(2) Indole butyric acid
(3) Naphthalene acetic acid
(4) Kinetin

PG0193

32. Plants, in which there is no correlation between exposure to light duration and induction of flowering response, are called:
(1) Day neutral plants
(2) Long day plants
(3) Short day plants
(4) Monocarpic plants

PG0194

33. Which of the following is not a biennial plant?
(1) Barley (2) Sugarbeet
(3) Cabbages (4) Carrots

PG0195

34. Swelling of piece of wood when placed in water is not considered as growth because:
(1) It does not occur at expense of energy
(2) It is not a metabolic change
(3) It is reversible process
(4) All of the above

PG0196

35. Plant growth is unique because :
(1) It is intrinsic
(2) It occurs at the expense of energy
(3) Plant retains the capacity for unlimited growth throughout their life
(4) Its accompanied by metabolic processes

PG0197

36. Growth at a cellular level, is principally a consequence of increase in amount of :
(1) Cell wall material (2) Water
(3) Protoplasm (4) Cell sap

PG0198

37. Cells with increased vacuolation, cell enlargement and new cell wall deposition are the characteristic features of which phase of growth ?
(1) Meristematic phase
(2) Elongation phase
(3) Maturation phase
(4) Differentiation phase

PG0199

38. Trees showing seasonal activities, represent what kind of growth curve ?
(1) Sigmoid (2) Linear
(3) J-shaped (4) Hyperbola

PG0200

39. Quantitative comparisions between the growth of living systems can be made by :
(1) Absolute growth rate
(2) Relative growth rate
(3) Exponential growth rate
(4) Both (1) and (2)

PG0201

40. Nutrients both macro and micro essential elements are required by plant during growth for:

(1) Synthesis of protoplasm

(2) As source of energy

(3) Enzyme of activation

(4) All of the above

PG0202

41. Parenchyma cells that are made to divide under controlled laboratory conditions during plant tissue culture, represents :

(1) Differentiation

(2) Dedifferentiation

(3) Redifferentiation

(4) Undifferentiated mass of cells

PG0203

42. Select out the incorrect match :

(1) GA - speed up malting process

(2) Auxin - Xylem differentiation

(3) Cytokinin - Adventitious shoot formation

(4) Ethylene - Lateral shoot growth

PG0204

43. Removal of shoot tip (decapitation) is useful in :

(1) Promotion of Apical dominance

(2) Bolting

(3) Tea plantation

(4) Senescence

PG0205

44. Which of the following phenomenon in plants requires interaction of more than one plant growth regulator :-

(1) Breaking of seeds/buds dormancy

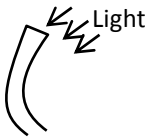
(2) Abscission

(3) Senescence

(4) All of the above

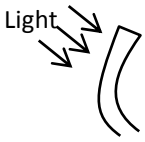
PG0206

45. Which of diagram is **correct** about the curvature of coleoptile ?

(1) 

(2)

(3)

(4) 

PG0207

46. Which of the following is/are correct about Kinetin ?

(1) Kinetin occurs naturally in plants

(2) It is a modified form of a purine

(3) Isolated from herring egg DNA

(4) All of the above

PG0208

47. Which of the following plant growth regulators (PGRs) belongs to that group of PGRs which play an important role in plant response to wounds?

(1) Auxin (2) Gibberellin

(3) Cytokinin (4) Abscisic acid

PG0209

48. Which of the following plant growth regulators is synthesised in large amounts by tissues undergoing senescence and ripening fruits ?

(1) Gibberellin (2) Zeatin

(3) IBA (4) Ethylene

PG0210

EXERCISE-III(B) ANALYTICAL QUESTIONS

49. Select out the incorrect match :-

(1) Water $\rightarrow$ Cell enlargement

(2) Oxygen $\rightarrow$ Enzyme activation

(3) Minerals $\rightarrow$ Osmotic regulation

(4) Light $\rightarrow$ Flowering

PG0129

50. Which of the following activities does not involve the role of GA?
(1) Seed germination
(2) Malting
(3) Root growth
(4) Flowering in LDPs

PG0136

51. Removal of shoot tips (decapitation) usually results in the growth of lateral buds. It is related to the removal of effect of which plant hormone?
(1) Ethylene (2) Auxin
(3) Cytokinin (4) Gibberellic acid

PG0137

52. Which plant hormone promotes the growth of lateral buds ?
(1) Auxin (2) Cytokinin
(3) Gibberellin (4) Abscisic acid

PG0139

53. Which hormone pair is of hypothetical hormones?
(1) NAA, GA_3 (2) Florigen, vernalin
(3) ABA, kinetin (4) 2,4-D, Gibberellin

PG0141

54. Photoperiodism was discovered by :-
(1) Lysenko, Klippart
(2) Borthwick, Hendricks
(3) Garner, Allard
(4) Singer, Nicolson

PG0142

55. Hormone involved in induction of α-amylase in Barley endosperm :
(1) GA (2) NAA
(3) Ethylene (4) ABA

PG0143

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	3	4	3	3	4	3	3	3	1	2	1	1	2	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	3	3	4	3	3	4	2	4	4	3	1	3	1	4
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	2	1	1	4	3	3	2	1	4	4	2	4	3	4	3
Que.	46	47	48	49	50	51	52	53	54	55					
Ans.	2	4	4	2	3	2	2	2	3	1					

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EXERCISE

Enzymes

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

ENZYME : INTRODUCTION TO THE LIVING STATE

1. An example of competitive inhibition is :
(1) Succinic dehydrogenase by malonic acid
(2) Cytochrome oxidase by cyanide
(3) Hexokinase by glucose - 6 phosphate
(4) Carbonic anhydrase by carbon dioxide
EZ0005

2. First discovered Enzyme was :-
(1) Isomerase (2) Transaminase
(3) Zymase (4) Transferase
EZ0045

3. Enzyme were discovered for the first time in :-
(1) Bacteria (2) Yeast
(3) Algae (4) Spinach
EZ0046

4. Who coined the term enzyme ?
(1) Pasteur (2) Buchner
(3) Kuhne (4) Sumner
EZ0047

5. Vitamin serves the function of :-
(1) An enzyme (2) A coenzyme
(3) A holoenzyme (4) A hormone
EZ0048

6. Which of the following is a coenzyme ?
(1) NAD (2) NADP
(3) FAD (4) All the above
EZ0049

7. The first enzyme isolated in crystalline form was :-
(1) Catalase (2) Urease
(3) Peroxidase (4) Amylase
EZ0050

8. In plants enzymes are present in :-
(1) Only in flowers
(2) Only in leaves
(3) All the living cells
(4) Only in parenchyma
EZ0051

9. Which of the following coenzyme is a derivative of Niacin ?
(1) NAD (2) NADP
(3) FAD (4) Both (1) and (2)
EZ0052

10. Which of the following is not consumed in a biochemical process ?
(1) Hormones (2) Enzymes
(3) Vitamins (4) Nucleotides
EZ0053

11. How the presence of an enzyme affects the activation energy of a reaction ?
(1) It becomes increased
(2) It becomes decreased
(3) It is first increased and then decreased
(4) It is not affected at all
EZ0054

12. Enzyme inhibition caused by a substrate analogue is :-
(1) Competitive
(2) Non competitive
(3) In competitive
(4) Semi-competitive
EZ0056

13. At boiling temperature of water, what will be effect on an enzyme :-
(1) become denatured
(2) remain unaffected
(3) become inactivated
(4) become more active
EZ0057

14. Enzyme have narrow optima for :-
(1) Light
(2) Temperature
(3) pH
(4) Both (2) and (3)
EZ0058

15. Which enzyme is not a protein ?
(1) Hexokinase
(2) Synthetase
(3) Endonuclease
(4) Ribozyme

EZ0064

16. Allosteric enzymes have allosteric sites for:-
(1) Inhibition only
(2) Activation only
(3) Reduction in activation energy
(4) Both inhibition and activation

EZ0070

17. Substrate concentration at which an enzyme attains half of its maximum velocity is ?
(1) Half life of enzyme
(2) Km-constant of enzyme
(3) Concentration ratio
(4) Turn over number of enzyme

EZ0071

18. Which of the following statements regarding enzyme inhibition is correct ?
(1) Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate
(2) Competitive inhibition is seen, when a substrate competes with an enzyme for binding to an inhibitor protein
(3) Competitive inhibition is seen, when the substrate and the inhibitor compete for the active site on the enzyme
(4) Non-competitive inhibitors often bind to the enzyme irreversibly.

EZ0078

19. The catalytic efficiency of two different enzyme can be compared by the :
(1) The Km value
(2) The pH optimum value
(3) Formation of the product
(4) Molecular size of the enzyme

EZ0079

20. Which of the following is structural analogue of p-amino benzoic acid?
(1) Malonate
(2) Glucose-6-phosphate
(3) AMP
(4) Sulpha drugs

EZ0199

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	3	2	3	2	4	2	3	4	2	2	1	1	4	4
Que.	16	17	18	19	20										
Ans.	4	2	3	1	4										

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. An organic substance bound to an enzyme and essential for its activity is called
(1) Apoenzyme (2) Isoenzyme
(3) Coenzyme (4) Holoenzyme

EZ0084

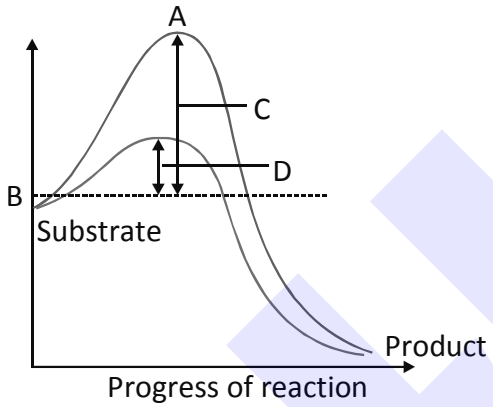
AIPMT 2008

2. A competitive inhibitor of succinic dehydrogenase is :-
(1) α - ketoglutarate (2) Malate
(3) Malonate (4) Oxaloacetate

EZ0088

AIPMT-Mains 2010

3. The figure given below shows the conversion of a substrate into product by an enzyme. In which one of the four options (1-4) the components of reaction labelled as A, B, C and D are identified correctly?



Options :

	A	B	C	D
(1)	Transition State	Potential energy	Activation energy without enzyme	Activation energy with enzyme
(2)	Potential Energy	Transition state	Activation energy with enzyme	Activation energy without enzyme
(3)	Activation energy with enzyme	Transition state	Activation energy without enzyme	Potential Energy
(4)	Potential Energy	Transition state	Activation energy with enzyme	Activation energy without enzyme

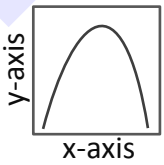
EZ0094

4. Three of the following statements about enzymes are correct and one is wrong. Which one is wrong?
(1) Enzymes are denatured at high temperatures but in certain exceptional organisms they are effective even at temperatures 80°-90°C
(2) Enzymes are highly specific
(3) Most enzymes are proteins but some are lipids
(4) Enzymes require optimum pH for maximal activity

EZ0095

AIPMT-Pre 2011

5. The curve given below shows enzymatic activity with relation to three conditions (pH, temperature and substrate concentration)



What do the two axises (x and y) represent ?

	x-axis	**y-axis**
(1)	Enzymatic activity	pH
(2)	Temperature	Enzyme activity
(3)	Substrate concentration	Enzymatic activity
(4)	Enzymatic activity	Temperature

EZ0096

AIPMT-Mains 2012

6. For its activity, carboxypeptidase requires :-
(1) Niacin (2) Copper (3) Zinc (4) Iron

EZ0098

NEET-UG 2013

7. Transition state structure of the substrate formed during an enzymatic reaction is :
(1) permanent and stable
(2) transient but stable
(3) permanent but unstable
(4) transient and unstable

EZ0099

8. The essential chemical components of many coenzymes are :
(1) Vitamins
(2) Proteins
(3) Nucleic acids
(4) Carbohydrates

EZ0101

AIPMT 2015

9. Which one of the following statements is incorrect?
(1) In competitive inhibition, the inhibitor molecule is not chemically changed by the enzyme.
(2) The competitive inhibitor does not affect the rate of breakdown of the enzyme-substrate complex.
(3) The presence of the competitive inhibitor decreases the Km of the enzyme for the substrate.
(4) A competitive inhibitor reacts reversibly with the enzyme to form an enzyme- inhibitor complex.

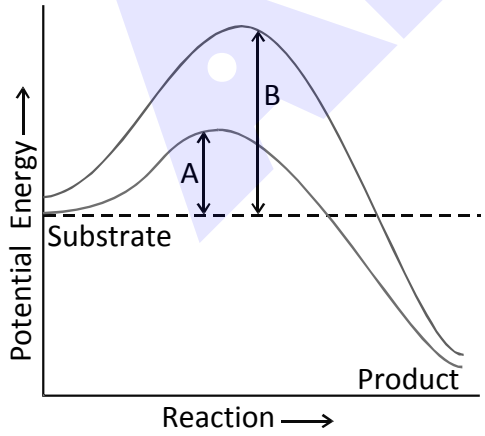
EZ0104

NEET-II 2016

10. A non-proteinaceous enzyme is :-
(1) Ligase
(2) Deoxyribonuclease
(3) Lysozyme
(4) Ribozyme

EZ0106

11. Which of the following describes the given graph **correctly**?



(1) Endothermic reaction with energy A in absence of enzyme and B in presence of enzyme
(2) Exothermic reaction with energy A in absence of enzyme and B in presence of enzyme
(3) Endothermic reaction with energy A in presence of enzyme and B in absence of enzyme
(4) Exothermic reaction with energy A in presence of enzyme and B in absence of enzyme.

EZ0107

NEET(UG) 2017

12. Which one of the following statements is **correct**, with reference to enzymes ?
(1) Holoenzyme = Apoenzyme + Coenzyme
(2) Coenzyme = Apoenzyme + Holoenzyme
(3) Holoenzyme = Coenzyme + Co-factor
(4) Apoenzyme = Holoenzyme + Coenzyme

EZ0111

NEET(UG) 2019

13. Consider the following statements :
(A) Coenzyme or metal ion that is tightly bound to enzyme protein is called prosthetic group.
(B) A complete catalytic active enzyme with its bound prosthetic group is called apoenzyme.

Select the **correct** option.
(1) Both **(A)** and **(B)** are true.
(2) **(A)** is true and **(B)** is false.
(3) Both **(A)** and **(B)** are false.
(4) **(A)** is false and **(B)** is true.

EZ0197

NEET(UG) 2019 (Odisha)

14. Prosthetic groups differ from co-enzymes in that :-
(1) they require metal ions for their activity.
(2) they (prosthetic groups) are tightly bound to apoenzymes.
(3) their association with apoenzymes is transient.
(4) they can serve as co-factors in a number of enzyme-catalyzed reactions.

EZ0198

Re-NEET(UG) 2022

15. In the enzyme which catalyses the breakdown of:

$H_2O_2 \rightarrow H_2O + O_2$

the prosthetic group is :

(1) Nicotinamide adenine dinucleotide

(2) Haem

(3) Zinc

(4) Niacin

EZ0227

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	3	1	3	2	3	4	1	3	4	4	1	2	2	2

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) NCERT BASED QUESTIONS

1. Enzymes, which catalyse the transfer of hydrogen (H) between two substrates, are called:-

(1) Transferases (2) Oxidoreductases
(3) Isomerases (4) Hydrolases

EZ0176

2. Which of the following statements is **correct** ?

(1) All the proteins are enzymes
(2) All enzymes are proteins
(3) Almost all enzymes are proteins
(4) All enzymes are nucleic acids

EZ0174

3. Low temperature preserves the enzyme in a ...'A'... state whereas high temperature destroys enzymatic activity because proteins are ...'B'... by heat.
Choose the **correct** option:-
(1) A = temporarily inactive, B = denatured
(2) A = permanently inactive, B = temporarily inactive
(3) A = permanently inactive, B = denatured
(4) A = denatured, B = temporarily inactive

EZ0175

4. Which of the following is not correct?
(1) Catabolic pathways lead to the release of energy
(2) Anabolic pathways consume energy
(3) The living state and metabolism are synonymous
(4) CO_2 dissolving in water is an uncatalysed reaction in living systems

EZ0200

5. Which of the following is not a correct match?

(1) Acetic acid $\rightarrow$ Cholesterol = Anabolic
(2) Hydrolysis of glycosidic bond = Catabolic
(3) Amino acid $\rightarrow$ Protein = Anabolic
(4) Glucose $\rightarrow$ Lactic acid = Anabolic

EZ0201

6. A general rule of thumb is that rate of enzymatic reactions doubles or decreases by half for every ____ change in either direction.
Choose correct option for above blank.
(1) 50° (2) 5°C
(3) 100°C (4) 10°C

EZ0202

7. Non proteinaceous part of holoenzyme can be :-
(1) metal ion
(2) prosthetic group
(3) Coenzyme
(4) All of the above

EZ0203

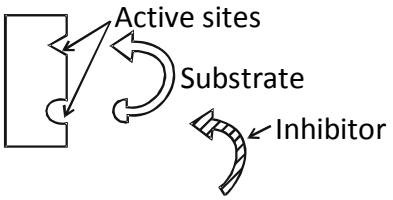
8. Which of the following can have catalytic power?
(1) Protein
(2) Nucleic acid
(3) Fat
(4) Both (1) and (2)

EZ0204

9. Catalytic activity is lost when the co-factor is removed from the enzyme. It testifies that :-
(a) Cofactors form one or more coordination bonds with enzymes.
(b) Cofactors play a crucial role in the catalytic activity of the enzyme
(c) Cofactors are not made up of proteins
(d) Cofactors show permanent association with enzymes

Options :
(1) (a) and (d)
(2) Only (b)
(3) (b) and (c)
(4) (a), (b) and (c)

EZ0205

10. 

Above diagram is the indicative diagram of a type of inhibition. Choose the **correct match**:-

	Type of inhibition	Substrate	Inhibitor
(1)	Non competitive reversible	Malonate	Succinate
(2)	Competitive	Succinic dehydrogenase	Malonate
(3)	Non competitive irreversible	Succinic dehydrogenase	Succinate
(4)	Competitive	Succinate	Malonate

EZ0206

11. On the basis of type of reactions they catalyse, enzymes are divided into _____ classes each with ____ subclasses.
Choose the **correct** numbers for above blanks respectively from the following options :-
(1) 6, 6 (2) 6, 4–13
(3) 4–13, 6 (4) 4, 13

EZ0207

12. Inorganic catalysts work efficiently at high temperatures while enzymes get damaged at high temperatures (above 40°C). This feature of enzymes in not applicable to :-
(1) the enzymes which are made up of proteins
(2) The enzymes isolated from thermophobic organisms
(3) the enzymes which have active sites
(4) the enzymes of organisms who live in hot vents

EZ0208

13. In the absence of any enzyme, reaction $CO_2 + H_2O \longrightarrow H_2CO_3$ is very slow, formation of 200 molecules of H_2CO_3 per hour. However by the use of carbonic anhydrase enzyme reaction speeds with about :-
(1) formation of 6×10^5 molecules of H_2CO_3 every second
(2) formation of 36×10^5 molecules of H_2CO_3 every minute
(3) formation of 36×10^6 molecules of H_2CO_3 every second
(4) formation of 6×10^6 molecules of H_2CO_3 every minute

EZ0209

14. Stability is something related to energy status of the molecule. Transition state is high energy state as compare to substrate. So we can conclude that :-
(1) Transition state is more stable than substrate
(2) substrate is more stable than transition state
(3) Both substrate and transition state are very much unstable
(4) Stability can not be compared

EZ0210

15. The activity of an enzyme can be affected by a change in the conditions which can alter the :-
(1) tertiary structure of nucleic acids
(2) primary structure of fats
(3) tertiary structure of proteins
(4) secondary structure of carbohydrates

EZ0211

16. Which of the following statements is **not correct** regarding enzymes ?
(1) They are specific in nature
(2) They are used up in reaction
(3) They are proteinaceous in nature
(4) They speed up the rate of biochemical reactions.

EZ0212

17. Which of the following statements regarding cofactors is **not correct** ?
(1) Every coenzyme is a cofactor but every cofactor is not a coenzyme
(2) Catalytic activity is lost when the cofactor is removed from the enzyme
(3) Every coenzyme is a cofactor and every cofactor is a coenzyme
(4) In the catalase enzyme, haem group work as a cofactor

EZ0213

18. The prosthetic group can be distinguished from other cofactors of enzymes because prosthetic groups :-

(1) are organic in nature

(2) are tightly bound to the apoenzyme

(3) Both (1) and (2)

(4) are inorganic in nature and are loosely bound to the apoenzyme

EZ0214

19. Ribozymes are :-

(1) Enzymes with tertiary structure of protein

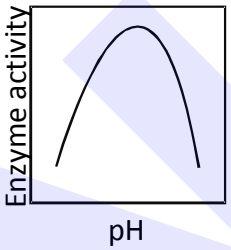
(2) Fragments of endoplasmic reticulum those contain ribosomes

(3) Inorganic enzymes

(4) Nucleic acids that behave like enzymes

EZ0215

20. Represented below is the effect of change in pH on enzyme activity. Which one of the following conclusions can be made by this diagram ?



(1) Enzyme show its highest activity at a particular pH, both below and above this pH, activity declines

(2) With increasing pH, activity increases upto a limit then it become constant

(3) At a particular pH, activity is minimum, both below and above this pH, activity increases

(4) Enzyme activity is affected by temperature not by pH so it is completely a hypothetical graph

EZ0216

21. Match the column-I with column-II :-

	Column-I (Example)		Column-II (Type of cofactor)
(A)	NAD with dehydrogenase enzyme	(i)	Metal ion
(B)	Zn with carboxypeptidase enzyme	(ii)	Prosthetic group
(C)	Haem group with catalase enzyme	(iii)	Coenzyme

Choose the option from the following which denotes correct match of column-I with column-II :-

(1) A-i B-ii C-iii

(2) A-iii B-ii C-i

(3) A-iii B-i C-ii

(4) A-ii B-iii C-i

EZ0217

22. $CO_2 + H_2O \xrightarrow{B} A$

Choose the correct option for A and B in the given reaction :-

(1) B-Product of this reaction, A-Enzyme of this reaction

(2) A-Product of this reaction, B-Rate of formation of product of this enzyme is 360 lakh molecules/sec.

(3) A-Carbonic acid, B- Rate of formation of product of this enzyme is 6,00,000 molecules/sec.

(4) A-Transient state, B-Enzyme of this reaction

EZ0218

23. Which of the following statements is not correct ?

(1) Enzymes bring down the activation energy of the processes

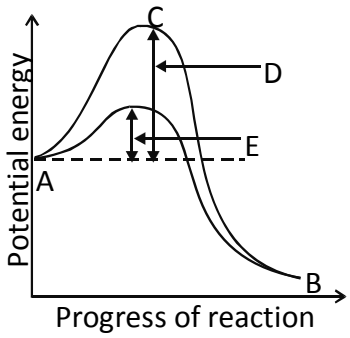
(2) Enzymes are preserved in a temporary inactive state at high temperature

(3) Enzymes isolated from thermophilic organisms have thermal stability

(4) Enzymes are differ from inorganic catalysts because enzymes get *damaged* at high temperature.

EZ0219

24.



(1) Energy level of A is low as compared to B

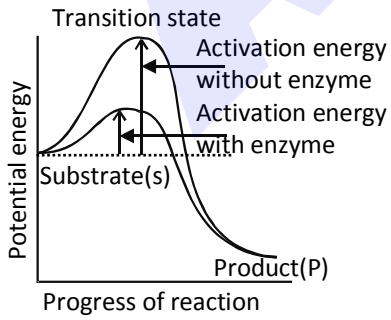
(2) Energy level of B is high as compared to C

(3) Energy level of D is high as compared to E

(4) Energy level of C is low as compared to A and B

EZ0220

25.



Above diagram showing the concept of activation energy. If in this diagram energy level of 'P' become higher than the energy level of 'S' then which of the following will not apply for this diagram ?

(1) The process will be endothermic

(2) Activation energy with enzyme will be less than activation energy without enzyme

(3) Energy difference between transition state and product will be more than activation energy

(4) The substrate will go through the transition state

EZ0221

26. (i) Transient association with the protein part of conjugated enzyme

(ii) Non protein organic substance

(iii) Usually made up of vitamins

All the above characters are applicable to :-

(1) Apoenzyme

(2) Holoenzyme

(3) Coenzyme

(4) Isoenzyme

EZ0222

27. An enzyme catalysing a transfer of a group, G between a pair of substrate S and S' as follows :

$S - G + S' \longrightarrow S + S' - G$

G = phosphate or hydrogen or any other group, the enzyme is related with which of the following class?

(1) Transferases

(2) Dehydrogenases

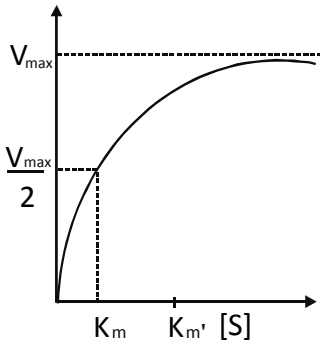
(3) Both (1) and (2)

(4) Either (1) or (2)

EZ0223

EXERCISE-III(B) ANALYTICAL QUESTIONS

28.



Above graph is showing the effect of substrate concentration (S) on enzymatic acitivity. If due to change in enzymatic activity K_m value changes to $K_{m'}$, then which of the following can be conclude on the basis of this change?

(1) There is a significant increase in enzymatic activity

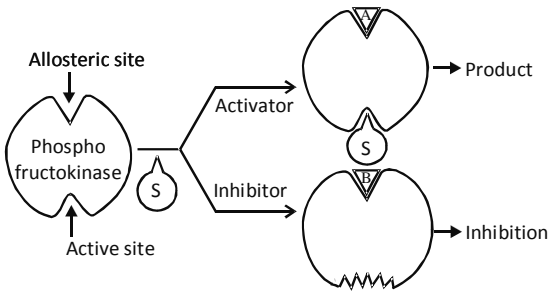
(2) Entry of positive allosteric modulator in enzymatic activity

(3) Entry of non competitive inhibitor in enzymatic activity

(4) In enzymatic activity, entry of inhibitor which closely resembles the substrate in its molecular structure

EZ0224

29.



In the following digrametic representation A and B is :-

(1) A → G-6P, B → ATP

(2) A → AMP, B → ATP

(3) A → Fructose 6P, B → ATP

(4) A → ATP, B → ADP

EZ0225

30. One molecule of enzyme convert 5 molecules of substrate into product in 5 minutes. 20 molecules of substrate and two molecules of enzyme are mixed in a test tube. After 10 minutes the test tube will have :-

(1) products and 10 unreacted molecules of substrate

(2) only products

(3) 10 unreacted molecules of substrate, enzymes and products

(4) products and enzymes

EZ0226

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	3	1	4	4	4	4	4	2	4	2	4	1	2	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	3	2	4	1	3	3	2	3	3	3	4	4	2	4

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path to success

PRE-MEDICAL

ZOOLOGY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Breathing and exchange of gases

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

1. The function of tracheal cilia is to
(1) Pass mucus out (2) Pass mucus in
(3) Pass air out (4) Pass air in
RS0001

2. Which of the following prevents collapsing of Trachea
(1) Muscles
(2) Diaphragm
(3) Ribs
(4) Cartilaginuous rings
RS0002

3. Simplest respiratory organ is :
(1) gills
(2) contractile vacuole
(3) skin
(4) lungs
RS0003

4. Tracheal rings are :–
(1) Complete
(2) Incomplete
(3) Dorsally incomplete
(4) Lateral incomplete
RS0004

5. Which one of the following has the smallest diameter ?
(1) Right primary bronchus
(2) Secondary bronchi
(3) Trachea
(4) Respiratory bronchioles
RS0005

6. Match the columns

Column I		Column II	
(a)	Larynx	(p)	Lid of glottis
(b)	Trachea	(q)	Air Sac
(c)	Alveoli	(r)	Voice Box
(d)	Epiglottis	(s)	Wind Pipe
		(t)	Common Passage

(1) a—r, b—s, c—q, d—p
(2) a—t, b—s, c—p, d—q
(3) a—r, b—s, c—q, d—t
(4) a—r, b—t, c—q, d—p
RS0006

7. Adam's Apple represents
(1) Arytenoid cartilage of larynx
(2) Cricoid cartilage of larynx
(3) Thyroid cartilage of larynx
(4) All the above
RS0007

8. Inflammation of the lung covering causing severe chest pain is
(1) Emphysema (2) Pleurisy
(3) Asphyxia (4) Hypoxia
RS0010

9. Which of the following is not a part of respiratory tract?
(1) Nasal chamber (2) Oesophagus
(3) Pharynx (4) Trachea
RS0011

10. Residual air mostly occurs in
(1) Alveoli (2) Bronchus
(3) Nostrils (4) Trachea
RS0012

11. The epithelium of respiratory bronchioles is:-
(1) Pseudostratified columnar
(2) Simple squamous
(3) Pseudostratified and sensory
(4) Cuboidal and columnar
RS0013

12. ''Epiglottis'' is made up by :-
(1) Elastic cartilage (2) Fibrous cartilage
(3) Hyaline cartilage (4) Bony structure
RS0014

13. Air is breathed through
(1) Trachea → lungs → larynx → pharynx → alveoli
(2) Nose → larynx → pharynx → bronchus → alveoli → bronchioles
(3) Nostrils → pharynx → larynx → trachea → bronchi → bronchioles → alveoli
(4) Nose → trachea → larynx → bronchi → pharynx → alveoli
RS0015

14. Lungs are covered by
(1) Perichondrium (2) Pleural sac
(3) Pericardium (4) Peristomium
RS0016

15. Which one of the following statement is correct?
(1) Chest expands because air enters into the lungs
(2) Air enters into the lungs because chest expands
(3) The muscles of the diaphragm contracts because air enters into the lungs
(4) All of the above statements are correct
RS0019

16. After deep inspiration, capacity of maximum expiration of lung is called :-
(1) Total lung capacity
(2) Functional residual capacity
(3) Vital capacity
(4) Inspiratory capacity
RS0021

17. Which statement is correct ?
(1) Pulmonary ventilation is equal to alveolar ventilation.
(2) Pulmonary ventilation is less than alveolar ventilation.
(3) Alveolar ventilation is more than Pulmonary ventilation.
(4) Alveolar ventilation is less than Pulmonary ventilation.
RS0022

18. About 1500 ml of air left in lungs is called
(1) Tidal volume
(2) Inspiratory reserve volume
(3) Residual volume
(4) Vital capacity
RS0023

19. At high altitude, RBC of human blood will
(1) Increase in number
(2) Decrease in number
(3) Decrease in size
(4) Increase in size
RS0024

20. Which one has the lowest value?
(1) Tidal volume
(2) Vital capacity
(3) Inspiratory reserve volume
(4) Expiratory reserve volume
RS0025

21. Volume of air inspired or expired with each normal breath is known as
(1) Inspiratory capacity
(2) Total lung capacity
(3) Tidal volume
(4) Residual volume
RS0026

22. Total lung capacity is
(1) One lit (2) 3 lit (3) 6 lit (4) 8 lit
RS0027

23. Air that remains in lung after most powerful expiration is
(1) Inspiratory air (2) Dead space air
(3) Tidal air (4) Residual air
RS0028

24. During normal respiration without any effort the volume of air inspired or expired is called –
(1) Tidal volume
(2) Inspiratory volume
(3) Residual volume
(4) Expiratory reserve volume
RS0029

25. Total lung capacity is :-
(1) total volume of air accommodated in lungs at the end of forced inspiration
(2) RV + ERV + TV + IRV
(3) vital capacity + residual volume
(4) All of the above
RS0030

26. Which instrument helps in clinical assessment of pulmonary volumes?
(1) Sphygmomanometer
(2) Stethoscope
(3) Spirometer
(4) Electrocardiograph
RS0031

27. Volume of air remains in the lungs after normal expiration is
(1) ERV + RV
(2) IRV + RV
(3) RV + IRV + ERV
(4) TV

RS0032

28. Which of the following volume is not included in vital capacity?
(1) ERV (2) TV
(3) IRV (4) RV

RS0033

29. The Upper region of Pharynx in human is called :-
(1) Oropharynx
(2) Nasopharynx
(3) Laryngopharynx
(4) None of these

RS0169

30. What is correct ?
(1) Pulmonary ventilation is equal to alveolar ventilation.
(2) Alveolar ventilation is less than pulmonary ventilation.
(3) Alveolar ventilation is more than pulmonary ventilation.
(4) Both are variable.

RS0170

31. Similarity between the trachea of cockroach and man is that
(1) Both are paired and branched
(2) Ciliated epithelium is present in both
(3) Walls of both can not be deformed/non collapsible walls
(4) In both head originates from pharynx.

RS0171

32. Friction on the lungs surface reduces by
(1) double layered pleura
(2) single layered pleura
(3) ribs covering lungs
(4) mucous membrane surrounding the lungs.

RS0172

33. In lungs, air is separated from venous blood by
(1) Squamous epithelium + tunica externa of blood vessel
(2) Squamous epithelium + endothelium of blood vessel
(3) Transitional epithelium + tunica media of blood vessel
(4) Columnar epithelium + 3 layered wall of blood vessel.

RS0034

34. In lung, gaseous exchange is done by :-
(1) Simple diffusion
(2) Active transport
(3) Passive transport
(4) facilitated diffusion

RS0035

35. Which of the following statements is **not true** ?
(1) The partial pressure of O_2 in deoxygenated blood is 40 mm Hg.
(2) The partial pressure of O_2 in oxygenated blood is 95 mm Hg
(3) The partial pressure of O_2 in alveolar air is 104 mm Hg
(4) The partial pressure of CO_2 in alveolar air is 45 mm Hg

RS0036

36. Partial pressure of oxygen in alveoli, atmospheric air and tissue will be
(1) 40, 159, 45
(2) 40, 0.3, 45
(3) 104, 159, 40
(4) 104, 0.3, 45

RS0037

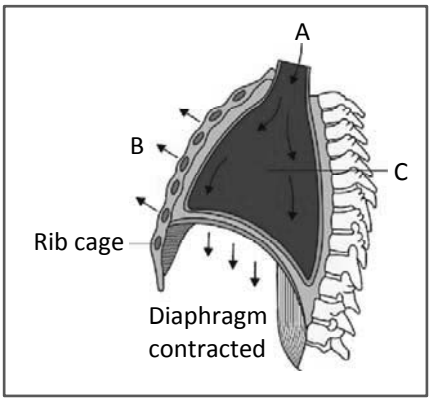
37. What will be the P_{O_2} and P_{CO_2} in the atmospheric air compared to those in the alveolar air?
(1) P_{O_2} lesser, P_{CO_2} higher
(2) P_{O_2} higher, P_{CO_2} lesser
(3) P_{O_2} higher, P_{CO_2} higher
(4) P_{O_2} lesser, P_{CO_2} lesser

RS0038

38. Partial pressure of CO_2 is higher :-
(1) At alveolar level
(2) At tissue level
(3) In atmosphere
(4) In oxygenated blood

RS0039

39. In the given diagram, identify what is depicted by A, B and C.
Choose the correct option.



(1) A-Air going out from lungs, B-Ribs and sternum relaxed, C-volume of thorax increased
(2) A-Air entering lungs, B-Ribs and sternum relaxed, C-volume of thorax increased
(3) A-Air entering lungs, B-Ribs and sternum raised, C-volume of thorax increased
(4) A-Air going out from lungs, B-Ribs and sternum relaxed, C-volume of thorax decreased

RS0173

40. Almost same pO_2 in humans is found in
(1) alveoli and tissues
(2) oxygenated blood and deoxygenated blood
(3) alveoli and oxygenated blood
(4) alveoli and deoxygenated blood

RS0174

41. Exchange of gases in lung alveoli occurs through
(1) Active transport (2) Osmosis
(3) Simple diffusion (4) Passive transport

RS0175

42. Arrange the following in the order if increasing volume
(i) Tidal volume
(ii) Residual volume
(iii) Expiratory reserve volume
(iv) Vital capacity
(1) (i) < (ii) < (iii) < (iv)
(2) (i) < (iii) < (ii) < (iv)
(3) (i) < (iv) < (iii) < (ii)
(4) (i) < (iv) < (ii) < (iii)

RS0176

43. Under normal condition 100 ml blood deliver _____ to tissue.
(1) 4 ml O_2 (2) 10 ml O_2
(3) 5 ml O_2 (4) 25 ml O_2

RS0041

44. Haldane effect is due to
(1) CO_2
(2) Lactic acid
(3) pH
(4) Oxyheamoglobin

RS0042

45. What percentage of CO_2 flows in blood in form of bicarbonates?
(1) 7% (2) 23%
(3) 50% (4) 70%

RS0043

46. Effect of CO_2 concentration on dissociation of oxyhaemoglobin is called
(1) Bohr's effect (2) Haldane effect
(3) Hamburger effect (4) Root effect

RS0044

47. Chloride shift for the transport of
(1) O_2 (2) CO_2
(3) CO (4) O_3

RS0045

48. Exchange of bicarbonates and chloride ions between RBC and plasma is called:-
(1) Chloride shift.
(2) Bohr's effect.
(3) Haldane's effect.
(4) Intra cellular respiration.

RS0047

49. Determination of oxygen carried by haemoglobin is done by
(1) pH
(2) Partial pressure of oxygen
(3) Partial pressure of carbon dioxide
(4) All the above

RS0048

50. For proper transport of O_2 and CO_2 blood should be
(1) Slightly acidic
(2) Strongly acidic
(3) Strongly alkaline
(4) Slightly alkaline

RS0049

51. What would happen when blood is acidic?
(1) Binding of oxygen with haemoglobin increases
(2) Red blood corpuscles are formed in higher number
(3) Binding of oxygen with haemoglobin decreases
(4) There is no change in oxygen binding nor number of RBC

RS0050

52. The chloride shift is movement of Cl^-
(1) From plasma to RBC
(2) From WBC to plasma
(3) From RBC to plasma
(4) From plasma to WBC

RS0051

53. Chloride shift occurs in respond to :
(1) H^+ (2) K^+
(3) HCO_3^- (4) Na^+

RS0052

54. What happen to the O_2 dissociation curve of Hb if pH is decreased ?
(1) shift to left
(2) shift to right
(3) remain unchanged
(4) will oscillate erratically

RS0053

55. Dissociation curve shifts to the right when:-
(1) CO_2 concentration decreases
(2) CO_2 concentration increases
(3) O_2 concentration increases
(4) H^+ concentration decreases

RS0054

56. Oxyhaemoglobin acts as
(1) Alkali (2) Acid
(3) Neutral (4) Buffer

RS0056

57. The oxygen- Haemoglobin dissociation curve will show a right shift in case of :-
(1) Less H^+ concentration
(2) High partial pressure of O_2
(3) Low partial pressure of CO_2
(4) High 2,3, B.P.G.

RS0057

58. Which of the following conditions are found in the alveoli of lungs :
I. high PO_2 II. low PCO_2
III. high PCO_2 IV. low PO_2
V. low H^+ VI. High H^+
Choose the correct option.
(1) I, III and V
(2) III, IV and VI
(3) I, IV and VI
(4) I, II and V

RS0177

59. Binding of CO_2 to oxyhaemoglobin occurs when
(1) pCO_2 is high and pO_2 is less in tissue
(2) pCO_2 is low and pO_2 is high in tissue
(3) pCO_2 is low and pO_2 is low in tissue
(4) pCO_2 is high and pO_2 is high in tissue

RS0178

60. In Bohr's effect curve shift to right when :-
(1) pCO_2 decreases and p50 of O_2 increases
(2) pCO_2 increases and p50 of O_2 decreases
(3) pCO_2 increases and p50 of O_2 increases
(4) pCO_2 increases and p50 of O_2 decreases and pH increases

RS0179

61. In which three forms CO_2 is transported by blood
(1) As a solution, Carbamino compounds, bicarbonates
(2) As a solution, Carbamino proteins, $KHCO_3$
(3) As a solution, Carbamino haemoglobin, $NaHCO_3$
(4) As a solution, Carbamino compound, H_2CO_3

RS0180

62. H.Hb is
(1) H_2b
(2) Heavy hydrogen bond
(3) Reduced bromide
(4) Haemoglobin acid

RS0181

63. The human ribs
(1) Are accessory respiratory organs
(2) Do not help in breathing
(3) Are main respiratory organs
(4) Are not respiratory organs

RS0182

64. During transport of CO_2 blood does not become acidic due to
(1) Neutralisation of H_2CO_3 by Na_2CO_3
(2) Absorption by leucocytes
(3) Blood buffers
(4) Non accumulation

RS0183

65. "Emphysema" is a condition in which -
(1) Reparatory centre inhibited
(2) Lot of fluid in the lungs
(3) The walls separating the alveoli break
(4) Lungs have more O_2

RS0059

66. Rate of respiration is directly affected by
(1) CO_2 concentration
(2) O_2 in trachea
(3) Concentration of O_2
(4) Diaphragm expansion

RS0060

67. CO is more toxic than CO_2 because it :
(1) Damages lungs
(2) It destroys haemoglobin
(3) Affects the nervous system
(4) Reduces the oxygen carrying capacity of haemoglobin

RS0062

68. Carbon monoxide has greater affinity for Haemoglobin as compare to oxygen :-
(1) 1000 Times
(2) 200 Times
(3) 20 Times
(4) 2 Times

RS0063

69. About 97% of oxygen is transported by RBC remaining 3% is :-
(1) Dissolved in plasma & transported
(2) Retained in lungs
(3) Attached to cell membranes
(4) Found inside mitochondria

RS0064

70. Increased asthmatic attacks in contain seasons are related to :-
(1) Hot and humid environment
(2) Eating fruits preserved in tin containers
(3) Inhalation of seasonal pollen
(4) Low temperature

RS0185

71. Disease aggravated by pollution is :-
(1) Haemophilia
(2) Rheumatism
(3) Scurvy
(4) Bronchitis

RS0186

72. Column I represents diseases and column II represents their symptoms. Which of the following pairs are correct match for them:-

Column I	Column II
(P) Asthma	(i) Damaged alveolar walls
(Q) Emphysema	(ii) Accumulation of W.B.C. in alveolus
(R) Pneumonia	(iii) Allergy

(1) P- iii, Q - ii, R - i
(2) P - iii, Q - i, R - ii
(3) P - ii, Q - iii, R - i
(4) P - ii, Q - i, R - iii

RS0187

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**1**	**4**	**3**	**3**	**4**	**1**	**3**	**2**	**2**	**1**	**2**	**1**	**3**	**2**	**2**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**3**	**4**	**3**	**1**	**1**	**3**	**3**	**4**	**1**	**4**	**3**	**1**	**4**	**2**	**2**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**3**	**1**	**2**	**1**	**4**	**3**	**2**	**2**	**3**	**3**	**3**	**2**	**3**	**4**	**4**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**1**	**2**	**1**	**4**	**4**	**3**	**1**	**3**	**2**	**2**	**2**	**4**	**4**	**1**	**3**
Que.	61	62	63	64	65	66	67	68	69	70	71	72			
Ans.	**3**	**4**	**4**	**3**	**3**	**1**	**4**	**2**	**1**	**3**	**4**	**2**			

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Which one of the following statements is **incorrect** ?

(1) The residual air in lungs slightly decreases the efficiency of respiration in mammals

(2) The presence of non–respiratory air sacs, increases the efficiency of respiration in birds

(3) In insects, circulating body fluids serve to distribute oxygen to tissues

(4) The principle of counter current flow facilitates efficient respiration in gills of fishes

RS0065

2. The majority of carbon dioxide produced by our body cells is transported to the lungs –

(1) Dissolved in the blood

(2) As bicarbonates

(3) As carbonates

(4) Attached to haemoglobin

RS0066

3. Bowman's glands are found in –

(1) Olfactory epithelium

(2) External auditory canal

(3) Cortical nephrons only

(4) Juxtamedullary nephrons

RS0067

AIPMT 2007

4. Bowman's glands are located in the :-

(1) Olfactory epithelium of our nose

(2) Proximal end of uriniferous tubules

(3) Anterior pituitary

(4) Female reproductive system of cockroach

RS0068

AIPMT 2008

5. What is vital capacity of our lungs ?

(1) inspiratory reserve volume plus expiratory reserve volume

(2) total lung capacity minus residual volume

(3) inspiratory reserve volume plus tidal volume

(4) total lung capacity minus expiratory reserve volume

RS0070

AIPMT-Pre 2010

6. Listed below are four respiratory capacities (a-d) and four jumbled respiratory volumes of a normal human adult :

	Respiratory capacities	Respiratory volumes
(a)	Residual volume	2500 mL
(b)	Vital capacity	3500 mL
(c)	Inspiratory reserve volume	1200 mL
(d)	Inspiratory capacity	4500 mL

Which one of the following is the **correct** matching *of* two capacities and volumes ?

(1) (a) 4500 mL, (b) 3500 mL

(2) (b) 2500 mL, (c) 4500 mL

(3) (c) 1200 mL, (d) 2500 mL

(4) (d) 3500 mL, (a) 1200 mL

RS0071

7. What is true about RBCs in humans ?

(1) They do not carry CO_2 at all

(2) They carry about 20-25 per cent of CO_2

(3) They transport 99.5 per cent of O_2

(4) They transport about 80 percent oxygen only and the rest 20 per cent of it is transported in dissolved state in blood plasma.

RS0072

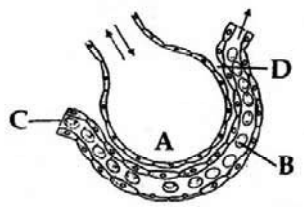
AIPMT-Pre 2011

8. Two friends are eating together on a dining table. One of them suddenly starts coughing while swallowing some food. This coughing would have been due to improper movement of:-

(1) Epiglottis (2) Diaphragm
(3) Neck (4) Tongue

RS0073

9. The figure given below shows a small part of human lung where exchange of gases takes place. In which one of the options given below, the one part, A, B, C or D is correctly identified along with its function



Options :

(1) C : arterial capillary-passes oxygen to tissues
(2) A : alveolar cavity-main site of exchange of respiratory gases
(3) D : Capillary wall-exchange of O_2 and CO_2 takes place here
(4) B : red blood cell-transport of CO_2 mainly

RS0074

10. A large proportion of oxygen is left unused in the human blood even after its uptake by the body tissues. This O_2 :

(1) Acts as a reserve during muscular exercise
(2) Raises the pCO_2 of blood to 75 mm of Hg.
(3) Is enough to keep oxyhaemoglobin saturation at 96%
(4) Helps in releasing more O_2 to the epithelial tissues

RS0075

AIPMT-Mains 2011

11. Bulk of carbon dioxide (CO_2) released from body tissues into the blood is present as :

(1) Carbamino-haemoglobin in RBCs
(2) Bicarbonate in blood plasma and RBCs
(3) Free CO_2 in blood plasma
(4) 70% carbamino-haemoglobin and 30% as bicarbonate

RS0076

AIPMT-Pre 2012

12. Which one of the following is the correct statement for respiration in humans ?

(1) Workers in grinding and stone-breaking industries may suffer, from lung fibrosis
(2) Abut 90% of carbon dioxide (CO_2) is carried by haemoglobin as carbamino haemoglobin
(3) Cigarette smoking may lead to inflammation of bronchi
(4) Neural signals from pneumotaxic centre in pons region of brain can increase the duration of inspiration

RS0077

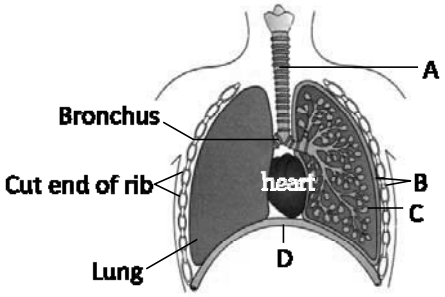
13. People who have migrated from the planes to an area adjoining Rohtang pass about six months back:

(1) suffer from altitude sickness with symptoms like nausea, fatigue, etc.
(2) have the usual RBC count but their haemoglobin has very high binding affinity to O_2
(3) have more RBCs and their haemoglobin has a lower binding affinity to O_2
(4) are not physically fit to play games like football.

RS0078

NEET-UG 2013

14. The figure shows a diagrammatic view of human respiratory system with labels A, B, C and D. Select the option which gives correct identification and main function and/or characteristic :-



(1) **D** – Lower end of lungs – diaphragm pulls it down during inspiration
(2) **A** – trachea - long tube supported by complete cartilaginous rings for conducting inspired air
(3) **B** – pleural membrane - surround ribs on both sides to provide cushion against rubbing
(4) **C** – Alveoli - thin walled vascular bag like structures for exchange of gases

RS0080

AIPMT 2014

15. Approximately seventy percent of carbon-dioxide absorbed by the blood will be transported to the lungs:
(1) as bicarbonate ions
(2) in the form of dissolved gas molecules
(3) by binding to R.B.C.
(4) as carbamino - haemoglobin

RS0081

AIPMT 2015

16. When you hold your breath, which of the following gas changes in blood would first lead to the urge to breathe?
(1) rising CO_2 concentration
(2) falling CO_2 concentration
(3) rising CO_2 and falling O_2 concentration
(4) falling O_2 concentration

RS0082

NEET-I 2016

17. Asthma may be attributed to :
(1) bacterial infection of the lungs
(2) allergic reaction of the mast cells in the lungs
(3) inflammation of the trachea
(4) accumulation of fluid in the lungs

RS0085

NEET-II 2016

18. The partial pressure of oxygen in the alveoli of the lungs is :-
(1) Less than that in the blood
(2) Less than that of carbon dioxide
(3) Equal to that in the blood
(4) More than that in the blood

RS0086

19. Lungs do not collapse between breaths and some air always remains in the lungs which can never be expelled because :-
(1) There is a positive intrapleural pressure
(2) Pressure in the lungs is higher than the atmospheric pressure.
(3) There is a negative pressure in the lungs.
(4) There is a negative intrapleural pressure pulling at the lung walls

RS0087

NEET(UG) 2017

20. Lungs are made up of air-filled sacs, the alveoli. They do not collapse even after forceful expiration, because of:
(1) Inspiratory Reserve Volume
(2) Tidal Volume
(3) Expiratory Reserve Volume
(4) Residual Volume

RS0089

NEET(UG) 2018

21. Which of the following options correctly represents the lung conditions in asthma and emphysema, respectively ?
(1) Inflammation of bronchioles; Decreased respiratory surface
(2) Increased number of bronchioles; Increased respiratory surface
(3) Increased respiratory surface; Inflammation of bronchioles
(4) Decreased respiratory surface; Inflammation of bronchioles

RS0091

22. Match the items given Column I with those in Column II and select the ***correct*** option given below :

Column I	*Column II*
a. Tidal volume	i. 2500-3000 mL
b. Inspiratory Reserve volume	ii. 1100-1200 mL
c. Expiratory Reserve volume	iii. 500-550 mL
d. Residual volume	iv. 1000-1100 mL

	a	b	c	d
(1)	iii	ii	i	iv
(2)	iii	i	iv	ii
(3)	iii	iv	ii	iii
(4)	iv	iii	ii	i

RS0092

23. Which of the following is an occupational respiratory disorder ? :
(1) Anthracis (2) Silicosis
(3) Botulism (4) Emphysema

RS0093

NEET(UG) 2019

24. Tidal Volume and Expiratory Reserve Volume of an athlete is 500 mL and 1000 mL respectively. What will be his Expiratory Capacity if the Residual Volume is 1200 mL?
(1) 1500 mL (2) 1700 mL
(3) 2200 mL (4) 2700 mL

RS0188

NEET(UG) 2019 (ODISHA)

25. Select the correct statement.
(1) Expiration occurs due to external intercostal muscles
(2) Intrapulmonary pressure is lower than the atmospheric pressure during inspiration.
(3) Inspiration occurs when atmospheric pressure is less than intrapulmonary pressure.
(4) Expiration is initiated due to contraction of diaphragm.

RS0189

26. The maximum volume of air a person can breathe in after a forced expiration is known as :
(1) Expiratory Capacity
(2) Vital Capacity
(3) Inspiratory Capacity
(4) Total lung Capacity

RS0190

NEET(UG) 2020

27. Identify the wrong statement with reference to transport of oxygen.
(1) Low pCO_2 in alveoli favours the formation of oxyhaemoglobin.
(2) Binding of oxygen with haemoglobin is mainly related to partial pressure of O_2.
(3) Partial pressure of CO_2 can interfere with O_2 binding with haemoglobin.
(4) Higher H^+ conc. in alveoli favours the formation of oxyhaemoglobin.

RS0191

28. Select the correct events that occur during inspiration.
(a) Contraction of diaphragm
(b) Contraction of external inter-costal muscles
(c) Pulmonary volume decreases
(d) Intra pulmonary pressure increases
(1) only (d) (2) (a) and (b)
(3) (c) and (d) (4) (a), (b) and (d)

RS0192

NEET(UG) 2020 (COVID-19)

29. The Total Lung Capacity (TLC) is the total volume of air accommodated in the lungs at the end of a forced inspiration. This includes :

(1) RV; IC (Inspiratory Capacity); EC (Expiratory Capacity); and ERV
(2) RV; ERV; IC and EC
(3) RV; ERV; VC (Vital Capacity) and FRC (Functional Residual Capacity)
(4) RV (Residual Volume); ERV (Expiratory Reserve Volume); TV (Tidal Volume); and IRV (Inspiratory Reserve Volume)

RS0193

30. Match the following columns and select the correct option :

Column - I	**Column - II**
(a) Pneumotaxic Centre	(i) Alveoli
(b) O_2 Dissociation curve	(ii) Pons region of brain
(c) Carbonic Anhydrase	(iii) Haemoglobin
(d) Primary site of exchange of gases	(iv) R.B.C.

(1) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)
(2) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(3) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)
(4) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

RS0194

NEET(UG) 2021

31. The partial pressures (in mm Hg) of oxygen (O_2) and carbon dioxide (CO_2) at alveoli (the site of diffusion) are :

(1) $pO_2 = 104$ and $pCO_2 = 40$
(2) $pO_2 = 40$ and $pCO_2 = 45$
(3) $pO_2 = 95$ and $pCO_2 = 40$
(4) $pO_2 = 159$ and $pCO_2 = 0.3$

RS0195

32. Select the favourable conditions required for the formation of oxyhaemoglobin at the alveoli.

(1) High pO_2, low pCO_2, less H^+, lower temperature
(2) Low pO_2, high pCO_2, more H^+, higher temperature
(3) High pO_2, high pCO_2, less H^+, higher temperature
(4) Low pO_2, low pCO_2, more H^+, higher temperature

RS0196

NEET(UG) 2021 (Paper-2)

33. Match the columns and find the correct combination.

Column I (Organism)	**Column II (Respiratory Organ)**
a. Earthworm	i.Pulmonary
b. Human	ii.Branchial
c. Prawn	iii.Tracheal
d. Insects	iv.Cutaneous

(1) a–i,b–ii, c–iii, d–iv
(2) a–iv, b–i, c–ii, d–iii
(3) a–iii, b–ii, c–iv, d–i
(4) a–iv,b–ii,c–i, ,d–iii

RS0197

NEET(UG) 2022

34. Under normal physiological conditions in human being every 100 ml of oxygenated blood can deliver _____ml of O_2 to the tissues.

(1) 5ml (2) 4 ml (3) 10 ml (4) 2 ml

RS0198

35. Which of the following is **not** the function of conducting part of respiratory system ?

(1) Inhaled air is humidified
(2) Temperature of inhaled air is brought to body temperature
(3) Provides surface for diffusion of O_2 and CO_2
(4) It clears inhaled air from foreign particles

RS0199

NEET(UG) 2022 (OVERSEAS)

36. Which of the following disorders represents decrease in respiratory surface due to damaged alveolar walls?

(1) Bronchitis (2) Asthma

(3) Emphysema (4) Hypocapnia

RS0200

37. In the regulation of respiration, a chemo-sensitive area adjacent to the rhythm centre in the medulla region of the brain, is highly sensitive to :

(1) CO_2 (2) O_2

(3) N_2 (4) HCO_3^-

RS0201

Re-NEET(UG) 2022

38. Which of the following statements are correct with respect to vital capacity?

(a) It includes ERV, TV and IRV

(b) Total volume of air a person can inspire after a normal expiration

(c) The maximum volume of air a person can breathe in after forced expiration

(d) It includes ERV, RV and IRV.

(e) The maximum volume of air a person can breath out after a forced inspiration.

Choose the **most appropriate answer** from the options given below:

(1) (b), (d) and (e) (2) (a), (c) and (d)

(3) (a), (c) and (e) (4) (a) and (e)

RS0202

39. Identify the region of human brain which has pneumotaxic centre that alters respiratory rate by reducing the duration of inspiration.

(1) Medulla (2) Pons

(3) Thalamus (4) Cerebrum

RS0203

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	2	1	1	2	4	2	1	2	1	2	1	3	4	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	2	4	4	4	1	2	2	1	2	2	4	2	4	2
Que.	31	32	33	34	35	36	37	38	39						
Ans.	1	1	2	1	3	3	1	3	2						

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Which is a common passage for food and air?
(1) Trachea (2) Oesophagus
(3) Pharynx (4) Glottis

RS0096

2. The function of conducting part in respiratory system of human is :-
(1) Clears foreign particles.
(2) Humidifies atmospheric air
(3) Brings the air to body temperature
(4) All of the above

RS0097

3. When there is no air in initial bronchioles, they does not collapse. it is due to :-
(1) Presence of Lecithin
(2) Presence of incomplete cartilagenous rings
(3) Presence of complete cartilagenous rings
(4) Presence of mucous

RS0098

4. Which of the following steps not involved in respiration?
(1) Diffusion of gases across alveolar membrane
(2) Transport of gases by the blood
(3) Provide nutrients to all the living cells of body
(4) Utilisation of O_2 by the cells for catabolic reactions and resultant release of CO_2.

RS0099

5. Inspiration can occur, when –
(1) Pressure within the lungs is less than the atmospheric pressure.
(2) Pressure within the lungs is more than the atmospheric pressure.
(3) Pressure within the lungs and atmospheric air is same.
(4) No effect of pressure on inspiration.

RS0100

6. By the contraction in diaphragm volume of thoracic chamber increases in the :-
(1) Dorso-ventral axis
(2) Antero-posterior axis
(3) Dorso-posterior axis
(4) Antero-ventral axis

RS0101

7. The primary muscle of inspiration is :-
(1) Diaphragm
(2) Intercostal muscle
(3) Abdominal muscle
(4) Oblique muscle

RS0102

8. Total volume of air a person can expire after normal inspiration is :-
(1) Vital capacity
(2) Functional residual capacity
(3) Inspiratory capacity
(4) Expiratory capacity

RS0103

9. Which of the following factor can affect the rate of diffusion of gases?
(1) Thickness of the membranes involved in diffusion
(2) Solubility of the gases
(3) Pressure of the gases
(4) All of these

RS0104

10. Which of the following is correct?

	Alveoli	Deoxy genated blood	Tissue
(1)	PO_2=159mmHg	PCO_2=40mmHg	PCO_2=20 mmHg
(2)	PCO_2=40mmHg	PO_2=95mmHg	PO_2=40mmHg
(3)	PO_2=104mmHg	PCO_2=45mmHg	PCO_2=45mmHg
(4)	PO_2=40mmHg	PO_2=40mmHg	PCO_2=45mmHg

RS0105

11. What is true about diffusion capacity.
(1) Diffusion capacity of CO_2 is much higher than O_2
(2) Diffusion capacity of O_2 is much higher than CO_2
(3) Diffusion capacity of O_2 and CO_2 is same
(4) None of the above

RS0106

12. Which of the following statement **is true**?
(1) 20-25 percent CO_2 is transported by RBCs.
(2) 97 percent O_2 is transported by RBCs.
(3) 70 percent CO_2 is carried as bicarbonate.
(4) All of these are true.

RS0107

13. Binding of oxygen with haemoglobin is primarily related to :-
(1) Partial pressure of O_2
(2) Partial pressure of CO_2
(3) H^+ ion concentration
(4) Temperature

RS0108

14. In which the following factors can interfere in binding of O_2 with haemoglobin.
A- P_{CO_2}
B-H^+ ion concentration
C-Temperature
(1) Only A (2) B, C
(3) A and C (4) A, B, C

RS0109

15. The conditions which are favourable for the formation of oxyhaemoglobin :-
(1) $PO_2\uparrow$, $PCO_2\uparrow$, H^+conc.$\downarrow$, Temperature$\downarrow$
(2) $PO_2\downarrow$, $PCO_2\downarrow$, H^+conc.$\uparrow$, Temperature$\uparrow$
(3) $PO_2\uparrow$, $PCO_2\downarrow$, H^+conc.$\downarrow$, Temperature$\downarrow$
(4) $PO_2\uparrow$, $PCO_2\uparrow$, H^+conc.$\downarrow$, Temperature$\uparrow$

RS0110

16. Which of the following statement/s is/are correct?
A- A high concentration of carbonic anhydrase is present in RBC.
B- Minute quantities of carbonic anhydrase is present in plasma.
C- Every 100 ml blood delivers approximately 4 ml of CO_2 to the alveoli.
D- 20-25% CO_2 is carried by haemoglobin as carbaminohaemoglobin.
(1) A, C and D (2) A and D
(3) A, B, C and D (4) Only A

RS0111

17. Which of the following centre can moderate the functions of the respiratory rhythm centre?
(1) Dorsal respiratory centre
(2) Ventral respiratory centre
(3) Pneumotaxic centre
(4) Chemo sensitive centre

RS0112

18. A chemo sensitive area is situated adjacent to respiratory rhythm centre. Which is highly sensitive to_____ and _____ions.
(1) O_2, H^+ (2) CO_2, OH^-
(3) CO_2, H^+ (4) CO_2, O_2

RS0113

19. Respiratory rhythm centre is present in :-
(1) Pons region
(2) Aortic arch
(3) Medulla region
(4) Carotid artery

RS0114

20. Chronic disorder in which alveolar wall are damaged due to which respiratory surface is decreased. One of the major causes of this is cigarette smoking :-
(1) Asthma
(2) Emphysema
(3) Bronchitis
(4) Fibrosis

RS0115

21. Regarding the functions of our conduction respiratory system, mark the wrong entry.
(1) Humidifies the air
(2) Warms up the air
(3) Diffusion of gases
(4) Cleans up the air

RS0116

22. Total volume of air accommodate in the lungs at the end of forced inspiration :-
(1) TV + IRV
(2) TV + IRV + ERV
(3) TV + ERV
(4) TV + IRV + ERV + RV

RS0117

23. Mark the true statement among the following with reference to normal breathing
(1) Inspiration is a passive process where as expiration is active
(2) Inspiration is a active process where as expiration is passive
(3) Inspiration and expiration are active processes
(4) Inspiration and expiration are passive processes

RS0118

24. A person breathes in some volume of air by forced inspiration after having a forced expiration. This quantity of air taken in is
(1) Total lung capacity
(2) Tidal volume
(3) Vital capacity
(4) Inspiratory capacity

RS0119

25. The oxygen - haemoglobin dissociation curve will show a right shift in case of
(1) High pCO_2
(2) High pO_2
(3) Low pCO_2
(4) Less H^+ concentration

RS0120

26. Match the following and mark the correct options

Animal	**Respiratory Organ**
A. Earthworm	i. Moist cuticle
B. Arthropods	ii. Gills
C. Fishes	iii. Lungs
D. Birds/Reptiles	iv. Trachea

Options:
(1) A-ii, B-i, C-iv, D-iii
(2) A-i, B-iv, C-ii, D-iii
(3) A-i, B-iii, C-ii, D-iv
(4) A-i, B-ii, C-i.v, D-iii

RS0121

27. Mark the correct pair of muscles involved in the normal breathing in humans :-
(1) External and internal intercostal muscles
(2) Diaphragm and abdominal muscles
(3) Diaphragm and external intercostal muscles
(4) Diaphragm and internal intercostal muscles

RS0122

28. A person suffers punctures in his chest cavity in an accident, without any damage to the lungs its effect could be :-
(1) Reduced breathing rate
(2) Rapid increase in breathing rate
(3) No change in respiration
(4) Cessation of breathing

RS0123

29. Which of the following group of animals, is used Lungs for respiration ?
(1) Fishes, Frog, Tadpole larva
(2) Fish, Mollusca, aquatic arthropods
(3) Reptiles, Birds, Mammals
(4) Insects, Earthworm, Mollusca

RS0124

30. At which level of vertebrae of the vertebral column, trachea divides and forms bronchus?
(1) 4th thoracic vertebrae
(2) 5th thoracic vertebrae
(3) 7th thoracic vertebrae
(4) 3rd thoracic vertebrae

RS0125

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

31. Whether a child died after normal birth or died before birth can be confirmed by measuring –
(1) tidal volume of air
(2) residual volume of air
(3) the weight of the child
(4) the dead space air

RS0126

32. Heiring-Breuer reflex related to :-
(1) Effect of pH on respiratory centre
(2) Effect of CO_2 on respiratory centre
(3) Effect of nerves on respiratory centre
(4) Effect of temp. on respiratory center
RS0127

33. Presence of large number of alveoli around alveolar ducts opening into bronchioles in mammalian lungs is :-
(1) Inefficient system of ventilation with little of residual air
(2) Inefficient system of ventilation with high percentage of residual air
(3) An efficient system of ventilation with no residual air
(4) An efficient system of ventilation with little residual air
RS0128

34. The maximum volume of air a person can breathe in after a forced expiration is :-
(1) TV + ERV (2) TV + IRV
(3) TV + ERV + IRV (4) ERV + RV
RS0129

35. How many animals in the given list have gills for respiration ?
Earthworm, Frog, Fish, Insects, Reptiles, Aquatic arthropods, Flatworm, Molluscs, Birds
(1) Six (2) Four (3) Three (4) Five
RS0130

36. In Lungs there is definite exchange of ions between RBC and Plasma. Removal of CO_2 from blood involves –
(1) efflux of $Cl^{\ominus}$ ions from RBC
(2) influx of $Cl^{\ominus}$ ions into RBC.
(3) influx of $HCO_3^{\ominus}$ ions into Plasma.
(4) efflux of $HCO_3^{\ominus}$ ions from RBC.
RS0131

37. The chloride content of RBC will be higher than that of plasma in :-
(1) Systemic arteries and pulmonary veins
(2) Systemic veins and pulmonary arteries
(3) Systemic arteries and pulmonary arteries
(4) Systemic veins and pulmonary veins
RS0132

38. Which of the following lung volumes or capacities can be measured by spirometer :
(1) Functional residual capacity [FRC]
(2) Residual volume
(3) Total lung capacity [TLC]
(4) Vital capacity
RS0133

39. What happens in **Hamburger shift** ?
(1) HCO_3^- ions move out from the RBC and Cl^- ions enters into RBC
(2) Cl^- ions move out from the RBC and HCO_3^- ions enters into RBC
(3) H^+ ions move out from the plasma and Cl^- ions enters into RBC
(4) HCO_3^- ions move out from the plasma and Cl^- ions enters into plasma
RS0134

40. The respiratory membranes facilitates the exchange of respiratory gases through diffusion. Oxygen enters the deoxygenated blood through diffusion because :-
(1) Partial pressure of oxygen in alveolar air and capillaries is 40 mm Hg and 100 mm Hg respectively
(2) Partial pressure of oxygen in alveolar air and capillaries is 100 mm Hg and 40 mm Hg respectively
(3) Partial pressure of oxygen in alveolar air and capillaries is 46 mm Hg and 40mm Hg respectively
(4) Partial pressure of oxygen in alveolar air and capillaries it 40 mm Hg and 46 mm Hg respectively
RS0135

41. Blood do not become acidic although it carries CO_2 because :-
(1) CO_2 is continuously diffused through tissues
(2) CO_2 combines with H_2O to form HCO_3
(3) In CO_2 transport, buffers plays an important role
(4) CO_2 is absorbed by WBC
RS0136

42. Effect of 2,3–DPG on the human blood is that :-
(1) It increases the affinity of O_2 for haemoglobin
(2) It decreases the affinity of O_2 for haemoglobin
(3) It increases association of Hb and O_2.
(4) It decreases the value of P_{50}

RS0137

43. Match the following columns.

	Column I		Column II
A	Inspiratory capacity (IC)	1	Total air, a person can inspire after normal expiration
B	Expiratory capacity (EC)	2	Maximal volume of the air, a person can breath in after a forced expiration
C	Functional residual capacity (FRC)	3	Volume of the air that will remain in lungs after a normal expiration
D	Vital capacity (VC)	4	Total volume of air a person can expire after a normal inspiration

Codes :-

	A	B	C	D
(1)	1	2	3	4
(2)	1	4	3	2
(3)	1	4	2	3
(4)	4	1	3	2

RS0138

44. Find out the correct match from the following table:-

	Column I	Column II	Column III
(i)	At tissue level	Po_2 = 40 mm Hg	Pco_2 = 45 mm Hg
(ii)	In pulmonary vein	Po_2 = 95 mm Hg	Pco_2 = 50 mm Hg
(iii)	In systemic artery	Po_2 = 40 mm Hg	Pco_2 = 40 mm Hg
(iv)	In alveoli	Po_2 = 104 mm Hg	Pco_2 = 40 mm Hg

(1) Both (i) and (ii) (2) Both (iii) and (iv)
(3) (i), (ii) and (iii) (4) Both (i) and (iv)

RS0139

45. Considering the following labels for mentioned structures and select the correct sequence of their arrangement :-
A = Terminal bronchiole
B = Respiratory bronchiole
C = Tertiary bronchi
D = Primary bronchi
E = Secondary bronchi
F = Total pulmonary bronchioles
(1) D $\longrightarrow$ E $\longrightarrow$ C $\longrightarrow$ F $\longrightarrow$ A $\longrightarrow$ B
(2) A $\longrightarrow$ B $\longrightarrow$ D $\longrightarrow$ E $\longrightarrow$ C $\longrightarrow$ F
(3) C $\longrightarrow$ F $\longrightarrow$ A $\longrightarrow$ B $\longrightarrow$ D $\longrightarrow$ E
(4) D $\longrightarrow$ E $\longrightarrow$ F $\longrightarrow$ C $\longrightarrow$ B $\longrightarrow$ A

RS0140

46. Which of the following option gives correct information about the coverings of thoracic cage on various surfaces :-

	Anterior surface	Posterior surface	Dorsal surface
(1)	Sternum and Ribs	Ribs	Diaphragm
(2)	Sternum and Ribs	Diaphragm	Clavicle bones and neck
(3)	Sternum and Ribs	Vertebral column	Clavicle bones and neck
(4)	Clavicle bones and neck	Diaphragm	Vertebral column

RS0141

47. Consider the following four statements (a-d) and select the option which includes all the correct ones only :-
(a) All the time of inspiration, contraction in diaphragm and external intercostal muscles take place.
(b) Normal breathing is also called as abdominal breathing.
(c) Expiration during sneezing, coughing, yoga is normal expiration during which IICM and abdominal muscles relax.
(d) Inspiration can occur if the pressure within lungs (intra pulmonary pressure) is more then the atmospheric pressure.
(1) Statements (a), (b), (c), (d)
(2) Statements (a) only
(3) Statements (a), (b), (c)
(4) Statements (a) and (b)

RS0142

48. Find out the **correct** match from the following table:-

	Column I	Column II	Column III
(i)	Tidal volume (TV)	(EC - ERV)	500 ml
(ii)	Expiratory reserve volume (ERV)	(VC - IRV - TV)	3000 ml
(iii)	Vital capacity (VQ	IRV + ERV + RV	4500 ml
(iv)	Residual volume (RV)	FRC - ERV	1200 ml

(1) (i) and (ii) (2) (i), (iii) and (iv)
(3) (i), (ii) and (iii) (4) (i) and (iv)

RS0143

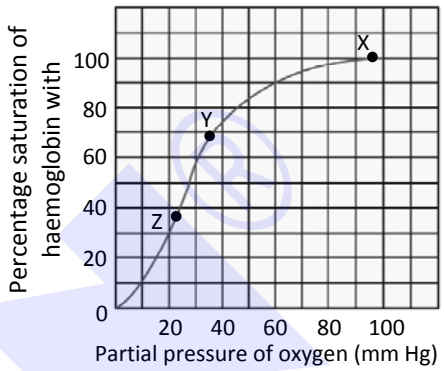
49. Which of the following statement is **not correct**?
(1) Formation of oxyhaemoglobin is a process of oxidation.
(2) Every 100 ml of oxygenated blood can deliver around 5 ml of O_2 to tissue under physiological condition.
(3) Dissociation curve is curve between percentage saturation of Hb with oxygen and partial pressure of oxygen.
(4) High concentration of CO_2 activates dissociation of oxyhaemoglobin is called Bohr's effect.

RS0144

50. Find out the **correct** match from the following :-
(i) **Larynx** – sound box
(ii) **Trachea** – complete cartilagenous rings
(iii) **Epiglottis** – elastic cartilagenous flap
(iv) **Alveoli** – very thin, irregular walled, vascularised bag like structures
(v) **Pleural fluid** – reduces friction on the lung surface
(1) (i), (ii), (iii), (iv), (v) (2) (i), (iii), (iv), (v)
(3) (i), (iii), (v) (4) (i) and (v)

RS0145

51. Given below graph shows an oxygen dissociation curve :-



Where in the body will haemoglobin be saturation at the percentage shown at points X, Y and Z.
(1) X-Pulmonary artery, Y-Pulmonary vein, Z-Carotid artery
(2) X-Systemic artery, Y-Pulmonary artery, Z-Pulmonary vein
(3) X-Pulmonary vein, Y-Systemic vein, Z-Systemic vein during exercise
(4) X-Left ventricle, Y-Right ventricle, Z-Systemic artery

RS0146

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	4	2	3	1	2	1	4	4	3	1	4	1	4	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	3	3	3	2	3	4	2	3	1	2	3	4	3	2
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	2	3	2	3	3	1	2	4	1	2	3	2	2	4	1
Que.	46	47	48	49	50	51									
Ans.	4	4	4	1	2	3									

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

ZOOLOGY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Body fluids and circulation

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) — Build Up Your Understanding

BLOOD

1. The normal Albumin/Globulin ratio in blood is :-
(1) 2 : 1 (2) 1 : 2 (3) 1 : 4 (4) 1 : 5
CS0001

2. Eosinophilia is caused by :-
(1) Taeniasis (2) Ascariaris
(3) Allergy (4) All of above
CS0003

3. Blood group Antigen are :-
(1) Found in Hb molecule
(2) Found in Plasma protein
(3) Found on RBC
(4) None
CS0004

4. Adult Hb has chain :-
(1) 2 α , 2 β (2) 2 α , 2 γ
(3) 2 α , 2 δ (4) 4 α
CS0005

5. Hb F (Foetal Hb) has chain :-
(1) 2 α , 2 β (2) 2 α , 2 γ
(3) 2 α , 2 δ (4) 4 β
CS0006

6. Life span of platelets is :-
(1) 4 days (2) 9 - 12 days
(3) 20 - 30 days (4) 90 days
CS0007

7. Mature RBC contains :-
(1) Enzymes of TCA cycle
(2) Glycolytic enzyme
(3) Enzymes of Kreb cycle
(4) All of above
CS0010

8. Blood colloidal osmotic pressure mainly maintained by which plasma protein :-
(1) Globulin (2) Albumin
(3) Fibrinogen (4) Prothrombin
CS0011

9. Mammalian RBC are :-
(1) Biconcave, circular, non nucleated
(2) Biconcave, Nucleated
(3) Oval, Nucleated
(4) None
CS0012

10. Globulin protein of blood plasma mainly involved in the :-
(1) Clotting
(2) Osmotic balance
(3) Defence mechanism
(4) None
CS0013

11. Which WBCs resist infections and are also associated with allergic reactions :-
(1) Lymphocytes (2) Neutrophils
(3) Eosinophils (4) Monocytes
CS0014

12. Persons with _____ and _____ blood group are called universal recipients & universal donors respectively :-
(1) AB^-, O^+ (2) O^+, AB^-
(3) O^-, AB^+ (4) AB^+, O^-
CS0015

13. ABO blood grouping is based on :-
(1) Surface antibodies on RBC.
(2) Surface antigen on WBC.
(3) Surface antigen on RBC.
(4) Plasma antigens.
CS0016

14. Which leucocyte has bean shaped nucleus:-
(1) Basophil (2) Monocyte
(3) Neutrophil (4) Lymphocyte
CS0017

15. Smallest blood element :-
(1) RBC (2) WBC
(3) Platelets (4) None
CS0019

16. Blood clotting requires :-
(1) $Na^+ + K^+$
(2) Na^+ + Prothrombin
(3) Na^+ + Thromboplastin
(4) Ca^{++} + Thromboplastin
CS0021

17. Lymph differ from blood in possessing :-
(1) Only WBC
(2) More RBC & WBC
(3) More RBC & few WBC
(4) More WBC & few RBC
CS0023

18. Blood platelets found in :-
(1) Pisces (2) Reptiles
(3) Birds (4) Mammals
CS0024

19. Diapedesis means :-
(1) Formation of WBC
(2) Formation of RBC
(3) Process by which certain WBCs squeeze through thin capillary wall
(4) Movement of food in gut
CS0025

20. Which of following act as middleman :-
(1) WBC (2) Lymph
(3) Plasma (4) Blood
CS0027

21. Process by which blood cells are formed in bone marrow :-
(1) Haemopoiesis
(2) Haemolysis
(3) Thrombopoiesis
(4) Erythroblastosis
CS0028

22. Largest leucocytes :-
(1) Neutrophil (2) Basophil
(3) Monocyte (4) Lymphocyte
CS0029

23. Content of haemoglobin / 100 ml of Blood:-
(1) 15 gm (2) 20 gm
(3) 10 gm (4) 5 gm
CS0030

24. Micropolice man of blood :-
(1) Neutrophil (2) Basophil
(3) Eosinophil (4) Lymphocyte
CS0031

25. Which of following has least consistency is shape:-
(1) RBC (2) WBC
(3) Mast cell (4) Bone cells
CS0033

26. Ratio WBC / RBC in human blood :-
(1) 1 : 100 (2) 1 : 200
(3) 500 : 1 (4) 1 : 500
CS0034

27. In comparison to WBC, RBC have :-
(1) Antigen (Agglutinogen) surface on RBC
(2) Carbonic anhydrase
(3) Donnan's membrane
(4) All of above
CS0035

28. One is more in lymph than blood :-
(1) RBC (2) Nutrients
(3) Lipids (4) Oxygen
CS0036

29. Serum is :-
(1) Blood - Blood cells
(2) Plasma - Fibrinogen
(3) Blood - Plasma
(4) Blood - RBC
CS0038

30. Blood bank of body is :-
(1) Liver (2) Spleen
(3) Heart (4) Bone marrow
CS0039

31. Worn out RBC are destroyed by :-
(1) Kupffer's cells (2) Bone cells
(3) Mast cells (4) None
CS0040

32. Spleen & thymus are haemopoeitic for (in adult) :-
(1) RBC (2) WBC
(3) Platelets (4) All of above
CS0043

33. Ist site of haemopoesis :-
(1) Bone marrow (2) Spleen
(3) Liver (4) Yolk sac
CS0044

34. Which WBC has maximum lobs of nucleus:–
(1) Neutrophil (2) Acidophil
(3) Basophil (4) Lymphocyte
CS0045

35. Blood cells are produced by Bone marrow in :-
(1) All bones (2) Some bones
(3) Most of the bones (4) None
CS0046

36. Which WBC has maximum life span :–
(1) Basophil (2) Monocyte
(3) Acidophil (4) Neutrophil
CS0047

37. Blood :–
(1) Contains plasma
(2) Contains corpuscles
(3) Contains proteins
(4) All of the above
CS0048

38. A reduction in platelets number causes
(1) Clotting disorder
(2) Immune disorder
(3) Digestive disorder
(4) Respiratory disorder
CS0049

39. Nucleus of granular WBC is mainly :–
(1) Spindle shape (2) Round
(3) Oval shape (4) Lobed
CS0051

40. Which WBC increase in Allergy :–
(1) Acidophil (2) Basophil
(3) Lymphocyte (4) Neutrophil
CS0052

41. How many polypeptide chains are present in single molecule of Haemoglobin protein:–
(1) 1 (2) 3 (3) 4 (4) 2
CS0053

42. Thromboplastin is secreted by :–
(1) Kidney (2) Platelets
(3) Leucocyte (4) Erythrocyte
CS0054

43. Universal recipient blood group :-
(1) AB^{-ve} (2) O^{-ve}
(3) O^{+ve} (4) AB^{+ve}
CS0056

44. Antibody are absent in which blood group:–
(1) A (2) B (3) AB (4) O
CS0057

45. In total WBCs, lymphocytes are :-
(1) 60 – 65 % (2) 2 – 3 %
(3) 6 – 8 % (4) 20 – 25 %
CS0058

46. Which clotting factor acts as antiheparin :-
(1) Serotonin (2) Fibrin
(3) Fibrinogen (4) Thromboplastin
CS0061

47. Blood group 'A' can receive blood from which group–
(1) A, AB, O (2) A, O
(3) O (4) B, AB
CS0062

48. Which is not a plasma protein :–
(1) Heparin (2) Albumin
(3) Prothrombin (4) Fibrinogen
CS0063

49. Megakaryocyte cell is :–
(1) RBC producer
(2) Thrombocyte producer
(3) WBC producer
(4) Protein producer
CS0064

50. Person having 'B' blood group have antibody :-
(1) Anti A (2) Anti B
(3) Both (4) None
CS0065

51. Colouring agent of plasma is :–
(1) Billiverdin (2) Stercobillinogen
(3) Urobillinogen (4) Urochrome
CS0066

52. Basophil does not secrete :–
(1) Prothrombin (2) Heparin
(3) Histamine (4) Serotonin
CS0067

53. In which pair erythroblastosis foetalis can occur :-
(1) Rh^+ male & Rh^- female
(2) Rh^- male & Rh^- female
(3) Rh^+ male & Rh^+ female
(4) Rh^- male & Rh^+ female
CS0068

54. Blood of AB blood group can be donated to:-
(1) A (2) B (3) AB (4) O
CS0069

55. The Rh antibodies from the mother (Rh – ve) can leak into the blood of the foetus (Rh + ve) and destroy the:-
(1) Foetal RBCs (2) Mother RBCs
(3) Foetal WBCs (4) Both (1) and (2)
CS0072

56. Agranulocytes are
(1) Eosinophils and neutrophils
(2) Monocytes and lymphocytes
(3) Eosinophils and lymphocytes
(4) Lymphocytes and basophils.
CS0074

57. Platelets are a source of
(1) Fibrinogen (2) Calcium
(3) Thromboplastin (4) Heamoglobin
CS0075

58. Which is unrelated to blood coagulation ?
(1) Fibrinogen (2) Fibrin
(3) Bilirubin (4) Calcium
CS0076

59. Major component of blood plasma is
(1) Water
(2) Inorganic Substances
(3) Organic substances
(4) Blood cells
CS0077

60. Maximum number of white blood corpuscles is that of
(1) Basophils (2) Neutrophils
(3) Monocytes (4) Eosinophils.
CS0078

61. Which of the following is not a granulocyte?
(1) Lymphocyte (2) Basophil
(3) Neutrophil (4) Eosinophil.
CS0080

62. Which of the following are involved in body defence
(1) Neutrophils (2) Lymphocytes
(3) Macrophages (4) All the above.
CS0081

63. Largest corpuscles in human blood are
(1) Erythrocytes (2) Monocytes
(3) Lymphocytes (4) Basophils
CS0082

64. Prothrombin, albumin and fibrinogen are synthesised by
(1) Pancreas (2) Bone marrow
(3) Spleen (4) Liver
CS0083

65. Which one is a factor for maturation of erythrocytes
(1) Vitamin B_{12} (2) Vitamin A
(3) Vitamin D (4) Vitamin C.
CS0085

66. In which state iron is present in haemoglobin
(1) Unionic
(2) Fe^{2+}
(3) Fe^{3+}
(4) None of the above.
CS0086

67. Immature RBCs of mammals have
(1) No nucleus
(2) Single beaded nucleus
(3) Many nuclei
(4) Single nucleus.
CS0088

68. Megakaryocytes
(1) Produce leucocytes
(2) Forms blood platelets
(3) Are carriers of oxygen.
(4) Are carriers of carbon dioxide
CS0089

69. During blood clotting, fibrin is produced by
(1) Thrombin
(2) Prothrombin
(3) Liver
(4) Proteolysis
CS0090

70. Number of erythrocytes per mm^3 of human blood is
(1) 4 million (2) 5 million
(3) 6 million (4) 0.5 million
CS0091

71. Number of WBCs per mm^3 of human blood is
(1) 8000 (2) 4000
(3) 3000 (4) 16000
CS0092

72. RBCs are nucleated in
(1) Man (2) Rabbit
(3) Rat (4) Frog
CS0093

73. An anticoagulant is
(1) Heparin (2) Hirudin
(3) EDTA (4) All the above
CS0094

74. The rarest leucocyte of human blood is
(1) Basophil (2) Monocyte
(3) Neutrophil (4) Eosinophil.
CS0095

75. Blood has a pH of
(1) 7.4 (2) 7.8
(3) 6.9 (4) 6.3
CS0096

76. The RBCs in human are
(1) Oval
(2) Circular, biconcave and nucleated
(3) Circular, biconcave and nonnucleated
(4) Oval, nonnucleated, Circular
CS0097

77. Bilirubin and biliverdin are derived from
(1) Globin (2) Heam
(3) Iron (4) Fat.
CS0098

78. Protein required for coagulation of blood is
(1) Haemoglobin (2) Globulin
(3) Fibrinogen (4) Albumin
CS0099

79. Globulin is
(1) Plasma protein
(2) Antigen
(3) Serum
(4) Found in lymphatic tissue.
CS0100

80. To prevent clotting, donor's blood is treated with
(1) Sodium glycocholate
(2) Sodium hydroxide
(3) Heparin
(4) Sodium taurocholate.
CS0102

81. Continuous bleeding from an injured part of body is due to deficiency of :-
(1) Vitamin–A (2) Vitamin–B
(3) Vitamin–K (4) Vitamin–E
CS0103

82. Abnormal increase in number of RBC in blood is called
(1) Anaemia (2) Polycythemia
(3) Leukemia (4) Sarcoma
CS0104

83. Liquid which remain after clotting of blood is called as :-
(1) Serum (2) Plasma
(3) Lymph (4) Blood
CS0105

84. Which of the following substances, if introduced into the blood stream, would cause coagulation of blood at the site of its introduction –
(1) Thromboplastin (2) Fibrinogen
(3) Heparin (4) Prothrombin
CS0106

TYPES OF CIRCULATION

85. Closed circulatory system occurs in
(1) Cockroach (2) Tadpole/Fish
(3) Mosquito (4) Housefly
CS0108

86. Systemic heart refers to :-
(1) The heart that contracts under stimulation from nervous system
(2) Left auricle and left ventricle in higher vertebrates
(3) Entire heart in lower vertebrates
(4) The two ventricles together in humans
CS0109

STRUCTURE OF HEART, HEART BEAT, CONDUCTING SYSTEM

87. Where is the pace maker situated :-
(1) In left auricle near opening of pulmonary vein
(2) In right auricle near eustachian valve
(3) On inter - auricular septum
(4) On inter-ventricular septum
CS0110

88. Papillary muscles are found in :-
(1) Haemocoel of cockroach
(2) Auricles of heart
(3) Ventricles of heart
(4) Arm
CS0111

89. To reach the left side of heart the blood must pass through :-
(1) Sinus venosus (2) Kidneys
(3) Liver (4) Lungs
CS0113

90. Characteristics of cardiac muscles are that they :-
(1) Contract quickly and get fatigued
(2) Contract quickly and do not get fatigue
(3) Contract slowly and get fatigued
(4) Contract slowly and do not get fatigue
CS0114

91. In heart of Human bicuspid valve is situated between :-
(1) Right auricle and pulmonary aorta
(2) Post caval and auricle
(3) Left auricle and left ventricle
(4) Right auricle and right ventricle
CS0116

92. When the right ventricle contracts the blood is pump into :-
(1) Superior vena cava (2) Dorsal aorta
(3) Pulmonary aorta (4) Pulmonary veins
CS0117

93. The blood leaving the lungs is richer than the blood entering the lung in :-
(1) Oxygen (2) CO_2
(3) Hydrogen (4) Moisture
CS0118

94. Pace maker influences :-
(1) Contraction of heart muscles
(2) Flow of blood in heart
(3) Rate of heart beat
(4) Generation of action potential
CS0119

95. Purkinje fibres are found in :-
(1) Brain (2) liver
(3) eyes (4) Heart
CS0120

96. Coronary artery supplies blood to :-
(1)Mammary glands (2) Rib muscles
(3) Skin (4) Heart muscle
CS0121

97. In children, heart rate is :-
(1) More than adult
(2) Less than adult
(3) Equal to adult
(4) None of these
CS0122

98. The wall of Human heart is thick due to presence of :-
(1) Inner layer endocardium
(2) Middle layer myocardium
(3) Outer most layer pericardium
(4) Outer layer epicardium
CS0123

99. The pulmonary aorta arise from :-
(1) Left ventricle (2) Right ventricle
(3) Left auricle (4) Right auricle
CS0124

100. When right ventricle of human heart contract then blood pumped into :-
(1) All parts of body (2) Lungs
(3) Pulmonary veins (4) Systemic aorta
CS0125

101. Bundle of His originates from :-
(1) Sinu-auricular node
(2) Auriculo-ventricular node
(3) Pulmonary aorta
(4) Systemic aorta
CS0126

102. The small oval depression found on inter auricular septum in adult Human is termed:-
(1) Foramen ovale
(2) Fossa ovalis
(3) Foramen of monero
(4) Foramen magnum
CS0127

103. Purkinje fibres help in contraction of :-
(1) Right auricle (2) Left ventricle
(3) Ventricles (4) Aorta
CS0128

104. The papillary muscles are helpful in :-
(1) Movement of eye balls
(2) Movement of eye lids
(3) Closing & opening the valves of heart
(4) Movement of pinnae

CS0129

105. Heart of human does not have :-
(1) Right auricle (2) Sinus venosus
(3) Conus arterious (4) Both 2 & 3

CS0130

106. The valves of the heart are attached to papillary muscles by :-
(1) Columnae carnae
(2) Chordae tendinae
(3) Tendinae
(4) Pectinate muscles

CS0131

107. Which has the thickest walls :-
(1) Right auricle (2) Left auricle
(3) Right ventricles (4) Left ventricle

CS0134

108. Blood supply to heart musculature is via :-
(1) Cardiac artery (2) Coronary artery
(3) Aorta (4) Pulmonary vein

CS0135

109. The remnant of foramen ovale (Fossa Ovalis) is located in :-
(1) Inter atrial septum
(2) Interventricular septum
(3) Between pulmonary & aortic arches
(4) Superior vena cava

CS0136

110. Which organ is by passed in Foetal Circulation :-
(1) Heart (2) Brain
(3) Lung (4) Liver

CS0137

111. The connection between pulmonary & Aortic arches in Foetus is :-
(1) Ligamentum arteriosum
(2) Ductus arteriosus
(3) Foramen ovale
(4) All of the above

CS0138

112. The mitral valve is supported by :-
(1) Bundle of HIS
(2) Ductus Arteriosus
(3) Foramen ovale
(4) Chorda tendinae

CS0139

113. Normal Heart rate in a two months old infant is
(1) <72/min. (2) 60 to 72/min.
(3) >72/min. (4) 16/min.

CS0141

114. The largest and the thickest heart chamber is
(1) Left ventricle
(2) Left atrium
(3) Righ atrium
(4) Right ventricle

CS0142

115. Pace maker is
(1) Instrument for measuring heart beat
(2) Instrument for measuring pulse rate
(3) Auriculo-ventricular node that provides impulse for heart beat
(4) Sino-auricular node that provides impulse for heart beat

CS0143

116. Tricupsid valve is found in between
(1) Sinus venosus and right auricle
(2) Right auricle and right ventricle
(3) Left ventricle and left auricle
(4) Ventricle and aorta

CS0144

117. Origin of heart beat and its conduction is represented by
(1) AV node $\rightarrow$ Bundle of His $\rightarrow$ SA node $\rightarrow$ Purkinje fibres
(2) SA node $\rightarrow$ Purkinje fibres $\rightarrow$ AV node $\rightarrow$ Bundle of His
(3) Purkinje fibres $\rightarrow$ AV node $\rightarrow$ AV node $\rightarrow$ Bundle of His
(4) SA node $\rightarrow$ AV node $\rightarrow$ Bundle of His $\rightarrow$ Purkinje fibres

CS0146

118. The hormone that stimulates heart beat is
(1) Insulin (2) Adrenaline
(3) Glucagon (4) Gastrin
CS0147

119. Heart beat is accelerated by
(1) Sympathetic nerves and noradrenaline
(2) Cranial nerves and adrenaline
(3) Cranial nerves and acetylcholine
(4) Sympathetic nerves and acetylcholine
CS0148

120. Neurogenic heart is characteristic of
(1) Humans
(2) Invertebrates
(3) Rat
(4) Rabbit
CS0149

121. In circulatory system, valves occur in
(1) Heart and blood vessels of both vertebrates and invertebrates as well as vertebrate lymphatics
(2) Both vertebrate and invertebrate hearts
(3) Vertebrate heart only
(4) Both vertebrate and invertebrate hearts and their blood vessels.
CS0150

122. Pericardial fluid is secreted by
(1) Myocardium
(2) Parietal peritoneum
(3) Visceral peritoneum
(4) Pericardium
CS0152

123. Which one generates heart beat?
(1) Purkinje fibres
(2) Cardiac branch of vagus nerve
(3) SA node
(4) AV node
CS0153

124. Heart wall is made of
(1) Myocardium
(2) Epicardium
(3) Endocardium
(4) All the above
CS0154

125. Match the columns

	Column I		Column II
a	Superior Vena Cava/SVC	p	Carries deoxygenated blood to lungs
b	Inferior Vena Cava/IVC	q	Carries oxygenated blood from lungs
c	Pulmonary Artery	r	Brings deoxygenated blood from lower parts of body to right atrium
d	Pulmonary Vein	t	Brings deoxygenated blood from upper parts of body into right atrium

(1) a—q, b—t, c—r, d—p
(2) a—t, b—p, c—q, d—r
(3) a—t, b—r, c—p, d—q
(4) a—t, b—p, c—r, d—q
CS0155

126. Blood vessel which brings oxygenated blood to left auricle is
(1) precaval vein/SVC
(2) Post caval vein/IVC
(3) Pulmonary vein
(4) Pulmonary artery
CS0156

127. Ventricular contraction is in command of :-
(1) S.A. Node
(2) A.V. Node
(3) Purkinje fibers
(4) Papillary muscles
CS0157

128. Bundle of His is a network of :-
(1) Muscle fibres distributed throughout the heart walls
(2) Muscle fibres found only in the inter ventricular septum
(3) Nerve fibres distributed in ventricles
(4) Nerve fibres found throughout the heart
CS0158

129. Endothelium and Endocardium originate from :-
(1) Ectoderm (2) Mesoderm
(3) Endoderm (4) All of the above
CS0374

130. The cardiac impulse that results into the heart beat is delayed at :-
(1) Internodal tract (2) AV node
(3) Bundle of His (4) Purkinje fibres
CS0161

131. Bicuspid (mitral) valve guards the opening in mammals between :-
(1) Left atrium and left ventricle
(2) Pulmonary vein and left auricle
(3) Stomach and intestine
(4) Right atrium and right ventricle
CS0162

132. "Bundle of His" are :-
(1) nervous tissue supplied to ventricles
(2) nervous tissue supplied to heart
(3) muscular tissue supplied to ventricles
(4) muscular tissue supplied to heart
CS0163

133. Papillary muscles are located in
(1) Ventricle, heart of human
(2) Dermis of mammalian skin
(3) Orbit of vertebrates eyes
(4) Pylorus of vertebrate stomach
CS0164

134. The heart beat of which animal is myogenic in nature
(1) Cockroach (2) Leech
(3) Elephant (4) All of these
CS0165

REGULATION OF HEART BEAT, CARDIAC CYCLE AND HEART SOUNDS

135. Blood pressure and heart beat is influenced by:-
(1) Insulin
(2) Adrenaline
(3) Optic nerve
(4) Growth hormone
CS0166

136. Heart beat is controlled by which cranial nerve :-
(1) X (2) IX
(3) III (4) V
CS0167

137. The heart sound "DUP" is Produced when :-
(1) Mitral valve opens
(2) Mitral valve closes
(3) Semilunar valve at the base of aorta closes
(4) Tricuspid valve opens
CS0169

138. When heart beat decreases than normal is called
(1) Bradycardia (2) Tachycardia
(3) Hypocardia (4) Nicardia
CS0170

139. The 'Lubb' and "Dup" heart sound are due to :-
(1) Opening of heart valves
(2) Action of papillary muscles
(3) Closing of heart valves
(4) Activity of pace maker
CS0171

140. Normal Cardiac output is :-
(1) 15 Litres/min.
(2) 5 Litres × 72/min.
(3) 5 Litres/min.
(4) 5/72 Litres/min.
CS0172

141. Acetylcholine causes :-
(1) Bradycardia (2) Tachycardia
(3) Both (4) None
CS0173

142. I^{st} Heart sound is :-
(1) 'LUBB' at end of systole
(2) 'DUBB' at end of systole
(3) 'LUBB' at beginning of Ventricular systole
(4) 'DUP' at beginning of Ventricular systole
CS0174

143. Heart beat becomes faster on stimulation by
(1) Sympathetic nerves and adrenaline
(2) Sympathetic and parasympathetic nerves
(3) Parasympathetic nerves and epinephrine
(4) Parasympathetic nerves and acetylcholine
CS0175

144. The sound of lubb is produced during closure of
(1) Bicuspid valve (2) Tricuspid valve
(3) Semilunar valves (4) Both (1) and (2)
CS0176

145. 'Dup' sound is produced during closure of
(1) Semilunar valves (2) Bicuspid value
(3) Tricuspid value (4) both (2) and (3)
CS0177

146. In diastole, the Heart is filled with the blood. This blood is :-
(1) Deoxygenated
(2) Venous blood
(3) Oxygenated blood
(4) Partial oxygenated blood
CS0375

147. In human oxygenated blood flows from :–
(1) Left auricle to left ventricle during auricular systole
(2) Right auricle to right ventricle during ventricular systole
(3) Right ventricle to aorta during ventricular systole
(4) Pulmonary vein to left auricle during auricular systole
CS0180

148. Tachycardia is :-
(1) Fast heart rate
(2) Slow heart rate
(3) Stop heart rate
(4) Normal heart rate
CS0182

149. A heart "murmur" disorder indicates a defect of :-
(1) Bundle of His
(2) Heart valves
(3) Sinuauricular node
(4) Atrioventricular node
CS0183

150. Blood enters into the heart because muscles of :
(1) Atria relax
(2) Ventricle contract
(3) Ventricle relax
(4) Atria contract
CS0184

BLOOD PRESSURE, BLOOD VESSELS, PORTAL SYSTEM AND LYMPHATIC SYSTEM AND OTHERS

151. Blood Capillaries are made of :-
(1) Endothelium and thin coat of connective tissue
(2) Endothelium and thin coat of muscle fibres
(3) Endothelium and thin coat of connective tissue and muscle fibres.
(4) Only endothelium
CS0186

152. Cardiac center is present in
(1) Cerebrum
(2) Medulla oblongata
(3) Pons
(4) Epithalamus
CS0376

153. Pulmonary veins are those which :-
(1) Carry deoxygenated blood from lungs to heart
(2) Carrying oxygenated blood From lungs to heart
(3) Carry deoxygenated blood from heart to lung
(4) Carry oxygenated blood from heart to lungs
CS0188

154. Oxygenated blood is carried by :-
(1) Pulmonary artery
(2) Pulmonary vein
(3) Renal vein
(4) Hepatic portal vein
CS0189

155. Lymph can be defined as :-
(1) Blood minus corpuscles
(2) Blood minus Plasma
(3) Blood minus WBC
(4) Blood minus RBC & Platelets
CS0190

156. Sphygmomanometer measures :-
(1) Blood pressure (2) Pulse rate
(3) Rate of heart beat (4) All
CS0191

157. Which has no muscular walls :-
(1) Capillary (2) Arteriole
(3) Veins (4) Artery
CS0192

158. Pulse beat is measured in :-
(1) Veins (2) Artery (Radial)
(4) Nerve (4) Capillary
CS0193

159. In a normal man blood pressure is :-
(1) 120/80 mm of Hg
(2) 80/100 mm of Hg
(3) 80/120 mm of Hg
(4) 100/80 mm of Hg
CS0194

160. In which of the following character a vein differs from an artery :-
(1) Having valves to control flow of blood
(2) Having narrow lumen
(3) Having muscular wall
(4) Having pigmented wall to give dark look
CS0195

161. Systolic pressure is higher than diastolic pressure due to :-
(1) Volume of blood in the heart is greater during systole
(2) Arteries contract during systole
(3) Blood vessels offer resistance to flowing blood during systole
(4) Blood is forced into arteries during systole.
CS0196

162. The venous system of frog differs from that of a mammals in the presence of :-
(1) Renal portal system
(2) Hapatic portal system
(3) Three superior venacava
(4) hepatic vein
CS0197

163. Which artery supplies blood to the diaphragm :-
(1) Phrenic (2) Splenic
(3) Renal (4) Caudal
CS0198

164. Which one of the following organ can be called a sort of "blood bank":-
(1) Heart (2) Liver
(3) Spleen (4) Lungs
CS0199

165. A renal portal system is found in :-
(1) Rabbit
(2) Mouse
(3) Horse
(4) Frog
CS0200

166. All arteries carry oxygenated blood except:-
(1) Systemic
(2) Hepatic
(3) Pulmonary
(4) Cardiac
CS0201

167. When there is a sudden loss of blood from the body the organ which supplies blood is:-
(1) Spleen (2) Heart
(3) Liver (4) Lung
CS0203

168. Coagulation of lymph is :-
(1) Faster than blood
(2) Not possible
(3) Slower than blood
(4) A passive process
CS0204

169. An artery can be distinguished from a vein in having
(1) Thicker wall
(2) Lesser lumen
(3) No valves
(4) All of the above
CS0205

170. The most important center of lymph formation is-
(1) Liver (2) Spleen
(3) Bone marrow (4) Mucosa of ileum
CS0206

171. Removal of which organ will have least effect in an adult Human :-
(1) Spleen (2) Liver
(3) Pancreas (4) Pituitary
CS0208

172. Which one of the following is the main graveyard of RBC :-
(1) Bone marrow
(2) Spleen
(3) Liver
(4) Kidney
CS0209

173. Largest lymphoid organ of body is :-
(1) Liver (2) Kidney
(3) Spleen (4) Pancreas
CS0210

174. A portal system is that in which :-
(1) A vein begins from an organ and ends in heart
(2) An artery breaks up in an organ & restarts by the union of its capillaries
(3) The blood from gut is brought in to kidneys before it is poured in to heart
(4) A vein breaks up in an organ into capillaries & restarts by their union as a new vein in the same organ
CS0212

175. Indicate correct statement for Human :-
(1) Arteries always carry oxygenated blood while veins always carry deoxygenated blood
(2) Venous blood is returned to left auricle
(3) Arteries are provided with valves while veins are devoid of valves
(4) Arteries always carry blood away from the heart, while veins always carry blood towards the heart
CS0213

176. Blood circulation that starts in capillaries and ends in capillaries is called :-
(1) Portal circulation
(2) Hepatic circulation
(3) Cardiac arrest
(4) None
CS0215

177. What is true about vein
(1) All veins carry deoxygenated blood
(2) All veins carry oxygenated blood
(3) They carry blood from organs towards heart
(4) They carry blood from heart towards organs
CS0216

178. In mammals the role of spleen is :-
(1) Graveyard of RBC
(2) Reservoir of blood
(3) Haemopoietic organ
(4) All
CS0217

179. Which of the following is valve less :-
(1) Arteries
(2) Veins
(3) Lymphatics
(4) Chambers in Heart
CS0218

180. Which of the following carries only deoxygenated blood :-
(1) Carotid artery
(2) Pulmonary artery
(3) Pulmonary vein
(4) Aorta
CS0219

181. In a Portal system (Man) :-
(1) A vein starts from an organ & ends in Heart
(2) A vein enters into organ other than heart & breaks in Capillaries
(3) An artery breaks in an organ & restarts by union of its Capillaries
(4) Blood from intestine is brought in kidneys then in IVC
CS0221

182. Lymph
(1) Transports O_2 to brain
(2) Transports CO_2 to lungs
(3) Returns interstitial fluid to blood
(4) Returns RBCs and WBCs to lymph nodes
CS0223

183. Glucose is carried from digestive tract to liver by
(1) Hepatic artery
(2) Hepatic portal vein
(3) Pulmonary vein
(4) None of the above

CS0224

184. Pulmonary artery differs from pulmonary vein in having
(1) Thick wall
(2) Thin wall
(3) Valves
(4) Both (2) and (3)

CS0225

185. Blood pressure is measured by
(1) Sphygmomanometer
(2) Phonocardiogram
(3) Electrocardiogram
(4) Stethoscope

CS0226

186. All veins have deoxygenated blood except
(1) Renal vein
(2) Hepatic vein
(3) Hepatic portal vein
(4) Pulmonary veins.

CS0227

187. Normal pulse pressure is
(1) 80 mm Hg (2) 120 mm Hg
(3) 40 mm Hg (4) 320 mm Hg

CS0228

188. Fully digested food reaches to liver by :-
(1) Hepatic portal vein
(2) Hepatic artery
(3) Hepatic vein
(4) All the above

CS0229

189. Which of the following statement is true for Lymph
(1) WBC and serum
(2) All components of blood except RBCs, Platelets and some proteins
(3) RBCs, WBCs and Plasma
(4) RBCs, Proteins and Platelets

CS0230

190. Lymph vessels pour their materials in
(1) Sub clavian vein
(2) Pulmonary artery
(3) Artery which enters in legs
(4) Right ventricle

CS0232

191. Hepatic portal system starts from
(1) Digestive system to liver
(2) Kidney to liver
(3) Liver to heart
(4) Liver to kidney

CS0233

192. Blood leaving liver and moving to heart will have more concentration of :-
(1) Bile (2) Urea
(3) Glycogen (4) Amino acid

CS0234

193. Maximum surface area of circulating system is seen in :-
(1) Heart (2) Capillaries
(3) Arterioles (4) Veins

CS0235

194. The structure of which of the following consist of a layer of single cell thickness ?
(1) Blood capillary
(2) Artery
(3) Venule
(4) arteriole

CS0237

195. Coronary artery disease is due to :
(1) Streptococci bacteria
(2) Inflammation of pericardium
(3) Weakening of the heart valves
(4) Insufficient blood supply to the heart muscles

CS0238

196. An artery is a vessel that carries blood :
(1) Away from the heart
(2) Towards the heart
(3) Which is deoxygenated without any exception
(4) none of these

CS0239

197. Which one indicates the hypertension ?

(1) 90/60 (2) 120/85

(3) 110/70 (4) 140/100

CS0240

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**1**	**4**	**3**	**1**	**2**	**1**	**2**	**2**	**1**	**3**	**3**	**4**	**3**	**2**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**4**	**1**	**4**	**3**	**2**	**1**	**3**	**1**	**1**	**2**	**4**	**4**	**3**	**2**	**2**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**2**	**4**	**1**	**2**	**2**	**4**	**1**	**4**	**1**	**3**	**2**	**4**	**3**	**4**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**2**	**1**	**2**	**1**	**3**	**1**	**1**	**3**	**1**	**2**	**3**	**3**	**1**	**2**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**4**	**2**	**4**	**1**	**2**	**4**	**2**	**1**	**2**	**1**	**4**	**4**	**1**	**1**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**3**	**2**	**3**	**1**	**3**	**3**	**2**	**1**	**1**	**2**	**2**	**2**	**3**	**4**	**2**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**3**	**3**	**1**	**1**	**4**	**4**	**1**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**4**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**2**	**4**	**2**	**1**	**3**	**2**	**4**	**3**	**1**	**4**	**2**	**4**	**2**	**1**	**2**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**1**	**4**	**3**	**4**	**3**	**3**	**1**	**2**	**2**	**2**	**1**	**3**	**1**	**3**	**2**
Que.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Ans.	**1**	**3**	**1**	**3**	**3**	**1**	**3**	**1**	**4**	**1**	**2**	**1**	**1**	**2**	**1**
Que.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Ans.	**4**	**2**	**2**	**2**	**4**	**1**	**1**	**2**	**1**	**1**	**4**	**1**	**1**	**3**	**4**
Que.	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans.	**3**	**1**	**3**	**4**	**4**	**1**	**2**	**3**	**4**	**4**	**1**	**3**	**4**	**1**	**2**
Que.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
Ans.	**2**	**3**	**2**	**1**	**1**	**4**	**3**	**1**	**2**	**1**	**1**	**2**	**2**	**1**	**4**
Que.	196	197													
Ans.	**1**	**4**													

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Examination of blood of a person suspected of having anemia, shows large, immature, nucleated erythrocytes without haemoglobin. Supplementing his diet with which of the following is likely to alleviate his symptoms?
(1) Thiamine
(2) Folic acid and cobalamine
(3) Riboflavin
(4) Iron compounds

CS0241

AIPMT 2007

2. Which one of the following mammalian cells is not capable of metabolising glucose to carbon-dioxide aerobically ?
(1) Red blood cells
(2) White blood cells
(3) Unstriated muscle cells
(4) Liver cells

CS0242

3. A drop of each of the following, is placed separately on four slides. Which of them will not coagulate?
(1) Whole blood from pulmonary vein
(2) Blood plasma
(3) Blood serum
(4) Sample from the thoracic duct of lymphatic system

CS0243

AIPMT 2008

4. Which type of white blood cells are concerned with the release of histamine and the natural anticoagulant heparin ?
(1) Eosinophils
(2) Monocytes
(3) Neutrophils
(4) Basophils

CS0244

5. In humans, blood passes from the post caval to the diastolic right atrium of heart due to :-
(1) stimulation of the sino auricular node
(2) pressure difference between the post caval and atrium
(3) pushing open of the venous valves
(4) suction pull

CS0245

6. The most active phagocytic white blood cells are:-
(1) Eosinophils and lymphocytes
(2) Neutrophils and monocytes
(3) Neutrophils and eosinophils
(4) Lymphocytes and macrophages

CS0246

AIPMT 2009

7. The most popularly known blood grouping is the ABO grouping. It is named ABO and not ABC, because "O" in it refers to having:-
(1) No antigens A and B on RBCs
(2) Other antigens besides A and B on RBCs
(3) Over dominance of this type on the genes for A and B types
(4) One antibody only - either anti–A or anti–B on the RBCs

CS0247

8. The letter T in T-lymphocyte refers to :-
(1) Thymus
(2) Thyroid
(3) Thalamus
(4) Tonsil

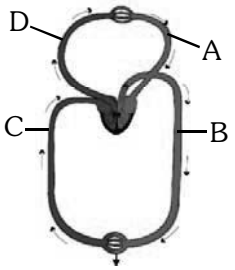
CS0248

9. Compared to blood our lymph has :-
(1) More RBCs and less WBCs
(2) No plasma
(3) Plasma without proteins
(4) More WBCs and no RBCs

CS0249

NEET-UG 2013

10. Figure shows schematic plan of blood circulation in humans with labels A to D, Identify the label and give its function/s.



(1) D-Dorsal aorta-takes blood from heart to body parts, PO_2 = 95 mm Hg
(2) A-Pulmonary vein-takes impure blood from body parts, PO_2 = 60 mm Hg
(3) B-Pulmonary artery-takes blood from heart to lungs, PO_2 = 90 mm Hg
(4) C-Vena Cava-takes blood from body parts of the right auricle, PCO_2 = 45 mm Hg

CS0251

AIPMT 2014

11. How do parasympathetic neural signals affect the working of the heart ?
(1) Reduce both heart rate and cardiac output.
(2) Heart rate is increased without affecting the cardiac output.
(3) Both heart rate and cardiac output increase.
(4) Heart rate decreases but cardiac output increases.

CS0253

AIPMT 2015

12. Blood pressure in the mammalian aorta is maximum during :
(1) Diastole of the right ventricle
(2) Systole of the left ventricle
(3) Diastole of the right atrium
(4) Systole of the left atrium

CS0254

NEET-I 2016

13. Blood pressure in the pulmonary artery is :-
(1) same as that in the aorta.
(2) more than that in the carotid.
(3) more than that in the pulmonary vein.
(4) less than that in the venae cavae.

CS0255

NEET-II 2016

14. Name the blood cells, whose reduction in number can cause clotting disorder, leading to excessive loss of blood from the body.
(1) Neutrophils
(2) Thrombocytes
(3) Erythrocytes
(4) Leucocytes

CS0256

15. Serum differs from blood in :-
(1) Lacking clotting factors
(2) Lacking antibodies
(3) Lacking globulins
(4) Lacking albumins

CS0257

NEET(UG) 2017

16. Adult human RBCs are enucleated. Which of the following statement(s) is/are **most appropriate** explanation for this feature ?
(a) They do not need to reproduce
(b) They are somatic cells
(c) They do not metabolize
(d) All their internal space is available for oxygen transport
(1) only (a)
(2) (a), (c) and (d)
(3) (b) and (c)
(4) only (d)

CS0260

17. The hepatic portal vein drains blood to liver from :
(1) Stomach
(2) Kidneys
(3) Intestine
(4) Heart

CS0261

18. Frog's heart when taken out of the body continues to beat for sometime.
Select the best option from the following statements.
(a) Frog is a poikilotherm.
(b) Frog does not have any coronary circulation.
(c) Heart is "myogenic" in nature.
(d) Heart is autoexcitable
Options:
(1) Only(d) (2) (a) and (b)
(3) (c)and(d) (4) Only(c)

CS0262

NEET(UG) 2018

19. Match the items given in Column I with those in Column II and select the ***correct*** option given below:

Column I	Column II
a. Tricuspid valve	i. Between left atrium and left ventricle
b. Bicuspid valve	ii. Between right ventricle and pulmonary artery
c. Semilunar valve	iii. Between right atrium and right ventricle

	a	b	c
(1)	iii	i	ii
(2)	i	iii	ii
(3)	i	ii	iii
(4)	ii	i	iii

CS0266

20. Match the items given in Column I with those in Column II and select the ***correct*** option given below:-

Column I	Column II
a. Fibrinogen	i. Osmotic balance
b. Globulin	ii. Blood clotting
c. Albumin	iii. Defence mechanism

	a	b	c
(1)	iii	ii	i
(2)	i	ii	iii
(3)	i	iii	ii
(4)	ii	iii	i

CS0267

NEET(UG) 2019

21. Match the **Column - I** with **Column -II**

Column - I	Column - II
(a) P-wave	(i) Depolarisation of ventricles
(b) QRS complex	(ii) Repolarisation of ventricles
(c) T-wave	(iii) Coronary ischemia
(d) Reduction in the size of T-wave	(iv) Depolarisation of atria
	(v) Repolarisation of atria

Select the **correct** option -

	(a)	(b)	(c)	(d)
(1)	(iv)	(i)	(ii)	(iii)
(2)	(iv)	(i)	(ii)	(v)
(3)	(ii)	(i)	(v)	(iii)
(4)	(ii)	(iii)	(v)	(iv)

CS0377

NEET(UG) 2019 (ODISHA)

22. All the components of the nodal tissue are auto excitable. Why does the SA node act as the normal pacemakar?
(1) SA node has the lowest rate of depolarisation.
(2) SA node is the only component to generate the threshold potential.
(3) Only SA node can convey the action potential to the other components.
(4) SA node has the highest rate of depolarisation.

CS0378

23. A specialised nodal tissue embedded in the lower corner of the right atrium, close to Atrio-ventricular septum, delays the spreading of impulses to heart apex for about 0.1 sec. The delay allows.
(1) blood to enter aorta.
(2) the ventricles to empty completely.
(3) blood to enter pulmonary arteries.
(4) the atria to empty completely.

CS0379

NEET(UG) 2020

24. Match the following columns and select the correct option.

	Column - I		Column - II
(a)	Eosinophils	(i)	Immune response
(b)	Basophils	(ii)	Phagocytosis
(c)	Neutrophils	(iii)	Release histaminase, destructive enzymes
(d)	Lymphocytes	(iv)	Release granules containing histamine

	(a)	(b)	(c)	(d)
(1)	(ii)	(i)	(iii)	(iv)
(2)	(iii)	(iv)	(ii)	(i)
(3)	(iv)	(i)	(ii)	(iii)
(4)	(i)	(ii)	(iv)	(iii)

CS0380

NEET(UG) 2020 (COVID-19)

25. Which of the following conditions cause erythroblastosis foetalis ?

(1) Mother Rh^{+ve} and foetus Rh^{-ve}
(2) Mother Rh^{-ve} and foetus Rh^{+ve}
(3) Both mother and foetus Rh^{-ve}
(4) Both mother and foetus Rh^{+ve}

CS0381

NEET(UG) 2021

26. Persons with 'AB' blood group are called as "Universal recipients". This is due to :

(1) Absence of antigens A and B on the surface of RBCs
(2) Absence of antigens A and B in plasma
(3) Presence of antibodies, anti-A and anti-B, on RBCs
(4) Absence of antibodies, anti-A and anti-B, in plasma

CS0382

27. Which enzyme is responsible for the conversion of inactive fibrinogens to fibrins?

(1) Thrombin
(2) Renin
(3) Epinephrine
(4) Thrombokinase

CS0383

NEET(UG) 2022

28. Given below are two statements:

Statement I:

The coagulum is formed of network of threads called thrombins.

Statement II:

Spleen is the graveyard of erythrocytes.

In the light of the above statements, choose the **most appropriate** answer from the options given below:

(1) Both **Statement I** and **Statement II** are incorrect
(2) **Statement I** is correct but **Statement II** is incorrect
(3) **Statement I** is incorrect but **Statement II** is correct
(4) Both **Statement I** and **Statement II** are correct

CS0384

29. Which one of the following statements is **correct**?

(1) The tricuspid and the bicuspid valves open due to the pressure exerted by the simultaneous contraction of the atria
(2) Blood moves freely from atrium to the ventricle during joint diastole.
(3) Increased ventricular pressure causes closing of the semilunar valves.
(4) The atrio-ventricular node (AVN) generates an action potential to stimulate atrial contraction

CS0385

NEET(UG) 2022 (OVERSEAS)

30. Inadequate supply of oxygen to heart muscles leads to a symptom of acute chest pain. This disorder of the circulatory system is identified as :
(1) Cardiac arrest
(2) Heart failure
(3) Coronary Heart Disease
(4) Angina pectoris

CS0386

Re-NEET(UG) 2022

31. A unique vascular connection between the digestive tract and liver is called _____ .
(1) Hepato–pancreatic system
(2) Hepatic portal system
(3) Renal portal system
(4) Hepato–cystic system

CS0387

32. Arrange the following formed elements in the decreasing order of their abundance in blood in humans :
(a) Platelets (b) Neutrophils
(c) Erythrocytes (d) Eosinophils
(e) Monocytes
Choose **the most appropriate answer** from the options given below :
(1) (c), (a), (b), (e), (d)
(2) (c), (b), (a), (e), (d)
(3) (d), (e), (b), (a), (c)
(4) (a), (c), (b), (d), (e)

CS0388

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	1	3	4	2	2	1	1	4	4	1	2	3	2	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	4	3	3	1	4	1	4	4	2	2	4	1	3	2	4
Que.	31	32													
Ans.	2	1													

EXERCISE-III

Master Your Understanding

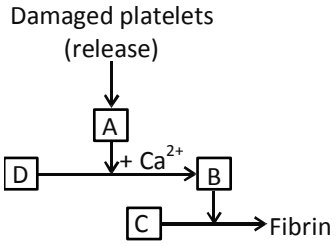
EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Which of the following WBCs are phagocytic cells.

(a) Monocytes (b) Neutrophils
(c) Basophils (d) Eosinophils
(1) Only (a) (2) (a) and (b)
(3) (a) and (c) (4) (c) and (d)

CS0271

2. Identify A, B and C in the given below blood clotting process.



Options :-

	A	B	C
(1)	Thromoplastin	Prothrombin	Fibrinogen
(2)	Thrombin	Fibrinogen	Thrombo-Kinase
(3)	Thromboplastin	Thrombin	Fibrinogen
(4)	Prothrombin	Thrombin	Fibrinogen

CS0272

3. Platelets are cells fragments produced from:-

(1) Thrombocytes (2) Megakaryocytes
(3) Monocytes (4) Mast cell

CS0273

4. Read the following statements (A-D) :-

A. RBCs are the most abundant of all the cells in blood
B. A healthy adult man has on an average 5 Billions to 5.5 Billions of RBCs mm^{-3} of blood
C. RBCs are formed in liver in the adults
D. RBCs are devoid of nucleus in most of the mammals and are biconcave in shape

How many of the above statements are incorrect:-

(1) Four (2) Three (3) Two (4) One

CS0274

5. Erythroblastosis foetalis can be avoided by administering.....to the mother immediately after the delivery of first child:-

(1) Vitamins
(2) Antibiotics
(3) Anti-Rh antibodies
(4) Rh-antigen

CS0275

6. Read the following (A - D) Statements :-

(A) Plasma is a straw coloured, viscous fluid constituting 55 percent of the blood.
(B) 90-92 percent of plasma is water and proteins contribute 6-8 percent of it
(C) Globulins are needed for clotting or coagulation of Blood
(D) Fibrinogens are primarily involved in defence mechanism of the body.

How many of the above statements are correct:

(1) Four (2) Three
(3) Two (4) One

CS0276

7. Which of the following is incorrect match of W.B.Cs with its functions :-

(1) Neutrophils – Phagocytic cells
(2) Eosinophils – Resist infections and are also associated with allergic reactions
(3) Basophils – Secrete histamine serotonin and Heparin
(4) T-Lymphocytes – Produce antibodies

CS0277

8. The state of heart when it is not pumping blood effectively enough to meet the needs of the body, is :-

(1) Heart attack (2) Cardiac arrest
(3) Angina pectoris (4) Heart Failure

CS0278

9. The opening between the right atrium and the right ventricle is guarded by :-
(1) Tricuspid valve (2) Bicuspid value
(3) Semilunar valve (4) Eustachian valve
CS0279

10. Incomplete double circulation is found in :-
(1) Reptiles and Birds
(2) Amphibian and Reptiles
(3) Birds and Mammals
(4) Fish and Amphibia
CS0280

11. The first heart sound is associated with :-
(1) Closure of the semilunar valves
(2) Closure of the tricuspid and Bicuspid valves
(3) Opening of the semilunar valves
(4) Opening of the Eustachian valve
CS0281

12. Correctly match column-I with column-II

Column-I	**Column-II**
A-Cardiac arrest	(i) Heart not pumping blood effectively
B-Heart Failure	(ii) Heart muscle is suddenly damaged
C-Heart attack	(iii) Acute chest pain
D-Angina	(iv) Heart stops beating

(1) A→(i), B→(ii), C→(iii), D-(iv)
(2) A→(iv), B→(ii), C→(i), D-(iii)
(3) A→(iv), B→(i), C→(ii), D-(iii)
(4) A→(ii), B→(iii), C→(i), D-(iv)
CS0282

13. Match the Column-I with Column-II.

Column-I	**Column-II**
(A) Fish	(i) 3-chambered heart
(B) Amphibia	(ii) Incomplete double circulation
(C) Birds	(iii) 4-chambered heart
	(iv) Single circulation
	(v) 2-chambered heart
	(vi) Double circulation

(1) A→(i), (ii) B→(iii), (vi) C→(iv), (v)
(2) A→ (i), (iv) B→(v), (ii) C→(iii), (vi)
(3) A→(v), (iv) B→(i), (ii) C→(iii), (vi)
(4) A→(iii), (ii) B→(i), (iv) C→(v), (vi)
CS0283

14. In which the following can increase the rate of heart beat?
(A) Sympathetic neural signals.
(B) Parasympathetic neural signals.
(C) Adrenal medullary hormones.
(D) Vagus nerve.
(E) Thyroxine hormone
(F) Acetylcholine
(1) A, C, E (2) D, E, F
(3) A, C, D (4) B, D, F
CS0284

15. During joint diastole :-
(1) Tricuspid and bicuspid valves are open
(2) Semilunar valves are closed
(3) All the four chambers of heart are in a relaxed state.
(4) All of the above
CS0285

16. Which is responsible for initiating and maintaining the rhythmic contractile activity of the heart?
(1) Sino-atrial node (SAN)
(2) Atrio-ventricular node (AVN)
(3) Purkinje fibres
(4) Bundle of his
CS0286

17. In which the following has the ability to generate action potentials without any external stimuli?
(1) Sino-atrial node (SAN)
(2) Atrio-ventricular node (AVN)
(3) Purkinje fibres
(4) All of the above
CS0287

18. Which information is **incorrect** about cardiac output?
(1) It's average value is 5000 ml
(2) The stroke volume multiplied by the heart rate, gives the cardiac output.
(3) It is the volume of blood pumped out by each ventricle per minute.
(4) The body has no the ability to alter the cardiac output.
CS0288

19. Birds and Mammals have :-
(1) Single and closed type circulation
(2) Double and open type circulation
(3) Double and closed type circulation
(4) Single and open type circulation

CS0289

20. Open circulatory system is present in :-
(1) Annelids and Chordates
(2) Annelids and Arthropods
(3) Arthropods and Chordates
(4) Arthropods and Mollusca

CS0290

21. Identify the correct sequence of events in a cardiac cycle :-
(1) Joint diastole $\rightarrow$ Atrial systole $\rightarrow$ Ventricular systole
(2) Joint diastole $\rightarrow$ Atrial diastole $\rightarrow$ Ventricular systole
(3) Ventricular systole $\rightarrow$ Atrial systole $\rightarrow$ Joint diastole
(4) Atrial systole $\rightarrow$ Joint diastole $\rightarrow$ Ventricular systole

CS0291

22. During ventricular systole :-
(1) Semilunar valves are closed
(2) About 30 percent blood is pumped into aorta from ventricles.
(3) Tricuspid and Bicuspid valves are closed
(4) Ventricular pressure declines

CS0292

23. The cardiac impulse is initiated and conducted further upto ventricle. The correct sequence of conduction of impulse is

(1)	S A Node	A V Node	Purkinje fiber	A V Bundle
(2)	S A Node	Purkinje fiber	A V Node	A V Bundle
(3)	S A Node	A V Node	A V Bundle	Purkinje fiber
(4)	S A Node	Purkinje fiber	A V Bundle	A V Node

CS0293

24. The second heart sound (dup) is associated with the closure of
(1) Tricuspid valve
(2) Semilunar valves
(3) Bicuspid valve
(4) Tricuspid and bicuspid valves.

CS0294

25. Match the terms given under Column 'I' with their functions given under Column 'II' and select the answer from the options given below:

Column-I	**Column-II**
A. Lymphatic System	i. Carries oxygenated blood
B. Pulmonary vein	ii. Immune Response
C. Thrombocytes	iii. To drain back the tissue fluid to the circulatory system
D. Lymphocytes	iv. Coagulation of blood

(1) A – (i), B – (ii), C – (iii), D – (iv)
(2) A – (iii), B – (i), C – (iv), D – (ii)
(3) A – (iii), B – (i), C – (ii), D – (iv)
(4) A – (ii), B – (i), C – (iii), D – (iv)

CS0295

26. Cardiac activity could be moderated by the autonomous neural system. Tick the correct answer :-
(1) The parasympathetic system stimulates heart rate and stroke volume
(2) The sympathetic system stimulates heart rate and stroke volume
(3) The parasympathetic system decreases the heart rate but increase stroke volume
(4) The sympathetic system decreases the heart rate but increase stroke volume

CS0296

27. Which among the following is correct during each cardiac cycle ?
(1) The volume of blood pumped out by the Rt and Lt ventricles is same.
(2) The volume of blood pumped out by the Rt and Lt ventricles is different
(3) The volume of blood received by each atrium is different
(4) The volume of blood received by the aorta and pulmonary artery is different

CS0297

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

28. Blood platelets are found only in the blood of :
(1) Birds
(2) Reptiles
(3) Mammals
(4) Amphibians

CS0298

29. What is the main difference in human and frog RBC?
(1) Human RBC are non-nucleated
(2) Haemoglobin is found only in human RBC
(3) Human RBC have nucleus
(4) Human RBC are multinucleated

CS0299

30. Prothrombin is found in :-
(1) Intestine and helps in cellulose digestion
(2) Liver and helps in production of bile
(3) Blood and gives red colour
(4) Blood and helps in blood clotting

CS0300

31. Which type of WBCs are most abundant in blood of rabbit and other vertebrates?
(1) Acidophils
(2) Basophils
(3) Lymphocytes
(4) Neutrophils

CS0301

32. Blood clotting in a test tube can be prevented by adding a little of :
(1) Sodium oxalate
(2) Sodium chloride
(3) Sodium hydroxide
(4) Ammonium chloride

CS0302

33. Circular, biconcave and non-nucleated RBC's are found in
(1) Rat
(2) Rabbit
(3) Man
(4) All of the above

CS0303

34. Which of the following is an anticoagulant and checks blood coagulation in blood vessels?
(1) Prothrombin (2) Globulin
(3) Thromboplastin (4) Heparin

CS0304

35. In normal healthy female, the number of RBC/mm^3 of blood is :
(1) 6.5-7.0 million (2) 5.5-6.0 million
(3) 4.5-5.0 million (4) 3.5-4.0 million

CS0305

36. Which of the following should be avoided in biological marriages?
(1) A^+ boy and A^+ girl
(2) A^+ boy and A^- girl
(3) O^+ boy and O^+ girl
(4) O^- boy and O^+ girl

CS0306

37. After examining the blood group of husband and wife , the doctor advised them not to have more than one child. The blood groups of the couple are likely to be :
(1) Male Rh^- and female Rh^+
(2) Female Rh^- and male Rh^+
(3) Male Rh^+ and female Rh^+
(4) Male Rh^- and female Rh^-

CS0307

38. Blood colloidal osmotic pressure is maintained by
(1) Albumin (2) Globulin
(3) Fibrinogen (4) Thrombin

CS0308

39. Which one of the following is agranulocyte?
(1) Neutrophil (2) Eosinophil
(3) Basophil (4) Monocyte

CS0309

40. During the process of blood coagulation vitamin K helps in the :
(1) Formation of thromboplastin
(2) Formation of prothrombin
(3) Conversion of prothrombin to thrombin
(4) Conversion of fibrinogen to fibrin

CS0310

41. In mature RBC, nucleus is present in :
(1) Amphibians
(2) Mammals
(3) Both 1 and 2
(4) Neither in frog nor in mammals
CS0311

42. ABO blood group system is given by :
(1) Landsteiner (2) Wallace
(3) De Vries (4) Lamarck
CS0312

43. Which of the following , does not help in clotting of blood?
(1) Heparin (2) Prothrombin
(3) Ca^{2+} (4) Exposure to O_2
CS0313

44. Haematocrit value gives :
(1) Amount of RBC in blood
(2) Number of WBC in blood
(3) Amount of plasma in blood
(4) Haemoglobin concentration in blood
CS0314

45. Which one of the following couple were suggested by Doctors to not have more than one child
(1) Rh^+ male and Rh^- female
(2) Rh^- male and Rh^+ female
(3) Rh^+ male and Rh^+ female
(4) Rh^- male and Rh^- female
CS0315

46. The pH of blood is :
(1) Between 7–8 (2) Between 2–4
(3) Between 12–14 (4) Between 2–5
CS0316

47. Universal blood recipient is :
(1) Blood group–O
(2) Blood group–AB
(3) Blood group–A
(4) Blood group–B
CS0317

48. Life span of RBC is :
(1) 50 days (2) 70 days
(3) 120 days (4) 220 days
CS0318

49. During blood clotting which of the following is used
(1) Co (2) Ca^{++}
(3) Na^+ (4) Cl^-
CS0319

50. Haemoglobin contains
(1) Fe^{++} (2) Mg^{++}
(3) Na^{++} (4) Ca^{++}
CS0320

51. Which of the following does not play a role in blood coagulation ?
(1) Vitamin K (2) Vitamin D
(3) Calcium ions (4) Fibrinogen
CS0321

52. Anaemia is caused by :
(1) Deficiency of Fe
(2) Deficiency of Na
(3) Deficiency of Ca
(4) Deficiency of Mg
CS0322

53. The folllowing are needed for blood clotting :
(1) Ca^{++} and Vitamin E
(2) Ca^{++} and Vitamin K
(3) Ca^{++} and Vitamin A
(4) K^+ and Vitamin K
CS0323

54. The percentage of Hb in RBC is ;
(1) 48% (2) 34% (3) 10% (4) 20%
CS0324

55. Which of the following is enucleate ?
(1) Squamous epithelial cell
(2) Mature human erythrocyte
(3) Mature human leucocyte
(4) Mature frog erythrocyte
CS0325

56. Which one of the following anticoagulant is added in blood during storage?
(1) Sodium carbonate
(2) Sodium oxalate
(3) Sodium chloride
(4) Sodium hydroxide
CS0326

57. pH of blood in arteries and veins is :-
(1) More in veins and less in arteries
(2) More in arteries and less in veins
(3) same
(4) Not definite

CS0327

58. Diapedesis is :-
(1) A type of amoeboid movement shown by RBC
(2) Movement of some WBC to tissue through the wall of blood capillary to destroy harmful bacteria
(3) A type of movement in Hydra
(4) Filtration process of urea in kidney

CS0328

59. After the death of Human :-
(1) Both veins and arteries are full of blood
(2) Both veins & arteries are empty
(3) Arteries are full of blood while veins are empty
(4) Veins are full of blood while arteries are empty

CS0329

60. Heart has to pump blood more forcefully in older persons due to
(1) Increased elasticity of arteries
(2) Decreased elasticity of arteries
(3) Decreased efficiency of heart
(4) Increased efficiency of heart

CS0330

61. Match the columns

	Column I		**Column II**
a	Bicuspid valve	p	Brain
b	Nephron	q	Liver
c	Alveoli	r	Heart
d	Cerebrum	s	Kidney
		t	Lungs

(1) a–s, b–r, c–p, d–t
(2) a–r, b–t, c–s, d–p
(3) a–r, b–s, c–t, d–p
(4) a–s, b–q, c–p, d–t

CS0332

62. Vasoconstriction causes
(1) Increase in heart beat
(2) Decrease in heart beat
(3) Increase in blood pressure
(4) Decrease in blood pressure

CS0333

63. During high blood pressure, regulations of heart beat and circulation are controlled by
(1) Vasodilator and vasoconstrictor centres
(2) Cardio-stimulatory and vasoconstrictor centres
(3) Cardio-inhibitory and vasoconstrictor centres
(4) Cardio-inhibitory and vasodilator centers.

CS0336

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**3**	**2**	**3**	**3**	**3**	**4**	**4**	**1**	**2**	**2**	**3**	**3**	**1**	**4**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**1**	**4**	**4**	**3**	**4**	**1**	**3**	**3**	**2**	**2**	**2**	**1**	**3**	**1**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**4**	**1**	**4**	**4**	**3**	**2**	**2**	**1**	**4**	**2**	**1**	**1**	**1**	**1**	**1**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**1**	**2**	**3**	**2**	**1**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**4**	**2**
Que.	61	62	63												
Ans.	**3**	**3**	**4**												

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

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EXERCISE

Excretory products & their elimination

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

EXCRETORY MATTER, KIDNEY, NEPHRON

1. The retroperitoneal kidney is -
(1) Kidney of fish
(2) Kidney covered by peritoneum on ventral side
(3) Kidney covered by peritoneum on dorsal side
(4) Kidney uncovered by peritoneum on ventral Side.

EE0001

2. Nitrogenous waste products are eliminated mainly as -
(1) Urea in tadpole & ammonia in adult frog
(2) Ammonia in tadpole and urea in adult frog
(3) Urea in both tadpole & adult frog.
(4) Urea in tadpole and uric acid in adult frog.

EE0003

3. Ammonia is the main nitrogenous excretory material in
(1) Amphibians (2) Aves
(3) Tadpoles (4) Reptiles

EE0005

4. The blood vessel taking blood towards Bowman's capsule is
(1) Afferent arteriole
(2) Efferent arteriole
(3) Renal vein
(4) Renal portal vein.

EE0006

5. Ornithine cycle is related to
(1) Respiration (2) Excretion
(3) Digestion (4) Nutrition

EE0007

6. Read the following statements about human excretory system and choose the correct option accordingly.
I. Kidneys are reddish brown and bean-shaped structure.
II. Kidneys are situated between the last thoracic to third lumbar vertebra.
III. Each kidney of an adult human measures 10-12 cm in length, 5-7 cm in width, 2-3 cm thickness, and average weight 120-170 gram.
(1) I and II (2) II and III
(3) III and I (4) All

EE0238

7. Excretion is
(1) Removal of substances required by body
(2) Removal of useless substances and substances present in excess
(3) Formation of substances having some role in body
(4) 1 and 2 both

EE0009

8. In mammals the urinary bladder opens into
(1) Uterus (2) Urethra
(3) Vestibule (4) Ureter

EE0010

9. In humans, the kidney is
(1) Metanephric
(2) Mesonephric
(3) Pronephric
(4) Opisthonephric

EE0011

10. Urea is derived from
(1) Fats (2) Amino acids
(3) Carbohydrates (4) Uric acid

EE0012

11. Animals which excrete large amount of ammonia are
(1) Terrestrial (2) Amphibians
(3) Egg laying (4) Aquatic

EE0013

12. Ureotelic animals are those in which the main nitrogenous waste product is
(1) Amino acids (2) Urea
(3) Uric acid (4) Ammonia

EE0014

13. Excretory product of mammals is
(1) Salts (2) Glucose
(3) Urea (4) Ammonia
EE0015

14. Malpighian corpuscles occur in
(1) Medulla (2) Cortex
(3) Pelvis (4) Pyramid
EE0016

15. Brush border is characteristic of
(1) Neck of nephron
(2) Collecting tube
(3) Proximal convoluted tubule
(4) All the above
EE0017

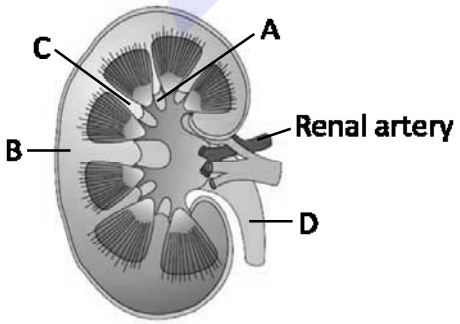
16. In cockroach, the excretory product is
(1) Ammonia (2) Uric acid
(3) Urea (4) Both 1 and 3
EE0018

17. Ornithine cycle operates in
(1) Stomach (2) Pancreas
(3) Liver (4) Oral cavity
EE0019

18. Ornithine cycle performs
(1) ATP synthesis
(2) Urea formation in spleen
(3) Urea formation in liver
(4) Urine formation in liver
EE0021

19. Uriniferous tubules occur in
(1) Stomach (2) Testes
(3) Ovary (4) Kidney
EE0022

20. Identify A to D in the given structure and choose the correct option accordingly.



(1) A-Calyx, B-Cortex, C-Renal column, D-Ureter
(2) A-Calyx, B-Cortex, C-Renal column, D-Urethra
(3) A-Urethra, B-Cortex, C-Renal column, D-Calyx
(4) A-Urethra, B-Calyx, C-Renal column, D-Cortex
EE0229

21. The two kidneys lie in man
(1) At the level of ovaries
(2) At the same level
(3) Left kidney at a higher level than the right one
(4) Right kidney at a higher level than the left one
EE0025

22. Vasa recta are tubular capillaries around
(1) Posterior part of alimentary canal
(2) PCT
(3) Loop of Henle
(4) DCT
EE0026

23. Diameter of the renal afferent vessel is
(1) Same as that of efferent
(2) Smaller than that of efferent
(3) Larger than that of efferent
(4) There is no efferent vessel
EE0028

24. Choose the mismatched part of nephron with their function.
(1) Bowman's capsule-Glomerular filtration
(2) PCT-Reabsorption of Na^+ and K^+
(3) DCT-Reabsorption of glucose
(4) Loop of Henle-Urine concentration
EE0230

25. A notch present on the medial side of kidney is known as
(1) Ureter
(2) Pelvis
(3) Hilus
(4) Pyramid
EE0031

26. Which is false
(1) Nephron-Excretion
(2) Alveoli-Respiration
(3) Kidney-osmoregulation
(4) None of these
EE0034

27. The snakes living in deserts are mainly
(1) Ammonotelic (2) Aminotelic
(3) Ureotelic (4) Uricotelic
EE0035

28. Which one is not the function of kidney?
(1) Osmoregulation
(2) Salt retention
(3) Excretion
(4) Synthesis of urea
EE0036

29. Ammonia is the chief excretory substance in
(1) Camel and whale
(2) Cartilaginous fishes
(3) Whale and Tortoise
(4) Fresh water fishes
EE0038

30. One of the following excrete urea
(1) Snakes (2) Birds
(3) Insects (4) Mammals
EE0039

31. Uric acid excretion is an adaptation for
(1) Water conservation (2) Water removal
(3) Osmoregulation (4) None
EE0040

32. NH_3 is
(1) Less toxic (2) Toxic
(3) Highly toxic (4) None
EE0041

33. Out of the four parts given below, which parts play significant role in forming concentrated urine in human ?
I. Loop of Henle II. Glomerulus
III. Bowman's capsule IV. Vasa recta
The correct option is
(1) I and II (2) III and IV
(3) II and III (4) I and IV
EE0232

34. Which is absent in Glomerular filtrate?
(1) Blood corpuscles (2) Fats
(3) Proteins (4) All
EE0045

35. Urine formed by nephrons is ultimately carried to ....A... where it is stored till a voluntary signal is given by the ...B... . This signal is initiated by ...C... of urinary bladder. Choose the correct option for A, B and C.
(1) A-Urethra, B-CNS, C-PNS
(2) A-Urinary bladder, B-CNS, C-stretching
(3) A-Urethra, B-CNS, C-Stretching
(4) A-Urethra, B-CNS, C-ANS
EE0233

36. Conversion of ammonia to urea is done by..... Cycle -
(1) Ornithine cycle (2) Arginine cycle
(3) Fumaric cycle (4) Citrulline cycle
EE0050

37. The movement of Ions against the concentration gradient will be-
(1) Active transport (2) Osmosis
(3) Diffusion (4) All
EE0051

38. Correct order of excretory organs in Cockroach, Earthworm and Rabbit respectively :–
(1) Skin, malpighi tubules, kidney
(2) Malpighi tubules, nephridia, kidney
(3) Nephridia, malpighi tubules, kidney
(4) Nephridia, kidney, green gland
EE0052

39. Which one of the following body functions is not performed by kidneys?
(1) Excretion
(2) Osmoregulation
(3) Regulation of blood volume
(4) Destruction of dead blood corpuscles
EE0053

40. Nitrogen is excreted in mammals in the form of :-
(1) Ammonium ion (2) Ammonia
(3) Uric acid (4) Urea
EE0054

41. Which one of the four parts mentioned below does not constitute a part of a single uriniferous tubule?
(1) Bowman's capsule
(2) Distal convoluted tubule
(3) Loop of Henle
(4) Collecting duct

EE0055

42. Match the following :

	'A'		'B'
A.	Loop of Henle	1.	Carries blood to the kidney
B.	Renal artery	2.	Area where a considerable amount of reabsorption takes place
C.	Proximal convoluted tubule	3.	Main area of K^+, H^+ secretion
D.	Glomerulus	4.	Filtration of blood
E.	Distal convoluted tubule	5.	Plays a role in concentration of urine

The correct pairing sequence is :
(1) 5,1,2,4,3 (2) 5,1,2,3,4
(3) 1,5,3,4,2 (4) 2, 1, 3, 5, 4

EE0057

43. Which of the following is not a function of kidneys?
(1) Regulation of blood pressure
(2) Removal of urea
(3) Regulation of acidity of fluids
(4) Secretion of antibiotics

EE0058

44. Aquatic reptiles are :
(1) Ammonotelic
(2) Ureotelic over land
(3) Ureotelic
(4) Ureotelic in water

EE0060

45. During micturition :
(1) Urethra relaxes
(2) Ureter contracts
(3) Ureter relaxes
(4) Urethra contracts

EE0061

46. Which of the following are uricotelic animals?
(1) Rohu and Frog
(2) Lizard and Crow
(3) Camel and Frog
(4) Earthworm and Eagle

EE0062

47. Duct of Bellini opens on :
(1) Collecting duct (2) Ureter
(3) Renal papilla (4) DCT

EE0063

48. Loop of Henle is associated with :-
(1) Excretory system
(2) Respiratory system
(3) Reproductive system
(4) Digestive system

EE0064

49. Uric acid is the main excretory product in :-
(1) Insects
(2) Earthworm
(3) Amphibians
(4) Mammals

EE0066

50. Which of the following is metabolic waste of protein metabolism?
(1) NH_3, urea and CO_2
(2) Urea, oxygen and N_2
(3) Urea, ammonia and alanine
(4) Urea, ammonia and creatine

EE0067

51. The most abundant, harmful and universal waste product of metabolism is:
(1) CO_2 (2) Uric acid
(3) H_2O (4) C_2H_5OH

EE0068

52. Blood vessel leading into Bowman's capsule are called :-
(1) Renal vein
(2) Renal artery
(3) Efferent arteriole
(4) Afferent arteriole

EE0069

PHYSIOLOGY OF URINE FORMATION

53. A man has taken large amount of protein in his diet. He will excrete more of
(1) Urea (2) Uric acid
(3) Sugar (4) Salts and water
EE0072

54. Reabsorption of useful substances from glomerular filtrate occurs in
(1) Collecting tube
(2) Loop of Henle
(3) Proximal convoluted tubule
(4) Distal convoluted tubule
EE0073

55. Occurrence of excess urea in blood due to kidney failure is
(1) Urochrome (2) Uraemia
(3) Uricotelism (4) Ureotelism
EE0074

56. Total filtrate formed in 24 hours in human kidney is
(1) 1.8 litres (2) 8.0 litres
(3) 18 litres (4) 180 litres
EE0075

57. In kidney glomerulus is involved in
(1) Reabsorption of salts
(2) Urine collection
(3) Urine formation by blood filtration
(4) Tubular secretion
EE0076

58. The mechanism of urine formation in nephron involves
(1) Ultrafiltration
(2) Reproduction
(3) Diffusion
(4) Osmosis
EE0077

59. Glucose is taken back from glomerular filtrate through
(1) Active transport
(2) Passive transport
(3) Osmosis
(4) Diffusion
EE0079

60. Reabsorption of chloride ions from glomerular filtrate in kidney tubule occurs by -
(1) Active transport
(2) Diffusion
(3) Osmosis
(4) Brownian movement
EE0081

61. Main functions of kidney is
(1) Passive absorption
(2) Ultrafiltration
(3) Selective reabsorption
(4) Both 2 and 3
EE0082

62. The afferent arteriole diameter is more than efferent arteriole helps in :–
(1) More blood flow to efferent arteriole
(2) Creating lower pressure in glomerulus
(3) Creating higher pressure in glomerulus
(4) Tubular secretion
EE0087

63. Which part of nephron is affected by aldosterone?
(1) P.C.T.
(2) Late part of C.T.
(3) D.C.T.
(4) Duct of Bellini
EE0088

64. Concentration of urine depends upon which organ-
(1) Bowman's capsule
(2) Length of Henle's loop
(3) P.C.T.
(4) Network of capillaries arising from glomerulus
EE0089

65. Which one does not filter out from blood to Bowman's capsule in glomerular ultrafiltration?
(1) Amino acids (2) Polypeptide
(3) Glucose (4) Fatty acids
EE0091

66. The net pressure gradient that causes the fluid to filter out of the glomeruli into the capsule is –
(1) 10-25 mm Hg
(2) 50-80 mm Hg
(3) 80-100 mm Hg
(4) 30-50 mm Hg

EE0092

67. Haemodialysis helps in the patient having :
(1) Uremia (2) Anaemia
(3) Diabetes (4) goitre

EE0093

68. Water reabsorption in the distal parts of kidney tubules is regulated by :
(1) STH (2) TSH (3) ADH (4) MSH

EE0094

69. Due to insufficient filtration in the Bowman's capsule, all are likely to happen except :
(1) Accumulation of fluid in the body
(2) Increase in blood pressure
(3) Increase in blood urea level
(4) Loss of glucose through urine

EE0095

70. Urinary excretion of Na^+ is regulated by :
(1) Anterior pituitary
(2) Posterior pituitary
(3) Adrenal cortex
(4) Adrenal medulla

EE0096

71. In the kidney, the formation of urine involve the following processes arranged as
(1) Glomerular filtration, reabsorption and tubular secretion
(2) Reabsorption, filtration and secretion
(3) Secretion, absorption and filtration
(4) Filtration, secretion and reabsorption

EE0097

72. What for the ascending limb of Loop of Henle is permeable?
(1) Glucose (2) NH_3
(3) Na^+ (4) Water

EE0098

73. If ADH level of blood is less :-
(1) Volume of urine increases
(2) Volume of urine decreases
(3) Volume of urine is normal
(4) Volume of urine is unaffected

EE0100

74. Human urine as compared to human blood is normally :-
(1) Hypotonic (2) Hypertonic
(3) Isotonic (4) All of these

EE0101

75. Main function of glomerulus is :-
(1) Filtration of blood
(2) Reabsorption of H_2O
(3) Reabsorption of Na^+
(4) Concentration of urine

EE0102

76. Absorption of H_2O in DCT is controlled by :-
(1) ADH (2) ACTH
(3) Rennin (4) Oxytocin

EE0103

77. Glomerular hydrostatic pressure is present in :-
(1) Tubule of kidney
(2) Bowman's capsule
(3) Glomerulus of uriniferous tubule
(4) Malpighian tubule

EE0105

78. Absorption of Na^+ and K^+ ions does not occur in:-
(1) Bowman's capsule
(2) Loop of Henle
(3) distal convoluted tubule
(4) Proximal convoluted tubule

EE0106

79. Liquid which collects in the cavity of Bowman's Capsule is :-
(1) Blood plasma minus blood proteins
(2) Glycogen and water
(3) Urea, glycogen and water
(4) Urea

EE0107

80. Loop of Henle is primarily meant for absorption of :-
(1) Potassium (2) Glucose
(3) Urea (4) Water
EE0108

81. Blood dialysis is called :
(1) Artificial lung (2) Artificial kidney
(3) Artificial heart (4) Artificial brain
EE0109

82. The complete reabsorption of glucose takes place in :-
(1) Collecting tubule
(2) Distal tubule
(3) Proximal convoluted tubule
(4) Henle loop
EE0110

REGULATION OF KIDNEY FUNCTION AND DISEASES

83. A condition of failure of kidney to form urine is called -
(1) Creatinine (2) Hematuria
(3) Anuria (4) Ketonuria
EE0111

84. Diuresis is the condition in which
(1) The excretion of volume of urine increases
(2) The excretion of volume of urine decreases
(3) The kidney fails to excrete urine
(4) The water balance of the body is disturbed.
EE0112

85. Which type of kidneys are found in amphibian?
(1) Holonephric (2) Mesonephric
(3) Pronephric (4) Metanephric
EE0116

86. In diabetes insipedus the patient drinks more water as there is urinary loss of
(1) Salt (2) Insulin
(3) Protein (4) Water
EE0117

87. Uremia is a disease when there is an excess of
(1) Cholesterol in the blood
(2) Glucose in the blood
(3) Urea in the blood
(4) Urea in urine
EE0119

88. Ketonuria is
(1) Albumin in urine
(2) Globulin in urine
(3) Ketone bodies in urine
(4) None of the above
EE0120

89. Characteristic smell of urine is due to :-
(1) Urea
(2) Uric acid
(3) Urinode substance
(4) Pus
EE0121

90. Stimulation of voiding of urine occur in bladder at :–
(1) 200 ml. (2) 220 ml.
(3) 300 ml. (4) 400 ml.
EE0122

91. Which substance is used mainly in kidney function test?
(1) Glucose (2) Na^+
(3) Inulin (4) Urea
EE0123

92. The appearance of albumin in the urine is most likely due to :
(1) Increase in the blood pressure
(2) Decrease in the blood osmotic pressure
(3) Damage to the Malpighian corpuscles
(4) Damage to the proximal convoluted tubules
EE0125

93. Kidney crystals are solid clusters of :
(1) Calcium nitrate and uric acid
(2) Phosphate and uric acid
(3) Calcium carbonate and uric acid
(4) Calcium metabisulphite and uric acid
EE0126

94. Diuresis is a specific pathological condition which leads to :
(1) Increased volume of urine excretion
(2) Decreased volume of urine excretion
(3) Increased glucose excretion
(4) Decreased electrolyte concentration
EE0128

95. Why do we pass more urine in wet and cold season ?
(1) Impairment of water absorption by nephrons
(2) Kidney becomes more active
(3) Sweating is much decreased
(4) ADH secretion is increased
EE0129

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	2	3	1	2	4	2	2	1	2	4	2	3	2	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	3	3	4	1	3	3	3	3	3	4	4	4	4	4
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	1	3	4	4	2	1	1	2	4	4	4	1	4	1	1
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	2	3	1	1	1	1	4	1	3	2	4	3	1	1	2
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	4	3	3	2	2	1	1	3	4	3	1	3	1	2	1
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	1	3	1	1	4	2	3	3	1	2	4	3	3	3	2
Que.	91	92	93	94	95										
Ans.	3	3	2	1	3										

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Angiotensinogen is a protein produced and secreted by –
(1) Macula densa cells
(2) Endothelial cells (cells lining the blood vessels)
(3) Liver cells
(4) Juxtaglomerular (JG) cells

EE0130

AIPMT 2007

2. A person who is on a long hunger strike and is surviving only on water, will have :-
(1) Less urea in his urine
(2) More sodium in his urine
(3) Less amino acids in his urine
(4) More glucose in his blood

EE0131

AIPMT 2008

3. Consider the following four statement (a–d) about certain desert animals such as kangaroo rat :-
(a) They have dark colour and excrete solid urine
(b) They do not drink water, breathe at a slow rate to conserve water and have their body covered with thick hairs
(c) They feed on dry seeds and do not require drinking water
(d) They excrete very concentrated urine and do not use water to regulate body temperature

Which two of the above statements for such animals are ***true*** ?
(1) c and a (2) a and b
(3) c and d (4) b and c

EE0132

AIPMT 2009

4. Uric acid is the chief nitrogenous component of the excretory products of :-
(1) Frog (2) Man
(3) Earthworm (4) Cockroach

EE0133

5. What will happen if the stretch receptors of the urinary bladder wall are totally removed ?
(1) There will be no micturition
(2) Urine will not collect in the bladder
(3) Micturition will continue
(4) Urine will continue to collect normally in the bladder

EE0134

AIPMT-Pre 2010

6. *Which* one of the following statements in regard to the excretion by the human kidneys is *correct?*
(1) Ascending limb of Loop of Henle is impermeable to electrolytes
(2) Descending limb of Loop of Henle is impermeable to water
(3) Distal convoluted tubule is incapable of reabsorbing HCO_3^-;
(4) Nearly 99 per cent of the glomerular filtrate is reabsorbed by the renal tubules

EE0135

7. The principal nitrogenous excretory compound in humans is synthesised :
(1) in the liver, but eliminated mostly through kidneys
(2) in kidneys but eliminated mostly through liver
(3) in kidneys as well as eliminated by kidneys
(4) in liver and also eliminated by the same through bile

EE0136

AIPMT-Pre 2011

8. Which one of the following is not a part of a renal pyramid ?
(1) Peritubular capillaries
(2) Convoluted tubules
(3) Collecting ducts
(4) Loops of Henle

EE0137

9. Which one of the following correctly explains the function of a specific part of a human nephron?
(1) *Podocytes* : Create minute spaces (slit pores) for the filtration of blood into the Bowman's capsule
(2) *Henle's loop* : most reabsorption of the major substances from the glomerular filtrate
(3) *Distal convoluted tubule* : reabsorption of K^+ ions into the surrounding blood capillaries
(4) *Afferent arteriole* : carries the blood away from the glomerulus towards renal vein.

EE0138

10. Uricotelic mode of passing out nitrogenous wastes is found in :-
(1) Reptiles and Birds
(2) Birds and Annelids
(3) Amphibians and Reptiles
(4) Insects and Amphibians

EE0139

11. Which one of the following statements is correct with respect to kidney function regulation ?
(1) When someone drinks lot of water, ADH release is suppressed.
(2) Exposure to cold temperature stimulates ADH release.
(3) An increase in glomerular blood flow stimulates formation of Angiotensin II.
(4) During summer when body loses lot of water by evaporation, the release of ADH is suppressed.

EE0140

AIPMT-Pre 2012

12. The maximum amount of electrolytes and water (70 – 80 percent) from the glomerular filtrate is reabsorbed in which part of the nephron ?
(1) Proximal convoluted tubule
(2) Descending limb of loop of Henle
(3) Ascending limb of loop of Henle
(4) Distal convoluted tubule

EE0142

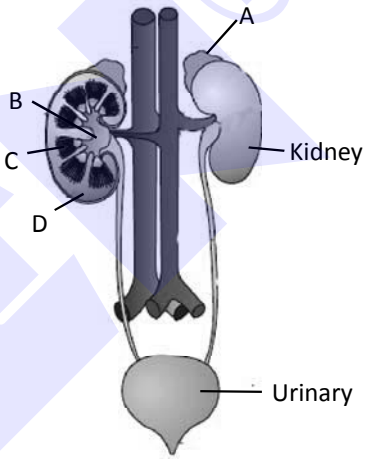
AIPMT-Mains 2012

13. A fall in glomerular filtration rate (GFR) activates:
(1) adrenal medulla to release adrenaline
(2) posterior pituitary to release vasopressin
(3) juxta glomerular cells to release renin
(4) adrenal cortex to release aldosterone

EE0143

NEET-UG 2013

14. Figure shows human urinary system with structures labelled A to D. Select option which correctly identifies them and gives their characteristics and/or functions.



(1) D-Cortex - outer part of kidney and do not contain any part of nephrons
(2) A-Adrenal gland - located at the anterior part of kidney. Secrete Catecholamines which stimulate glycogen breakdown
(3) B-Pelvis - broad funnel shaped space inner to hilum, directly connected to loops of Henle
(4) C-Medulla-inner zone of kidney and contains complete nephrons

EE0144

AIPMT 2015

15. Removal of proximal convoluted tubule from the nephron will result in:
(1) More concentrated urine
(2) No change in quality and quantity of urine
(3) No urine formation
(4) More diluted urine

EE0147

Re-AIPMT 2015

16. Human urine is usually acidic because :
(1) hydrogen ions are actively secreted into the filtrate.
(2) the sodium transporter exchanges one hydrogen ion for each sodium ion, in peritubular capillaries.
(3) excreted plasma proteins are acidic
(4) potassium and sodium exchange generates acidity

EE0148

NEET-I 2016

17. In mammals, which blood vessel would normally carry largest amount of urea ?
(1) Renal Vein
(2) Dorsal Aorta
(3) Hepatic Vein
(4) Hepatic Portal Vein

EE0151

NEET-II 2016

18. The part of nephron involved in active reabsorption of sodium is :-
(1) Bowman's capsule
(2) Descending limb of Henle's loop
(3) Distal convoluted tubule
(4) Proximal convoluted tubule

EE0152

NEET(UG) 2017

19. A decrease in blood pressure / volume will not cause the release of :
(1) Atrial natriuretic factor
(2) Aldosterone
(3) ADH
(4) Renin

EE0154

20. Which of the following statements is **correct** ?
(1) The descending limb of loop of Henle is impermeable to water.
(2) The ascending limb of loop of Henle is permeable to water.
(3) The descending limb of loop of Henle is permeable to electrolytes.
(4) The ascending limb of loop of Henle is impermeable to water.

EE0155

NEET(UG) 2018

21. Match the items given in Column I with those in Column II and select the ***correct*** option given below:

Column I	*Column II*
a. Glycosuria	i. Accumulation of uric acid in joints
b. Gout	ii. Mass of crystallised salts within the kidney
c. Renal calculi	iii. Inflammation in glomeruli
d. Glomerular nephritis	iv. Presence of glucose in urine

	a	**b**	**c**	**d**
(1)	iii	ii	iv	i
(2)	i	ii	iii	iv
(3)	ii	iii	i	iv
(4)	iv	i	ii	iii

EE0157

22. Match the items given in Column I with those Column II and select the ***correct*** option given below:

Column I (Function)	*Column II* (Part of Excretory System)
a. Ultrafiltration	i. Henle's loop
b. Concentration of urine	ii. Ureter
c. Transport of urine	iii. Urinary bladder
d. Storage of urine	iv. Malpighian corpuscle
	v. Proximal convoluted tubule

	a	**b**	**c**	**d**
(1)	iv	v	ii	iii
(2)	iv	i	ii	iii
(3)	v	iv	i	ii
(4)	v	iv	i	iii

EE0158

23. Uric acid is formed by :-
(1) Phospholipids
(2) DNA or RNA
(3) Sphingolipids
(4) Glycolipids

EE0159

NEET-Ug 2019

24. Which of the following factors is responsible for the formation of concentrated urine?
(1) Low levels of antidiuretic hormone.
(2) Maintaining hyperosmolarity towards inner medullary interstitium in the kidneys.
(3) Secretion of erythropoietin by juxtaglomerular complex.
(4) Hydrostatic pressure during glomerular filtration.

EE0234

25. Use of an artificial kidney during hemodialysis may result in :
(a) Nitrogenous waste build-up in the body
(b) Non-elimination of excess potassium ions
(c) Reduced absorption of calcium ions from gastro-intestinal tract
(d) Reduced RBC production
Which of the following options is the most **appropriate**?
(1) (a) and (b) are correct
(2) (b) and (c) are correct
(3) (c) and (d) are correct
(4) (a) and (d) are correct

EE0235

NEET-UG 2019 (Odisha)

26. Match the following parts of a nephron with their function:

(a) Descending limb of Henle's loop	(i) Reabsorption of salts only
(b) Proximal Convoluted tubule	(ii) Reabsorption of water only
(c) Ascending limb of Henle's loop	(iii) Conditional reabsorption of sodium ion and water
(d) Distal convoluted tubule	(iv) Reabsorption of ion, water and organic nutrients.

Select the correct option from the following :
(1) (a)-(i), (b)-(iii), (c)-(ii), d-(iv)
(2) (a)-(ii), (b)-(iv), (c)-(i), d-(iii)
(3) (a)-(i), (b)-(iv), (c)-(ii), d-(iii)
(4) (a)-(iv), (b)-(i), (c)-(iii), d-(ii)

EE0236

27. Match the items in Column-I with those in Column-II :

Column-I	**Column-II**
(a) Podocytes	(i) Crystallised oxalates
(b) Protonephridia	(ii) Annelids
(c) Nephridia	(iii) Amphioxus
(d) Renal calculi	(iv) Filtration slits

Select the correct option from the following :
(1) (a)-(iii), (b)-(iv), (c)-(ii), d-(i)
(2) (a)-(iii), (b)-(ii), (c)-(iv), d-(i)
(3) (a)-(iv), (b)-(iii), (c)-(ii), d-(i)
(4) (a)-(iv), (b)-(ii), (c)-(iii), d-(i)

EE0237

NEET(UG) 2020

28. Which of the following would help in prevention of diuresis ?
(1) Decrease in secretion of renin by JG cells
(2) More water reabsorption due to under secretion of ADH
(3) Reabsorption of Na^+ and water from renal tubules due to aldosterone
(4) Atrial natriuretic factor causes vasoconstriction

EE0239

NEET(UG) 2020 (COVID-19)

29. The increase in osmolarity from outer to inner medullary interstitium is maintained due to :

(i) Close proximity between Henle's loop and vasa recta

(ii) Counter current mechanism

(iii) Selective secretion of HCO_3^- and hydrogen ions in PCT

(iv) Higher blood pressure in glomerular capillaries

(1) Only (ii)

(2) (iii) and (iv)

(3) (i), (ii) and (iii)

(4) (i) and (ii)

EE0240

30. Select the correct statement :

(1) Atrial Natriuretic Factor increases the blood pressure.

(2) Angiotensin II is a powerful vasodilator.

(3) Counter current pattern of blood flow is not observed in vasa recta.

(4) Reduction in Glomerular Filtration Rate activates JG cells to release renin.

EE0241

NEET(UG) 2021

31. Erythropoietin hormone which stimulates R.B.C. formation is produced by :

(1) Alpha cells of pancreas

(2) The cells of rostral adenohypophysis

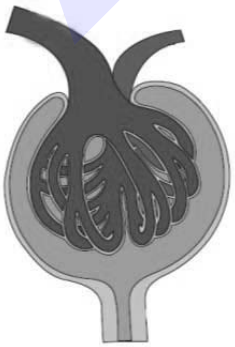
(3) The cells of bone marrow

(4) Juxtaglomerular cells of the kidney

EE0242

NEET(UG) 2021 (Paper-2)

32. Given figure represents



(1) Glomerulus

(2) Bowman's capsule

(3) Malphigian body

(4) Renal capsule

EE0243

33. Choose the wrong statement regarding urine formation.

(1) Henle's loop plays an important role in concentration of urine.

(2) Protein-free fluid is filtered from blood plasma into the Bowman's capsule.

(3) ADH helps in water elimination, making the urine hypotonic.

(4) Filtration is a non-selective process performed by glomerulus

EE0244

NEET(UG) 2022

34. Nitrogenous waste is excreted in the form of pellet or paste by :

(1) *Salamandra*

(2) *Hippocampus*

(3) *Pavo*

(4) *Ornithorhynchus*

EE0245

NEET(UG) 2022 (OVERSEAS)

35. Terrestrial adaptations necessitated the production of :

(1) Lesser toxic nitrogenous wastes like urea and uric acid

(2) Lesser toxic nitrogenous wastes like ammonia and urea

(3) Highly toxic nitrogenous wastes like ammonia and urea

(4) Highly toxic nitrogenous wastes like urea and uric acid

EE0246

Re-NEET(UG) 2022

36. Select the **correct** statements.

(a) Angiotensin II activates the cortex of adrenal gland to release aldosterone.

(b) Aldosterone leads to increase in blood pressure.

(c) ANF acts as a check on renin-angiotensin mechanism.

(d) ADH causes vasodilation.

(e) Vasopressin is released from adenohypophysis.

Choose **the most appropriate answer** from the options given below :

(1) (a), (b) and (e) only

(2) (c), (d) and (e) only

(3) (b), (c) and (d) only

(4) (a), (b) and (c) only

EE0247

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	1	4	4	1	4	1	2	1	1	1	1	3	2	4
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	3	4	1	4	4	2	2	2	3	2	3	3	4	4
Que.	31	32	33	34	35	36									
Ans.	4	3	3	3	1	4									

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Ureter, blood vessels and nerves enter in to the kidney through :-
(1) Pelvis (2) Hilum
(3) Convex surface (4) Pyramids
EE0160

2. Excretory organ in prawn is
(1) Green gland
(2) Malpighian tubules
(3) Kidney
(4) Nephridia
EE0161

3. Which of the following condition can activate the JG cells to release renin?
(1) More Na^+ in blood plasma
(2) More blood volume
(3) High glomerular blood pressure
(4) Fall in GFR
EE0162

4. Match the following :-

	Column-I	Column-II
A	PCT	(i) Selective secretion of H^+ and K^+ ions.
B	DCT	(ii) 70-80 percent of electrolytes and water reabsorbed
C	Descending limb	(iii) Allow passage of small amount of urea.
D	Ascending limb	(iv) Permeable to water
E	Collecting duct	(v) Permeable to salts

(1) A-(i), B-(ii), C-(iii), D-(iv), E-(v)
(2) A-(i), B-(iii), C-(iv), D-(ii), E-(v)
(3) A-(ii), B-(i), C-(iv), D-(v), E-(iii)
(4) A-(ii), B-(i), C-(v), D-(iv), E-(iii)
EE0163

5. Which of the following part of Nephron is situated in the cortex of kidney ?
(1) Malpighian Corpuscles
(2) PCT
(3) DCT
(4) All the above
EE0164

6. Kidney stone is formed of :-
(1) Cholesterol (2) Calcium oxalate
(3) Urea (4) $MgPO_4$
EE0165

7. The Glomerular capillary blood pressure causes filtration of blood through ?
(1) Endothelium of glomerular blood vessels
(2) The Epithelium of Bowman's capsule
(3) Basement membrane between these two layers
(4) All the above
EE0166

8. Which of the following substances are absorbed by passive transport ?
(1) Glucose (2) Amino acids
(3) Na^+ (4) Bicarbonate ions
EE0167

9. Which of the following play a significant role in the maintenance of high osmolarity of medulla interstitial fluid ?
(1) NH_4^+ (2) DCT
(3) PCT (4) NaCl and urea
EE0168

10. Maximum reabsorption of Na^+ and water takes place in which segment of Nephron ?
(1) PCT (2) Loop of Henle
(3) Bowman's capsule (4) DCT
EE0169

11. Which of the following hormone causes vaso-constriction?
(1) ANF (2) Aldosterone
(3) ADH (4) ACTH
EE0170

12. Excretion of Na^+ in urine is elevated by :-
(1) ANF (2) ADH
(3) ACTH (4) Aldosterone
EE0171

13. The presence of ketone bodies in urine are indicative of ?
(1) Diabetes insipidus
(2) Diabetes mellitus
(3) Starvation
(4) Both 2 and 3
EE0172

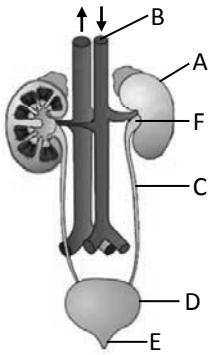
14. Which of nitrogenous waste is eliminated through saliva?
(1) Urea (2) Creatine
(3) HCO_3^- (4) Uric acid

EE0173

15. Which of the following condition arises due to kidney failure ?
(1) Pyouria (2) Ketonuria
(3) Uremia (4) Polyurea

EE0174

16. In the diagram of excretory system of human beings given below, different parts have been indicated by alphabets choose the answer in which these alphabets have been correctly matched with the parts which they represent –



(1) A = Kidney, B = Abdominal aorta, C = Ureters, D = Urinary bladder, E = Urethra, F = Renal pelvis
(2) A = Kidney, B = Abdominal aorta, C = Urethra, D = Urinary bladder, E = Ureters, F = Renal pelvis
(3) A = Kidney, B = Renal pelvis, C = Urethra, D=Urinary bladder, E = Ureters, F = Renal relvis
(4) A = Kidney, B = Abdominal aorta, C = Urethra, D = Urinary bladder, E = Renal pelvis , F =Ureters

EE0175

17. Each kidney of an adult human measures :-

	Length	Width	Thickness	Weight
1.	10-12cm	5-7cm	2-3 cm	120-170 gm
2.	10-20 cm	10-12cm	6-12 cm	40-50 gm
3.	2-6 cm	10-12 cm	6-12 cm	40-50 gm
4.	10-20 mm	5-7 mm	2-3 cm	120-170 mg

EE0176

18. Medial surface of kidney are _____ while lateral surface is _____ :-
(1) convex, concave
(2) concave, convex
(3) convex, convex
(4) concave, concave

EE0177

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

19. How many of the following chordates have flame cells as excretory organ.
Planaria, *Ascaris*, *Amphioxus*, Tapeworm, *Nereis*, *Scoliodon*.
(1) One (2) Two
(3) Three (4) Four

EE0178

20. Read statements A-D :-
(A) When some one drinks lot of water, ADH release is decreased.
(B) Exposure to cold temperature suppress ADH release
(C) Caffeine in Tea and coffee increase sodium absorption from DCT and collecting ducts
(D) ADH also cause vasodilation
Which statements are correct
(1) A and C
(2) A and B
(3) C and D
(4) B and D

EE0179

21. The human kidney :-
(1) Concentrates the urine by actively transporting water out of the filtrate.
(2) Produces more dilute urine when the collecting ducts become less permeable to water.
(3) Responds to antidiuretic hormone by increasing urine output.
(4) Gets rid of urea from the body by secreting it into the descending arm of the loop of Henle.

EE0180

22. Layers between the glomerulus and Bowman's capsule through which the filtration takes place are

I. endothelium of the glomerular blood vessel.

II. middle lamella.

III. basement membrane between the endothelium of glomerular blood vessels and epithelium of the Bowman's capsule.

IV. epithelium of the Bowman's capsule.

(1) I, II and III

(2) II, III and IV

(3) I, III and IV

(4) I, II and IV

EE0238

23. Large amount of water is ....A... from collecting duct to produce ...B... urine. This segment allows passage of small amounts of ...C... into interstitium of medulla to keep up the osmolarity. Here, A, B and C refers to

(1) A- secreted, B-dilute, C-sugar

(2) A- secreted, B-dilute, C-NH_3

(3) A- secreted, B-dilute, C-urea

(4) A- reabsorbed, B-concentrated, C-urea

EE0239

24. Suppose you are developing a new drug, and have found that when it is administered in humans there is a substantial increase in the volume of urine produced. When you administer antidiuretic hormone (ADH or vasopressin) at the same time, the volume of urine returns to normal. Which hypothesis best fits these observations? The new drug?

(1) Blocks the receptors for ADH on the collecting of the kidney.

(2) Blocks the release of ADH from the pituitary

(3) Mimics the action of ADH

(4) Decreases blood pressure

EE0183

25. In a comparison of amounts of urea in human urine, the largest amount of urea would be found with a diet very rich in :-

(1) Animal fat

(2) Simple carbohydrates (sucrose)

(3) Complex carbohydrates (starches)

(4) Protein

EE0184

26. Identify the correct match from the column I, II and III:-

Column I	Column II	Column III
(1) PCT	(a) podocytes	(i) small amount of urea enter into it
(2) Inner wall of Bowmans capsule	(b) simple squamous	(ii) conditional reabsorption
(3) Thin ascending segment of loop of Henle	(c) cuboidal epithelium with less brush border	(iii) part of filtration membrane
(4) DCT	(d) cuboidal epithelium with more brush border	(iv) maximum reabsorption of salt and electrolytes

(1) 1 – c – iv; 2 – a – iii; 3 – b – i; 4 – d – ii

(2) 1 – d – iv; 2 – a – iii; 3 – b – i; 4 – c – ii

(3) 1 – b – iv; 2 – a – iii; 3 – d – i; 4 – c – ii

(4) 1 – d – iv; 2 – a – iii; 3 – b – ii; 4 – c – i

EE0185

27. During hemodialysis process

I. blood drained from a convenient artery and anticoagulant is added (heparin).

II. removal of nitrogenous waste from blood.

III. blood is passed through a coiled porous cellophane membrane of tube bathing in dialysis fluid.

IV. blood is mixed with anti heparin and passed into vein.

Arrange the steps

(1) I $\rightarrow$ II $\rightarrow$ III $\rightarrow$ IV

(2) IV $\rightarrow$ III $\rightarrow$ II $\rightarrow$ I

(3) I $\rightarrow$ III $\rightarrow$ II $\rightarrow$ IV

(4) I $\rightarrow$ IV $\rightarrow$ II $\rightarrow$ III

EE0186

28. Which of the following statement is/are true ?
I. Glomerular filtrate is isotonic to plasma.
II. When the urine passes into collecting tubule, it becomes hypotonic.
III. Filtrate is isotonic in proximal convoluted tubule.
IV. Filtrate becomes more and more hypotonic as it passes through descending limb of Henle's loop.
Choose the correct option :-
(1) I and III (2) I, II and III
(3) II and III (4) Only II
EE0187

29. Which of the following features activates the JG cells?
I. Fall in Glomerular blood pressure
II. Fall in Glomerular blood flow
III. Fall in GFR
Choose the correct option
(1) I and II (2) II and III
(3) I and III (4) I, II and III
EE0188

30. Which of the following is responsible for excretion of dilute urine ?
(1) More secretion of Renin
(2) Less secretion of vasopressin
(3) More secretion of aldosterone
(4) Less secretion of K^+ into the filtrate
EE0189

31. When a person is suffering from poor renal absorption which one of the following factor will not help in maintenance of blood volume ?
(1) Decreased glomerular filtration
(2) Increased ADH secretion
(3) Decreased arterial pressure in kidney
(4) Increased arterial pressure in kidney
EE0190

32. In response to decrease in blood volume and blood pressure which of the following does not occur?
(1) Secretion of Renin
(2) Secretion of aldosterone
(3) Secretion of vasopressin
(4) Secretion of ANF
EE0191

33. Parasympathetic activity during micturition causes:-
(1) Contraction of detrusor muscle and contraction of internal urethral sphincter
(2) Contraction of detrusor muscle and relaxation of internal urethral sphincter
(3) Relaxation of detrusor muscle and relaxation of internal urethral sphincter
(4) Relaxation of detrusor muscle and contraction of Internal urethral sphincter
EE0192

34. Read the following points :-
(i) Increases GFR
(ii) Increases B.P.
(iii) Decreases blood volume
(iv) Increases aldosterone secretion
(v) Vasoconstrictor
(vi) Increases Na^+ excretion
How many points are correct about Angiotensin II?
(1) Two (2) Three (3) Four (4) Five
EE0193

35. The amount of glucose present in urine of normal man is :-
(1) 0 mg/ml (2) 120 mg/ml
(3) 40 mg/ml (4) 5 mg/ml
EE0194

36. You and your study partner want to draw the pathway that controls the reabsorption of sodium ion when blood pressure falls. Which of the following is the correct sequence of events?
(a) Aldosterone is released
(b) Kidney tubules reabsorb Na^+
(c) Renin is released
(d) Juxtaglomerular apparatus (JGA) recognizes a drop in blood pressure.
(e) Angiotensin II is produced
(1) a, c, e, b, d (2) d, b, c, a, e
(3) d, c, e, a, b (4) b, d, c, a, e
EE0195

37. Select the correct order of osmolarity changes in filtrate w.r.t. plasma in :-
Bowman's capsule → PCT → Thin part of descending limb of loop of Henle → Thin part of ascending limb of loop of Henle → DCT → End of collecting duct
(1) Isotonic → Isotonic → Hypotonic → Hypertonic → Hypotonic → Hypotonic
(2) Isotonic → Isotonic → Hypertonic → Hypertonic → Hypotonic → Hypertonic
(3) Isotonic → Hypertonic → Isotonic → Hypertonic → Hypotonic → Hypertonic
(4) Hypotonic → Isotonic → Hypertonic → Isotonic → Hypotonic → Hypertonic
EE0196

38. Which of the following statements are not incorrect?
(i) Liver, the largest gland in our body secretes cholesterol, degrade steroid hormones, vitamins and drugs
(ii) Sebaceous glands eliminate certain substances like urea, sterols and sebum
(iii) Sweat produced by sweat glands is a oily fluid containing NaCl
(iv) In uremic patients urea and glucose can be removed by a process called hemodialysis
(1) i, ii, iii (2) i, ii, iv
(3) i only (4) i, ii, iv
EE0197

39. I. ADH
II. Renin-angiotensin
III. ANF
IV. Counter-current mechanism
Choose the option containing factors, which regulates the osmoregulation of body fluids ?
(1) I, II and III (2) II, III and IV
(3) I, II and IV (4) All of the above
EE0240

40. An increase in the body fluid volume can switch off the ...A... and ...B... the ADH release. In this way complete the ...C... .
Choose the correct option for A, B and C.
(1) A-osmoreceptors, B-increase, C-feedback
(2) A-osmoreceptors, B-suppress, C-feedback
(3) A-kidney filtration, B-increase, C-feedback
(4) A-kidney filtration, B-suppress, C-feedback
EE0241

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	1	4	3	4	2	4	4	4	1	3	1	4	1	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	1	2	1	2	2	3	4	2	4	2	3	1	4	2
Que.	31	32	33	34	35	36	37	38	39	40					
Ans.	4	4	2	3	1	3	2	3	4	2					

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path to success

PRE-MEDICAL

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EXERCISE

Locomotion and movement (Skeletal system)

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

AXIAL SKELETON

1. Cranium of human is made up of
(1) 8 bones (2) 12 bones
(3) 16 bones (4) 14 bones
SM0010

2. The number of floating ribs and true ribs in human body
(1) 6 pairs, 8 pairs (2) 5 pairs, 4 pairs
(3) 3 pairs, 2 pairs (4) 2 pairs, 7 pairs
SM0012

3. How many bones are present in human skull ?
(1) 32 (2) 22 (3) 12 (4) 42
SM0013

4. Number of cervical and thoracic vertebrae in human are
(1) 7, 12 (2) 7, 10 (3) 7, 11 (4) 7, 14
SM0015

5. Body of vertebrae is called
(1) Centrum (2) Process
(3) Center (4) Spine
SM0016

6. Cranial bone related to ear is
(1) Occipital (2) Frontal
(3) Nasal (4) Temporal
SM0023

7. These facial bones are unpaired
(1) Lacrimal, Vomer
(2) Vomer, Mandible
(3) Nasal, Vomer
(4) Palatine, Mandible
SM0024

8. In human beings the cranium is formed by
(1) Ten bones of which two are paired
(2) Eight bones of which two are paired
(3) Fourteen bones of which six are paired
(4) Twelve bones of which four are paired
SM0027

9. Which of the following is wrong statement about hyoid bone?
(1) one in number
(2) U-shaped
(3) Not attached with any other bone of the body
(4) Present at the top of the buccal cavity
SM0028

10. Largest, Heaviest mammalian vertebra is :-
(1) Thoracic (2) Sacral
(3) Lumbar (4) Cervical
SM0031

11. Demifacets present at:-
(1) Thoracic vertebra
(2) Lumbar vertebra
(3) Sacral vertebra
(4) Cervical vertebra except C_7
SM0037

12. Which of the following vertebrae are fused?
(1) Cervical, Thoracic
(2) Cervical, Sacrum
(3) Sacrum, Coccyx
(4) Thoracic, coccyx
SM0038

13. Vertebro-arterial canal occurs in :
(1) Cervical vertebrae
(2) Lumbar vertebrae
(3) Thoracic vertebrae
(4) Sacral vertebrae
SM0041

14. In human beings, the second cervical vertebra helps in rotatory movements of head through knob-like process called :
(1) Prezygapohysis
(2) Postzygapolysis
(3) Olecranon process
(4) Odontoid process
SM0042

APPENDICULAR SKELETON

15. Part of pectoral girdle is:-
(1) Ileum (2) Glenoid cavity
(3) Acetabulum (4) Sternum
SM0002

16. Scapula and clavicle form
(1) Pelvic girdle (2) Pectoral girdle
(3) Skull (4) Vertebral column
SM0003

17. Pectoral girdle, pelvic girdle and limb bones constitute :
(1) Visceral skeleton
(2) Outer skeleton
(3) Axial skeleton
(4) Appendicular skeleton
SM0005

18. Glenoid cavity is found in :
(1) Pelvic girdle (2) Skull
(3) Pectoral girdle (4) Sternum
SM0006

19. Acromion process is part of :
(1) Vertebral column (2) Pelvic girdle
(3) Femur (4) Pectoral girdle
SM0007

20. Pelvic girdle consists of :
(1) Ilium
(2) Ilium and ischium
(3) Ilium, ischium and pubis
(4) Ischium and pubis
SM0008

21. Which of the following is a sesamoid bone?
(1) Pelvic (2) Patella
(3) Axis (4) Pectoral girdle
SM0011

22. Number of bones in thumb of right forelimb of man are
(1) 5 (2) 4
(3) 3 (4) 2
SM0019

23. The clavicle articulates with _____ of scapula
(1) Acromion process
(2) Glenoid cavity
(3) Acetabulum cavity
(4) Ball and socket joint
SM0029

24. Which one is a flat bone ?
(1) Scapula (2) Carpal
(3) Patella (4) Tarsals
SM0030

25. Digital formula of foot of Human is :-
(1) 03332 (2) 03333
(3) 03322 (4) 23333
SM0034

26. Presence of obturator foramen is feature of:-
(1) Pectoral girdle (2) Vertebrae
(3) Pelvic girdle (4) Occipital bone
SM0040

27. The other name for knee cap is
(1) Clavicle (2) Patella
(3) Radius (4) Femur
SM0043

28. An acromian process is characteristically found in the:-
(1) Pectoral girdle of mammals
(2) Sperm of mammals
(3) Pelvic girdle of mammals
(4) Skull of frog
SM0045

JOINTS AND DISORDERS

29. Study of joints known as:-
(1) Osteology (2) Arthrology
(3) Craniology (4) Kinesiology
SM0004

30. Saddle joint occurs between
(1) Carpal and first metacarpal of thumb
(2) Femur and pelvic girdle
(3) All the vertebrae
(4) Phalanges
SM0017

31. Joints between phalanges are
(1) Ball and socket joints
(2) Gliding joints
(3) Hinge joints
(4) Pivot joints

SM0020

32. It is an outcome of irregularities in metabolism of nitrogenous waste
(1) Osteoporosis
(2) Osteo-arthritis
(3) Gouty arthritis
(4) Rheumatoid arthritis

SM0025

33. Which of the following is correct for the given assertion (A) and reason (R)?
Assertion (A) : Knee joint is hinge joint type joint.
Reason (R) : Femur , patella and fibula are associated with knee joint.
(1) Both (A) and (R) are true but (R) is the correct explanation of (A)
(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(3) (A) is true statement but (R) is false.
(4) Both (A) and (R) are false

SM0026

34. Synovial fluid is secreted by :
(1) Blood
(2) Cartilage
(3) Bone
(4) Synovial membrane

SM0033

35. A joint between humerus and radio ulna is:-
(1) Ball & socket (2) Pivot
(3) Gliding (4) Hinge

SM0036

36. The number of saddle joints in human beings is :-
(1) 4 (2) 8
(3) 2 (4) 10

SM0039

37. Which one of the following is the *correct description* of a certain part of a normal human skeleton ?
(1) First vertebra is axis which articulates with the occipital condyles.
(2) The 9th and 10th pairs of ribs are called the floating ribs.
(3) Glenoid cavity is a depression to which the thigh bone articulates.
(4) Parietal bone and the temporal bone of the skull are joined by fibrous joint.

SM0044

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	4	2	1	1	4	2	2	4	3	1	3	1	4	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	4	3	4	3	2	4	1	1	4	3	2	1	2	1
Que.	31	32	33	34	35	36	37								
Ans.	3	3	3	4	4	3	4								

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2008

1. Which one of the following items gives its ***correct total*** number ?

(1) Types of diabetes – 3

(2) Cervical vertebrae in humans – 8

(3) Floating ribs in humans – 4

(4) Amino acids found in proteins – 16

SM0046

AIPMT 2009

2. Elbow joint is an example of :-

(1) Ball and socket joint

(2) Pivot joint

(3) Hinge joint

(4) Gliding joint

SM0047

AIPMT 2011

3. Three of the following pairs of human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the nonmatching pair

	Pair of skeletal parts	**Category**
(1)	Malleus and stapes	Ear ossicles
(2)	Sternum and ribs	Axial skeleton
(3)	Clavicle and glenoid cavity	Pelvic girdle
(4)	Humerus and ulna	Appendicular skeleton

SM0048

AIPMT Pre.-2012

4. Select the correct statement regarding the specific disorder of muscular or skeletal system :-

(1) Myasthenia gravis-Auto immune disorder which inhibits sliding of myosin filaments

(2) Gout inflammation of joints due to extra deposition of calcium

(3) Muscular dystrophy - age related shortening of muscles

(4) Osteoporosis-decrease in bone mass and higher chances of fractures with advancing age

SM0049

NEET-UG 2013

5. Select the correct statement with respect to locomotion in humans:

(1) The joint between adjacent vertebrae is a fibrous joint

(2) A decreased level of progesterone causes osteoporosis in old people

(3) Accumulation of uric acid crystals in joints causes their inflammation

(4) The vertebral column has 10 thoracic vertebrae

SM0050

AIPMT 2014

6. Select the correct matching of the type of the joint with the example in human skeletal system :

	Type of joint	**Example**
(1)	Cartilaginous joint	between frontal and parietal
(2)	Pivot joint	between third and fourth cervical vertebrae
(3)	Hinge joint	between humerus and pectoral girdle
(4)	Gliding joint	between carpals

SM0051

AIPMT 2015

7. Glenoid cavity articulates :-
(1) Scapula with acromion
(2) Clavicle with scapula
(3) Humerus with scapula
(4) Clavicle with acromion

SM0053

Re-AIPMT 2015

8. Which of the following is **not** a function of the skeletal system?
(1) Locomotion
(2) Production of erythrocytes
(3) Storage of minerals
(4) Production of body heat

SM0054

9. Which of the following joints would allow no movement ?
(1) Ball and Socket joint
(2) Fibrous joint
(3) Cartilaginous joint
(4) Synovial joint

SM0055

NEET-II 2016

10. Osteoporosis, an age–related disease of skeletal system, may occur due to :-
(1) Decreased level of estrogen
(2) Accumulation of uric acid leading to inflammation of joints.
(3) Immune disorder affecting neuro–muscular junction leading to fatigue.
(4) High concentration of Ca^{++} and Na^{+}.

SM0056

NEET(UG) 2017

11. Out of 'X' pairs of ribs in humans only 'Y' pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation:
(1) X = 12, Y = 5 — True ribs are attached dorsally to vertebral column and sternum on the two ends.
(2) X = 24, Y = 7 — True ribs are dorsally attached to vertebral column but are free on ventral side.
(3) X = 24, Y = 12 — True ribs are dorsally attached to vertebral column but are free on ventral side.
(4) X = 12, Y = 7 — True ribs are attached dorsally to vertebral column and ventrally to the sternum.

SM0058

12. The pivot joint between atlas and axis is a type
of :
(1) Cartilaginous joint
(2) Synovial joint
(3) Saddle joint
(4) Fibrous joint

SM0059

NEET(UG) 2019

13. Select the **correct** option .
(1) 8th, 9th and 10th pairs of ribs articulate directly with the sternum.
(2) 11th and 12th pairs of ribs are connected to the sternum with the help of hyaline cartilage.
(3) Each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.
(4) There are seven pairs of vertebrosternal, three pairs of vertebrochondral and two pairs of vertebral ribs.

SM0118

NEET(UG) 2019 (Odisha)

14. Match the following joints with the bones involved:

(a) Gliding joint (i) Between carpal and metacarpal of thumb

(b) Hinge joint (ii) Between Atlas and Axis

(c) Pivot joint (iii) Between the carpals

(d) Saddle joint (iv) Between humerus and Ulna.

Select the correct option from the following:

(1) (a)-(iii), (b)-(iv), (c)-(ii), d-(i)

(2) (a)-(iv), (b)-(i), (c)-(ii), d-(iii)

(3) (a)-(iv), (b)-(ii), (c)-(iii), d-(i)

(4) (a)-(i), (b)-(iii), (c)-(ii), d-(iv)

SM0119

NEET(UG) 2020

15. Match the following columns and select the **correct** option.

Column - I	Column - II
(a) Floating Ribs	(i) Located between second and seventh ribs
(b) Acromion	(ii) Head of the Humerus
(c) Scapula	(iii) Clavicle
(d) Glenoid cavity	(iv) Do not connect with the sternum

	(a)	(b)	(c)	(d)
(1)	(iv)	(iii)	(i)	(ii)
(2)	(ii)	(iv)	(i)	(iii)
(3)	(i)	(iii)	(ii)	(iv)
(4)	(iii)	(ii)	(iv)	(i)

SM0209

NEET(UG) 2021

16. Match **List - I** with **List - II.**

List–I		List–II	
(a)	Scapula	(i)	Cartilaginous joints
(b)	Cranium	(ii)	Flat bone
(c)	Sternum	(iii)	Fibrous joints
(d)	Vertebral column	(iv)	Triangular flat bone

Choose the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(i)	(iii)	(ii)	(iv)
(2)	(ii)	(iii)	(iv)	(i)
(3)	(iv)	(ii)	(iii)	(i)
(4)	(iv)	(iii)	(ii)	(i)

SM0210

NEET(UG) 2021 (Paper-2)

17. Match the columns I and II, and choose the correct combination from the options given.

Column I	Column II
a. Ball and socket joint	i. Between carpal and metacarpal of thumb
b. Hinge joint	ii. Between humerus and pectoral girdle
c. Pivot joint	iii. Between atlas and axis
d. Saddle joint	iv. Knee joint

(1) a–iv, b–i, c–ii, d–iii

(2) a–ii, b–iv, c–iii, d–i

(2) a–iii, b–iv, c–i, d–ii

(4) a–iii, b–i, c–ii, d–iv

SM0214

18. Ribs are called bicephalic because it has two articulation surfaces on its

(1) Dorsal end

(2) Ventral end

(3) Lateral end

(4) Ventrolateral end

SM0215

NEET(UG) 2022

19. Given below are two statements: one is labelled as
Assertion (A) and the other is labelled as **Reason**
(R).
Assertion (A):
Osteoporosis is characterised by decreased bone mass and increased chances of fractures.
Reason (R):
Common cause of osteoporosis is increased levels of estrogen.
In the light of the above statements, choose the **most appropriate** answer from the options given below:
(1) Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**
(2) **(A)** is correct but **(R)** is not correct
(3) **(A)** is not correct but **(R)** is correct
(4) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

SM0216

NEET(UG) 2022 (OVERSEAS)

20. Gout is a type of disorder which leads to:
(1) Inflammation of joints due to accumulation of uric acid crystals
(2) Weakening of bones due to decreased bone mass
(3) Inflammation of joints due to cartilage degeneration
(4) Weakening of bones due to low calcium level

SM0217

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	3	3	4	3	4	3	4	2	1	4	2	4	1	1
Que.	16	17	18	19	20										
Ans.	4	2	1	2	1										

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Match the columns and pick out the correct answer :-

Column-A	Column-B
(i) Atlas/axis	(a) Saddle joint
(ii) Carpal/metacarpal of thumb	(b) Hinge joint
(iii) Between phalanges	(c) Fibrous joint
(iv) Femur / acetabulum	(d) Ball and socket joint
(v) Between cranial bones	(e) Pivot joint

	(i)	(ii)	(iii)	(iv)	(v)
(1)	e	a	b	c	d
(2)	e	a	b	d	c
(3)	e	a	d	b	c
(4)	e	a	d	c	b

SM0060

2. Joint between pubic bones in the pelvis girdle is
(1) Cartilagenous joint
(2) Fibrous joint
(3) Hinge joint
(4) Ball and socket joint

SM0061

3. 11th and 12th pairs of ribs are called
(1) True ribs
(2) False ribs
(3) Vertebrochondral ribs
(4) Floating ribs

SM0062

4. The number of phalanges in both fore limbs of human is :-
(1) 14 (2) 28 (3) 12 (4) 24

SM0064

5. Identify the correct and wrong statements :-
(a) Human skeleton has 206 bones
(b) There are 12 pairs of ribs in human
(c) Sternum is present on the dorsal side of the body.
(d) All mammals (except of few) have 8 cervical vertebrae.
(e) Ribs are bicephalic

	correct	**wrong**
(1)	a, b, c	d, e
(2)	a, b, d	c, e
(3)	a, b, e	c, d
(4)	a, c, d	b, e

SM0065

6. Which of the following is **wrong** match for each limb?
(1) Wrist bones $\rightarrow$ 8 in number
(2) Palm bones $\rightarrow$ 5 in number
(3) Ankle bones $\rightarrow$ 7 in number
(4) Digits $\rightarrow$ 12 in number

SM0066

7. Each coxal bone is formed by fusion of three bones?
(1) Ilium, ischium, pubis
(2) Ilium, sacrum, pubis
(3) Ilium, sacrum, coccyx
(4) Ilium sacrum, ischium

SM0067

8. Which of the following is wrong statement about hyoid bone?
(1) Only one in number
(2) U-shaped bone
(3) Present at the top of the buccal cavity
(4) Not attached with any other bone of the body

SM0068

9. This bone is a large triangular flat bone situated in the dorsal part of the thorax between the second and the seventh ribs. Identify this bone :-

(1) Femur (2) Hip bone
(3) Scapula (4) Sacrum

SM0069

10. _____ are characterised by the presence of a fluid filled synovial cavity between the articulating surfaces of the two bones :-

(1) Fibrous joints
(2) Synovial joints
(3) Cartilagenous joints
(4) Hinge joints

SM0070

11. Inflammation of joints due to accumulation of uric acid crystals is called :-

(1) Osteoporosis
(2) Gout
(3) Arthritis
(4) Tetany

SM0071

12. ____ and _____ constitute our skeletal system.

(1) Bones and blood
(2) Blood and lymph
(3) Bones and cartilages
(4) Bones and nervous

SM0072

13. Which of the following type of joint allows considerable movements and therefore, play a significant role in locomotion?

(1) Synovial joints
(2) Fibrous joints
(3) Cartilagenous joints
(4) All of the above

SM0073

14. Match the columns

	Column-A	**Column-B**
(a)	Ribs	(i) 26
(b)	Vertebrae	(ii) 14
(c)	Phalanges	(iii) 1
(d)	Sternum	(iv) 24

	(a)	(b)	(c)	(d)
(1)	iv	i	iii	ii
(2)	iv	iii	ii	i
(3)	iv	i	ii	iii
(4)	iv	iii	i	ii

SM0074

15. Match the List-1 with List-2 correct and find your answer from the code given below :-

List-1	List-2
(i) Palm bones	(A) 14 in number
(ii) Wrist bones	(B) 5 in number
(iii) Ankle bones	(C) 8 in number
(iv) Phalanges	(D) 7 in number

Code :

(1)	(i) A	(ii) B	(iii) C	(iv) D
(2)	(i) B	(ii) C	(iii) D	(iv) A
(3)	(i) A	(ii) C	(iii) D	(iv) B
(4)	(i) C	(ii) D	(iii) B	(iv) A

SM0075

16. Between humerus and pectoral girdle which type of joint is present :-

(1) Pivot joint
(2) Hinge joint
(3) Ball & socket joints
(4) Gliding joints

SM0076

17. Find out incorrect statements :-

(1) Brain box is formed of 8 bones
(2) In skull the frontal bone is single
(3) A single U-shaped bone present at the base of the buccal cavity is quadrate
(4) Hyoid bone is the part of skull

SM0077

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

18. Pelvic girdle of man consists of :-
(1) Ilium, ischium and pubis
(2) Ilium, ischium and coracoid
(3) Coracoid, scapula and clavicle
(4) Ilium, coracoid and scapula

SM0079

19. Hinge joint is present between :-
(1) Femur and ulna
(2) Humerus and ulna
(3) Femur and pectoral girdle
(4) Femur and pelvic girdle

SM0083

20. Thoracic cage in Human is made up of :-
(1) Ribs, vertebral column and diaphragm
(2) Ribs, diaphragm
(3) Vertebral column, diaphragm and sternum
(4) Ribs, vertebral column and sternum

SM0084

21. In which one of the following bones acromian process is found :-
(1) Femur (2) Coxal bones
(3) Atlas (4) Scapula

SM0085

22. Foramen magnum is present in
(1) Base of medulla
(2) Base of skull
(3) Apex of vertebral column
(4) Base of brain

SM0087

23. Which of the following is a pair of sesamoid bone ?
(1) Ilium and Patella
(2) Patella and Pisciform
(3) Pterigoid and Patella
(4) Pectoral girdle and Patella

SM0089

24. The number of floating ribs in human body
(1) 6 pairs (2) 5 pairs
(3) 3 pairs (4) 2 pairs

SM0090

25. Pivot joint occurs at
(1) The hip and shoulder joint
(2) Between the atlas and the odontoid process of axis
(3) Sternoclavicular joint
(4) Temporomandibular joint

SM0091

26. Axial skeletal is made up of
(1) Vertebral column complete
(2) Skull
(3) Sternum
(4) All of the above

SM0092

27. The shoulder and hip joints are
(1) Pivot joint
(2) Hinge joint
(3) Ellipsoid joint
(4) Ball and socket joint

SM0093

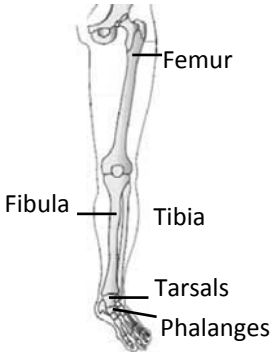
28. Bones become fragile in
(1) Gout
(2) Osteoporosis
(3) Arthritis
(4) None of these

SM0094

29. Part of mammalian body has single pairs of bones
(1) Pelvic girdle
(2) External ear
(3) Lower jaw
(4) All of the above

SM0095

30. Given below is a diagram of the bones of the left human hind limb as seen from front. It has certain mistakes in labelling.



Two of the wrongly labelled bones are :-
(1) Tibia and tarsals
(2) Femur and fibula
(3) Fibula and phalanges
(4) Tarsals and femur

SM0096

EXERCISE-III — ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**1**	**4**	**2**	**3**	**4**	**1**	**3**	**3**	**2**	**2**	**3**	**1**	**3**	**2**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**3**	**3**	**1**	**2**	**4**	**4**	**2**	**2**	**4**	**2**	**4**	**4**	**2**	**1**	**3**

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

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PRE-MEDICAL

ZOOLOGY

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EXERCISE

Neural control and coordination (Nervous System)

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

NEURAL SYSTEM AND NEURAL TISSUE

1. Nissl's bodies found in neurons are :-
(1) Made of DNA
(2) Masses of RER
(3) Help in formation of neurofibrils
(4) Masses of mitochondria
NS0002

2. "Nodes of Ranviers" are found in :-
(1) Brain (2) Heart
(3) Axon (4) Eye
NS0003

3. Afferent nerve fiber conducts impulse from :-
(1) C.N.S. to effector
(2) Receptor to C.N.S.
(3) Receptor to effector
(4) Effector to receptor
NS0004

4. Nissl granules occur in which part and what is their function ?
(1) Neurons and help in protein synthesis
(2) Blood and help in nutrition and excretion
(3) Sarcoplasm and help in contraction
(4) Mucous cell and secrete mucous
NS0005

5. The parts of the neurons that perform basic cellular functions such as protein synthesis etc. :–
(1) Axons
(2) Axon hillock
(3) Synaptic knobs
(4) Soma
NS0006

6. The nerves leading to the central nervous system are called :-
(1) Afferent (2) Efferent
(3) Motor (4) None
NS0007

7. Unit of nervous system :-
(1) Neuron (2) Neuroglia
(3) Axon (4) Cyton
NS0008

8. Integrative system in the body are :-
(1) Endocrine system
(2) Nervous system
(2) Blood vascular system
(4) Both (1) & (2)
NS0009

9. The Schwann sheath is :-
(1) A non myelinated nerve fibres
(2) Associated with myelin sheath
(3) A connective tissue cell
(4) Associated with myelinated & non myelinated nerve fibre
NS0010

10. Rapid integration of the functional activities in human is achieved by :-
(1) Nervous system
(2) Endocrine system
(3) Blood
(4) Muscular system
NS0011

11. Which one of the following types of neurons are most numerous in the body :-
(1) Unipolar
(2) Multipolar
(3) Bipolar
(4) Pseudounipolar
NS0012

12. Sheath of schwann occurs on :-
(1) Neurons (2) Axons
(3) Dendrons (4) Neuroglia
NS0013

13. Which cell-organellae absent in neurons ?
(1) Mitochondria
(2) Ribosome
(3) Centriole
(4) Nucleus
NS0014

14. Nerve fibres are surrounded by an insulating fatty layer called :-
(1) Adipose sheath
(2) Myelin sheath
(3) Connective tissue
(4) Peritoneum
NS0015

15. Myelinogenesis (Myelin formation) process occur in C.N.S. (central nervous system)
(1) By schwann cells
(2) By oligodendrocytes
(3) By Axolemma
(4) By neurilemma
NS0016

16. Which of the following statement is correct for node of Ranvier of nerve ?
(1) Neurilemma is discontinuous
(2) Myelin sheath is discontinuous
(3) Both neurilemma & Myelin sheath are discontinuous
(4) Covered by myelin sheath
NS0017

17. The "Nissle's granules" of nerve cell's are made up of :-
(1) Ribosome (2) Protein
(3) DNA (4) Mitochondria
NS0018

18. Non Myelinated axons differ from myelinated in that they :-
(1) Are more excitable
(2) Lack nodes of Ranvier
(3) Are not capable of regeneration
(4) Are not associated with Schwann cells
NS0019

19. If myelin sheath is continuous in myelinated nerve fibre than what will happens in neuronal conduction?
(1) Velocity is increased
(2) Conduction is slow
(3) Conduction is stopped
(4) No effect
NS0020

20. Nerve cells do not possess -
(1) Neurilemma (2) Sarcolemma
(3) Dendrites (4) Axon
NS0021

21. Myelin sheath covers which of the following ?
(1) Muscle fibre (2) Nerve fibre
(3) Collagen fiber (4) Tendons
NS0022

22. Dendrites are associated with which system ?
(1) Nervous system
(2) Digestive system
(3) Muscular system
(4) Blood vascular system
NS0023

23. The gray matter differs from white matter in the:-
(1) Absence of axons
(2) Absence of myelin sheath
(3) Presence of myelin sheath
(4) Absence of neurilemma
NS0024

24. Nerve cells possess
(a) Dendrites (b) Axon
(c) Sarcolemma (d) Neurilemma
(1) a, b (2) a, b, c
(3) a, b, d (4) a, b, c, d

NS0025

25. The nervous system is derived from :-
(1) Ectoderm
(2) Endoderm
(3) Mesoderm
(4) Ecto and Mesoderm

NS0026

26. The nerve cell can be distinguished from other cells of the body by the presence of :-
(1) Neuroplasm (2) Neurilemma
(3) Mitochondria (4) Neurites

NS0027

27. Function of nervous tissue is :-
(1) Irritability or Excitability
(2) Sensitivity
(3) Elasticity
(4) Contraction

NS0028

28. Which of the following processes occur only in animals ?
(1) Hormonal control (2) Respiration
(3) Nervous control (4) Nutrition

NS0029

29. Which cell in our body is more than a feet long ?
(1) Nerve cell (2) Muscle cell
(3) Bone cell (4) Gland cell

NS0030

30. Which cell stop dividing after birth ?
(1) Epithelium (2) Neuron
(3) Glial cells (4) Liver

NS0031

31. In which animal, nerve cell is present but brain is absent ?
(1) Sponge (2) Earthworm
(3) Cockroach (4) Hydra

NS0032

32. Intercellular communication in multicellular organism occurs through -
(1) Nervous system only
(2) Digestive system only
(3) Respiratory system only
(4) Both nervous and endocrine system

NS0033

33. Myelin sheath is derived from :
(1) Astrocytes cells
(2) Schwann cells
(3) Nerve cells
(4) All of these

NS0035

34. Synaptic vesicles are found in –
(1) Presynaptic neuron
(2) Post synaptic neuron
(3) Synaptic cleft
(4) None of these

NS0036

35. Nissl's granules are absent in :
(1) Axon (2) Cyton
(3) Dendron (4) Dendrites

NS0037

36. In a myelinated neuron, two adjacent myelin sheaths are separated by gaps called :
(1) Nodes of Ranvier
(2) Synaptic cleft
(3) Synaptic knob
(4) Neural plate

NS0039

37. Nissl's granules are found in :
(1) Liver cells (2) Nerve cells
(3) Kidney (4) Heart

NS0040

NERVE IMPULSE CONDUCTION

38. Chemical transmission of nerve impulses from one neuron to another at a synapse is by :-
(1) Cholesterol (2) Acetylcholine
(3) Cholecystokinin (4) ATP

NS0041

39. Saltatory conduction occurs in :-
(1) Non-myelinated fibers
(2) Myelinated fibers
(3) Both of them
(4) None of them

NS0042

40. When a nerve fibers is stimulated the inside of the membrane becomes :-
(1) Filled with acetyl choline
(2) Negatively charged
(3) Positively charged
(4) Neutral

NS0043

41. "Jumping of the action potential" at the nodes of ranvier is known as :-
(1) Saltatory conduction
(2) Neuro transmission
(3) Recovery phase
(4) Active phase

NS0044

42. Nerve impulses are generated by nerve fibers only when the membrane shall become more permeable to :-
(1) Adrenaline (2) Phosphorus
(3) Sodium ions (4) Potassium ions

NS0045

43. Speed of impulse on nerves in mammals is :-
(1) 1 meter/sec.
(2) 100 meter/sec.
(3) 1000 meter/sec.
(4) None of these

NS0046

44. The functional connection between two neurons is called :-
(1) Synapse (2) Synapsis
(3) Chiasma (4) Chiasmata

NS0047

45. Conduction of nerve impulse is :-
(1) Faster in non-myelinated fibres
(2) Faster in myelinated fibres
(3) No difference in the rate of conduction in myelinated & non myelinated fibres
(4) None of the above

NS0048

46. A short period during which a nerve is unable to conduct nerve impulse is called :-
(1) Synaptic delay
(2) Refractory period
(3) Resting potential
(4) Critical period

NS0050

47. When the axons membrane is positively charged outside and negatively charged inside, then the condition is known as :-
(1) Action potential
(2) Resting potential
(3) Active potential
(4) Differential potential

NS0051

48. The main function of acetylcholine is to :-
(1) Increase heart beat
(2) Help in synaptic transmission of nerve impulse
(3) Help in conduction of nerve impulse through axon
(4) Control reflex action

NS0052

49. Depolarization of axolemma during nerve conduction takes place because of-
(1) Equal amount of Na^+ & K^+ move out across axolema
(2) Na^+ move inside
(3) More Na^+ outside
(4) None

NS0053

50. In the resting state of the neural membrane, diffusion due to concentration gradients, if allowed, would drive :-
(1) K^+ and Na^+ out of the cell
(2) Na^+ into the cell
(3) Na^+ out of the cell
(4) K^+ into the cell

NS0054

51. Unidirectional transmission of a nerve impulse through synapse fibre is due to :–
(1) Nerve fibre is insulated by a medullary sheath.
(2) Sodium pump starts operating only at the cyton and then continues into the nerve fibre.
(3) Neurotransmitters are released by dendrites and not by axon endings.
(4) Neurotransmitters are released by the axon endings and not by dendrites.

NS0055

52. Repolarisation of Neuron is occured due to:-
(1) Influx of Na^+ (2) Influx of K^+
(3) Efflux of Na^+ (4) Efflux of K^+

NS0056

53. If GABA is released at synapse area then what will happens :-
(1) Depolarization of neuron
(2) Repolarization of neuron
(3) Hyperpolarization of neuron
(4) No effect

NS0057

54. Nerve impulse travel through synapse with the help of
(1) Acetylcholine and sympathetin
(2) Choline and acetylcholine
(3) Adrenaline and noradrenaline
(4) None of the above

NS0058

55. A typical value of resting membrane potential is -
(1) -40 mv (2) -60 mv
(3) -70 mv (4) -80 mv

NS0059

56. Pre synaptic membrane is part of :
(1) Dendron
(2) Axon hillock
(3) Telodendria
(4) Soma

NS0061

57. Acetylcholinesterase enzyme splits acetylcholine into :
(1) Acetone and choline
(2) Acetic acid and choline
(3) Amino acid and choline
(4) Aspartic acid and acetylcholine

NS0064

58. During nerve impulse conduction permeability of a membrane is greater for :
(1) Na^+
(2) K^+
(3) Equal for both (1) and (2)
(4) Ca^{+2}

NS0065

59. Acetylcholinesterase help in breaking :
(1) Synapse (2) Acetylcholine
(3) Dendrites (4) Axon
NS0066

60. Action potential of a nerve cell is generated by :
(1) Na^+ (2) K^+
(3) Ca^{++} (4) Cl^-
NS0067

61. Connection between axon and dendrite is :
(1) Synapse (2) Synapsis
(3) Desmosome (4) Tight junction
NS0068

62. During repolarisation of nerve :
(1) K^+ gates closes and Na^+ gates opens
(2) Na^+ channels are closed and K^+ channels are open
(3) Both gates remain open
(4) Both K^+ and Na^+ gates are closed
NS0069

63. Junction between the axon of one neuron and the dendrite of the next is called :
(1) A joint
(2) Synapse
(3) Constant bridge
(4) Junction point
NS0070

64. The one way or unidirectional transmission of nerve cells is due to :
(1) Synapses
(2) Myelin sheath
(3) Membrane polarity
(4) Interneurons
NS0071

65. Resting potential of a nerve is : (in milli volt)
(1) +70 (2) +30 (3) –30 (4) –70
NS0072

66. Nerve impulse initiates with the movement of :
(1) K^+ (2) Na^+
(3) Ca^{++} (4) Mg^{+2}
NS0073

67. Na^+/K^+ pump in a cell is an example of –
(1) Osmosis
(2) Diffusion
(3) Passive transport
(4) Active transport
NS0074

STRUCTURE AND FUNCTION OF BRAIN

68. Corpus callosum connects :-
(1) Two cerebral hemisphere
(2) Two optic lobes
(3) Two olfactory lobes
(4) Optic chiasma
NS0075

69. Outer most covering of brain is called :-
(1) Choroid (2) Duramater
(3) Piamater (4) Arachnoid
NS0076

70. The membrane which cover the brain and the spinal cord is :-
(1) White matter (2) Grey matter
(3) Peritonium (4) Menix
NS0077

71. Cerebellum is concerned with :-
(1) Co-ordination of muscular movement
(2) Memory
(3) Vision
(4) Reflex action
NS0078

72. Crura cerebri is located in :-
(1) Fore brain (2) Hind brain
(3) Mid brain (4) None
NS0079

73. Piamater is :-
(1) Inner most meninge
(2) Middle meninge
(3) Outer meninge
(4) None

NS0080

74. The box like bony structure which encloses the brain is called :-
(1) Cranium (2) Pericardium
(3) Peritoneum (4) Periosteum

NS0081

75. In brain crura cerebri is a structure made of :-
(1) Six bands of nerve fibres
(2) Eight bands of nerve fibres
(3) Two large bands of nerve fibres
(4) Four bands of nerve fibres

NS0082

76. Which one of the following menix is present only in mammalian brain :-
(1) Duramater (2) Arachnoid
(3) Piamater (4) None of them

NS0083

77. Small, solid and four optic lobes or colliculus called corpora quadrigemina are found in :-
(1) Mammals (2) Amphibians
(3) Aves (4) Reptiles

NS0085

78. Hypothalamus is situated on the :-
(1) Upper lateral surface of diencephalon
(2) Lower lateral surface of diencephalon
(3) Ventral side of optic lobes
(4) Dorsal side of optic lobes

NS0086

79. Epithalamus is situated on the :-
(1) Roof of diencephalon
(2) Lateral wall of diencephalon
(3) Dorsal side of optic lobes
(4) Floor of diencephalon

NS0087

80. Which of the following is a richly vascular layer with lots of blood capillaries :-
(1) Duramater (2) Piamater
(3) Epidermis of skin (4) Both (1) & (2)

NS0088

81. Which of the following is not a part of hind brain :–
(1) Medulla oblongata
(2) Thalamus
(3) Cerebellum
(4) Pons

NS0089

82. Which is correct about pons varolii ?
(1) Situated between midbrain & M.O.
(2) Pons contains pneumotaxic centre
(3) Inner gray, outer white matter
(4) All of the above

NS0090

83. If the corpus callosum is removed in mammalian brain then what will be affected :-
(1) Coordination of Cerebrum
(2) Involuntary activity of brain
(3) Coordination of Cerebellum
(4) Behaviour and emotional disturbances

NS0091

84. The name of nervous band connecting both the cerebral hemispheres in your brain -
(1) Corpus albicans
(2) Corpus callosum
(3) Corpus striatum
(4) Corpus spongiosum

NS0092

85. Arbor vitae is a part of -
(1) Cerebrum (2) Cerebellum
(3) Midbrain (4) Forebrain

NS0093

86. Human brain is covered by a hard layer called -
(1) White matter (2) Duramater
(3) Piamater (4) Gray matter
NS0094

87. Which of the following is the part of mid brain ?
(1) Cerebrum
(2) Diencephalon
(3) Corpora quadrigemina
(4) None of these
NS0095

88. The function of cerebrospinal fluid does not include:
(1) Protection of brain and spinal cord by containing antibody
(2) Protection of delicate brain and spinal cord from shock
(3) As a medium for excretion of waste product
(4) Buoyancy to brain
NS0096

89. Cerebral hemispheres of mammals consist of :-
(1) Outer gray matter and central white matter
(2) Outer white matter and central gray matter
(3) Gray matter and white matter inter mingled
(4) Gray matter only
NS0097

90. Which of the following forms the cerebro-spinal fluid:-
(1) Choroid plexus
(2) Duramater
(3) Arachnoid mater
(4) Cerebrum and spinal cord
NS0098

91. If Broca's area is completely injured then what happen firstly:–
(1) Concerning speech muscle are paralysed
(2) Speech stuttered & not clear
(3) Unable to speak
(4) Only able to speak written word
NS0099

92. In man the osmotic centres are situated in -
(1) Cerebrum
(2) Hypothalamus
(3) Pituitary gland
(4) Medulla oblongata
NS0101

93. Hypothalamus does not control -
(1) Thirst
(2) Osmoregulation
(3) Creative thinking and consciousness
(4) Thermoregulation
NS0102

94. Choroid plexus is a network of -
(1) Nerves (2) Muscle fibres
(3) Capillaries (4) Lymph vessels
NS0103

95. Voluntary activites of body are controlled by :-
(1) Diencephalon (2) Cerebrum
(3) Crura cerebri (4) Cerebellum
NS0104

96. Thermo regulatory center in human brain is :-
(1) Pituitary (2) Diencephalon
(3) Hypothalamus (4) None
NS0105

97. Respiratory control in brain occurs in :-
(1) Medulla oblongata
(2) Cerebellum
(3) Hypothalamus
(4) Pericardium
NS0106

98. Drinking of alcohol affects mostly:-
(1) Cerebrum
(2) Cerebellum
(3) Medulla oblongata
(4) Diencephalon

NS0107

99. Which part of the brain regulates the body temperature, hunger and water balance :-
(1) Hypothalamus
(2) Infundibulum
(3) Medulla oblongata
(4) Pons veroli

NS0108

100. Most of the involuntary action are controlled by :-
(1) Medulla oblongata
(2) Cerebrum
(3) Cerebellum
(4) Diencephalon

NS0109

101. When the medulla oblongata (M.O.) is damaged, then what happen ?
(1) Immediately die
(2) Die after few hrs.
(3) Live at 1 hrs & after it may die
(4) No affect

NS0110

102. Cerebellar hemisphere is the centre of :-
(1) Taste (2) Smell
(3) Balance (4) Thinking

NS0111

103. Which part of brain is supposed to be damaged if in an accident, a person lost control of water balance, hunger and body temp. :-
(1) Cerebellum
(2) Hypothalamus
(3) Medula oblongata
(4) Corpora quadrigemina

NS0112

104. Which part of brain controls emotions like love, anger and pleasure –
(1) M. O. (2) Hypothalamus
(3) Mid brain (4) Cerebellum

NS0113

105. Brain of human differs from that of frog in having:-
(1) Large olfactory lobe
(2) Small hypothalamus
(3) Small cerebellum
(4) Corpus callosum

NS0115

106. Difference found between brain of frog and Human is :-
(1) Presence of corpus callosum
(2) Corpus albicans
(3) Four optic lobes
(4) All of these

NS0116

107. Hippocampus are the parts of :-
(1) Olfactory lobes
(2) Cerebrum
(3) Cerebellum
(4) Medulla Oblongata

NS0117

108. Which part of the brain is more developed in human?
(1) Medulla (2) Cerebellum
(3) Cerebrum (4) Optic lobes

NS0118

109. Which of the following is not correctly matched :-
(1) Cerebrum – Olfaction
(2) Hypothalamus – Pituitary
(3) Cerebellum – Balance
(4) Mid brain –Temperature regulation

NS0120

110. The correct sequence of meninges of brain from outside to inside is :
(1) Duramater → Arachnoid → Piamater
(2) Arachnoid → Duramater → Piamater
(3) Piamater → Duramater → Arachnoid
(4) Duramater → Piamater → Arachnoid
NS0121

111. The thermoregulatory centre in the body of man is found in :
(1) Diencephalon (2) Hypothalamus
(3) Pituitary (4) Skin
NS0122

112. Part of brain concerned with the muscular movement is :
(1) Cerebellum
(2) Thalamus
(3) Hippocampus
(4) Temporal lobe of cerebrum
NS0123

113. In human corpus callosum connects :
(1) The two optic lobes
(2) Bone and muscle
(3) The two cerebral hemispheres
(4) Two lobes of pituitary gland
NS0124

114. Intersensory association, memory and communication are the specific functions of :-
(1) Myelinated neuron (2) Spinal cord
(3) Cerebellum (4) Association area
NS0293

115. In human body muscular co-ordination is controlled by:
(1) Spinal cord
(2) Cortex
(3) Cerebellum
(4) Cerebral hemisphere
NS0126

116. The optic lobe in humans are represented by the corpora –
(1) Bigemina (2) Arenacea
(3) Striata (4) Quadrigemina
NS0128

SPINAL CORD, PNS, ANS

117. Which of the following is not an organ of the central nervous system :-
(1) Brain
(2) Spinal cord
(3) Medulla oblongata
(4) Vagus
NS0129

118. Ventral root of spinal nerve has :-
(1) Sensory fibers
(2) Motor fibers
(3) Sensory and motor fibers both
(4) None of these
NS0130

119. Cavity in spinal cord is called :-
(1) Enterocoel (2) Blastocoel
(3) Schizocoel (4) Neurocoel
NS0131

120. Last end of spinal cord is called :-
(1) Cauda equine
(2) Filum terminale
(3) Funiculus
(4) Conus medullaris
NS0133

121. Through which aperture the spinal cord passes out of skull :-
(1) Foramen of monro
(2) Foramen of paninze
(3) Foramen of magnum
(4) None of the above
NS0134

122. The "butter fly" like structure surrounding the central cavity of human's spinal cord is called :-
(1) Funiculus (2) Horn
(3) White matter (4) Gray matter
NS0135

123. Which has H-shaped gray matter ?
(1) Cerebrum
(2) Spinal cord
(3) Cerebellum
(4) Medulla oblongata
NS0136

124. Which cranial nerves are sensory :-
(1) 1, 2, 8 (2) 3, 4, 6, 11, 12
(3) 5, 7, 9, 10 (4) None of them
NS0137

125. Cochlear nerve is a branch of :-
(1) Vestibular nerve (2) Auditory nerve
(3) Optic nerve (4) Vagus nerve
NS0294

126. Which cranial nerve is the longest and supplies all parts of body other than head :-
(1) Trochlear nerve (2) Vagus nerve
(3) Occulomotor nerve (4) Auditary nerve
NS0139

127. Purely motor cranial nerve includes :-
(1) I, V, VII (2) I, II, IV
(3) III, IV, VI, XI (4) None of these
NS0140

128. Parasympathetic system increase activity of :-
(1) Lacrimal gland, sweat gland, arrector pili
(2) Heart, lacrimal gland, pancreas
(3) Heart, adrenal gland and sweat gland
(4) Gut, urinary bladder and digestive gland
NS0141

129. Which nerve is purely motor :-
(1) Abducens (2) Trigeminal
(3) Olfactory (4) Vagus
NS0142

130. The III, VI and XI cranial nerve in mammals are respectively :-
(1) Occulomotor, abducens and hypoglossal
(2) Occulomotor, abducens and spinal accessory
(3) Trochlear, facial and spinal accessory
(4) Trigeminal, abducens and vagus
NS0143

131. Heart is innervated by :-
(1) Vagus
(2) Trigeminal
(3) Facial
(4) Glossopharyngeal
NS0144

132. Number of spinal nerves in human :-
(1) 31 pairs (2) 32 pairs
(3) 12 pairs (4) 37 pairs
NS0145

133. Which of the nervous system transmit impulses from C.N.S. to skeletal muscle :-
(1) Sympathetic nervous system
(2) Parasympathetic nervous system
(3) Somatic neural system
(4) Autonomic neural system
NS0295

134. In human, autonomic nervous system is composed of :-
(1) Sympathetic and parasympathetic nerves
(2) Cranial and spinal nerves
(3) Brain and spinal nerves
(4) Medullated and non-medullated nerves
NS0147

135. How many pairs of cranial nerves are purely sensory :-
(1) Two (2) Three
(3) Four (4) Five
NS0148

136. Optic nerve is the :-
(1) Fifth cranial nerves
(2) Second cranial nerve
(3) Seventh cranial nerve
(4) Ninth cranial nerve
NS0149

137. All spinal nerves are :-
(1) Motor
(2) Sensory
(3) Mixed
(4) None of the above
NS0150

138. Which of the following nerve helps in maintaining the equilibrium of body :-
(1) Trochlear (2) Abducens
(3) Auditory (4) Facial
NS0151

139. Autonomic nervous system controls :-
(1) Conditioned reflexes
(2) Functioning of spinal cord
(3) Functioning of visceral organs
(4) Reflex actions
NS0152

140. Stimulation of sympathetic nervous system causes :-
(1) Constriction of blood vessels and high blood pressure
(2) Dilation of bronchi & pupil
(3) Erection of hair
(4) All of the above
NS0153

141. The two additional cranial nerves present in mammals are :-
(1) Pharyngeal & vagus
(2) Spinal accessory and hypoglossal
(3) Trigeminal and glossopharyngeal
(4) Hypoglossal and sciatic
NS0154

142. Which of the following spinal nerves does not found in human :-
(1) Caudal nerves (2) Sacral nerves
(3) Cervical nerves (4) Lumbar nerves
NS0155

143. Which of the following cranial nerves of human are mixed in nature :-
(1) Vagus & trigeminal
(2) Optic & vagus
(3) Auditory & olfactory
(4) Trochlear and vagus
NS0156

144. The cranial and spinal nerves are included under:-
(1) Autonomic nervous system
(2) Peripheral nervous system
(3) Central nervous system
(4) Cutaneous nervous system
NS0157

145. Conservation of energy take place by :-
(1) Sympathetic nervous system
(2) Parasympathetic nervous system
(3) Reflex action
(4) None
NS0158

146. If parasympathetic nerve is cut, then heart beat:–
(1) Unaffected (2) Decreases
(3) Increases (4) Stop
NS0159

147. Norepinephrine leads to increase in :–
(1) Blood pressure
(2) Urine production
(3) Cellular respiration
(4) Release of epinephrine
NS0160

148. In a man, if abducens nerve is injured, which one of the following functions will be affected ?
(1) Movement of the neck
(2) Movement of the tongue
(3) Movement of the eye ball
(4) Swallowing

NS0161

149. Which cranial nerve provides taste sensation in anterior 2/3rd part of tongue –
(1) Trigeminal (2) Facial
(3) Glossopharyngeal (4) Hypoglossal

NS0162

150. In emergency condition, all changes occur in our body except –
(1) Heart beat increases
(2) Dilates blood vessels of brain, lungs, heart and striated muscle
(3) Brochodilation
(4) Micturition is done

NS0163

151. Which of the following cranial nerve is not a motor nerve ?
(1) II (2) III (3) IV (4) XII

NS0164

152. Match the following human spinal nerves in column I with II and choose the correct options :

Column I	Column II
(a) Cervical nerves	(i) 5 pairs
(b) Thoracic nerves	(ii) 1 pair
(c) Lumbar nerves	(iii) 12 pairs
(d) Coccygeal nerves	(iv) 8 pairs

(1) a = ii, b = iv, c = i, d = iii
(2) a = iv, b = iii, c = i, d = ii
(3) a = iv, b = ii, c = i, d = iv
(4) a = i, b = iv, c = ii, d = iii

NS0165

153. 9th Pair of cranial nerve in human is -
(1) Vagus
(2) Trigeminal
(3) Hypoglossal
(4) Glossopharyngeal

NS0166

154. Which of the following is not under the control of vagus nerve ?
(1) Gastrointestinal movement
(2) Respiratory movement
(3) Salivation
(4) None of these

NS0167

155. Which of the following is released by parasympathtic nervous system ?
(1) Serotonin (2) Acetylcholine
(3) Epinephrine (4) Norepinephrine

NS0168

156. Facial nerve is –
(1) Motor
(2) Sensory
(3) Motor and sensory
(4) None of these

NS0169

157. Number of cranial nerve in human is -
(1) Ten only (2) Ten pairs
(3) Twenty pairs (4) Twelve pairs

NS0170

158. Which of the following pair is mismatched–
(1) Cerebrum – voluntary activities
(2) Cerebellum – body balance
(3) M. O. – Pneumotaxic centre
(4) Spinal cord – reflex action

NS0171

159. After sympathetic stimulation, which type of activities are not present in human being :
(1) Increase heart rate
(2) Bronchodilation
(3) Micturition
(4) Semen Ejaculation

NS0172

160. Which of the following two systems are opposite in action to each other ?
(1) Nervous - Sensory
(2) Nervous - Endocrine
(3) Sensory - Endocrine
(4) Parasympathetic - Sympathetic
NS0173

161. You are watching a horror movie and you notice your heart is beating fast and mouth is dry. It is because of -
(1) Fight and flight response
(2) Autonomic nervous system
(3) Sympathetic nervous system
(4) Both 1 and 3
NS0174

162. Movement of tongue is under the control of -
(1) Trigeminal (2) Facial
(3) Autonomic system (4) Hypoglossal
NS0175

163. If dorsal root of spinal cord is broken down then its effect is
(1) No effect on impulse
(2) Impulse is transmitted fast
(3) Impulse is transmitted but slowly
(4) No impulse is transmitted from receptor
NS0176

164. ANS effects on :
(1) Reflex actions
(2) Sensory organs
(3) Internal organs
(4) None of these
NS0177

165. The 3rd, 6th and 11th cranial nerves are :
(1) Optic, facial, Spinal accessory
(2) Occulomotor, Trigeminal, Spinal accessory
(3) Trigeminal, Abducens, Vagus
(4) Occulomotor, Abduces, Spinal accessory
NS0178

166. Which of the following is a motor nerve ?
(1) Auditory (2) Abducens
(3) Optic (4) Trigeminal nerve
NS0179

167. Which one of the following is not an effect of sympathetic nervous system –
(1) Dilation of pupil
(2) Inhibition of peristalsis
(3) Elevation of blood pressure
(4) Stimulation for saliva secretion
NS0181

REFLEX ACTION

168. Which of the following is responsible for control of reflex actions ?
(1) Motor nerves
(2) Sensory nerves
(3) Central nervous system
(4) Sympathetic nervous system
NS0182

169. Reflex action is controlled by :-
(1) Muscles
(2) Limbs
(3) Central nervous system
(4) Autonomic nervous system
NS0183

170. Find out the correct sequence of a simple reflex are :-
(1) Brain-spinal cord - nerves - effector
(2) Effector - CNS - sensory nerves - receptor
(3) Muscles - spinal cord - brain - receptor
(4) Receptor - sensory nerves - CNS - effector
NS0184

171. Sight of delicious food usually makes mouth watery, it is a :-

(1) Hormonal response

(2) Neural response

(3) Optic response

(4) Olfactory response

NS0185

172. Reflex arc consists of :

(1) Motor nerve

(2) Sensory nerve

(3) Both sensory and motor nerves

(4) None of these

NS0186

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**3**	**2**	**1**	**4**	**1**	**1**	**4**	**4**	**1**	**2**	**2**	**3**	**2**	**2**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**1**	**2**	**3**	**2**	**2**	**1**	**2**	**3**	**1**	**4**	**1**	**3**	**1**	**2**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**4**	**4**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**1**	**3**	**2**	**1**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**2**	**2**	**2**	**2**	**2**	**4**	**4**	**3**	**1**	**3**	**3**	**2**	**1**	**2**	**1**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**2**	**2**	**1**	**4**	**2**	**4**	**1**	**2**	**4**	**1**	**3**	**1**	**1**	**3**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**2**	**1**	**2**	**1**	**2**	**2**	**4**	**1**	**2**	**2**	**2**	**3**	**1**	**1**	**1**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**3**	**2**	**3**	**3**	**2**	**3**	**1**	**2**	**1**	**1**	**1**	**3**	**2**	**2**	**4**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**4**	**2**	**3**	**4**	**1**	**2**	**1**	**3**	**4**	**3**	**4**	**4**	**2**	**4**	**4**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**3**	**4**	**2**	**1**	**2**	**2**	**3**	**4**	**1**	**2**	**1**	**1**	**3**	**1**	**2**
Que.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Ans.	**2**	**3**	**3**	**3**	**4**	**2**	**1**	**1**	**2**	**2**	**3**	**1**	**3**	**2**	**4**
Que.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Ans.	**1**	**2**	**4**	**3**	**2**	**3**	**4**	**3**	**3**	**4**	**4**	**4**	**4**	**3**	**4**
Que.	166	167	168	169	170	171	172								
Ans.	**2**	**4**	**3**	**3**	**4**	**2**	**3**								

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Which one of the following statements is correct?
(1) Neither hormones control neural activity nor the neuron control endocrine activity
(2) Endocrine glands regulate neural activity, but not vice versa
(3) Neurons regulate endocrine activity, but not vice versa
(4) Endocrine glands regulate neural activity, and nervous system regulates endocrine glands

NS0187

2. Which one of the following does not act as a neurotransmitter?
(1) Norepinephrine (2) Cortisone
(3) Acetylcholine (4) Epinephrine

NS0188

AIPMT 2007

3. During the transmission of nerve impulse through a nerve fiber, the potential on the inner side of the plasma membrane has which type of electric charge ?
(1) First positive, then negative and continue to be negative
(2) First negative, then positive and continue to be positive
(3) First positive, then negative and again back to positive
(4) First negative, then positive and again back to negative

NS0190

4. Which one of the following pairs of structures distinguishes a nerve cell from other types of cell?
(1) Vacuoles and fibres
(2) Flagellum and medullary sheath
(3) Nucleus and mitochondria
(4) Perikaryon and dendrites

NS0191

AIPMT 2008

5. During the propagation of a nerve impulse, the action potential results from the movement of :
(1) K^+ from intracellular fluid to extracellular fluid
(2) Na^+ from extracellular fluid to intracellular fluid
(3) K^+ from extracellular fluid to intracellular fluid
(4) Na^+ from intracellular fluid to extracellular fluid

NS0193

AIPMT 2010

6. The nerve centres which control the body temperature and the urge for eating are contained in:
(1) Cerebellum (2) Thalamus
(3) Hypothalamus (4) Pons

NS0194

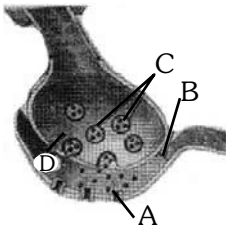
AIPMT-Pre 2012

7. A person entering an empty room suddenly finds a snake right in front on opening the door. Which one of the following is likely to happen in his neuro-hormonal control system ?
(1) Hypothalamus activates the parasympathetic division of brain
(2) Sympathetic nervous system is activated releasing epinephrin and norepinephrin from adrenal cortex
(3) Sympathetic nervous system is activated releasing epinephrin and norepinephrin from adrenal medulla
(4) Neurotransmitters diffuse rapidly across the cleft and transmit a nerve impulse

NS0196

NEET-UG 2013

8. A diagram showing axon terminal and synapse is given below. Identify correctly at least two of A-D.



(1) C-Neurotransmitter
D-Ca^{++}
(2) A-Receptor
C-Synaptic vesicles
(3) B-Synaptic connection
D-K^{+}
(4) A-Neurotransmitter
B-Synaptic cleft

NS0198

AIPMT 2014

9. How do parasympathetic neural signals affect the working of the heart ?
(1) Reduce both heart rate and cardiac output.
(2) Heart rate is increased without affecting the cardiac output.
(3) Both heart rate and cardiac output increase.
(4) Heart rate decreases but cardiac output increases.

NS0199

10. Injury localized to the hypothalamus would most likely disrupt :
(1) short - term memory.
(2) co-ordination during locomotion.
(3) executive functions, such as decision making.
(4) regulation of body temperature.

NS0200

AIPMT 2015

11. Which of the following regions of the brain is incorrectly paired with its function?
(1) Cerebellum- language comprehension
(2) Corpus callosum – communication between the left and right cerebral cortices
(3) Cerebrum- calculation and contemplation
(4) Medulla oblongata
- homeostatic control

NS0201

NEET(UG) 2017

12. Myelin sheath is produced by :
(1) Astrocytes and Schwann cells
(2) Oligodendrocytes and Osteoclasts
(3) Osteoclasts and Astrocytes
(4) Schwann cells and Oligodendrocytes

NS0206

13. Receptor sites for neurotransmitters are present
on :
(1) Pre-synaptic membrane
(2) Tips of axons
(3) Post-synaptic membrane
(4) Membrane of synaptic vesicles

NS0207

NEET(UG) 2018

14. Which of the following is ***not*** at autoimmune disease?
(1) Psoriasis
(2) Rheumatoid arthritis
(3) Alzheimer's disease
(4) Vitiligo

NS0209

15. Which of the following structures or regions is ***incorrectly*** paired with its function ?
(1) Medulla oblongata : controls respiration and cardiovascular reflexes.
(2) Limbic system : consists of fibre tracts that interconnect different regions of brain; controls movement.
(3) Hypothalamus : production of releasing hormones and regulation of temperature, hunger and thirst.
(4) Corpus callosum : band of fibers connecting left and right cerebral hemispheres.

NS0210

NEET(UG) 2019

16. Which part of the brain is responsible for thermoregulation ?
(1) Cerebrum
(2) Hypothalamus
(3) Corpus callosum
(4) Medulla oblongata

NS0291

NEET(UG) 2019 (Odisha)

17. Which of the following statements is **not** correct?

(1) An action potential in an axon does not move backward because the segment behind is in a refractory phase

(2) Depolarisation of hair cells of cochlea results in the opening of the mechanically gated potassium -ion channels.

(3) Rods are very sensitive and contribute to daylight vision.

(4) In the knee-jerk reflex, stimulus is the stretching of muscle and response is its contraction.

NS0292

NEET(UG) 2021 (Paper-2)

18. The part of the peripheral nervous system that comprises the whole complex of nerves, fibres, ganglia and plexuses by which impulses travel from the central nervous system to the viscera and from viscera to central nervous system is called

(1) Autonomic nervous system
(2) Sympathetic nervous system
(3) Parasympathetic nervous system
(4) Visceral nervous system

NS0296

NEET(UG) 2022

19. Select the **incorrect** statement regarding synapses:

(1) Electrical current can flow directly from one neuron into the other across the electrical synapse.
(2) Chemical synapses use neurotransmitters
(3) Impulse transmission across a chemical synapse is always faster than that across an electrical synapse.
(4) The membranes of presynaptic and postsynaptic neurons are in close proximity in an electrical synapse.

NS0297

Re-NEET(UG) 2022

20. Match **List - I** with **List - II**

List - I	**List - II**
(a) Multipolar neuron	(i) Somatic neural system
(b) Bipolar neuron	(ii) Cerebral cortex
(c) Myelinated nerve fibre	(iii) Retina of Eye
(d) Unmyelinated nerve fibre	(iv) Spinal nerves

Choose the **correct answer** from the options given below :

(1) (a) – (iii), (b) – (i), (c) – (iv), (d) – (ii)
(2) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i)
(3) (a) – (ii), (b) – (iii), (c) – (i). (d) – (iv)
(4) (a) – (ii), (b) – (iii), (c) – (iv), (d) – (i)

NS0298

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	2	4	4	2	3	3	2	1	4	1	4	3	3	2
Que.	16	17	18	19	20										
Ans.	2	3	4	3	4										

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Which system provides an organised network of point to point connection :-

(1) Integrated system

(2) Neuro-endocrine system

(3) Endocrine system

(4) Nervous system

NS0211

2. Which role of neuron regarding different kinds of stimuli is absent :-

(1) detect

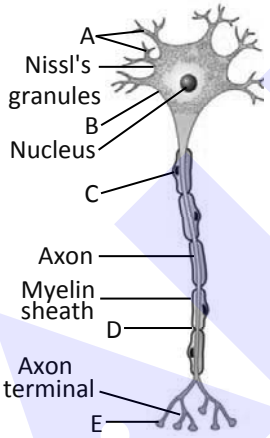
(2) receive

(3) transmit

(4) protect

NS0212

3. The accompanied diagram shows the structure of neuron. Identify A to E.



	A	B	C	D	E
(1)	Nerve fibre	Cyton or cell body	Schwann cell	Node of Ranvier	Synaptic knob
(2)	Dendrites	Cyton or cell body	Schwann cell	Node of Ranvier	Synaptic knob
(3)	Dendrites	Nerve cell	Schwann cell	Node of Ranvier	Synaptic knob
(4)	Dendrites	Cyton or cell body	Nerve cell	Node of Ranvier	Synaptic knob

NS0213

4. Pick out the incorrect statement?

(1) Myelinated nerve fibres are found in spinal and cranial nerve.

(2) Unmyelinated nerve fibre is enclosed by a schwann cell.

(3) In resting stage the axonal membrane is comparatively more permeable to potassium ion and nearly impermeable to sodium ions.

(4) Axolemma is more permeable to negatively charged protein present in the axoplasm.

NS0214

5. When a neuron is not conducting any impulse i.e. resting, the axonal membrane is -

(1) Comparatively more permeable to K^+ and impermeable (nearly impermeable) to Na^+

(2) Impermeable to negatively charged proteins present in the axoplasm

(3) (1) & (2) Both

(4) More permeable to Na^+ ions than K^+ ion

NS0215

6. During depolarization of the neuronal membrane-

(1) Na^+ ions rapidly move inside the cell

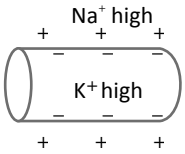
(2) Na^+ ions rapidly move outside the cell

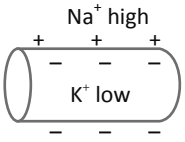
(3) K^+ ions rapidly move outside the cell

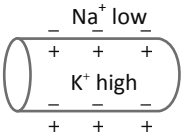
(4) K^+ ions rapidly move inside the cell

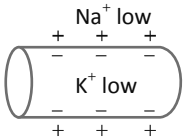
NS0216

7. Which of the following diagram illustrates the distribution of Na^+ and K^+ ions in a section of non-myelinated axon which is at resting potential?

(1) 

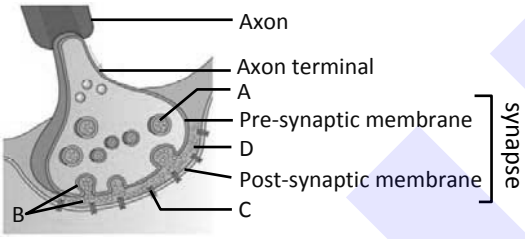
(2) 

(3) 

(4) 

NS0217

8. Study the diagram of synapse-



I. Which alphabet indicate the location of the receptor molecules ?

II. Which alphabet points to a synaptic vesicles

III. Which alphabet points to neurotransmitter

IV. Which alphabet points to synaptic cleft

	I	II	III	IV
(1)	C	A	B	D
(2)	B	A	C	D
(3)	C	A	D	B
(4)	C	D	A	B

NS0218

9. Which of the following statements is false about the electrical synapse ?

I. At electrical synapses, the membranes of pre and post synaptic neurons are in very close proximity.

II. Electrical current can flow directly from one neuron into the other across the synapses.

III. Transmission of an impulse across electrical synapses is very similar to impulse conduction along single axon.

IV. Electrical synapses pass electrical signal between cells with the use of Ach

V. Electrical synapses are fast.

VI. Electrical synapses are rare in our system.

(1) I and II (2) Only II

(3) Only IV (4) Only V

NS0219

10. Five events in the transmission of nerve impulse across the synapse are given below

A. Opening of specific ion channels allows the entry of ions, a new action potential is generated in the post-synaptic neuron.

B. Neurotransmitter binds to the receptor on post synaptic membrane

C. Synaptic vesicle fuses with pre-synaptic membrane, neurotransmitter releases into synaptic cleft.

D. Depolarization of pre-synaptic membrane

E. Arrival of action potential at axon terminal.

In which sequence to the events occur?

(1) $E \rightarrow D \rightarrow C \rightarrow B \rightarrow A$

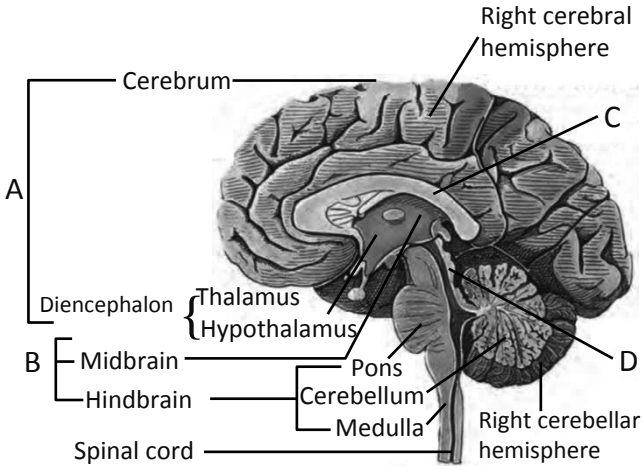
(2) $A \rightarrow B \rightarrow C \rightarrow D \rightarrow E$

(3) $A \rightarrow B \rightarrow D \rightarrow C \rightarrow E$

(4) $E \rightarrow D \rightarrow C \rightarrow A \rightarrow B$

NS0220

11. Identify A, B, C and D in given diagram -



(1) A - Forebrain, B - Brainstem, C – Corpus callosum, D- Cerebral aqueduct

(2) A - Forebrain, B - Brainstem, C - Cerebral aqueduct, D - Corpus callosum

(3) A - Brainstem, B - Forebrain, C - Corpus callosum, D - Cerebral aqueduct

(4) A - Brainstem, B - Forebrain, C - Cerebral aqueduct, D - Corpus luteum

NS0221

12. The forebrain develops into-

(1) Diencephalon and Cerebrum

(2) Diencephalon and Cerebellum

(3) Diencephalon and Medulla

(4) Diencephalon and Pons

NS0222

13. The name of nervous band connecting the cerebral hemispheres is -

(1) Corpus albicans

(2) Corpus callosum

(3) Corpus striatum

(4) Corpus spongiosum

NS0223

14. Which of the following statements is incorrect about cortex of cerebrum ?

(1) It consists of grey matter

(2) It consists of white matter

(3) It shows prominent folds

(4) It contains motor areas, sensory areas and association areas.

NS0224

15. Association areas in cerebral cortex are -

(1) Sensory areas

(2) Motor areas

(3) Responsible for intersensory associations, memory and communication

(4) None of the above is correct

NS0225

16. The cerebrum wraps around a structure called thalamus, which is-

(1) A major coordinating centre for sensory signal only

(2) A major centre for motor signaling

(3) A major coordinating centre for sensory and motor signaling

(4) Not a nervous part of a brain

NS0226

17. Hypothalamus does not control -

(1) Thermoregulation

(2) Urge for eating and drinking

(3) Produces hormones that regulate the synthesis and secretion of pituitary hormone

(4) Creative thinking and consciousness

NS0227

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

18. The inner parts of cerebral hemispheres and a group of associated deep structures like amygdala, hippocampus, etc; form a complex structure called-

(1) Recticular system
(2) Corpora quadrigemina
(3) Limbic lobe/limbic system
(4) Arbor vitae

NS0228

19. Which of the following statements or structures is not correct about the midbrain ?

(1) Located between the thalamus / hypothalamus and pons
(2) Has arbor vitae
(3) Has a canal (Cerebral aqueduct)
(4) Its dorsal part consists of 4 lobes (corpora quadrigemina)

NS0229

20. Read the following statements and choose the correct option –

I. Cerebellum has very convoluted surface in order to provide the additional space for more neurons.
II. The medulla is connected to the spinal cord
III. Medulla contains controlling centres for respiration, cardiovascular reflexes and gastric secretion.

(1) All are correct
(2) Only I is correct
(3) Only I and III are correct
(4) Only II is correct.

NS0230

21. Different components of reflex arc are given below:

I. Effector organ
II. Interneuron
III. Motor neuron
IV. Sensory neuron
V. Sensory receptor

Choose the correct order an action potential follows after a sensory receptor is stimulated-

(1) V, IV, III, II, I (2) V, IV, II, III, I
(3) V, III, IV, I, II (4) V, II, IV, III, I

NS0231

22. Where A stands for axon, D for dendrite, S for synapse, and CB for cell body, a typical sequence of structures between a receptor and an efferent is?

(1) D – CB – A – S – D – CB – A
(2) A – D – CB – S – A – D – CB
(3) D – CB – A – S – A – CB – D
(4) D – A – S – CB – D– A – CB

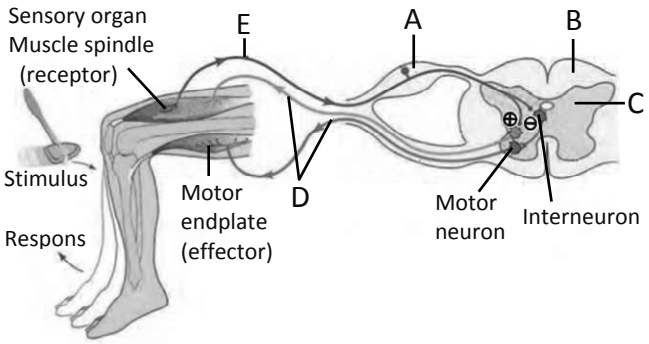
NS0232

23. What is meant by a reflex arc in the nervous system?

(1) An inherited behaviour pattern, that functions through a certain neural pathway
(2) A functional unit consisting of a receptor, neural pathway, and an effector
(3) Peripheral nerves, spinal cords and brain
(4) A homeostatic system of sensory nerves, synapses and motor nerves

NS0233

24. The following diagrammatic representation of reflex action shows knee jerk reflex.



In which of the following options corrects words for all the 5 blanks (A to E) are indicated?

	A	B	C	D	E
(1)	Dorsal root ganglion	White matter	Gray matter	Afferent pathway	Efferent pathway
(2)	Dorsal root ganglion	White matter	Gray matter	Efferent pathway	Afferent pathway
(3)	Dorsal root ganglion	Gray matter	White matter	Efferent pathway	Afferent pathway
(4)	Ventral root ganglion	White matter	Gray matter	Efferent pathway	Afferent pathway

NS0234

25. Read the following statements :-

(A) Nervous system provides an organised network of point to point connection.

(B) The endocrine system provides chemical integration through hormone.

(C) The neural organisation is very complex in lower invertebrates.

(D) Neuron can detect & receive stimuli but can't transmit.

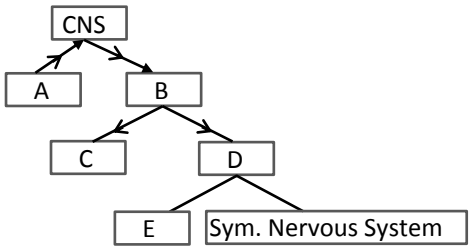
How many of above statements are false.

(1) 4 (2) 3

(3) 2 (4) 1

NS0235

26. Which of the following answer shows the correct arrangement of nerve fibre.



(1) (A) Centrifugal (B) Efferent (C) PNS. (D) ANS (E) Parasympathetic

(2) (A) Centripetal (B) Afferent (C) PNS. (D) ANS (E) Parasympathetic

(3) (A) Centrifugal (B) Afferent (C) SNS (D) ANS (E) Parasympathetic

(4) (A) Centripetal (B) Efferent (C) SNS. (D) ANS(E) Parasympathetic

NS0236

27. Which statement is correct regarding neuron.

(1) Neuron is composed of 4 parts containing cell body dendrite, axon & telodendria

(2) Nissel's granules are found in both cell body & axon.

(3) Impulse are divided into apolar, bipolar & multipolar

(4) Dendrites transmit impulse toward the body while axon transmit impulse away from the body.

NS0237

28. Which of the nervous system transmit impulse from CNS to involuntary organs & smooth muscle ?

(1) Sympathetic nervous system

(2) Parasympathetic nervous system

(3) Autonomic nervous system

(4) Somatic nervous system

NS0238

29. Read the following statement :-
(A) Peripheral nervous system divide's in somatic nervous system & autonomic nervous system.
(B) Central nervous system includes brain & vertebral column.
(C) Afferent nerve fibre transmit impulse from CNS and vise versa is also correct
How many of above statements is/are false
(1) A & B (2) B & C (3) C & A (4) All
NS0239

30. Which of the statement is false regarding synapse?
(1) Synapse is formed by 2 membrane first presynaptic membrane of synaptic knob & second post synaptic membrane of dendrite.
(2) Synaptic membrane always be separated by a gap called synaptic cleft.
(3) Electrical synapse in very similar to impulse conduction along a single axon.
(4) In chemical synapse, neurotransmitter is released and either excitatory or inhibitory potential is generated on post synaptic membrane.
NS0240

31. Which of the following statement is correct.
(A) The electrical potential difference across the polarised plasma membrane is called as action potential in resting stage.
(B) Na^+ ion is responsible for generating an action potential.
(C) The impulse is action potential
(1) A & B (2) B & C (3) C & A (4) All
NS0241

32. $Na^+ – K^+$ pump –
(A) Transports $3Na^+$ inwards & $2K^+$ outwards.
(B) Maintain ionic gradients by active transport.
(C) Works against a concentration gradient.
How many of above statements are false ?
(1) 4 (2) 3 (3) 2 (4) 1
NS0242

33. Which of the following are controlled by limbic system :-
(A) Emotional reaction
(B) Sexual behaviour
(C) Respiration
(D) Olfaction
(E) Body balance
Choose the correct option –
(1) A, B, C, D, E (2) A, B, D
(3) A, B, C, D (4) A, B, D, E
NS0243

34. The prime area of brain where different type of information are integrated –
(1) CNS (2) ANS (3) PNS (4) SNS
NS0244

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	4	2	4	3	1	1	1	3	1	1	1	2	2	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	4	3	2	1	2	1	2	2	3	4	4	3	2	2
Que.	31	32	33	34											
Ans.	2	4	2	1											

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path to success

PRE-MEDICAL

ZOOLOGY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

Chemical co-ordination and integration (Endocrine System)

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) Build Up Your Understanding

INTRODUCTION AND MECHANISM OF HORMONE ACTION

1. A hormone is :-
(1) An enzyme
(2) Chemical messenger
(3) Primary messenger
(4) (2) and (3) both
CC0001

2. Integrative system in the body are :-
(1) Endocrine system
(2) Nervous system
(3) Blood vascular system
(4) Both endocrine and nervous system
CC0002

3. Endocrine glands can be defined as those glands which pour their secretion :-
(1) Directly into Body-Fluid
(2) Into blood or ducts
(3) When they are cut
(4) into particular organ
CC0003

4. The receptor for protein hormones are present on
(1) Nucleus
(2) Endoplasmic reticulum
(3) Cytoplasm
(4) Cell-surface
CC0004

5. Hormones are :-
(1) Internal secretion mostly discharged in the blood by endocrine glands
(2) Secretion of exocrine glands
(3) Chemical substances secreted into the gut
(4) Inorganic catalysts
CC0005

6. Hormones are :-
(1) Produced in low amount
(2) Easily diffusible
(3) Non - antigenic
(4) All
CC0006

7. Property of hormone is :-
(1) Always proteinaceous
(2) Intracellular messenger.
(3) Non-Nutritive
(4) Antigenic
CC0408

8. Statement not correct for hormones is that, these:-
(1) Are not all protein
(2) Are secreted in small amount
(3) Affect metabolism
(4) Acts as catalyst
CC0009

9. "Secondary messenger" is :-
(1) Cyclic A.M.P. (2) ATP
(3) ADP (4) DNA
CC0010

10. Hormones are chemically :-
(1) Amino acid (2) Protein
(3) Steroid (4) All
CC0011

11. Which of following is unorganised endocrine gland :
(1) Pituitary (2) Gonad
(3) Kidney (4) Thymus
CC0409

12. Which of the following is not a steroid hormone?
(1) Androgen (2) Aldosterone
(3) Estrogen (4) Insulin
CC0013

13. Which of the following is not an endocrine gland?
(1) Pancreas (2) Adrenal gland
(3) Thyroid gland (4) Salivary gland
CC0014

14. Which of the following hormones is not proteinaceous is nature ?
(1) TSH (2) Aldosterone
(3) LH (4) FSH
CC0015

15. Which of the hormone is polypeptide ?
(1) Aldosterone (2) Cortisol
(3) Insulin (4) Thyroxine
CC0016

16. Steroid hormones transmit their information by :
(1) Stimulating the receptors present on cell membrane.
(2) Entering into the cell and modifying cellular contents.
(3) Entering into the cell and modifying nuclear organisation.
(4) The help of an intracellular second messenger.
CC0017

17. Galactopoiesis is the function of which of the following hormone ?
(1) Oxytocin (2) F.S.H
(3) T.S.H (4) Prolactin
CC0410

18. Which of the following is secondary messenger :
(1) ATP (2) Cyclic AMP
(3) GTP (4) ATP and AMP
CC0019

19. If receptor molecule is removed from target organ for hormone action, the target organ will :
(1) Continue to respond but require higher concentration of hormone.
(2) Continue to respond but in opposite way.
(3) Continue to respond without any difference.
(4) Not respond to hormone.
CC0020

20. Prostaglandins are –
(1) Amino acid (2) Steroid
(3) Fatty acid (4) Carbohydrate
CC0021

PITUITARY GLAND AND HYPOTHALAMUS

21. Pituitary gland does not control the secretory activity of :-
(1) Thyroid (2) Adrenal cortex
(3) Adrenal medulla (4) Testes
CC0022

22. Which of the following controls spermatogenesis :-
(1) FSH (2) LTH
(3) LH (4) Vasopressin
CC0023

23. Which is called "Master gland" of the body :-
(1) Thyroid (2) Pituitary
(3) Thymus (4) Adrenal
CC0024

24. The hyposecretion of pituitary hormone cause :-
(1) Cretinism
(2) Diabetes insipidus
(3) Goitre
(4) Diabetes melitus
CC0025

25. Neurohypophysis releases :-
(1) Vasopressin
(2) Oxytocin
(3) Oxytocin & prolactin
(4) Vasopressin & oxytocin
CC0026

26. Hormone secreted by pituitary gland are chemically –
(1) All protein
(2) All steroid
(3) Complex compounds of proteins and carbohydrates
(4) Some steroid and some protein
CC0027

27. Growth hormone is produced in :-
(1) Adrenals (2) Thyroid
(3) Pituitary (4) Thymus
CC0029

28. Gonadotrophic hormone is produced by :-
(1) Interstitial cells of testis
(2) Adrenal cortex
(3) Adenohypophysis
(4) Posterior part of thyroid
CC0030

29. The hormones FSH and LH are together called :-
(1) Emergency hormone
(2) Neuro hormone
(3) Gonadotrophic hormone
(4) Antistress hormone
CC0031

30. Gigantism and acromegaly are due to :-
(1) Hyperpituitrism (2) Hypopituitrism
(3) Hypothyroidism (4) Hyperthyroidism
CC0032

31. If amount of ADH decrease in blood, micturition :-
(1) Remains unchanged
(2) Decreases
(3) Increases
(4) Does not occur
CC0033

32. Urine concentration is controlled by :-
(1) Oxytocin (2) ADH
(3) MSH (4) ACTH
CC0034

33. The follicle stimulating hormone is secreted from:-
(1) Posterior lobe of pituitary gland
(2) Reproductive gland
(3) Thyroid gland
(4) Anterior lobe of pituitary gland
CC0035

34. Pituitary gland is under control of :-
(1) Hypothalamus (2) Adrenal gland
(3) Pineal gland (4) Thyroid gland
CC0036

35. "Sella turcica" is a :-
(1) Depression in skull enclosing pituitary
(2) Cavity of skull enclosing ears
(3) Covering of testis
(4) Kind of endocrine gland
CC0037

36. Vasopressin is responsible for :-
(1) Controlling Oogenesis
(2) Regulating blood pressure and act on the nephron tubules.
(3) Regulating formation of pigment.
(4) Controlling spermatogenesis.
CC0038

37. The main function of prolactin hormone is to :-
(1) Influence the activity of thyroid gland
(2) Control development of Graffian follicles
(3) Initiate and maintain secretion of milk by mammary gland
(4) Cause ejection of milk
CC0039

38. The hormones of neurohypophysis are formed in:-
(1) Pars nervosa
(2) Pars distalis
(3) Hypothalamus
(4) Corpus callosum
CC0040

39. I.C.S.H. in male acts on :-
(1) Cells of leydig (2) Sertoli cells
(3) Spermatids (4) Spermatogonia
CC0041

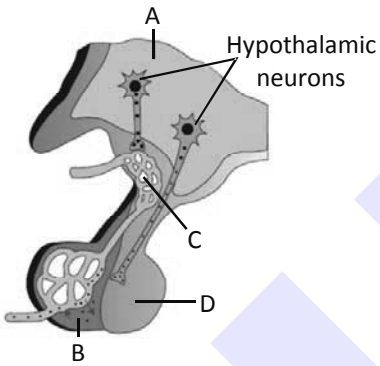
40. Hypophysis cerebri is the other name of :-
(1) Adenohypophysis
(2) Islets of langerhans
(3) Neurohypophysis
(4) Pituitary
CC0042

41. Which of the following hormone helps in facultative water reabsorption by nephrons :-
(1) MSH (2) FSH (3) ADH (4) ACTH
CC0043

42. Hormone of hypothalamus are called :-
(1) Regulatory hormones
(2) Growth hormones
(3) Tropic hormones
(4) (1) and (3)
CC0044

43. Diabetes insipidus disease is caused due to the deficiency of hormone produced by :-
(1) Pituitary (2) Adrenal
(3) Pancreas (4) Thyroid
CC0045

44.



Which of the following option in given table is correct identification of the structures labelled as A,B,C and D and their corresponding function in the above figure:-

(1)	(A)	Hypothalamus	Produces Prolactin hormone
(2)	(B)	Posterior pituitary	Release & FSH and LH
(3)	(C)	Portal circulation	Supply blood from hypothalamus to posterior pituitary
(4)	(D)	Posterior pituitary	Release oxytocin and vasopressin

CC0046

45. MSH Produced by the pars intermedia of pituitary causes in lower vertebrates :-
(1) Darkening of skin
(2) Light colouration of skin
(3) Both
(4) Body growth
CC0048

46. LTH is also known as :-
(1) Lactogenic Hormone
(2) Prolactin
(3) Mammotropic Hormone
(4) All
CC0049

47. Vasopressin is related with :-
(1) Concentration of urine
(2) Quick digestion
(3) Dilution of urine
(4) Slow heart beat
CC0050

48. Growth hormone of pituitary is more effective in:-
(1) Presence of thyroxine
(2) Absence of thyroxine
(3) Absence of Insulin
(4) Presence of adrenaline
CC0051

49. Gonadotropic hormone is :-
(1) FSH (2) LH
(3) LTH (4) FSH, LH
CC0052

50. MSH is secreted in man by which part of pituitary?
(1) Anterior Pituitary
(2) Middle lobe of pituitary
(3) Posterior lobe of pituitary
(4) Infundibulum
CC0053

51. Oxytocin is used in :-
(1) Milk ejection
(2) Parturition
(3) Milk let down process
(4) All of the above
CC0054

52. Hyper secretion of STH leads to :-
(1) Dwarfism & Acromegaly
(2) Goitre, Sterility
(3) Cretinism, Myxoedema
(4) Gigantism & Acromegaly
CC0055

53. Oxytocin mainly helps in :-
(1) Milk production (2) Child birth
(3) Diuresis (4) Gametogenesis
CC0056

54. Which hormone is concerned with the concentration of urine ?
(1) Oxytocin (2) Vasopressin
(3) Prolactin (4) Cortisol
CC0057

55. Acromegaly is caused by :-
(1) Excess of S.T.H.
(2) Excess of Thyroxine
(3) Deficiency of Thyroxine
(4) Excess of Adrenaline
CC0058

56. Oxytocin is released from :-
(1) Adenohypophysis (Anterior lobe)
(2) Adenohypophysis (Posterior lobe)
(3) Hypothalamus
(4) Neurohypophysis
CC0059

57. FSH is :-
(1) Glycoprotein (2) Lipoprotein
(3) Glycolipid (4) Phospholipid
CC0060

58. The synthesis of Vasopressin is done by :–
(1) Hypothalamus (2) Kidney
(3) Anterior pituitary (4) Post. pituitary
CC0061

59. Which one hormone of the pituitary of the human controls the protein metabolism and growth of skeleton ?
(1) Iodo thyroxine
(2) Leutotrophic hormone
(3) Somatotrophic hormone
(4) Oxytocin
CC0062

60. Ovulation in mammals occurs mainly under the influence of :-
(1) TSH and ACTH (2) FSH and LH
(3) TSH and STH (4) MTH and ACTH
CC0063

61. Secretion of estrogen is controlled by :-
(1) HCG (2) Progesterone
(3) LH (4) F.S.H.
CC0064

62. Immediate cause of induction of ovulation in human female is plasma surge of :-
(1) Progesterone (2) LH
(3) FSH (4) Estradiol
CC0065

63. Stimulation of uterine contraction during child birth is brought about by :-
(1) Adrenaline (2) Progesterone
(3) Oxytocin (4) Prolactin
CC0066

64. Which gland secretion is under nervous control ?
(1) Adrenal cortex
(2) Anterior pituitary
(3) Posterior pituitary
(4) Pineal body
CC0067

65. Which of the following is correct ?

(A) Pars distalis produces GH, PRL, TSH. ACTH, LH, FSH

(B) Pars intermedia secretes only one hormone called melatonin

(C) Posterior lobe of pituitary is also called as neurohypophysis or pars nervosa

(D) Posterior pituitary, stores and releases two hormones called oxytocin and vasopressin

(1) A,B & C

(2) B,C & D

(3) A,C & D

(4) B and C

CC0068

66. ADH responsible for reabsorption of water and reduction of urine secretion is synthesize by :

(1) Posterior pituitary gland

(2) Juxtaglomerular apparatus

(3) Anterior pituitary gland

(4) Hypothalamus

CC0069

67. The hormones that initiates ejection of milk, stimulates milk production and growth of ovarian follicles are respectively known as :

(1) PRL, OT and LH

(2) OT, PRL and FSH

(3) LH, PRL and FSH

(4) PRH, OT and LH

CC0070

68. Match the hormone in column I with their function in column II :

Column I	Column II
(a) FSH (b) LH (c) Progesterone (d) Estrogen	(i) Prepare endometrium for implantation (ii) Develop female secondary sexual characters (iii) Contraction of uterine wall (iv) Development of corpus luteum (v) Maturation of Graafian follicle

(1) a-v, b-iv, c-i, d-ii (2) a-iii, b-iv, c-i, d-ii

(3) a-iv, b-iii, c-ii, d-i (4) a-i, b-ii, c-iii, d-iv

CC0071

69. Which of the following is gonadotrophic hormone?

(1) Collip's hormone

(2) Prolactin

(3) Oxytocin

(4) Luteinizing hormone

CC0073

70. FSH is produced by :

(1) Adrenal cortex

(2) Anterior lobe of pituitary gland

(3) Middle lobe of pituitary gland

(4) Posterior lobe of pituitary gland

CC0074

71. Hormone that promotes cell division, protein synthesis and bone growth is –

(1) ACTH (2) ADH

(3) PTH (4) GH

CC0075

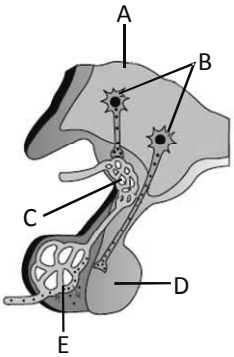
72. An adenohypophysis hormone which is regulated by feedback mechanism is –

(1) Oxytocin (2) TSH

(3) Vaspressin (4) Cortisone

CC0077

73. On the basis of below diagram choose the correct option which match the physiological function of hormones :-



(1) A - Only releases
D - Release and synthesis
E - Only synthesis

(2) A - Only release
D - Only synthesis
E - Synthesis and release

(3) A - Synthesis and release
D - Only releases
E - Synthesis and releasing

(4) A - Synthesis and release
D - Only synthesis
E - Only release

CC0078

74. Vasopressin influences :
(1) Electrolyte efflux
(2) Nerve excitability
(3) Water reabsorption
(4) All of these

CC0080

75. If ADH level of blood is less :
(1) Volume of urine increases
(2) Volume of urine decreases
(3) Volume of urine is normal
(4) Volume of urine is unaffected

CC0081

76. Hormone prolactin is secreted by :
(1) Posterior pituitary (2) Thyroid
(3) Anterior pituitary (4) Hypothalamus

CC0082

77. Spermatogenesis is influenced by:
(1) Progesterone (2) FSH
(3) STH (4) LTH

CC0083

78. Which of the following hormones helps in the contraction of uterus during child birth:
(1) ADH (2) Androgen
(3) Oxytocin (4) Glucocorticoid

CC0084

79. Which of the following hormones stimulates the secretion of milk from female ?
(1) LH (2) Prolactin
(3) Oxytocin (4) Progesterone

CC0085

80. The formation of egg and sperm is affected by :
(1) LH (2) MSH (3) TSH (4) FSH

CC0086

81. Mammalian prolactin is secreted by –
(1) Adenohypophysis
(2) Neurohypophysis
(3) Adrenal cortex
(4) Adrenal medulla

CC0087

82. Hypersecretion of growth hormone in the period of growth lead to :
(1) Acromegaly
(2) Cushing syndrome
(3) Midgets
(4) Gigantism

CC0088

83. Acromegaly is a disease caused by :
(1) Over secretion of growth hormone in childhood
(2) Over secretion of growth hormone in adulthood
(3) Under secretion of growth hormone in adulthood
(4) Deficiency of calcium and phosphorous in the diet.
CC0089

84. In absence of ADH, the disease caused is –
(1) Diabetes mellitus
(2) Diabetes insipidus
(3) Oligouria
(4) Acromegaly
CC0090

85. Thyrotropin - releasing factor (TRF) is produced by:
(1) Cerebrum (2) Optic lobe
(3) Cerebellum (4) Hypothalamus.
CC0091

86. Gonadotropic hormones are :
(1) Estrogen and progesterone
(2) Luteinizing hormone and follicle stimulating hormone
(3) Testosterone and Androsterone
(4) Prolactin and Luteotropin
CC0092

87. Which hormone is responsible for milk ejection after the birth of the baby ?
(1) Oxytocin (2) Progesterone
(3) Prolactin (4) Estrogen
CC0093

THYROID, PARATHYROID AND ADRENAL GLANDS

88. Largest endocrine gland is –
(1) Adrenal gland (2) Thyroid gland
(3) Thymus (4) Kidney
CC0094

89. How many statements are correct regarding parathyroid gland ?
(a) Four parathyroid gland present on front side of thyroid gland
(b) It secretes parathromone which is steroidal in nature
(c) It increase blood Ca^{++} level
(d) It act on bone and stimulate bone resorption
(1) One (2) Two (3) Three (4) Four
CC0095

90. The basal metabolic rate (BMR) in body cells is regulated by :-
(1) Parathyroid (2) Thyroid
(3) Pituitary (4) Thymus
CC0096

91. The hormones responsible for regulation of calcium and phosphorous metabolism is secreted by :–
(1) Pancreas (2) Thyroid
(3) Thymus (4) Parathyroid
CC0097

92. Injection of which of the following increases metabolic rate ?
(1) STH (2) Insulin
(3) Thyroxine (4) Testosterone
CC0098

93. Hypothyroidism in adults causes :-
(1) Addison's disease (2) Myxoedema
(3) Sterility (4) Cretinism
CC0099

94. Parathormone regulates :-
(1) Blood calcium level
(2) Calcium and phosphate level
(3) Body temperature
(4) Basal metabolic rate
CC0100

95. Which gland stores hormone in intercellular space before its secretion into blood ?
(1) Pancreas (2) Thyroid
(3) Testis (4) Ovary
CC0101

96. Goiter is caused by the abnormal functioning of :-
(1) Pancreas (2) Adrenals
(3) Pituitary (4) Thyroid
CC0102

97. Parathormone deficiency in man causes :-
(1) Hyper calcemia (2) Hypocalcaemia
(3) Goitre (4) All
CC0103

98. Cretinism is due to abnormal secretion of :-
(1) ACTH
(2) Thyroxine
(3) Calcitonin
(4) Parathormone
CC0104

99. Philips collip discovered which of the following hormones ?
(1) Parathyroid hormone
(2) Thyroxine
(3) A.D.H.
(4) Oxytocin
CC0105

100. Exopthalmic goitre is caused due to hypersecretion of :-
(1) Adrenal (2) Thyroid
(3) Parathyroid (4) Thymus
CC0106

101. The main function of thyroid gland is to control :-
(1) Growth
(2) Reproduction
(3) Secondary sexual characters
(4) Basal metabolic rate
CC0107

102. The two lobes of thyroid gland are joined by a horizontal connection called :-
(1) Inter thyroidal connective
(2) Inter thyroidal commissure
(3) Intermediary lobe
(4) Isthmus
CC0108

103. The vitamin which works along with para thyroid hormone is :-
(1) Vitamin C (2) Calciferol
(3) Tocopherol (4) Vitamin - B_{12}
CC0109

104. Storage gland is :-
(1) Pancreas (2) Testis
(3) Thyroid (4) Adrenal
CC0110

105. Removal of Parathyroids in human beings result in
(1) Tetany
(2) Simmond's disease
(3) Myxoedema
(4) Addison's disease
CC0112

106. Hyper secretion of Parathyroid hormone result in
(1) Stronger bones due to increased incorporation of calcium in them.
(2) Deposition of calcium in various skeletal structure
(3) No effect on the constitution of bones
(4) Weaker bones due to increased removal of calcium from them
CC0113

107. One of the following is correct statement :-
(1) T_4 is more active than T_3
(2) T_3 is more active than T_4
(3) T_3 and T_4 are the same
(4) T_4 is hormone but T_3 is not
CC0114

108. Hormone that decrease calcium level in blood :-
(1) Thyroxine (2) Parathormone
(3) Thyrocalcitonin (4) Cortisol
CC0115

109. BMR is increased due to :-
(1) ADH
(2) Adrenaline
(3) Parasympathetic nervous system
(4) Thyroxine
CC0116

110. Goitre is a pathological condition associated with:-
(1) Glucagon (2) Thyroxine
(3) Progesterone (4) Testosterone
CC0117

111. Effects of thyroxine on metabolic rate is:-
(1) Decreases (2) No effect
(3) Increases (4) Uncertain
CC0118

112. Deficiency of which of the following may cause bone deformation :-
(1) Oxytocin (2) Vitamin D
(3) STH (4) Thyroxine
CC0119

113. Function of thyrocalcitonin :-
(1) To reduce the calcium level in blood
(2) To increase the calcium level in blood
(3) Oppose the action of thyroxine
(4) Maturation of gonads
CC0120

114. Parathormone deficiency leads to :-
(1) Decrease of Ca^{+2} level in blood
(2) Increase of Ca^{+2} level in blood
(3) Osteoporosis
(4) Hypercalemia
CC0121

115. Parathormone controls :-
(1) Fatty acid metabolism
(2) Sodium and potassium metabolism
(3) Calcium and phosphate metabolism
(4) Protein metabolism
CC0122

116. Parathyroid hormone –
(1) is produced by the thyroid gland
(2) is released when blood calcium levels fall
(3) stimulates osteoblasts to lay down new bone
(4) stimulates calcitonin release.
CC0123

117. Undersecretion of adrenal cortex causes :-
(1) Sterility
(2) Addison's disease
(3) Cretinism
(4) Dwarfism
CC0124

118. Epinephrine is :-
(1) Secreted from pancreas and decreases heart beat
(2) Secreted from adrenal medulla and increases heart beat
(3) Secreted from adrenal medulla and decreases heart beat
(4) Secreted from pancreas and increases heart beat
CC0125

119. Hyposecretion of aldosterone causes :-
(1) Gull's disease
(2) Grave's disease
(3) Cushing's disease
(4) Addison's disease
CC0126

120. Hormones produced by adrenal cortex and gonads (sex hormone) are chemically :-
(1) Proteinaceous
(2) Steroids
(3) Glycoprotein
(4) Phenolic compound

CC0127

121. A tumour in the adrenal zona glomerulosa can cause hyper secretion of hormones produced in that region. Which of the following might you expect to find in a patient with such a tumour ?
(1) Increased blood sodium levels
(2) Increased blood glucose levels
(3) Decreased blood calcium levels
(4) Increased dehydration

CC0128

122. The function of norepinephrine is :-
(1) Almost similar to epinephrine
(2) Similar to ADH
(3) Opposite to epinephrine
(4) Opposite to ADH

CC0129

123. Epinephrine and norepinephrine together known as :-
(1) Steroid (2) Protein
(3) Catecholamine (4) Glycoprotein

CC0130

124. 3F gland is :-
(1) Adrenal (2) Thyroid
(3) Gonadal (4) Pancreas

CC0131

125. Retention of sodium in body depends up on hormone from :-
(1) Adrenal cortex
(2) Adrenal medulla
(3) Parathyroid
(4) Thyroid

CC0132

126. Adrenal cortex also controls the carbohydrate metabolism through :-
(1) Adrenaline
(2) Noradrenaline
(3) Glucocorticoids
(4) Mineralo Corticoids

CC0133

127. "4s gland" is :-
(1) Pancreas (2) Liver
(3) Thyroid (4) Adrenal

CC0134

128. Adrenal gland is :-
(1) Ectodermal in origin
(2) Mesodermal in origin
(3) Endodermal in origin
(4) Ecto - mesodermal in origin

CC0135

129. Adrenaline increases :-
(1) Heart beat (2) Blood pressure
(3) Both (4) Salivation

CC0136

130. Which hormone control activity of zona glomerulosa of adrenal gland ?
(1) Renin (2) Thyroxine
(3) ADH (4) FSH

CC0137

131. All of the following are functions of adrenaline except:-
(1) Increases blood supply in skeletal muscle
(2) Hyperglycaemia
(3) Micturition
(4) Tachycardia

CC0139

132. When the primary sexual organ does not develop, puberty may appear due to :-
(1) Stimulation of adrenal cortex
(2) Stimulation of adrenal medulla
(3) Excessive secretion from gonads
(4) Reduced secretion from gonads

CC0140

133. Norepinephrine hormone is secreted from :-
(1) Zona glomerulosa
(2) Zona fasiculata
(3) Zona reticularis
(4) Medulla of adrenal

CC0141

134. Which gland is concerned with salt equilibrium in body :–
(1) Anterior pituitary
(2) Pancreas
(3) Adrenal
(4) Thyroid

CC0142

135. Norepinephrine leads to increase in :–
(1) Blood pressure
(2) Urine production
(3) Cellular respiration
(4) Release of epinephrine

CC0143

136. Largest amount of iodine is found in :-
(1) Adrenals (2) Liver
(3) Thyroid (4) Testes

CC0145

137. Which gland prepares you for flight, fear and fight during adverse conditions :-
(1) Thyroid (2) Parathyroid
(3) Pituitary (4) Adrenals

CC0146

138. Blood pressure is controlled by :-
(1) Adrenal gland
(2) Thyroid gland
(3) Pituitary gland
(4) Pancreas

CC0147

139. Life saving hormone are secreted by :-
(1) Pituitary (2) Pineal
(3) Adrenals (4) Thyroid

CC0148

140. Which is largest endocrine gland :-
(1) Thyroid (2) Liver
(3) Pituitary (4) Thymus

CC0149

141. Temperature of body is controlled by which endocrine gland:-
(1) Pituitary (2) Thyroid
(3) Adrenal (4) Pancreas

CC0150

142. During emergency which of the following hormone is secreted ?
(1) Aldosterone (2) Thyroxine
(3) Adrenaline (4) Calcitonin

CC0151

143. Corticosteroids are secreted by :
(1) Adrenal gland (2) Pineal gland
(3) Pituitary gland (4) Thyroid gland

CC0152

144. Aldosterone is secreted by :
(1) Zona glomerulosa
(2) Zona fasciculata
(3) Zona reticularis
(4) Zona pellucida

CC0154

145. Which gland stores hormone before its secretion and then release it ?
(1) Thyroid (2) Pancreas
(3) Pineal (4) Pituitary

CC0155

146. Which of the following disease is not related to thyroid gland ?
(1) Goitre (2) Cretinism
(3) Myxoedema (4) Acromegaly

CC0156

147. Grave's disease is due to :
(1) Hyperactivity of thyroid gland
(2) Hypoactivity of adrenal cortex
(3) Hyperactivity of adrenal medulla
(4) Hypoactivity of islets of Langerhans

CC0157

148. Hypothyroidism causes in adult :
(1) Obesity (2) Diabetes
(3) Cretinism (4) Myxoedema
CC0158

149. The hormone that controls the level of calcium and phosphorus in the blood is secreted by :
(1) Thyroid (2) Parathyroid
(3) Pituitary (4) Thymus
CC0159

150. Obesity of face, hyperglycemia and virilism in females is characteristic of –
(1) Grave's disease
(2) Addison's disease
(3) Conn's disease
(4) Cushing's syndrome
CC0160

151. Muscular tetany can be caused by deficiency of –
(1) Oxytocin
(2) STH
(3) ADH
(4) Parathyroid hormone
CC0161

152. Addison's disease is caused due to :
(1) hypersecretion of adrenal cortical hormones
(2) hypersecretion of growth hormone
(3) hypersecretion of thymus
(4) none of the above
CC0163

153. Para-thyroid hormone is a :
(1) Peptide (2) Carbohydrate
(3) Lipid (4) Steroid
CC0165

154. Increase glucose level in human is called :
(1) Hypoglycemia (2) Hyperglycaemia
(3) Hyposuria (4) Hypersuria
CC0166

155. Parathormone is secreted during :
(1) Increased blood calcium level
(2) Decreased blood calcium level
(3) Increased blood sugar level
(4) Decreased blood sugar level
CC0167

156. Chronic disturbance in hormone secretion of thyroid gland causes :
(1) Goitre (2) Diabetes
(3) Addison's disease (4) Colour blindness
CC0168

157. ACTH is secreted by:
(1) Thyroid gland
(2) Thymus gland
(3) Pituitary gland
(4) Islets of Langerhans
CC0169

158. Fight and flight hormone is :
(1) Adrenaline (2) Thyroxine
(3) ADH (4) Oxytocin
CC0170

159. The emergency hormone is :
(1) Thyroxine (2) Adrenaline
(3) Insulin (4) Progesterone
CC0172

160. In man removal of Parathyroid gland leads to:
(1) Acromegaly
(2) Tetany
(3) Polyuria
(4) Diabetes insipidus
CC0173

161. Parathormone induces :
(1) Increase in blood sugar level
(2) Decrease in serum calcium level
(3) Increase in serum calcium level
(4) Decrease in blood sugar level
CC0174

162. Which disease is caused by under secretion of adrenal cortex ?
(1) Cretinism
(2) Dwarfism
(3) Sterility
(4) Addison's disease

CC0176

163. Role of thymus in *Homo sapiens* is chiefly concerned with :-
(1) Reproduction
(2) Immunology
(3) Calcium balance
(4) Blood coagulation

CC0179

164. Melatonin is a hormone produced by :-
(1) Adrenal gland (2) Pituitary gland
(3) Pineal gland (4) Thymus gland

CC0180

165. Mammals born without a thymus gland fail to manufacture :-
(1) B - Lymphocytes (2) T - Lymphocytes
(3) Plasma cells (4) Basophils

CC0182

166. If thymectomy is done during adult hood then what possibility is there ?
(1) Immunosuppressant
(2) Die immediately
(3) No adverse reaction
(4) Myasthenia gravis

CC0183

167. Thymosin stimulates :-
(1) Milk secretion (2) Erythrocytes
(3) T-lymphocytes (4) Melanocytes

CC0184

168. Glucagon is secreted by :-
(1) Leydig cells
(2) Islets of Langerhans
(3) Corpus luteum
(4) Glisson's capsule

CC0185

169. A hormone with seat of activity in liver-changing glucose into glycogen is produced by :-
(1) Pituitary (2) Thymus
(3) Parathyroid (4) Pancreas

CC0186

170. Which gland is both exocrine as well as endocrine ?
(1) Pituitary (2) Mammary gland
(3) Thyroid (4) Pancreas

CC0187

171. Oversecretion of glucagon can cause :-
(1) Tetany
(2) Diabetes insipidus
(3) Acromegaly
(4) Hyperglycemia

CC0188

172. Insulin by chemical nature is :-
(1) Carbohydrate (2) Protein
(3) Steroid (4) Lipid

CC0190

173. Which of the following is not function of insulin ?
(1) Increase glycogenesis
(2) Increase glycogenolysis
(3) Increase up take of amino acid by liver and muscle
(4) Promote oxidation of glucose

CC0191

174. Injection of Insulin to human leads to increased :-
(1) Glucose level of blood
(2) Glucose level of urine
(3) Glucose level of cells
(4) Calcium level of blood
CC0192

175. Which hormone has anti insulin effect :-
(1) Cortisol
(2) Oxytocin
(3) Aldosterone
(4) Glucagon
CC0193

176. In old age, immune system becomes weak due to gradual degeneration of :-
(1) Pineal gland
(2) Parathyroid gland
(3) Thymus gland
(4) Adrenal gland
CC0194

177. Diabetic coma is due to hyposecretion of insulin in which :-
(1) Glucose level increased in blood
(2) Keto acidosis take place
(3) Dehydration process start
(4) All the above
CC0195

178. One molecule of insulin contains :-
(1) 30 Amino acid (2) 41 amino acid
(3) 51 amino acid (4) 70 amino acid
CC0196

179. The diabetes mellitus is caused by :-
(1) Hyper secretion of Insulin
(2) Hyposecretion of Insulin
(3) Hyposecretion of ADH
(4) Hyper secretion of ADH
CC0197

180. In diabetes mellitus disease, the urine contains :-
(1) Salt (2) Fat
(3) Protein (4) Sugar
CC0199

181. A patient of diabetes mellitus drink more water and he eliminates extra amount of which substance from blood :-
(1) Protein (2) Sugar
(3) Fat (4) Hormone
CC0200

182. Which gland decreases in size with increasing age?
(1) Thyroid (2) Adrenal
(3) Thymus (4) Pituitary
CC0202

183. Insulin is secreted by :
(1) α–cell of islets of Langerhans
(2) δ–cell of islets of Langerhans
(3) β–cell of islets of Langerhans
(4) Pancreatic acinar cell
CC0203

184. Which one of the following endocrine gland functions to regulate biological clock ?
(1) Adrenal gland
(2) Thyroid gland
(3) Pineal gland
(4) Thymus gland
CC0204

185. Mammalian thymus is mainly concerned with :
(1) Regulation of body temperature
(2) Regulation of body growth
(3) Immunological functions
(4) Secretion of thyrotropin
CC0205

186. The islets of Langerhans are found in :
(1) Pancreas
(2) Stomach
(3) Liver
(4) Alimentary canal

CC0206

187. Melatonin is secreted by :
(1) Pineal gland
(2) Parathyroid gland
(3) Pituitary gland
(4) Thyroid gland

CC0208

188. Insulin is related with :
(1) Diabetes
(2) Migrain
(3) Jaundice
(4) All of the above

CC0209

189. A patient of diabetes mellitus excretes glucose in urine even when he is kept on a carbohydrate free diet. It is because :
(1) Fats are catabolised to form glucose
(2) Amino acids are catabolised in liver
(3) Amino acids are discharged in blood stream from liver
(4) Glycogen from muscles are discharged in blood stream from liver

CC0210

190. Which gland degenerate in adult ?
(1) Pancreas (2) Thymus
(3) Thyroid (4) Adrenal

CC0211

191. Ketone bodies are formed in :
(1) Liver (2) Spleen
(3) Kidney (4) Heart

CC0212

192. The modern idea about ageing is that our body slowly loses the power of defence against the invasion of germs and pathogens. This process starts by the disappearance of which organ ?
(1) Spleen
(2) Thymus gland
(3) Pituitary gland
(4) Parathyroid gland

CC0213

193. Which of the following hormones secreted by pancreas ?
(1) Insulin and glucagon
(2) Epinephrine and nor-epinephrine
(3) Thyroxin and melanin
(4) Prolactin and oxytocin

CC0214

194. The function of glucagon hormone is :
(1) To increase glycogenesis
(2) To decrease blood sugar level
(3) To release glucose from liver cells and glycogenolysis promotion
(4) To increase the absorption of glucose and fatty acids through cell

CC0217

195. T–cells mature in :
(1) Peyer's patch
(2) Lymph node
(3) Thymus
(4) Brusa of Fabricius

CC0218

GONADS AND OTHER NON-ORGANISED GLANDS

196. Estrogen is secreted by :-
(1) Liver (2) Spleen
(3) Ovaries (4) Pituitary

CC0219

197. Androgens are secreted by :-
(1) Pituitary (2) Testes
(3) Ovaries (4) Thyroid

CC0220

198. Leydig cells are meant for :-
(1) Formation of sperm
(2) To produce progesterone
(3) To produce testosterone
(4) Nutrition of sperm
CC0221

199. Progesterone hormone is secreted from :-
(1) Placenta
(2) Corpus luteum
(3) Both 1 and 2
(4) Graafian follicle
CC0223

200. The "erythropoietin" hormone regulates :-
(1) Blood pressure
(2) Water level of blood
(3) Glucose level of blood
(4) Rate of formation of red blood cells
CC0224

201. Estrogen is secreted by :-
(1) Corpus albicans
(2) Corpus Callosum
(3) Corpus Luteum
(4) Cells of Graffian follicle
CC0228

202. The "Estrogen" secretion is controlled by :-
(1) FSH (2) LH
(3) Progesterone (4) GH
CC0229

203. Which of the following hormone is not secreted by gastro-intestinal tract ?
(1) Gastrin
(2) Secretin
(3) Cholecystokinin
(4) Erythropoietin
CC0230

204. Which one is a female sex hormone ?
(1) Estrogen (2) Progesterone
(3) Estradiol (4) All of these
CC0231

205. Atrial wall of the heart muscle secretes a peptide hormone to reduce the blood pressure is:
(1) Cholycystokinin
(2) Erythropoetin
(3) Atrial natriuretic factor
(4) Epinephrine
CC0232

206. Feminizing hormone is :-
(1) Glucagon (2) Gastrin
(3) Oestrogen (4) Androgens
CC0233

207. Which temporary endocrine gland forms in ovary after ovulation :-
(1) Corpus callosum (2) Corpus albicans
(3) Corpus luteum (4) Corpus striata
CC0236

208. Secretin stimulates the activity of :-
(1) Salivary glands (2) Gastric gland
(3) Pancreas (4) Gall-bladder
CC0237

209. Which hormone stimulates contraction of gall bladder :-
(1) CCK-PZ (2) ACTH (3) LTH (4) FSH
CC0238

210. After ovulation, the rupured fallicle is converted to a structure called (A) which secreted mainly (B). (A) and (B) are respectively.
(1) Corpus albicans, estrogen
(2) Corpus Luteum, GnRH
(3) Corpus Luteum, Estrogen
(4) Corpus Luteum, Progesterone
CC0411

211. Hormone which is responsible for maintenance of pregnancy is :
(1) Estrogen (2) Aldosterone
(3) Progesterone (4) Testosterone
CC0244

212. Which of the following steroid sex hormone influence secondary sex organs?
(1) Progesterone (2) Oestrogen
(3) LH (4) LTH
CC0245

213. Progesterone is secreted from :
(1) Testes (2) Adrenal gland
(3) Pituitary gland (4) corpus luteum
CC0246

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**4**	**4**	**1**	**4**	**1**	**4**	**3**	**4**	**1**	**4**	**3**	**4**	**4**	**2**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**3**	**4**	**2**	**4**	**3**	**3**	**1**	**2**	**2**	**4**	**1**	**3**	**3**	**3**	**1**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**3**	**2**	**4**	**1**	**1**	**2**	**3**	**3**	**1**	**4**	**3**	**4**	**1**	**4**	**1**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**1**	**1**	**4**	**1**	**4**	**4**	**2**	**2**	**1**	**4**	**1**	**1**	**3**	**2**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**4**	**2**	**3**	**3**	**3**	**4**	**2**	**1**	**4**	**2**	**4**	**2**	**3**	**3**	**1**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**3**	**2**	**3**	**2**	**4**	**1**	**4**	**2**	**2**	**4**	**2**	**1**	**2**	**2**	**2**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**4**	**3**	**2**	**2**	**2**	**4**	**2**	**2**	**1**	**2**	**4**	**4**	**2**	**3**	**1**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**4**	**2**	**3**	**4**	**2**	**3**	**2**	**1**	**1**	**3**	**2**	**2**	**2**	**4**	**2**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**1**	**1**	**3**	**1**	**1**	**3**	**4**	**4**	**3**	**1**	**3**	**1**	**4**	**3**	**1**
Que.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Ans.	**3**	**4**	**1**	**3**	**1**	**2**	**3**	**1**	**1**	**1**	**4**	**1**	**4**	**2**	**4**
Que.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Ans.	**4**	**4**	**1**	**2**	**2**	**1**	**3**	**1**	**2**	**2**	**3**	**4**	**2**	**3**	**2**
Que.	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans.	**3**	**3**	**2**	**4**	**4**	**4**	**2**	**2**	**3**	**4**	**3**	**4**	**3**	**2**	**4**
Que.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
Ans.	**2**	**3**	**3**	**3**	**3**	**1**	**1**	**1**	**1**	**2**	**1**	**2**	**1**	**3**	**3**
Que.	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210
Ans.	**3**	**2**	**3**	**3**	**4**	**4**	**1**	**4**	**4**	**3**	**3**	**3**	**3**	**1**	**4**
Que.	211	212	213												
Ans.	**3**	**2**	**4**												

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Which hormone causes dilation of blood vessels, increased oxygen consumption and glucogenesis?
(1) Adrenalin (2) Glucagon
(3) ACTH (4) Insulin
CC0247

2. Sertoli cells are regulated by the pituitary hormone known as –
(1) Prolactin (2) LH
(3) FSH (4) GH
CC0248

3. A steroid hormone which regulates glucose metabolism is –
(1) 11-deoxycorticosterone
(2) Cortisone
(3) Cortisol
(4) Corticosterone
CC0249

4. Which one of the following is not a second messenger in hormone action ?
(1) Sodium (2) cAMP
(3) cGMP (4) Calcium
CC0250

AIPMT 2009

5. A health disorder that results from the deficiency of thyroxine in adults and characterised by –
1. A low metabolic rate
2. Increase in body weight and
3. Tendency to retain water in tissue is
(1) Simple goitre (2) Myxoedema
(3) Cretinism (4) Hypothroidism
CC0255

AIPMT-Pre 2010

6. Toxic agents present in food which interfere with thyroxine synthesis lead to the development of :
(1) Simple goitre (2) Thyrotoxicosis
(3) Toxic goitre (4) Cretinism
CC0256

7. Injury to adrenal cortex is not likely to affect the secretion of which one of the following ?
(1) Adrenaline
(2) Cortisol
(3) Aldosterone
(4) Both Androstenedione and Dehydroepiandrosterone
CC0257

8. Which one of the following pairs is incorrectly matched ?
(1) Corpus luteum – Relaxin (secretion)
(2) Insulin – Diabetes mellitus (disease)
(3) Glucagon – Beta cells (Source)
(4) Somatostatin – Delta cells (source)
CC0258

AIPMT-Mains 2010

9. Which one of the following is now being commercially produced by biotechnolgical procedures ?
(1) Morphine (2) Quinine
(3) Insulin (4) Nicotine
CC0259

10. Select the *correct* matching of a hormone, its source and function.

	Hormone	Source	Function
(1)	Norepine phrine	Adrenal medulla	Increases heart beat, rate of respiration and alertness
(2)	Glucagon	Beta-cells of langerhans	Stimulates glycogenolysis
(3)	Prolactin	Posterior pituitary	Regulates growth of mammary glands and milk formation in females
(4)	Vasopressin	Posterior pituitary	Increases loss of water through urine

CC0260

11. Signals from fully developed foetus and placenta ultimately lead to parturition which requires the release of :

(1) Oxytocin from maternal pituitary

(2) Oxytocin from foetal pituitary

(3) Relaxin from placenta

(4) Estrogen from placenta

CC0261

AIPMT-Pre 2012

12. Which one of the following pairs of hormones are the examples of those that can easily pass through the cell membrane of the target cell and bind to a receptor inside it (mostly in the nucleus) :-

(1) Somatostatin, oxytocin

(2) Cortisol, testosterone

(3) Insulin, glucagon

(4) Thyroxin,Insulin

CC0262

NEET-UG 2013

13. A pregnant female delivers a baby who suffers from stunted growth, mental retardation, low intelligence quotient and abnormal skin.

This is the result of :

(1) Over secretion of pars distalis

(2) Deficiency of iodine in diet

(3) Low secretion of growth hormone

(4) Cancer of the thyroid gland

CC0263

14. Which of the following statements is **correct** in relation to the endocrine system?

(1) Releasing and inhibitory hormones are produced by the pituitary gland.

(2) Adenohypophysis is under direct neural regulation of the hypothalamus.

(3) Organs in the body like gastrointestinal tract, heart, kidney and liver do not produce any hormones.

(4) Non-nutrient chemicals produced by the body in trace amount that act as intercellular messenger are known as hormones.

CC0264

AIPMT 2014

15. Which of the following causes an increase in sodium reabsorption in the distal convoluted tubule ?

(1) Increase in aldosterone levels

(2) Increase in antidiuretic hormone levels

(3) Decrease in aldosterone levels

(4) Decrease in antidiuretic hormone levels

CC0267

16. Identify the hormone with its **correct** matching of source and function :
(1) Oxytocin - posterior pituitary, growth and maintenance of mammary glands.
(2) Melatonin - pineal gland, regulates the normal rhythm of sleepwake cycle.
(3) Progesterone - corpus-luteum, stimulation of growth and activities of female secondary sex organs.
(4) Atrial natriuretic factor - ventricular wall increases the blood pressure.

CC0268

17. Fight-or-flight reactions cause activation of :
(1) the parathyroid glands, leading to increased metabolic rate.
(2) the kidney, leading to suppression of renin-angiotensin-aldosterone pathway.
(3) the adrenal medulla, leading to increased secretion of epinephrine and norepinephrene.
(4) the pancreas leading to a reduction in the blood sugar levels.

CC0269

Re-AIPMT 2015

18. Which one of the following hormones is **not** involved in sugar metabolism ?
(1) Glucagon (2) Cortisone
(3) Aldosterone (4) Insulin

CC0272

19. Which one of the following hormones though synthesised elsewhere, is stored and released by the master gland ?
(1) Melanocyte stimulating hormone
(2) Antidiuretic hormone
(3) Luteinizing hormone
(4) Prolactin

CC0273

NEET-I 2016

20. Which of the following pairs of hormones are **not** antagonistic (having opposite effects) to each other?
(1) Parathormone – Calcitonin
(2) Insulin – Glucagon
(3) Aldosterone – Atrial Natriuretic Factor
(4) Relaxin – Inhibin

CC0277

NEET-II 2016

21. Graves' disease is caused due to :-
(1) Hyposecretion of adrenal gland
(2) Hypersecretion of adrenal gland
(3) Hyposecretion of thyroid gland
(4) Hypersecretion of thyroid gland

CC0278

22. Name a peptide hormone which acts mainly on hepatocytes, adipocytes and enhances cellular glucose uptake and utilization.
(1) Secretin (2) Gastrin
(3) Insulin (4) Glucagon

CC0279

23. Osteoporosis, an age–related disease of skeletal system, may occur due to :-
(1) Decreased level of estrogen
(2) Accumulation of uric acid leading to inflammation of joints.
(3) Immune disorder affecting neuro–muscular junction leading to fatigue.
(4) High concentration of Ca^{++} and Na^{+}.

CC0280

24. The posterior pituitary gland is **not** a 'true' endocrine gland because :-
(1) It is under the regulation of hypothalamus
(2) It secretes enzymes
(3) It is provided with a duct
(4) It only stores and releases hormones

CC0281

NEET(UG) 2017

25. A temporary endocrine gland in the human body is:
(1) Corpus cardiacum
(2) corpus luteum
(3) Corpus allatum
(4) Pineal gland

CC0283

26. GnRH, a hypothalamic hormone, needed in reproduction, acts on:
(1) anterior pituitary gland and stimulates secretion of LH and FSH.
(2) posterior pituitary gland and stimulates secretion of oxytocin and FSH.
(3) posterior pituitary gland and stimulates secretion of LH and relaxin.
(4) anterior pituitary gland and stimulates secretion of LH and oxytocin.

CC0284

27. Hypersecretion of Growth Hormone in adults does not cause further increase in height, because:
(1) Epiphyseal plates close after adolescence.
(2) Bones loose their sensitivity to Growth Hormone in adults.
(3) Muscle fibres do not grow in size after birth.
(4) Growth Hormone becomes inactive in adults.

CC0285

NEET(UG) 2018

28. Which of the following is an amino acid derived hormone ?
(1) Epinephrine (2) Ecdysone
(3) Estradiol (4) Estriol

CC0289

29. Which of the following hormones can play a significant role in osteoporosis ?
(1) Aldosterone and Prolactin
(2) Progesterone and Aldosterone
(3) Estrogen and Parathyroid hormone
(4) Parathyroid hormone and Prolactin

CC0290

NEET(UG) 2019

30. How does steroid hormone influence the cellular activities?
(1) Changing the permeability of the cell membrane.
(2) Binding to DNA and forming a gene-hormone complex.
(3) Activating cyclic AMP located on the cell membrane.
(4) Using aquaporin channels as second messenger.

CC0396

31. Match the following hormones with the respective disease :

(a) Insulin	(i) Addison's disease
(b) Thyroxin	(ii) Diabetes insipidus
(c) Corticoids	(iii) Arcomegaly
(d) Growth Hormone	(iv) Goitre
	(v) Diabetes mellitus

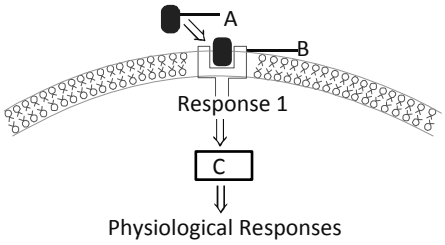
Select the **correct** option.

	(a)	**(b)**	**(c)**	**(d)**
(1)	(v)	(i)	(ii)	(iii)
(2)	(ii)	(iv)	(iii)	(i)
(3)	(v)	(iv)	(i)	(iii)
(4)	(ii)	(iv)	(i)	(iii)

CC0397

NEET(UG) 2019 (Odisha)

32. Identify A, B and C in the diagramatic representation of the mechanism of hormone action.



Select the correct option from the following :

(1) A-Steroid Hormone; B-Hormone-receptor Complex, C-Protein

(2) A-Protein Hormone, B-Receptor; C-Cyclic AMP

(3) A-Steroid Hormone; B-Receptor, C - Second Messenger

(4) A-Protein Hormone; B-Cyclic AMP, C-Hormone-receptor Complex

CC0398

33. Which of the following hormones is responsible for both the milk ejection reflex and the foetal ejection reflex ?

(1) Estrogen (2) Prolactin

(3) Oxytocin (4) Relaxin

CC0399

34. Which of the following conditions will stimulate parathyroid gland to release parathyroid hormone?

(1) Fall in active Vitamin D levels

(2) Fall in blood Ca^{+2} levels

(3) Fall in bone Ca^{+2} levels

(4) Rise in blood Ca^{+2} levels

CC0400

35. Artificial light, extended work-time and reduced sleep–time disrupt the activity of

(1) Thymus gland

(2) Pineal gland

(3) Adrenal gland

(4) Posterior pituitary gland

CC0401

NEET(UG) 2020

36. Select the correct statement.

(1) Insulin is associated with hyperglycemia

(2) Glucocorticoids stimulate gluconeogenesis

(3) Glucagon is associated with hypoglycemia.

(4) Insulin acts on pancreatic cells and adipocytes.

CC0402

37. Presence of which of the following conditions in urine are indicative of Diabetes Mellitus ?

(1) Renal calculi and Hyperglycaemia

(2) Uremia and Ketonuria

(3) Uremia and Renal Calculi

(4) Ketonuria and Glycosuria

CC0403

38. Match the following columns and select the **correct** option :

Column-I	**Column-II**
(a) Pituitary gland	(i) Grave's disease
(b) Thyroid gland	(ii) Diabetes mellitus
(c) Adrenal gland	(iii) Diabetes insipidus
(d) Pancreas	(iv) Addison's disease

	(a)	**(b)**	**(c)**	**(d)**
(1)	(ii)	(i)	(iv)	(iii)
(2)	(iv)	(iii)	(i)	(ii)
(3)	(iii)	(ii)	(i)	(iv)
(4)	(iii)	(i)	(iv)	(ii)

CC0404

NEET(UG) 2020 (Covid-19)

39. Match the following columns and select the correct option :-

Column-I	Column-II
(a) Pituitary hormone	(i) Steroid
(b) Epinephrine	(ii) Neuropeptides
(c) Endorphins	(iii) Peptides, proteins
(d) Cortisol	(iv) Biogenic amines

(1) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(2) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)
(3) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
(4) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

CC0405

40. Hormones stored and released from neurohypophysis are :-
(1) Thyroid stimulating hormone and Oxytocin
(2) Oxytocin and Vasopressin
(3) Follicle stimulating hormone and Leutinizing hormone
(4) Prolactin and Vasopressin

CC0406

NEET(UG) 2021

41. Erythropoietin hormone which stimulates R.B.C. formation is produced by :
(1) Alpha cells of pancreas
(2) The cells of rostral adenohypophysis
(3) The cells of bone marrow
(4) Juxtaglomerular cells of the kidney

CC0407

NEET(UG) 2021 (Paper-2)

42. Which of the following acts as physiological barrier?
(1) Natural killer cells
(2) Interferons
(3) Tears from eyes
(4) Mucus coating of the epithelial lining of urogenital tracts

CC0412

NEET(UG) 2022

43. Match **List -I** with **List -II**.

List-I (Biological Molecules)	List-II (Biological functions)
(a) Glycogen	(i) Hormone
(b) Globulin	(ii) Biocatalyst
(c) Steroids	(iii) Antibody
(d) Thrombin	(iv) Storage product

Choose the **correct answer** from the options given below:
(1) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
(2) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)
(3) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
(4) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

CC0413

44. Which of the following are not the effects of Parathyroid hormone ?
(a) Stimulates the process of bone resorption
(b) Decreases Ca^{2+} level in blood
(c) Reabsorption of Ca^{2+} by renal tubules
(d) Decreases the absorption of Ca^{2+} from digested food
(e) Increases metabolism of carbohydrates
Choose the **most appropriate** answer from the options given below:
(1) (b), (d) and (e) only (2) (a) and (e) only
(3) (b) and (c) only (4) (a) and (c) only

CC0414

NEET(UG) 2022 (OVERSEAS)

45. Normal sleep-wake cycle in a human body is maintained by the secretion of :

(1) Thymus gland

(2) Pineal gland

(3) Pituitary gland

(4) Thyroid gland

CC0415

46. Which one of the following hormones reduce the blood pressure?

(1) Atrial Natriuretic factor

(2) Aldosterone

(3) Angiotensin-II

(4) Antidiuretic hormone

CC0416

Re-NEET(UG) 2022

47. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) :

FSH which interacts with membrane bound receptors does not enter the target cell.

Reason (R) :

Binding of FSH to its receptors generates second messenger (cyclic AMP) for its biochemical and physiological responses.

In the light of the above statements, choose **the most appropriate answer** from the options given below ;

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

CC0417

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	3	3	1	2	1	1	3	3	1	1	2	2	4	1
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	3	3	2	4	4	3	1	4	2	1	1	1	3	2
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	2	3	2	2	2	4	4	2	2	4	3	3	1	2
Que.	46	47													
Ans.	1	2													

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Steroid hormones –
(1) Have only cell surface receptors
(2) Are lipophobic
(3) Have receptors within the nucleus
(4) Are produced by only adrenal cortex.

CC0298

2. Both adrenaline and cortisol are secreted in response to stress. Which of the following statements is also true for both of these hormones?
(1) They act to increase blood glucose
(2) They are secreted by the adrenal cortex
(3) Their secretion is stimulated by adrenocorticotropin
(4) They are secreted into the blood within seconds of the onset of stress.

CC0299

3. Which one is incorrect for hypothalamus ?
(1) Basal part of diencephalon
(2) Regulate narrow spectrum of body functions
(3) Neural control of posterior pituitary
(4) Release somatostatin for GH Inhibition

CC0300

4. Pineal gland is not related with :-
(1) Body temperature
(2) Defence capability
(3) Metabolism
(4) Kidney functions

CC0301

5. Vigrous contraction of uterus muscles is stimulated by:-
(1) ADH (2) MSH
(3) GH (4) Oxytocin

CC0302

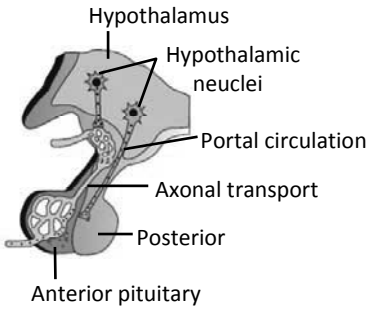
6. Find out correctly matched :-
(A) Thymus – AMI
(B) PTH – Ca^{+2} absorption
(C) Adrenal – glucocorticoids
(D) Thyroid – Anti-inflammatory response
(1) A, B, D (2) A, B, C
(3) B, C, D (4) A, C, D

CC0303

7. Which one is incorrect statement ?
(1) Hypothalamus regulate a wide spectrum of body functions.
(2) Pituitary, pineal, testes, heart and kidney are organised endocrine gland of body.
(3) Hormones are non-nutrient chemicals and intercellular messenger.
(4) LH helps in maintenance of corpus luteum after ovulation.

CC0304

8. Find out incorrect labelling in following diagram



(1) Axonal transport and Anterior pituitary
(2) Portal circulation and Posterior pituitary
(3) Anterior pituitary and Posterior pituitary
(4) Portal circulation and Axonal transport

CC0305

9. Find out incorrect match of hormone with respective function :-

	Hormone	Function
(1)	**Melatonin**	Sleep wake cycle and body temperature
(2)	**FSH**	Growth of ovarian follicles and stimulate gonadial activity.
(3)	**Adrenaline**	Increase concentration of glucose in blood.
(4)	**Progesterone**	Stimulate growth and activities of female secondary sex organs

CC0306

10. Hyperglycemic and hypoglycemic hormones are :-
(1) Insulin and glucagon
(2) Adrenalin and glucagon
(3) Adrenalin and Insulin
(4) Glucagon and growth hormone

CC0307

11. Group of hormones which is related with cytoplasmic bounded receptors ?
(1) Hypothalamic hormones and epinephrine
(2) Thyroid hormone and estradiol
(3) Insulin and glucagon
(4) GH and MSH

CC0308

12. Two hormones .....(a)..... and .....(b)..... synthesize in hypothalamus and transported in pituitary gland through .....(c)..... and .....(d)..... respectively.
(1) a = oxytocin ⇒ c = portal circulation
b = ADH ⇒ d = direct release
(2) a = ADH ⇒ c = axonal transport
b = TSHRF ⇒ d= portal circulation
(3) a = ACTH ⇒ c = axonal transport
b = MSH ⇒ d= portal circulation
(4) a = TSHRF ⇒ c = axonal transport
b = ADH ⇒ d= portal circulation

CC0309

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

13. Which one is correctly matched ?
(a) Pineal gland – Metabolism, Mental retardation
(b) Thymus – Mysthenia gravis
(c) Thyroid – Anti inflammatory reaction
(d) Pancreas – Prolonged hyperglycemia
(1) a, c (2) b, c (3) c, d (4) b, d

CC0310

14. Which one of the following decreases blood pressure ?
(1) Insulin (2) ANF
(3) ADH (4) Aldosterone

CC0311

15. After ovulation, ruptured follicle secrete hormone that helps in :-
(1) Libido
(2) Growth of facial hair
(3) High pitch voice
(4) Pregnancy support

CC0312

16. Diabetic patients are successfully treated with:-
(1) GH therapy
(2) More amount of thyroxine
(3) Insulin therapy
(4) (2) & (3) both

CC0313

17. Find out suitable match for the following hormones and related organ :-
(1) ANF – Heart, Calcitonin – parathyroid
(2) Renin – Kidney, Relaxin – Placenta
(3) Calcitonin – Kidney, HCG → Ovary
(4) Oestrogen – Testes, Progesterone→ Graafian follicle

CC0314

18. Parathormone causes :-
(1) Hypercalcemia
(2) Hyperglycemia
(3) Hyperkalemia
(4) Hypocalcemia and hypoglycemia both
CC0315

19. In mammals the female secondary sexual characters are developed mainly by the hormone?
(1) HCG (2) Progesterone
(3) Estrogens (4) All of these
CC0316

20. Which of the following is an accumulation and release centre of Neurohormones?
(1) Anterior Pituitary lobe
(2) Neurohypophysis
(3) Pars intermedia
(4) Hypothalamus
CC0317

21. BMR and Temperature of body is controlled by which endocrine gland?
(1) Adrenal cortex (2) Thymus
(3) Thyroid (4) Pituitary
CC0318

22. Reabsorption of Na^+ along with excretion of K^+ is controlled by which one of the following hormones?
(1) Prostaglandins (2) Aldosterone
(3) Estrogen (4) Cortisol
CC0319

23. Location and secretion of Leydig cells are?
(1) Pancreas - Glucagon
(2) Ovary - Estrogen
(3) Ovary - Progesterone
(4) Testis - Testosterone
CC0320

24. Urinary excretion of Na^+ is regulated by-
(1) Anterior Pituitary (2) Adrenal cortex
(3) Neurohyphophysis (4) Pars intermedia
CC0321

25. Thyrocalcitonin is secreted during –
(1) Increased blood calcium level
(2) Decreased blood calcium level
(3) Both (1) and (2)
(4) Increased blood sugar level.
CC0322

26. Which of the following hormones increase alertness, piloerection and sweating ?
(1) TCT (2) Catecholamines
(3) Cortisol (4) Thymosins
CC0323

EXERCISE-III ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	1	2	4	4	2	2	4	4	3	2	2	4	2	4
Que.	16	17	18	19	20	21	22	23	24	25	26				
Ans.	3	2	1	3	2	3	2	4	2	1	2				