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ELP

Educator Led Practice

NEET-BIOLOGY **ELP NO.-1** **CELL: THE UNIT OF LIFE**

1. Which of the following statement is not a part of final cell theory?
(A) Cell has a thin outer layer called plasma membrane.
(B) All living organisms are made up of cells and products of cells
(C) All cells arise from pre-existing cells.
(D) All cells arise from the fusion of the cells

2. What is the outer covering of typical plant cell?
(A) Cell wall externally
(B) Plasma membrane externally
(C) Cell wall internally
(D) Cell wall externally, plasma membrane internally

3. Unicellular organisms are not capable of
(A) Independent existence (B) Performing essential functions of life
(C) Both (A) and (B) (D) None of these

4. Which of the following organisms are not composed of cell?
(A) Amoeba (B) Paramecium (C) Euglena (D) Virus

5. .....was a German scientist, who observed that all plant tissues are made up of cells. At the same time....., British scientist studied different type of animal cells.
(A) Rudolf Virchow and Nageli respectively
(B) Mathias Schleiden and Theodore Schwann respectively
(C) Theodore Schwann and Mathias Schleiden respectively
(D) Robert Hooke and Schleiden respectively

6. Unicellular organism are capable of
(A) Independent existence (B) Performing the essential functions of life.
(C) Both (D) Does not ensure independent living

7. Living cell was firstly seen and described by:-
(A) Robert Hooke (B) Anton von Leeuwenhoek
(C) Robert Koch (D) Robert Brown

8. Modern Cell theory was proposed by:-
(A) Matthias Schleiden and Theodore Schwann
(B) Schleiden; Schwann and Virchow.
(C) Rudolf Virchow
(D) Sutton and Boveri

9. All the plants are composed of different kinds of cells which forms the tissue of the plant, this statement was given by:-
(A) A German botanist ; Rudolf Virchow
(B) A British zoologist ; Matthias Schleiden
(C) A British zoologist ; Theodore Schwann
(D) A German botanist; Matthias Schleiden

10. Who studied the different types of animal cells to propose cell theory:-
(A) A British zoologist; Matthias Schleiden
(B) A German botanist; Theodore Schwann.
(C) A physicist; Rudolf Virchow.
(D) A British zoologist; Theodore Schwann.

11. A thin outer layer studied by Theodore Schwann nowadays known as:-
(A) Plasma membrane (B) Cell wall
(C) Glycocalyx (D) Middle lamella

12. Based on studies of Matthias Schleiden; what is the unique character of plant cell?
(A) Cell wall (B) Middle lamella (C) Glycocalyx (D) None of these

13. The hypothesis that the bodies of animals and plant are composed of cells and their products was proposed by:-
(A) Schleiden and Schwann (B) Rudolf Virchow
(C) Schwann only (D) Virchow and Schleiden

14. Which of the following is related to cell theory:-
(i) All living organisms are composed of cells and product of cells.
(ii) Proposed by Schleiden and Schwann.
(iii) Modified by Rudolf Virchow
(iv) All cells arise from pre – existing cell.
(v) "Omnis cellula – e – cellula"
(A) Only one of the above (B) Only two of the above
(C) Only four of the above (D) All five

15. Which of the following is not incorrect?
(A) Mycoplasma is the smallest cell $\rightarrow$ 0.3 µm in width.
(B) Bacteria could be 3 µm to 5 µm in length
(C) Human RBCs are about 7.0mm in diameter.
(D) Cell's shape is independent of their work they perform.

16. How many of the following statements are true:-
(i) All cells have membrane bound nuclei and nucleolus.
(ii) Nucleus contains the chromosome
(iii) DNA is the Genetic material.
(iv) Cytoplasm is the main arena of cellular activities in plant and animal cells.
(A) Only (ii), (iii) & (iv)
(B) Only (ii) & (iv)
(C) Only (i) & (iii)
(D) Only (i)

17. What is the non – membranous organelle present in both Eukaryotic as well as Prokaryotic cell

(A) Endoplasmic reticulum (B) Protein

(C) Mitochondria (D) Ribosomes of 70s' type

18. Match column I (cell type) with column II (size) and choose the correct option.

Column-I (Cell type)	**Column-II (Size)**
A. Viruses	I. 1-2 μm
B. PPLO	II. 10-20 μm
C. Eukaryotic cell	III. About 0.1 μm
D. Bacterium	IV. 0.02 - 0.2 μm

(A) A – I; B – II; C – III; D – IV (B) A – IV; B – III; C – II; D – I

(C) A – I; B – III; C – II; D – IV (D) A – IV; B – II; C – III; D – I

19. Match column-I (scientists) with column-II (discovery) and select the correct option.

Column-I	**Column-II**
A. Leeuwenhoek	I. First saw and described a living cell
B. Robert Brown	II. Presence of cell wall is unique to plant cells
C. Schleiden	III. Discovered the nucleus
D. Schwann	IV. All plants are composed of different kind of cells

(A) A – I; B – III; C – IV; D – II (B) A – I; B – III; C – II; D – IV

(C) A – III; B – I; C – IV; D – II (D) A – I; B – IV; C – II; D – III

20. **Assertion(A) :** Cell is the fundamental structural and functional unit of all living organisms.

Reason(R) : Anything less than a complete structure of a cell does not ensure independent living

(A) Both (A) and (R) are true and (R) is the correct explanation of (A).

(B) Both (A) and (R) are true and (R) is the incorrect explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

NEET-BIOLOGY **ELP NO.-2** **CELL: THE UNIT OF LIFE**

1. The cell containing membrane bound nucleus can be called
(A) Eukaryotic (B) Prokaryotic
(C) Both (A) and (B) (D) Acellular

2. Where are the ribosomes found in prokaryotic cells?
(A) Cytoplasm (B) Mitochondria (C) Chloroplast (D) On the RER

3. Which of the following is incorrect?
(A) Smallest cell → Mycoplasma (B) Smallest cell → Cladophora
(C) Largest single cell → Ostrich's egg (D) Longest cell → Nerve cell

4. Which of the following is incorrect matching?
(A) Round and biconcave – RBC (B) Amoeboid – WBC
(C) Elongated – Tracheid (D) Long and without branch - Nerve cells

5. What are plasmids?
(A) Naked genomic DNA (B) Extra chromosomal DNA
(C) Enveloped DNA (D) None of these

6. Select the incorrect statement:
(A) Glycocalyx differs in composition and thickness among different bacteria.
(B) All organism are made of cells or aggregates of cells.
(C) ER helps in synthesis of proteins, lipoproteins and glycogen.
(D) Cells of all living organisms have nuclues.

7. What is the basis of classification of bacteria's into gram +ve and gram -ve?
(A) Cell wall (B) Glycocalyx layer
(C) Plasma membrane (D) All of these

8. Which of the following statement is not true?
(A) Response to gram stain is due to the cell envelope.
(B) The cell envelope act as a single protective unit.
(C) The glycocalyx layer is similar in all the bacteria.
(D) None of these

9. A loose sheath of glycocalyx layer is called
(A) Plasma membrane (B) Capsule
(C) Slime layer (D) Cell wall

10. What is a thick, tough, layer of glycocalyx known as?
(A) Slime layer (B) Capsule (C) Cell wall (D) Cell envelope

11. A polysome is a chained structure of which organelle?
(A) Lysosome (B) Mesosome (C) Ribosome (D) Peroxisome

12. In eukaryotic cells, why there is an extensive compartmentalization of cytoplasm?
(A) Due to the presence of fibres
(B) Due to the presence of so many organelles
(C) Due to the presence of membranous organelles
(D) Due to the presence of Protoplasm

13. **Assertion:** Bacterial cells may be motile or non motile.
Reason: Bacterial cells may or may not posses flagella.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

14.. **Assertion:** Bacterial cell walls are not like the plant cell.
Reason: Bacterial cell wall is not made up of cellulose.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

15. A common characteristic feature of plant sieve tube cells and most of the mammalian erythrocytes is
(A) Absence of mitochondria (B) Presence of cell wall
(C) Presence of haemoglobin (D) Absence of nucleus

16. Which one of these is not a eukaryote?
(A) Euglena (B) Anabena (C) Spirogyra (D) Agaricus

17. Difference between the prokaryotic and eukaryotic cells in having
(A) membrane bound organelle (B) nuclear membrane
(C) ribosome (D) All of these

18. Extension of plasma membrane in prokaryotic cell is
(A) mesosome (B) haploid (C) ribosome (D) Nucleus

19. Which of the following statement of a bacterial cell is/are correct?
(i) Mesosome is formed by the extensions of plasma membrane into the cell.
(ii) The pili are elongated tubular structures made up of a protein.
(iii) Flagellum is composed of filament, hook and basal body.
(iv) Ribosomes are about 30 nm by 50 nm in size.
(A) (i), (ii) and (iii) (B) All of the above
(C) (ii) and (iv) (D) None of the above

20. In prokaryotes, chromatophores are

(A) specialized granules responsible for colouration of cells.

(B) structures responsible for organizing the shape of the organism.

(C) inclusion bodies lying free inside the cells for carrying out various metabolic activities.

(D) internal membrane system which becomes extensive and complex in photosynthetic bacteria.

21. What is the sequence of cell envelope in most of the prokaryotic cell (Outer to Inner)

(A) Glycocalyx ->cell membrane -> cell wall.

(B) Cell membrane -> cell wall -> Glycocalyx

(C) Cell wall -> Glycocalyx -> cell membrane

(D) Glycocalyx ->cell wall -> cell membrane.

22. How many of the following statements are correct:-

(i) Glycocalyx is outermost layer.

(ii) All three layer have same function.

(iii) Bacteria can be classified on the basis of differences in the cell envelope.

(iv) Bacteria can be classified on the basis of response to the staining procedure

(A) Only one (B) Only two (C) Only three (D) All four

NEET-BIOLOGY **ELP NO.-3** **CELL: THE UNIT OF LIFE**

1. Which of the following are not the component of plasma membrane?
(A) Sugar (B) Protein
(C) Cholesterol (D) DNA and RNA (Nucleic Acid)

2. What is the percentage of proteins and lipids in an RBC membrane respectively?
(A) 52%, 40% (B) 50%, 40% (C) 50%, 42% (D) 52%, 42%

3. Which of the following wall is capable of growth in a plant cell?
(A) Primary wall (B) Secondary wall (C) Both (A) and (B) (D) Middle lamella

4. The chemical studies on cell membrane that was deduced to its possible structure was mostly done on which cells?
(A) WBC (B) Human erythrocytes
(C) Platelets (D) Cheek cells

5. In plasma membrane, the lipids have their polar heads facing
(A) Outer side (B) Inner side
(C) In the middle (D) Stable facing nowhere

6. Which of the following membrane proteins lie on the surface of the cell?
(A) Integral proteins (B) Peripheral proteins
(C) Both (A) and (B) (D) Glycoproteins

7. In which kind of transport, the molecules will go against the concentration gradient?
(A) Passive transport (B) Active transport
(C) Facilitated transport (D) All of these

8. The functions of cell wall in eukaryotic cells
(A) Give shape to cell (B) Prevent from mechanical damage
(C) Protects from infection (D) All of these

9. **Assertion:** Membrane transport occurs through the carrier proteins.
Reason: The transport carried by carrier proteins is always passive.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

10. **Assertion:** Cell wall is not found in animal cell.
Reason: Animal cells are covered by cell membrane.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

11. **Assertion:** A cell membrane shows fluid behaviour.
Reason: A membrane is a mosaic or composite of diverse lipids and proteins.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

12. **Assertion:** Cell wall help in cell to cell interaction.
Reason: Cell wall provide barrier to undesirable macromolecules.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

13. Who proposed the fluid mosaic model of plasma membrane?
(A) Camillo Golgi (B) Schleiden and Schwann
(C) Singer and Nicolson (D) Robert Brown

14. Algal cell wall is made of :-
(A) Cellulose, hemicellulose and pectin
(B) Cellulose, galactans, mannans and minerals
(C) Hemicellulose and xylan
(D) Cellulose, Hemicellulose, protein and pectin

15. The detailed structure of the cell membrane was studied only after the advent of electron microscope in the year :-
(A) 1931 (B) 1913 (C) 1950 (D) 1973

16. Depending upon the....., membrane proteins can be classified as integral or peripheral :-
(A) Size (B) Sedimentation rate
(C) Ease of extraction (D) Molecular weight

17. An improved model of the structure of cell membrane was proposed by Singer and Nicolson in...., widely accepted as.....
(A) 1959, Fluid mosaic model (B) 1900, Lipoidal model
(C) 1938, Unit membrane model (D) 1972, Fluid mosaic model

18. 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 :-

(A) ii, iii, iv (B) iii, i, iv (C) iii, ii, v (D) i, ii, iv

19. Na^+/K^+ pump is an example of :-

(A) Passive transport (B) Osmosis

(C) Active transport (D) Simple diffusion

20. The fluid nature of the membrane is also important from the point of view of functions like :-

(i) Cell growth (ii) Formation of intercellular junctions

(iii) Secretions (iv) Endocytosis

(v) Cell division

(A) i, iii, iv only (B) ii, iii, v only (C) i, iii, iv, v only (D) i, ii, iii, iv, v

21. One of the most important functions of the plasma membrane is :-

(A) Formation of nuclear membrane (B) Transport of molecules across it

(C) Exocytosis (D) Detoxification

22. In which of the following the cells are held together by a Ca-pectate layer?

(A) Primary cell wall (B) Secondary cell wall

(C) Middle lamella (D) Tertiary cell wall

23. Which one of the following structures between two adjacent cells is an effective transport pathway?

(A) Plasmodesmata (B) Plastoquinones

(C) Endoplasmic reticulum (D) Plasmalemma

24. Which of the following will determines the shape of the cells and provides a strong structural support to prevent the bacterium from bursting or collapsing?

(A) Plasmids (B) Cell wall (C) Mesosome (D) Cell membrane

NEET-BIOLOGY **ELP NO.-4** **CELL: THE UNIT OF LIFE**

1. Which side in a cell does luminal and extra luminal compartments are situated respectively?
(A) Cytoplasm, inside ER (B) Inside ER, cytoplasm
(C) cytoplasm, plasma membrane (D) Nucleus, cytoplasm

2. Rough endoplasmic reticulum is called so due to the presence of
(A) Lysosome (B) Golgi granules (C) Ribosomes (D) Protein granules

3. Cis and trans face of golgi body are ____ and ____ respectively.
(A) Convex, Concave (B) Concave, Convex
(C) Convex, Convex (D) Concave, Concave

4. Golgi apparatus is an important site for the formation of
(A) Protein and lipids (B) Glycoproteins and glycolipids
(C) Carbohydrates and proteins (D) Glucose and lipids

5. Which structure is formed by the process of packaging in golgi apparatus?
(A) Ribosomes (B) Protein granules (C) Lysosomes (D) Centrosomes

6. Tonoplast membrane is important for
(A) Transporting ions along concentration gradient.
(B) Transporting ions against concentration gradient.
(C) Providing rigidity to structure
(D) All of these

7. The amount or number of mitochondria in a cell depends on
(A) Anatomical structure of cell (B) Size of the cell
(C) Colour and contour of the cell (D) Physiological activity of cell

8. What is the main function of cristae?
(A) To hold the vesicles formed (B) Increase the surface area
(C) Increase the density of organelle (D) All of these

9. Which of the following is incorrect about vacuole?
(A) Vacuole contain water sap, excretory product and other material not useful for the cell
(B) In animal the vacuole can occupy up to 90 per cent of the volume of the cell.
(C) The vacuole is bounded by tonoplast.
(D) Vacuole is membrane bound orgenell

10. Which of the following cannot be digested by hydrolytic enzymes?
(A) DNA (B) Immunoglobulins
(C) Glucose (D) Insulin

11. What kind of ribosome is present in mitochondria?
(A) 70S (B) 80S (C) 40S (D) 60S

12. **Assertion:** Lysosomes have acidic pH.
Reason: It is maintain by pumping proton into interior of lysosome.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

13. **Assertion:** Mitochondria and chloroplast are semi-autonomous cell organelle.
Reason: Both contain DNA, RNA and ribosome.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

14. In mitochondria, protons accumulate in the
(A) Outer membrane (B) Inner membrane
(C) Intermembrane space (D) Matrix

15. The Golgi complex plays a major role
(A) In trapping the light and transforming it into chemical energy.
(B) In digesting proteins and carbohydrates.
(C) As energy transferring organelles.
(D) In post translational modification of proteins and glycosidation of lipids.

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
(A) a, d correct and b, c incorrect (B) a, b correct and c,d incorrect
(C) a incorrect and b, c, d correct (D) a, d incorrect and b, c correct

17. Which one of the following is not a component of endomembrane system ?
(a) Endoplasmic reticulum (b) Golgibody
(c) Lysosome (d) Vacuole
(e) Nucleus
(A) Both a and c (B) Only c (C) d and e both (D) Only e

18. Membrane bound vesicular structures formed by the process of packaging in the Golgi apparatus and filled with hydrolytic enzymes, are called :-
(A) Vacuoles (B) Transitional vesicles
(C) Lysosomes (D) Centrosome

19. Consider the following statements and choose the correct statement.
(i) The endomembrane system includes mitochondria, chloroplast and peroxisomes.
(ii) Smooth endoplasmic reticulum is the major site for synthesis of lipid.
(iii) Rough endoplasmic reticulum is actively involved in protein synthesis.
(iv) Mitochondrial matrix possesses single circular DNA, a few RNA and 70S ribosomes.
Of the above statements.
(A) (i) and (iii) (B) (ii) and (iv) (C) (iii) and (iv) (D) (ii), (iii) and (iv)

20. Golgi body is
(i) Reticular structure.
(ii) Densely stained structure
(iii) Made up of cisternae, Tubule & Vesicle
(iv) Concentric cisternae
(A) Only (i) & (iii) (B) Only (ii), (iii) & (iv)
(C) All of the above (D) Only (iii) & (iv)

21. The convex – face of cisternae of Golgi body is also known as:-
(i) Cis – face (ii) Forming face (iii) Trans – face (iv) Maturing face
(A) (i) & (ii) (B) (ii) & (iii) (C) (iv) & (iii) (D) (i) & (iv)

22. How many of the following statement is correct regarding mitochondria :-
(i) A sausage – shaped str. (ii) Diameter is 0.2 – 1.0 μm
(iii) Avg. Diameter is 0.5 μm (iv) Length is 1.0 – 4.1 μm
(A) One (B) Two (C) Three (D) Four

23. How many of the following statements are correct:-
(i) Only outer membrane has enzyme for ETS
(ii) Only inner membrane has enzymes for ETS
(iii) Outer membrane is devoid of enzymes.
(iv) Mitochondria matrix has enzyme of kerb's cycle.
(v) Mitochondria is the site of aerobic respiration
(vi) Matrix also possess SS – DNA molecule & few RNA molecules.
(A) Only two (B) Only four (C) Only five (D) Only three

NEET-BIOLOGY **ELP NO.-5** **CELL: THE UNIT OF LIFE**

1. Select the correct matching:

Column I (Type of leucoplast)	**Column II (Stored food)**
A. Amyloplast	1. Oil and fat
B. Elaioplast	2. Protein
C. Aleuroplasts	3. Carbohydrate

(A) A–3, B–1, C–2 (B) A–1, B–2, C–3
(C) A–3, B–2, C–1 (D) A–2, B–3, C–1

2. Select the incorrect statement:
(A) The chloroplast contains chlorophyll and carotenoid pigments.
(B) Chromoplast contains water soluble carotenoid pigments like Anthocynin.
(C) Plastid is easily observed under microscope.
(D) Chloroplast is a double membrane bound organelle.

3. The number of chloroplast in alga chlamydomonas is
(A) 2 (B) 1 (C) 20 to 40 (D) 5 to 10

4. Ribosomes are the granular structure first observed under the electron microscope as dense particle by which scientist
(A) Robert Brown (1831) (B) George Palade (1953)
(C) Camillo Golgi (1898) (D) Singer and Nicolson (1972)

5. The types of ribosome present in eukaryote cell is
(A) 70S (B) 80S
(C) Both (A) and (B) (D) None of these

6. **Assertion:** Carbohydrate synthesis occurs in stroma of chloroplast.
Reason: Enzyme required for carbohydrate synthesis present in stroma of chloroplast.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

7. Which one of the following structures is an organelle within an organelle?
(A) Peroxisome (B) ER (C) Mesosome (D) Ribosome

8. Ribosomal RNA is actively synthesized in
(A) Lysosomes (B) Nucleolus (C) Nucleoplasm (D) Ribosomes

9. What is true about ribosomes?
(A) The prokaryotic ribosomes are 80S, where 'S' stands for sedimentation coefficient.
(B) These are composed of ribonucleic acid and proteins.
(C) These are found only in eurkaryotic cells.
(D) These are self-splicing introns of some RNAs.

10. Mitochondria and chloroplast are:
(i) Full-autonomous organelles
(ii) Formed by division of pre-existing organelles and they contain DNA but lack protein synthesizing machinery.
Which one of the following options is correct?
(A) Both (i) and (ii) are correct (B) (ii) is true and (i) is false
(C) (i) is true and (ii) is false (D) Both (i) and (ii) are false

11. Plastid differs from mitochondria on the basis of one of the following features. Mark the right answer.
(A) The presence of two layers of membrane
(B) The presence of ribosome
(C) The presence of thylakoids
(D) The presence of DNA

12. Eukaryotes have 80S, while prokaryotes have 70S ribosomes in cytoplasm. Here "S" explains :-
(a) Sedimentation coefficient
(b) Measure of density
(c) Measure of size
(a) a only (B) a and b only (C) b and c only (D) a, b and c

13. In r-RNA, ''r'' stands for :-
(A) Ribophorins (B) Ribozyme (C) Ribosomal (D) Recognition

14. Carotenoid pigments are found in :-
(A) Chromoplast (B) Chloroplast (C) Leucoplast (D) Both (A) and (B)

15. Classification of plastids into chloroplast, chromoplast and leucoplast is based on -
(A) Stored food (B) Pigments (C) Structure (D) Size

16. Chloroplast of higher plants contains -
(A) Only chlorophyll (B) Only carotenoids
(C) Both chlorophyll and carotenoids (D) Phycobillins

17. Ribosomes are associated with the structures in a bacterial cell:-
(A) t – RNA strand (B) Golgi body
(C) Cell membrane (D) E.R

18. Ribosomes in the bacterial cell are
(A) 20nm to 30 nm in size.
(B) Made up of two subunits(Larger 60s' & smaller 40s')
(C) Made up of two subunits(Larger 50s' & smaller 30s')
(D) Associated with E.R and cell membrane

19. A polysome is:-
(A) Several rRNA bound to a single Ribosome.
(B) Several subunits of ribosomes attached to t-RNA.
(C) Several ribosomes attached to a single strand of mRNA
(D) Several mRNA attached to each other

20. Chromoplast is .....
(A) Unmodified plastids (B) Contains stored nutrients
(C) Imparts colour to the plant cell (D) Imparts colour to the cyanobacteria

21. Aleuroplast contains
(A) Proteins and fats (B) Fats and oils (C) Proteins & starch (D) Protein only

22. ..... Chloroplast is .....
(A) Length 2 – 4 μm & width 5 – 10 μm (B) Length 1 – 2 μm & width 2 – 4 μm
(C) Length 5 – 10 μm & width 2 – 4 μm (D) Length 2 – 4 μm & width 1 – 2 μm

23. Number of chloroplast per cell may vary from_____ per cell of chlamydomonas to _____ per cell in mesophylls.
(A) 20 – 40; 1 – 5 (B) 1 ; 20 – 40 (C) 10 – 20; 20 – 40 (D) 5; 10 – 20

24. The stroma of chloroplast contains:-
(i) Enzyme for carbohydrate & proteins synthesis.
(ii) Small single stranded DNA molecule.
(iii) Ribosomes of 80S type.
(A) Only one the above (B) Only two of the above
(C) Only three of the above (D) None of the above

25. How many subunits are presents in a ribosome
(A) Two; one large and one smaller subunits
(B) Three; two large and one smaller subunits
(C) Only one subunits
(D) Three; one large and two smaller subunits

NEET-BIOLOGY **ELP NO.-6** **CELL: THE UNIT OF LIFE**

1. Cytoskeleton refers to the :-
(A) Cilia and flagella only
(B) Network of filamentous proteinaecious structure
(C) Microtubules only
(D) Both (A) & (C)

2. Microtubules; microfilaments & intermediate filaments are constituents of:-
(A) Ribosomes (B) Central sheath (C) Cytoskeleton (D) Cytolamellae

3. Cytoskeleton in a cell is involved in functions like
(A) Mechanical supports
(B) Cytokinesis
(C) Endocytosis
(D) Exocytosis

4. The microtubules in the cilia and flagella:-
(A) Runs parallel to each other.
(B) Forms the axoneme and outer membrane
(C) Both (A) & (B)
(D) Arranged centrally only

5. The central sheath is:-
(A) Connected to inter doublet bridges
(B) Encloses peripheral doublets
(C) Connected to peripheral microtubules
(D) All of the above

6. Which of the following statement regarding cilia and flagella are not correct:-
(A) Peripheral doublets are inter connected by linker
(B) Linker are also known as inter doublet bridge
(C) Both emerges out from a centriole like structure
(D) Linker are also known as basal body

7. Which of the following statements in untrue:-
(A) Cilia and flagella are hair like outgrowth
(B) Cilia are small and works like oars.
(C) Flagella are shorter and responsible for cell movement.
(D) Euglena has longer flagella

8. A component of cytoskeleton is
(A) microtubule (B) bone (C) chitin (D) cartilage.

9. The cytoskeleton is a proteinaceous network of fibres in the cytoplasm. It is involved in
(A) mechanical support.
(B) motility.
(C) maintenace of cell-shape.
(D) all of these

10. Axoneme with 9 + 2 microtubular arrangement occurs in
(A) cilia (B) flagella
(C) both (A) and (B) (D) centriole

11. Prokaryotic and eukaryotic flagella differ in the
(A) type of movement and placement. (B) location and mode of functioning.
(C) microtubular structure and function. (D) microtubular organization and type of movement.

12. Basal bodies are associated with the formation of
(A) phragmoplast (B) cilia and flagella
(C) cell plate (D) kinetochore

13. Regarding to cilia and flagella which of the following statement is incorrect -
(A) Cilia is small and flagella is long
(B) Cilia can move either cell or surrounding fluid
(C) Flagella is responsible for movement of surrounding fluid
(D) Cilia work like oars

14. Plasma membrane covering of flagella and cilia surrounds the central core, that is known as -
(A) Triplet microtubules (B) Axonema
(C) Radial spoke (D) Arms

15. Radial spokes of flagella helps in connection between-
(A) Peripheral doublets
(B) Central singlet microtubules
(C) One of the peripheral doublet and central sheath
(D) Two successive peripheral doublets

16. Which of the following is not a function of cytoskeleton in a cell?
(A) Intracellular transport (B) Maintenance of cell shape and structure
(C) Support of the organelles (D) Cell motility

17. Select the incorrect statement:
(A) Cilia and flagella are hair-like outgrowths of the cell membrane.
(B) Cilia causes the movement of either the cell or the surrounding medium.
(C) Bacterial flagella are structurally similar to eukaryotic flagella.
(D) Flagella is responsible for cell movement.

18. Both cilium and flagellum emerges from centriole like structure which is called
(A) Basal granules (B) Blepheroplast (C) Basal lamina (D) Both (A) and (B)

19. Which statement is false .....
(A) microtubules are composed of tubulin
(B) microfilaments are composed of actin
(C) spindle fibre is made up of microfilaments
(D) cilia and flagella have microtubules in doublet form

20. A network of microfilament and microtubules which is classified as cytoskeleton is made up of .....
(A) Lipid (B) Protein (C) Nucleic acid (D) Carbohydrate

NEET-BIOLOGY **ELP NO.-7** **CELL: THE UNIT OF LIFE**

1. The outer membrane of nucleus remains continuous with which cell organelle
(A) ER (B) Golgi body (C) Lysosome (D) Ribosome

2. The perinuclear space is about
(A) 1–5 nm (B) 5–10 nm (C) 10–50 nm (D) > 100 nm

3. The following cells are without nucleus
(A) Erythrocytes of many mammals (B) Sieve tube cells of vascular plant
(C) Bacterial cell (D) All of these

4. Match the following -

(a) Robert Brown	(I) Ribonucleoproteins
(b) Flemming	(II) Nucleus as cell organelle
(c) Palade	(III) Packaging of materials
(d) Camillo Golgi	(IV) Staining of nucleus material

(A) a - (II) b - (IV) c - (I) d - (III) (B) a - (II) b - (IV) c - (III) d - (I)
(C) a - (I) b - (II) c - (III) d - (IV) (D) a - (IV) b - (III) c - (II) d - (I)

5. Nucleolus is the site of -
(A) Synthesis of r - RNA (B) Synthesis of m - RNA
(C) Synthesis of t- RNA (D) Synthesis of n- RNA

6. Centrioles and centrosomes occur in the cells of
(A) green plants (B) animals
(C) bacteria and cyanobacteria (D) both (B) and (C)

7. Nucleolus is
(A) rounded structure found in cytoplasm near nucleus.
(B) rounded structure inside nucleus and having rRNA.
(C) rod-shaped structure in cytoplasm near the nucleus.
(D) none of the above.

8. Match Column I with Column II and choose the correct option.

Column I	**Column II**
A. Centrioles	I. Non-membrane bound organelle which helps in cell division
B. Fimbriae	II. Special structure of bacteria which help them to attach with rocks in stream and also to host tissue
C. Endomembrane	III. Includes those organelles system whose functions are coordinated
D. Mitochondria	IV. Divide by fission and site of aerobic respiration

(A) A – I; B – II; C – III; D – IV (B) A – III; B – I; C – II; D – IV
(C) A – III; B – I; C – IV; D – II (D) A – I; B – IV; C – III ; D – II

9. Centrioles in the centrosome are:-
(A) Parallely arranged to each other
(B) Perpendicularly arranged to each other
(C) Arranged like a cart wheel
(D) Made up of triplets of centrally arranged microtubules

10. The basal body of centriole has micro tubular arrangement of:-
(A) 9 + 0 (B) 9 + 2 (C) 9 + 3 (D) 3 + 9

11. The central part of the proximal region of the centriole is:-
(A) Known as radial spoke (B) Known as a central hub
(C) Connected to the peripheral doublets (D) All of the above

12. i) Nucleus as an organelle was first described by Robert brown
ii) Stained by the basic dyes, the material is known as chromatin by Robert brown
iii) Double membrane bound structure
How many of the above statement are not true about the nucleus & its material:-
(A) Only one (B) Only two (C) Only three (D) Only four

13. The nucleus has highly extended and elaborate nucleoprotein fibers known as:-
(A) Nucleoli (B) Chromosome (C) Chromatin (D) Nuclear matrix

14. The contents of an inter phase nucleus are:-
Nucleoli ; chromatin ; nuclear matrix; two membranes
(A) Only two of the above (B) Only three of the above
(C) Only four of the above (D) Only of the above

15. What forms the barrier between the cytoplasmic content and nuclear matrix:-
(A) The outer membrane (B) The inner membrane
(C) The perinuclear space (D) All of the above

16. i) The outer membrane of nucleus is continuous with rest of the cellular organelles
ii) The inner membrane is continuous with E.R
iii) Their are interruption known as pores present in outer membrane of nucleus
How many of the above statements are incorrect:-
(A) 2 (B) 1 (C) 3 (D) 4

17. The nuclear pores facilitates :-
(A) Movement of RNA & protein molecules in both direction
(B) Only proteins in both direction
(C) Proteins in one direction & RNA in both directions
(D) None of the these

18. Few of the mature cells have no any nucleus:-
(A) Their function are not specific
(B) Are dead cells with cytoplasm
(C) Their function are controlled by some another cells.
(D) All of the above

19. **Statement – (I):** The nucleus per cell varies per cell.
Statement – (II): Normally there is only one nucleus per cell.
(A) Both (I) & (II) are true & (II) is correct explanation of (I)
(B) Both (I) & (II) are true but (II) is not the correct explanation of (I)
(C) (II) is wrong but (I) is true.
(D) (I) is wrong but (II) is true.

20. The nucleus matrix contains:-
(A) Nucleoplasm and chromatin
(B) Nucleoplasm, Chromatin and Mitochondria
(C) Nucleoplasm, chromatin & E.R
(D) None of the above

21. What is not true about the nucleolus:-
(A) Spherical structure present in the nucleoplasm
(B) Membrane less structure.
(C) Also known as Ribosomal factory of the cell.
(D) None of the above

22. At which phase of cell cycle the nucleolus has a loose and indistinct network of nucleoprotein fibers known as chromatin:-
(A) Prophase (B) Anaphase (C) Interphase (D) Metaphase

NEET-BIOLOGY **ELP NO.-8** **CELL: THE UNIT OF LIFE**

1. Chromatin contains
(A) Histones; Non – histones & RNA
(B) Histones & non – histone proteins only
(C) DNA & some basic proteins
(D) Both (A) & (C)

2. A human cell has approximately _____ meters long thread of DNA, distributed among its _____ pairs of chromosomes:-
(A) 4; 46 (B) 2; 46 (C) 4; 23 (D) 2; 23

3. Each chromosome
(A) Has primary constriction
(B) Is visible only in dividing cells.
(C) Has disc shaped structure known as kinetochore
(D) All of the above

4. What is type of chromosome having a middle centromere:-
(A) Metacentric (B) Sub – metacentric
(C) Acrocentric (D) Telocentric

5. What is the type of chromosome having its centromere near the telomere
(A) Metacentric (B) Sub – metacentric
(C) Telocentric (D) Acrocentric

6. Chromosomes having centromere slightly away from the middle is:-
(A) Metacentric (B) Sub – metacentric
(C) Telocentric (D) Acrocentric

7. Membrane bound minute vesicles containing enzymes are known as:-
(A) Chloroplast (B) Mitochondria (C) Ribosomes (D) Micro bodies

8. A non – staining part which is present on a few chromosome
(A) Secondary constriction or centromere
(B) Satellite or centromere
(C) Secondary constriction or satellite
(D) None of the above

9. Chromosome having one long and one short arm are:-
(A) Metacentric & sub – metacentric (B) Sub – metacentric & acrocentric
(C) Acrocentric & telocentric (D) Telocentric & metacentric

10. Satellite means
(A) terminal part of the chromosome beyond secondary constriction.
(B) terminal part of the chromosome beyond primary constriction.
(C) terminal part of chromosome beyond tertiary constriction.
(D) none of the above

11. Chromosomes having equal or almost equal arms are called
(A) metacentric (B) acrocentric (C) polycentric (D) acentric

12. Classification of chromosomes with respect to shape based on -
(A) Structure (B) Number of telomere
(C) Position of centromere (D) Position of kinetochore

13. Match the following -
(a) Metacentric (I) Terminal Centromere
(b) Submetacentric (II) Centromere very close to its end
(c) Acrocentric (III) Centromere slightly away from the center
(d) Telocentric (IV) Middle centromere
(A) a-(IV) b-(II) c-(III) d-(I) (B) a-(IV) b-(III) c-(II) d-(I)
(C) a-(I) b-(II) c-(III) d-(IV) (D) a-(I) b-(IV) c-(III) d-(II)

14. Find out the incorrect statement about secondary constriction -
(A) Non staining (B) Constant position
(C) Known as satellite (D) Present in some chromosomes

15. Cellular organelles with membranes are
(A) Chromosomes, ribosomes and endoplasmic reticulum
(B) Endoplasmic reticulum, ribosomes and nuclei
(C) Lysosomes, golgi apparatus and nucleus
(D) Nuclei, ribosomes and mitochondria

16. The major amino acids in histones are .....
(A) Glutamate and aspartic acid (B) lysine and arginine
(C) arginine, lysine and histidine (D) histidine

17. The light stained and diffused region of chromatin is known as
(A) heterochromatin (B) euchromatin (C) chromatin (D) None of these

18. Which is the primary constriction for every visible chromosome?
(A) centromere (B) ribosome (C) kinetochores (D) histones

19. What are the disc-shaped structures located on the sides of the centromere?
(A) Kinetochores (B) Satellite (C) Flagella (D) Ribosome

20. What is the number of chromosome present in an oocyte?
(A) 46 (B) 23 (C) 21 (D) 48

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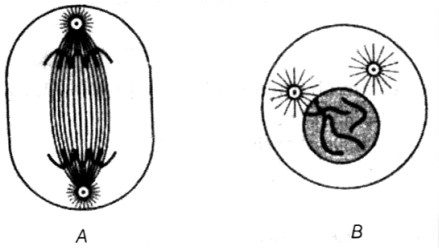
ELP

Educator Led Practice

NEET-BIOLOGY **ELP NO.-1** **CELL CYCLE AND CELL DIVISION**

1. Identify what does A and B represent respectively and choose the correct option.



(A) A-Metaphase, – B. Telophase (B) A –Telophase, – B- Metaphase
(C) A- Late anaphase, – B. Prophase (D) A-Prophase, – B- Anaphase

2. How many chromosomes would a plant cell have in the G_2 – phase of its next cell cycle having 12 chromosomes at the end of mitosis?
(A) 6 (B) 8 (C) 12 (D) 24

3. During mitosis, number of chromosomes
(A) gets changed (B) remains the same
(C) gets changed if cell is mature (D) gets changed if cell is immature

4. A diploid living organism develops from zygote by which of the following repeated cell division?
(A) Meiosis (B) Amitosis (C) Mitosis (D) Segmentation

5. DNA content doubles in which phase of cell cycle:-
(A) G_1-phase (B) G_2-phase (C) S-phase (D) M-phase

6. Cytoplasmic structures directly involved in cell division are-
(A) Mitochondria (B) Ribosomes (C) Lysosomes (D) Centrioles

7. The main difference between a dividing animals and plant cell lies in-
(A) Cell plate formation (B) Coiling of chromosome
(C) Chromosome movement (D) Types of spindle fibres

8. In the somatic cell cycle–
(A) In G_1 phase DNA content is double the amount of DNA present in the original cell
(B) DNA replication takes place in S-phase
(C) A short interphase is followed by a long mitotic phase
(D) G_2 phase is followed by mitotic phase

9. What is true about cell cycle–
a. During G_1 phase, there is active synthesis of RNA and proteins but no change in its DNA content
b. In synthesis or S phase each chromosome carries a duplicate set of genes
c. During G_2 phase a cell contains double the amount of DNA present in the original diploid cell (2n)
d. In S-phase a cell doubles the original diploid (2n) chromosome number
(A) c and d (B) a, b and c (C) all (D) b, c and d

10. The number of chromosomes present in the leaf tip cells of a plant species, having six chromosomes in each of the four cells of its pollen tetrad, would be –
(A) Three (B) Six (C) Twelve (D)Twenty four

11. At which stage during meiotic prophase I the synaptic forces, between homologous chromosomes, are the maximum ?
(A) Leptotene (B) Zygotene (C) Pachytene (D) Diplotene

12. The number of chromatids in a chromosome at metaphase is -
(A) Two each in meiosis and mitosis
(B) Two in mitosis and one in meiosis
(C) Two in mitosis and four in meiosis
(D) One in mitosis and two in meiosis

13. DNA synthesis takes place in -
(A) S phase (B) G_1 phase (C) G_2 phase (C) None

14. In which order, cytokinesis occurs in plants -
(A) Centripetal (B) Centrifugal (C) Oblique (D) Equatorial

15. During cell cycle, RNA and protein synthesis takes place during -
(A) G_1 and G_2– phase (B) S – Phase
(C) M – phase (D) Cytokinesis

16. A cell is bound to divide, if it has entered –
(A) G_2 : phase (B) G_1 - phase (C) Prophase (D) S – phase

17. Identify the correct statement with regard to G_1 phase (Gap 1) of interphase.
(A) Reorganisation of all cell components takes place.
(B) Cell is metabolically active, grows but does not replicate its DNA.
(C) Nuclear Division takes place.
(D) DNA synthesis or replication takes place.

18. The correct sequence of phases of cell cycle is
(A) M $\rightarrow$ G_1 $\rightarrow$ G_2 $\rightarrow$ S (B) G_1 $\rightarrow$ G_2 $\rightarrow$ S $\rightarrow$ M
(C) S $\rightarrow$ G_1 $\rightarrow$ G_2 $\rightarrow$ M (D) G_1 $\rightarrow$ S $\rightarrow$ G_2 $\rightarrow$ M

19. Cell in G_0 phase :
(A) exit the cell cycle
(B) enter the cell cycle
(C) suspend the cell cycle
(D) terminate the cell cycle

20. Which of the following options gives the correct sequence of events during mitosis?
(A) Condensation $\rightarrow$ Nuclear membrane disassembly $\rightarrow$ Arrangement at equator $\rightarrow$ Centromere division $\rightarrow$ Segregation $\rightarrow$ Telophase
(B) Condensation $\rightarrow$ Crossing over $\rightarrow$ Nuclear membrane disassembly $\rightarrow$ Segregation $\rightarrow$ Telophase
(C) Condensation $\rightarrow$ Arrangement at equator $\rightarrow$ Centromere division $\rightarrow$ Segregation $\rightarrow$ Telophase
(D) Condensation $\rightarrow$ Nuclear membrane disassembly $\rightarrow$ Crossing over $\rightarrow$ Segregation $\rightarrow$ Telophase

21. During cell growth, DNA synthesis takes place in

(A) S-phase (B) G_1-phase (C) G_2-phase (D) M phase

22. The process of mitosis is divided into 4 phases. Identify the correct order in which these phases appear in mitosis

(A) Anaphase, metaphase, telophase and prophase

(B) Telophase, anaphase, metaphase and prophase

(C) Metaphase, prophase, anaphase and telophase

(D) Prophase, metaphase, anaphase and telophase

23. Anastral mitosis is found in

(A) Animals (B) Higher plants

(C) Bacteria (D) Cyanobacteria

24. Cell cycle of yeast takes place in approx. _____

(A) 24 hours (B) 12 hours

(C) 90 minutes (D) 1 hour

NEET-BIOLOGY **ELP NO.-2** **CELL CYCLE AND CELL DIVISION**

1. The two chromatids of metaphase chromosome represents
(A) replicated chromosomes to be separated at anaphase
(B) homologous chromosomes of a haploid set
(C) non-homologous chromosomes joined at the centromere
(D) maternal and paternal chromosomes joined at the centromere

2. Meiosis involves two sequential cycles of ....A... called meiosis-I and meiosis-II but only a single cycle of ....B....
Identify A and B to complete the given statement.
(A) A-nuclear and cell division, B-DNA replication
(B) A –cell division, B-DNA replication
(C) A- DNA replication, B-cell division
(D) A –nuclear division, B-DNA replication

3. What is the nature of cells formed at the end of meiosis-II?
(A) Haploid (B) Diploid (C) Tetrad (D) None of these

4. In meiosis, the chromosome number
(A) reduces by half (B) increase by twice
(C) increase by four times (D) reduces by one –fourth

5. Which of the following statement(s) is/are not correct about meiosis?
I. Meiosis involves pairing of homologous chromosomes and recombination between them.]
II. Two diploid cell are formed at the end of meiosis-II
III. Meiosis involves two sequential cycles of nuclear and cell division called meiosis-I and meiosis-II but only a single cycle of DNA replication Meiosis-I is initiated after the parental chromosome replication which produce identical sister chromatids at the S-phase.
The correct option is
(A) I and III (B) II Only (C) II and III (D) I, II, III and IV

6. Longest phase of meiosis is
(A) Prophase-I (B) Prophase -II (C) Anaphase - I (D) Metaphase -II

7. Which of the following shows diplotene stage of cell cycle?
(A) Separation of synapsed homologous chromosomes except at the site of cross overs
(B) degeneration of nucleolus
(C) Chiasmata shifting towards chromosome ends
(D) All of the above

8. Meiosis occurs in which of the following cells?
(A) Sperm mother cells (B) Unicellular organisms
(C) Liver cells (D) All of these

9. Arrange the following events of meiosis in correct sequence and choose the correct option.
I. Terminalization II. Crossing over III. Synapsis IV. Disjunction
(A) IV, III, II and I (B) III, II, I and IV
(C) II, I, IV and III (D) I, IV, III and II

10. Which of the following stage of meiosis is responsible for deciding genetic constitution of gametes?
(A) Metaphase -II (B) Anaphase -II (C) Mitotic anaphase (D) Anaphase -I

11. Synaptonemal complex is formed during
(A) pachytene (B) zygotene (C) leptotene (D) diplotene

12. In meiosis-I, a bivalent is an association of
(A) four chromatids and four centromeres
(B) two chromatids and two centromeres
(C) two chromatids and one centromere
(D) four chromatids and two centromeres

13. Recombination of genes occur at
(A) Prophase in mitosis (B) Prophase I in meiosis
(C)Prophase II in meiosis (D) Metaphase II in meiosis

14. The second division in meiosis is called
(A) Equational division (B) Reduction division
(C) Multiplied division (D) None of the above.

15. Terminalization occurs in which stage
(A) Pachytene (B) Diplotene
(C) Zygotene (D) Diakinesis

16. Meiosis occurs in
(A) germ cells (B) sperm mother cells
(C) egg mother cells (D) all of above

17. When pairing occurs in chromosomes (meiosis) -
(A) Leptotene (B) Zygotene
(C) Pachytene (D)Diakinesis

18. Sporic meiosis occurs in –
(A) Animals (B) Thallophyte
(C) Bryophyta (D) All plants except thallophyte

19. In Anaphase - I each chromosome is composed of -
(A) One chromatid (B) Two chromatid
(C) Four chromatid (D) Many chromatid

20. 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)**		**(a)**	**(b)**	**(c)**	**(d)**
(A)	(iv)	(iii)	(ii)	(i)	(B)	(i)	(ii)	(iv)	(iii)
(C)	(ii)	(iv)	(iii)	(i)	(D)	(iii)	(iv)	(i)	(ii)

21. The stage during which separation of the paired homologous chromosomes begins is

(A) pachytene (B) diplotene (C) diakinesis (D) zygotene

22. 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) Terminalisation of chiasmata
(c) Diakinesis	(iii) Crossing-over takes place
(d) Zygotene	(iv) Chromosomes align at equatorial plate

(A) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i) (B) (a)-(i), (b)-(iv), (c)-(ii), (d)-(iii)
(C) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i) (D) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

23. During meiosis I, the chromosomes start pairing at

(A) zygotene (B) pachytene (C) diplotene (D) leptotene

24. If there were 4 chromosomes present during prophase I, how many chromosomes are there in each cell at the end of anaphase II

(A) 16 (B) 4 (C) 2 (D) 8

25. If at the end of meiosis, the 4 daughter cells have 4 chromosomes, how many chromosomes were in the mother cell

(A) 8 (B)16 (C) 2 (D) 4

26. The homologous chromosomes follow the process of synapsis in the stage **or** Pairing of homologous chromosome takes place in

(A) Leptotene (B) Zygotene (C) Diplotene (D) Pachytene

27. Prophase of reduction division is divided into number of stages. The correct chronological sequence is

(A) Leptotene — pachytene — zygotene — diplotene — diakinesis
(B) Leptotene — diplotene — pachytene — zygotene — diakinesis
(C) Leptotene — zygotene — diplotene — pachytene — diakinesis
(D) Leptotene — zygotene — pachytene — diplotene — diakinesis

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ELP

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NEET-BIOLOGY **ELP NO.-1** **THE LIVING WORLD**

1. Which of the following is not a result of cell division?
(A) Growth (B) Repair (C) Metabolism (D) Reproduction

2. Mark the incorrect pair
(A) *Hydra* – Budding (B) Flatworm – Regeneration
(C) *Amoeba* – Fragmentation (D) Yeast – Budding

3. Which of the following is incorrect for reproduction?
(A) Unicellular organisms reproduce by cell division
(B) Reproduction is a characteristic of all living organisms
(C) In unicellular organisms, reproduction and growth are linked together
(D) Non-living objects are incapable of reproducing

4. Mark the incorrect statement about metabolism.
(A) Microbes exhibit the metabolism
(B) It is the property of all living forms
(C) The metabolic reactions can be demonstrated *in-vitro*
(D) It is not a defining feature of life forms

5. Non - living objects exhibit/show
(A) Property of self-replication (B) Evolution
(C) Self-regulating interactive systems (D) Reversible growth

6. Which statement is false about the growth shown by non-living objects?
(A) The growth occurs from outside
(B) The growth is reversible
(C) The growth is due to the accumulation of material on the surface
(D) The growth is intrinsic

7. The defining characteristic of living beings is
(A) They can reproduce (B) They can digest their food
(C) They can respond to external stimuli (D) They can regenerate

8. Metabolic Processes takes place
(A) in vitro manner (B) in Vivo manner (C) Both A and B (D) None of the above

9. What are the twin characteristics of growth?
(A) Increase in mass (B) Increase in number
(C) Both A and B (D) None of the above

10. Growth in living organisms is from
(A) Intrinsic (B) Extrinsic (C) Both A and B (D) None of the above

11. Which of the following organisms can sense and respond to environmental cues?
(A) Prokaryotes only (B) eukaryotes only (C) Both A and B (D) None of the above

12. Reproduction cannot be an all-inclusive defining characteristic feature of living organisms because
(A) living organisms do not show growth
(B) many living organisms do not reproduce
(C) Nonliving objects are also capable of reproducing
(D) All of these

13. The sum total of all the chemical reactions occurring in the body is known as
(A) Metabolism (B) Catabolism (C) Anabolism (D) None of these

14. Which of the following statements is incorrect?
(A) All plants, animals, fungi and microorganisms exhibit metabolism
(B) Interactions among the molecular components of the organelles result into the properties of cell organelles
(C) Properties of cellular organelles are present in the molecular constituents of the organelles
(D) Cellular organisation of the body is the defining feature of life forms

15. Which of the following is self-conscious?
(A) Human being (B) salamander
(C) Earthworm (D) None of these

16. Which of the following aspects is an exclusive characteristic of living things?
(A) isolated metabolic reactions occur in vitro.
(B) Increase in mass from inside only.
(C) Perception of events happening in the environment and their memory.
(D) Increase in mass by accumulation of material both on surface as well as internally.

17. Which one is exclusive characteristic of living beings?
(A) Increase in mass from inside
(B) Increase in mass both from outside and inside
(C) Perception of events happening in environment and their memory
(D) Isolated metabolic reactions occurring in vitro.

18. The living organisms can be unexceptionally distinguished from the non-living things on the basis of their ability for
(A) Responsiveness to touch
(B) Interaction with the environment and progressive evolution
(C) Reproduction
(D) Growth and movement

19. The most obvious and technically complicated feature of all living organisms is
(A) Reproduction (B) Growth
(C) Ability of sense their environment (D) Ability to respond physical stimuli only

20. All living organisms are linked to one another because
(A) They have common genetic material of the same type
(B) They share common genetic material but to varying degrees
(C) All have common cellular organization
(D) All of above

21. Which of the following is a defining characteristic of living organisms?
(A) Growth (B) Ability to make sound
(C) Reproduction (D) Response to external stimuli

1. Phylogenetic classification is based on
(A) utilitarian system (B) habits
(C) overall similarities (D) common evolutionary descent

2. System of classification used by Linnaeus was
(A) natural system (B) artificial system
(C) phylogenetic system (D) asexual system

3. Scientific name of plants are given by
(A) International code for Botanical nomenclature
(B) International code for biological plants
(C) Indian code for Botanical nomenclature
(D) International code for zoological nomenclature

4. Taxonomic studies depend on
(A) Ecological information of organisms.
(B) Structure of cell and development process of organisms.
(C) External and internal structure of organisms.
(D) All of the above.

5. ICBN stands for
(A) International Code of Botanical Nomenclature
(B) International Congress of Biological Names
(C) Indian Code of Botanical Nomenclature
(D) Indian Congress of Biological Names

6. What is nomenclature?
(A) Genus's name is written after species
(B) Genus and species names are written in italics
(C) Genus and species have the same name
(D) The first letter of genus and species name is capital

7. Binomial nomenclature was given by
(A) Linnaeus (B) Hugo De Vries (C) John Ray (D) Huxley

8. Statistical method is used in type of classification
(A) Phenetic (B) Numerical (C) Adansonian (D) All of these

9. Binomial nomenclature was written in
(A) Latin (B) English (C) Greek (D) Italian

10. Taxa' differs from 'taxon due too
(A) this being a higher taxonomic category than taxon
(B) this being lower taxonomic category than taxon
(C) this being the plural of taxon
(D) this being the singular of taxon

11. The total number of species, that are known and described, range between
(A) 0.5-1.0 million (B) 1.1-1.2 million (C) 2.5-3.0 million (D) 1.7-1.8 million

12. System of classification proposed by Linnaeus is
(A) Asexual system of classification (B) Natural system of classification
(C) Traditional system of classification (D) Artificial systems of classification

13. Taxon is
(A) Any type of taxonomic grouping like species family, phylum based on similarity of traits
(B) A rank in hierarchical classification
(C) A group of closely related families
(D) A group of closely related organisms

14. Phenetic (Numerical) classification of organisms is based on
(A) Sexual characteristics
(B) Observable characteristics of existing organisms
(C) The ancestral lineage of existing organisms
(D) Dendrogram based on DNA characteristics

15. The principles of which of the following taxonomic methods are also known as Adansonian principles
(A) Cladistics (B) Biosystematics (C) Phenetics (D) Chemotaxonomy

16. Basic unit of taxonomic hierarchy is
(A) species (B) kingdom (C) class (D) phylum

17. The term ‘systematics’ refers to:
(A) Identification and study of organ systems of plants and animals
(B) Identification and preservation of plants and animals
(C) Diversity of kinds of organisms and their relationship
(D) Study of habitats of organisms and their classification

1. Local names of various plants and animals
(A) Help in recognizing organisms worldwide
(B) Are used universally
(C) Are specific and distinct names
(D) Vary from place to place

2. Which of the following is incorrect about Binomial nomenclature?
(A) Biological names are generally in Latin
(B) The first word in a biological name represents the genus
(C) Biological names are printed in italics
(D) The first word of the genus starts with a small letter

3. What do A, B and C represent in the given scientific name respectively?

Mangifera	*indica*	Linn
C	B	A

(A) Generic name, specific name and author's name
(B) Specific name, generic name and author's name
(C) Author's name, specific name and generic name
(D) Generic name, author's name and specific name

4. Which of the following is incorrect regarding scientific names?
(A) These are also known as common names
(B) These ensure that each organism has only one name
(C) These have two components – the generic name and specific epithet
(D) These are universally accepted names

5. Binomial nomenclature consists of two names. These are
(A) Family and genus (B) Genus and species
(C) Species and variety (D) Order and family

6. In *Mangifera indica* Linn, what does Linn stand for?
(A) Latin (B) Lamarck (C) Linnaeus (D) lower organism

7. The scientific name of mango is
(A) Mangifera Indica (B) *mangifera Indica*
(C) *Mangifera indica* (D) *mangifera indica*

8. In binomial nomenclature, every organism has
(A) Two names, one Latin other common
(B) Two names, one scientific other common
(C) Two names by two scientists
(D) One scientific name with two words, generic and specific

9. Nomenclature is governed by certain universal rules. Which of the following is contrary to the rules of nomenclature?
(A) The first word in a biological name represents the genus name and the second is a specific epithet.
(B) The names are written in Latin and are italicized.
(C) When written by hand, the names are to be underlined.
(D) Biological names can be written in any language.

10. The nomenclature is done
(A) Just before the identification of organism
(B) When the organism is described correctly
(C) For the identification of organism
(D) Just before the classification of organism

11. Both the words in a biological name, when handwritten are separately underlined or printed in italics
(A) To know the meaning of words
(B) To create the author's name
(C) To indicate that this scientific name also have a common name
(D) To indicate their Latin origin

12. Rattus rattus scientific name is an example of
(A) Autonyms (B) Synonyms
(C) Tautonyms (D) Homonyms

13. Which of the following statements is false for binomial nomenclature?
(A) Name of author is written after the species in italics
(B) Genetic name always starts with capital letter while specific name starts with small letter
(C) Scientific name should be derived from Latin language
(D) Scientific name must be printed in italics and in handwritten form they must be underlined

14. Which of the following is incorrect w.r.t. Species?
(A) A group of individual organisms with fundamental similarities
(B) Two different species breed together to produce fertile offspring
(C) Human beings belong to the species *sapiens*
(D) *Panthera* has many specific epithet as *tigris*, *leo* and *pardus*

15. Find the correct sequence of taxonomic categories.
(A) Division → Kingdom → Genus → Order
(B) Species → Genus → Family → Order
(C) Class → Order → Family → Division
(D) Kingdom → Class → Species → Order

16. Which of the following is a class?
(A) Mammalia (B) Sapindales (C) Primate (D) Poales

17. Is the assemblage of families which exhibit a few similar characters.
(A) Class (B) Genus (C) Species (D) Order

18. In the blanks A and B.
Kingdom → Phylum → [A] → Order → [B]
(A) A - Genus; B - Species
(B) A - Family; B - Class
(C) A - Class; B - Family
(D) A - Species; B – Division

19. Match the following columns

	Column-I	**Column-II**
a.	Binomial nomenclature	(i) Carolus Linnaeus
b.	Generic name	(ii) Muscidae
c.	Family	(iii) *Panthera*
d.	Systema naturae	

(A) a (i), b (iii), c (iii), d (ii)
(B) a (i), b (iii), c (ii), d (i)
(C) a (ii), b (i), c (i), d (iii)
(D) a (iii), b (i), c (ii), d (i)

20. Genus is a category which comes in between the
(A) Family and Species
(B) Class and Family
(C) Order and Phylum
(D) Kingdom and Class

21. Three different genera *Solanum*, *Petunia* and *Datura* are placed in the family
(A) Poaceae
(B) Anacardiaceae
(C) Hominidae
(D) Solanaceae

22. Cat and dog are placed in which families respectively
(A) Felidae and Hominidae
(B) Muscidae and Felidae
(C) Poaceae and Canidae
(D) Felidae and Canidae

23. In which of the following pair of category, greater is the difficulty of determining the relationship to other taxa at the same level, thus the problem of classification becomes more complex?
(A) Genus and species
(B) Tribe and genus
(C) Division and phylum
(D) Species and family

24. *Musca domestica* is common name of
(A) Housefly (B) Mosquito (C) Snail (D) Ant

25. What is the correct sequence?
(A) Genus-species-order-kingdom
(B) Species-order-phylum-kingdom
(C) Species-genus-order-phylum
(D) Kingdom-phylum-class-order

26. Which is less general in character as compared to genus
(A) Family (B) Class (C) Division (D) Species

27. As we go from species to kingdom in a taxonomic hierarchy, the number of common characteristics
(A) Will decrease (B) Will increase (C) Remain same (D) May increase or decrease

28. Which of the following 'suffixes' used for units of classification in plants indicates a taxonomic category of 'family'.
(A) Ales (B) Onae (C) Aceae (D) Ae

29. Genus represents
(A) An individual plant or animal
(B) A collection of plants or animals
(C) A group of closely related species of plants or animals
(D) None of these

30. The taxonomic unit 'Phylum' in the classification of animals is equivalent to which hierarchical level in classification of plants
(A) Class (B) Order (C) Division (D) Family

31. Match the following and choose the correct option:

Column I	**Column II**
A. Family	i. tuberosum
B. Kingdom	ii. Polymoniales
C. Order	iii. Solanum
D. Species	iv. Plantae
E. Gen0us	v. Solanaceae

Options
(A) A-v, B-iv, C-ii, D-i, E-iii (B) A-iv, B-iii, C-v, D-ii, E-i
(C) A-iv, B-iii, C-v, D-i, E-ii (D) A-iv, B-iii, C-ii, D-v, E-i

1. The famous botanical garden 'Kew' is located in
(A) New Zealand (B) Lucknow (C) Berlin (D) England

2. Herbarium is a
(A) A garden where dried culture of plant species is stored
(B) A garden where medicinal plants are grown and stored
(C) A garden where herbaceous plants are grown dry garden.
(D) Both A and B

3. Which of the following taxonomic aid provides information for the identification of names of species found in an area?
(A) Monograph (B) Manual (C) Flora (D) Periodical

4. Which one of the following is not a correct statement?
(A) A museum has collection of photographs of plants and animals.
(B) Botanical gardens have collection of living plants for reference.
(C) Herbarium has dried, pressed and preserved plant specimens.
(D) Key is taxonomic aid for identification of specimens.

5. The taxonomical aid which is an index of plant species in an area is
(A) Manuals (B) Grade (C) Monographs (D) Flora

6. Species is a
(A) Closed reproductive group
(B) Open reproductive group
(C) Group of organisms with different morphological characters
(D) None of these

7. Biological concept of species was proposed by
(A) Linnaeus (B) Mayr (C) Julian Huxley (D) John Ray

8. Botanical gardens and zoological parks have
(A) Collection of endemic living species only
(B) Collection of exotic living species only
(C) Collection of endemic and exotic living species
(D) Collection of only local plants and animals

9. Taxonomic key is one of the taxonomic tools in the identification and classification of plants and animals. It is used in the preparation of
(A) Monographs (B) Flora (C) Both A & B (D) None of these

NEET-BIOLOGY **ELP NO.-1** **BIOLOGICAL CLASSIFICATION**

1. Position of bacteria in a kingdom system of classification proposed by Linnaeus is
(A) Monera (B) Protista (C) Plantae (D) Mychota

2. Two kingdom classification of living organisms proposed by a scientist who –
(A) Wrote Genera Plantarum for seed plants
(B) Wrote Genera Plantarum for plants
(C) Wrote flora of India
(D) Wrote flora of British India

3. Select correct statement w.r.t. Monera
(A) All are autotrophic prokaryotes
(B) All are chemoheterotrophs
(C) Unicellular, colonial or filamentous organisms
(D) Prokaryotes with 70 S ribosome and histone DNA

4. Cell wall is made of polysaccharide and amino acid in most of the members of
(A) Monera (B) Protista (C) Fungi (D) Animalia

5. In five kingdom classification, the kingdom that includes the blue-green algae, nitrogen-fixing bacteria and methanogenic archaebacteria, is
(A) Monera (B) Protista (C) Fungi (D) Plantae

6. Carl whose six-kingdom classification is mainly based on –
(A) DNA (B) 16-S-r-RNA (C) m-RNA (D) t-RNA

7. Who was the earliest to attempt a more scientific basis for classification?
(A) R.H. Whittaker (B) Linnaeus
(C) Aristotle (D) Bentham and Hooker

8. Biological classification of plants and animals was first proposed by:
(A) Aristotle (B) Linnaeus
(C) Whittaker (D) Bentham and Hooker

9. Who classify plants into trees, shrubs, and herbs?
(A) Whittaker (B) Linnaeus
(C) Aristotle (D) C. Woese

10. Match the columns I and II and choose the correct combination from the options given.

	Column-I (Kindgom)		**Column-II** (Mode of Nutrition)
a.	Monera	1.	Autotrophic
b.	Protista	2.	Heterotrophic
c.	Fungi	3.	Autotrophic and heterotrophic both
d.	Plantae		
e.	Animalia		

(A) a - 3, b - 3, c - 2, d - 1, e – 2 (B) a - 2, b - 1, c - 2, d - 3, e - 2
(C) a - 3, b - 2, c - 3, d - 1, e - 3 (D) a - 2, b - 3, c - 2, d - 3, e - 2

11. Earliest scientific classification was given by Aristotle. Aristotle classification animals into:
(A) Prokaryota and Eukaryota
(B) Those which had red blood and those that did not
(C) Protozoa and Metazoa
(D) Autotrophic and Heterotrophic

12. In the five kingdom classification, Chlamydomonas and Chlorella along with paramecium and Amoeba are included in :
(A) Plantae (B) Algae (C) Protista (D) Monera

13. Consider the following statements.
I. Biological classification is the scientific ordering of organisms in a hierarchical series of groups on the basis of their relationships, i.e., morphological, evolutionary and others.
II. Whittaker classified organisms on the basis of autotrophic and heterotrophic mode of nutrition.
III. In five kingdom system of classification, living organisms can be divided into prokaryotic and eukaryotic cells on the basis of cell structure.
Which of the statements given above are correct?
(A) I and II (B) I and III (C) II and III (D) I, II and III

14. How many of the given features are associated with incipient nucleus of Monera
[Naked DNA, RNA, Non-histonic proteins, Histonic proteins, Linear ss-DNA, Circular ds-DNA]
(A) 3 (B) 6 (C) 4 (D) 2

15. **Statement I:** All prokaryotic organisms are grouped together under kingdom Protista.
Statement II: In five kingdom classification a new kingdom – fungi is proposed.
(A) Both the Statement are incorrect.
(B) Only Statement I is incorrect and Statement II is correct.
(C) Only Statement I is correct and Statement II is incorrect.
(D) Both the Statement are correct

16. The scientist who proposed two kingdom system of classification is also called as.
(A) Father of Genetics (B) Father of biology
(C) Father of Taxonomy (D) Father of Cytology

17. The scientist who was awarded as the triple count of biology is
(A) Charles Darwin (B) Carl Linnaeus (C) Mendal (D) Ernst Mayr

18. In three kingdom classification system all unicellular organisms are placed unde the kingdom

(A) Plantae (B) Animalia (C) Protista (D) Monera

19. The three domains' bacteria, Archaea and Eukarya are believed to have originated from a common ancestor called as

(A) Progenote (B) Proanciestor (C) Bacteria (D) All of the above.

20. In Whittaker classification system the organisms with multicellular loose tissue body organisation and heterotopic nutrition are placed under Kingdom

(A) Protista (B) Animalia (C) Plantae (D) Fungi

21. The four-kingdom classification system was proposed by

(A) Linnaeus (B) Mayr (C) Haeckel (D) Copeland

NEET-BIOLOGY **ELP NO.-2** **BIOLOGICAL CLASSIFICATION**

1. Recognize the figure and find the suitable matching.
(A) a-Nucleus, b-cell membrane, c-capsule
(B) a -DNA, b-cell membrane, c-cell wall
(C) a-DNA, b-cell wall, c-capsule
(D) a-Nucleus, b-cell membrane, c-cell wall

2. Kingdom-Monera consists of:
(A) Unicellular eukaryotes (B) Multicellular eukaryotes
(C) Bacteria (D) Both (A) and (C)

3. Which one is the most abundant microorganism?
(A) Algae (B) Viruses (C) Protists (D) Bacteria

4. Bacteria are helpful in :
(A) Making curd from milk (B) Production of antibiotic
(C) Fixing nitrogen in legume roots (D) All Of the above

5. Heterotrophic bacteria are dependent On other organism for :
(A) Excretion (B) Nutrition (C) Digestion (D) Fission

6. Which of the following is a facultative anaerobe?
(A) *Clostridium tetani* (B) *Azotobacter*
(C) *Clostridium botulinum* (D) *Bacillus subtilis*

7. The organism belonging to most common nutritional class of bacteria is
(A) Chromatium (B) Nitrosomonas
(C) Leptothrix (D) Rhizobium

8. Respiratory enzymes are found associated with plasma membrane
(A) *Thiospirillum* (B) *Chlorella* (C) *Chara* (D) *Oedogonium*

9. During binary fission in *Chlorobium*, the mode of cell division is
(A) Amitosis (B) mitosis (C) Meiosis (D) All of the above.

10. Anti-coagulant nature of endospore is due to the presence of
(A) Teichoic acid (B) Ca-dipicolinic acid
(C) Diaminopimelic acid (D) Calcium pectate

11. Mark the incorrect option w.r.t. chemosynthetic autotrophic bacteria
(A) Hydrogen bacteria and sulphur bacteria
(B) Nitrifying bacteria and sulphur bacteria
(C) Nitrifying Bacteria and iron bacteria
(D) purple sulphur bacteria and green sulphur bacteria

12. Bacterial cells
(A) Have double envelope system (B) Show complex structure
(C) Possess cellulosic cell wall (D) Are morphologically simple

13. In E. coli sexual recombination occurs by direct cell to cell contact. This method is known as
(A) Transformation (B) Transcription (C) Conjugation (D) Binary fission

14. Conjugation was demonstrated by in
(A) Zinder and Lederberg, *Salmonella typhimurium*
(B) Lederberg and Tatum, *E.coli*
(C) Griffith, *Diplococcus pneumonia*
(D) Avery, MacLeod and McCarty, *Streptococcus pneumoniae*

15. How many of the following bacteria are heterotrophic in nature?
[Lactobacillus, Nitrosomonas, Rhizobium, Chlorobium, Nitrocystis, Frankia, Azotobacter, Ferrobacillus, Clostridium, Klebsiella]
(A) 5 (B) 4 (C) 2 (D) 6

16. Which of the given features of archaebacteria resembles eukaryotes?
(A) Incipient nucleus (B) Introns
(C) 80S ribosomes (D) Cyclosis

17. Find odd one out w.r.t. Chemosynthetic bacteria
(A) Purple sulphur bacteria (B) Sulphur bacteria
(C) Nitrifying bacteria (D) Hydrogen bacteria

18. Select an incorrect statement with regard to different nutritional categories
(A) Photo-organotrophs use organic compounds as electron donor
(B) Photolithoautotrophic entraps solar energy and utilized It for synthesis for complex food.
(C) Chemolithotrophs use inorganic substances like nitrate ferrous ion as their energy source for their food synthesis
(D) Parasitic bacteria obtain food from dead and decay organic matter.

19. **Statement I:** The bacterial photosynthesis is non oxygenic
Statement II: *Beijerinckia* is symbiotic N_2 fixing bacteria associate with roots of leguminous plant.
(A) Both the Statement are incorrect.
(B) Only Statement I is incorrect and Statement II is correct.
(C) Only Statement I is correct and Statement II is incorrect.
(D) Both the Statement are correct

20. The stain used in Gram staining technique is
(A) Crystal violet (B) Gentian violet (C) Methyl orange (D) Both A & B

21. Endospores act as the means of A____ and not of B___.
Select the correction for A and B respectively.

(A) Perennation & Storage organ
(B) Reproduction & Perennation
(C) Perennation & Reproduction
(D) Storage organ & Reproduction

22. Match the following

Column I	**Column II**
a. Leprosy	i. *Clostridium*
b. Typhoid	ii. *Mycobacterium tuberculious*
c. Tetanus	iii. *Salmonella typhi*
d. Tuberculosis	iv. *Mycobacterium leprae*

(A) a (i), b (ii), c (iii), d (iv)
(B) a (iv), b (iii), c (i), d (ii)
(C) a (iv), b (iii), c (ii), d (i)
(D) a (iii), b (ii), c (i), d (iv)

23. Eubacteria is also known as :

(A) False bacteria
(B) True bacteria
(C) Archaebacteria
(D) Heterotopic bacteria.

NEET-BIOLOGY **ELP NO.-3** **BIOLOGICAL CLASSIFICATION**

1. Select the incorrect options about Archaebacteria?
(A) The Archaebacteria lives in extreme harsh environmental conditions.
(B) Archaebacteria differ from other bacteria in having different cell wall structure.
(C) Archaebacteria have introns in their genetic material.
(D) The cell membrane contains unbranched lipids.

2. The Archaebacteria lives in extreme saline environment are _____ in Nature.
(A) Photosynthetic (B) Chemosynthetic
(C) Heterotrophic (D) Both (A) & (B)

3. Read the following statement w.r.t archaebacteria.
(a) Methanogens convert organic substances present in the cow dung into methane.
(b) Methanogens are obligate aerobes.
(c) Halophiles contains a pigment called bacterio-rhodopsin related to the one found in our own eyes.
(d) Thermoacidophiles reduce sulphur to sulphuric acid under anaerobic conditions.
(e) The cell membrane contains branched lipids which decrease membrane fluidity.
Select the incorrect options.
(A) (a), (b), (c) and (e) (B) (b) and (d)
(C) (c), (d) and (e) (D) (b), (c), (d) and (e)

4. Thermoacidophiles are found in the places where temperature range from_____ and medium is _____.
(A) 70-75, Acidic (B) 80-90, Basic (C) 80-90, Acidic (D) 70-75, Basic

5. The First organism on the Earth performing oxygenic photosynthesis belongs the Class
(A) Chlorophyceae (B) Cyanophyceae (C) Rhodophyceae (D) Phaeophyceae

6. The Cyanobacteria which have large number of proteins and used as space food is
(A) *Nostoc* (B) *Anabaena* (C) *Oscillatoria* (D) *Spirulina*

7. The Structure of Cyanobacteria is similar to
(A) Gram positive prokaryotes (B) Gram negative prokaryotes
(C) Photosynthetic protists (D) Photosynthetic multicellular eukaryotes

8. **Statement I**: The BGA *Anabaena azollae* is associated with coralloid roots of *Cycas*.
Statement II: The Peripheral Cytoplasm is also known as chromoplasm as it appears coloured.
(A) Both the Statement are incorrect.
(B) Only Statement I is incorrect and Statement II is correct.
(C) Only Statement I is correct and Statement II is incorrect.
(D) Both the Statement are correct

9. Heterocysts contains
(A) PS I (B) PS II
(C) Nitrogenase enzyme (D) Both (A) and (C)

10. **Statement I:** The Cyanobacteria are the most dependent organisms.
Statement II: In cyanobacteria flagella is absent throughout its life cycle
(A) Both the Statement are incorrect.
(B) Only Statement I is incorrect and Statement II is correct.
(C) Only Statement I is correct and Statement II is incorrect.
(D) Both the Statement are correct

11. Select the odd one w.r.t Importance of Cyanobacteria.
(A) They play a significant roe in the evolution of aerobic forms of life.
(B) They provide fertility to soil by fixing N_2.
(C) They serve as food to several animals
(D) They are rich source of lipids.

12. Which one of the following forms the bloom in polluted water bodies?
(A) *Microcystis* (B) *Nostoc* (C) *Spirulina* (D) All of the above

13. In cyanobacteria, which of the following is present?
(A) Carotenoids (B) Phycobillins (C) Chlorophyll-a (D) All of these

14. Select the incorrect statement from the following
(A) Heterocysts are the specialized cells involves in Nitrogen fixation
(B) Heterocysts is associated with release of oxygen.
(C) Heterocysts lack the ability of CO_2 fixation
(D) Heterocysts are large and thick walled cells.

15. Mycoplasma are sensitive to ___a_____ and resistance to ____b_____ .
(A) a – Tetracycline , b- Chloramphenicol
(B) a – Penicillin , b- Chloramphenicol
(C) a – Chloramphenicol, b- Penicillin
(D) a – Erythomycin , b- Tetracycline

16. Mycoplasma is also called as
(A) PPLO (B) Jokers of Plant Kingdom
(C) Bacteria without cell wall (D) All of the above.

17. The organisms which are capable of converting atmospheric N_2 into ammonium compounds and utilise Atmospheric CO_2 for synthesis of organic food are
(A) Algae (B) Euglenoids (C) Bacteria (D) Cyanobacteria

18. **Assertion**: Cyanobacteria are the most self-dependent organisms.
Reason: They capable of converting atmospheric N_2 into ammonium compounds and utilise atmospheric CO_2 for synthesis of organic food through photosynthesis
(A) Both Assertion & Reason are true and the reason is the correct explanation of the assertion
(B) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.
(C) Assertion is true but reason is false
(D) Both Assertion and reason are false

19. Select the incorrect statement w.r.t *Mycoplasma*
(A) Mycoplasma are aerobic in nature but they can also survive in absence of oxygen
(B) They are the smallest living organism which lack cell wall
(C) They infects only animals
(D) In Culture their colonies show characteristic fried egg appearance

20. Read the following statement w.r.t protista
(a) They are the ancestor for all multicellular eukaryotes
(b) Flagella and Cilia have 9+2 pattern of microtubules organization
(c) Life cycle show only zygotic meiosis
(d) Reproduction occurs only by asexual means
(e) Movements occur by means of pseudopodia, flagella and Cilia
(f) Ciliary mode of movement is slower than flagellated movement
Select the correct options
(A) (a), (b), (d) and (f) (B) (b), (d) and(e)
(C) (a), (b) and (e) (D) (b),(c), (d), (e) and (f)

21. The mode of nutrition found in the members of Protista is
(A) Holophytic (B) Heterotrophic
(C) Mixotrophic (D) All of the above

22. **Assertion**: Chrysophytes float passively on the surface of water.
Reason: Their body contains low molecular weight lipids.
(A) Both Assertion & Reason are true and the reason is the correct explanation of the assertion
(B) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.
(C) Assertion is true but reason is false
(D) Both Assertion and reason are false.

23. The resting spore in Diatoms is
(A) Auxospore (B) Statospore (C) Endospore (D) Exospore

24. Select the odd one w.r.t chief producers of oceans.
(A) *Triceratium* (B) *Melosira* (C) *Euglena* (D) *Cymbella*

25. **Statement I:** Protista consist of unicellular, eukaryotic organisms having tissue level of organisation.
Statement II: The reserve food material in Diatoms is oils and chrysolaminarin starch.
(A) Both the Statement are correct.
(B) Only Statement I is correct and Statement II is incorrect.
(C) Only Statement I is incorrect and Statement II is correct.
(D) Both the Statement are incorrect

NEET-BIOLOGY **ELP NO.-4** **BIOLOGICAL CLASSIFICATION**

1. Select the incorrect statement w.r.t. dianoflagellates
(A) May appear yellow, green, brown, blue or red in colour
(B) Some member releases toxin that may even kill other marine animals
(C) Have two flagella, both lie transversely
(D) They are mostly marine organism

2. Slime moulds
(A) Have features similar to plants, animals and fungi
(B) Possess photosynthetic pigments
(C) Produce spores with cellulosic wall
(D) Both (A) and (C)

3. Match the following.

	Column I		**Column II**
a	Mixotrophic protist	(I)	Entamoeba
b	Red tide	(II)	*Gonyaulax*
c	Protozoan with pseudopodia	(III)	*Euglena*
d	Saprobic protist	(IV)	Slime mould

(A) a (ii), b (iv), c (i), d (iii) (B) a (i), b (ii), c (iii), d (iv)
(C) a (iii), b (ii), c (i), d (iv) (D) a (i), b (iii), c (ii), d (iv)

4. Which of the following is endoparasitic protozoan
(A) *Fuligo* (B) *Euglena* (C) *Paranema* (D) *Plasmodium*

5. *Gonyaulax catenella* and *Pyrocystis* are specific examples of _____respectively.
(A) Bioluminescence and mesokaryotic nature
(B) Red sea and bioluminescence
(C) Red tide and bioluminescence
(D) Red stripe and diatomaceous earth

6. Organism which produce a toxin called saxitoxin is associated with
(A) Red sea (B) Red rust (C) Red tide (D) Red rot

7. Euglena resembles with higher plants in
(A) Mode of sexual reproduction (B) Reserve food material.
(C) Types of chlorophyll (D) Nutrition

8. **Assertion:** Stigma or eye spot performs photoreceptive function in Euglena.
Reason: It contains a red orange pigment called astaxanthin.
(A) Both Assertion & Reason are true and the reason is the correct explanation of the assertion
(B) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.
(C) Assertion is true but reason is false
(D) Both Assertion and reason are false

9. The fungus like character of slime mould is
(A) Plasmodium lacking cell wall (B) Spore containing cell wall
(C) Fruiting bodies (D) All of the above

10. Bioluminiscence is shown by all, **except**
(A) *Navicula* (B) *Pyrodinium* (C) *Pyrocystis* (D) *Noctiluca*

11. The member of protista having naked protoplast and saprophytic nutrition is
(A) *Euglena* (B) *Entamoeba* (C) *Dictyostelium* (D) *Ceratium*

12. The group of Protista commonly called as armored algae is
(A) Chrysophytes (B) Dinoflagellates (C) Euglenoids (D) Protozoans

13. The contractile vacuoles present in Euglena helps in
(A) Storage of food (B) Osmoregulation
(C) Storage of waste material (D) All of the above

14. **Statement I:** The Nucleus in member of Pyrophyta do not have histone.
Statement II: Nuclear envelope and nucleolus remain present even during cell division in Dinoflagellates
(A) Both the Statement are incorrect.
(B) Only Statement I is incorrect and Statement II is correct.
(C) Only Statement I is correct and Statement II is incorrect.
(D) Both the Statement are correct

15. **Assertion:** Euglena shows mixotrophic nutrition
Reason: In presence of light *Euglena* show autotrophic mode of nutrition and in absence of sunlight it behaves like heterotroph by predating by other small organism
(A) Both Assertion & Reason are true and the reason is the correct explanation of the assertion
(B) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.
(C) Assertion is true but reason is false
(D) Both Assertion and reason are false

16. **Statement I:** Euglena act like connecting link between plants and animals
Statement II: Euglena show only autotrophic mode of nutrition.
(A) Both the Statement are incorrect.
(B) Only Statement I is incorrect and Statement II is correct.
(C) Only Statement I is correct and Statement II is incorrect.
(D) Both the Statement are correct.

17. The organism which cause sleeping sickness disease has
(A) Silica shell (B) Produce infectious pores
(C) cilia as locomotory organ (D) Rare sexual reproduction

18. The protozoan which possess definite region of ingestion and egestion
(A) Cause Kala azar (B) Contain two nucleus
(C) have Pseudopodia (D) Are endoparasites

19. The locomotory organ is absent in_____ groups of protozoans.
(A) Amoeboid (B) Flagellated (C) Ciliated (D) Sporozoans

20. The malarial parasite *Plasmodium* belongs to
(A) Amoeboid (B) Flagellated (C) Ciliated (D) Sporozoans

21. Select the incorrect pair
(A) Consumer decomposer protist - Slime mould
(B) Paraflagellar body - *Euglena*
(C) Whirling whips - Diatoms
(D) Kiesulguhr - Chrysophytes

22. Select the correct option w. r.t plant like character of Euglena
(A) Presence of stigma paraflagellar body
(B) Longitudinal binary fission
(C) Holophytic nutrition
(D) Presence of contractile vacuole

23. **Statement I:** Vegetative phase of sling moulds resembles with animals
Statement II: The spores of sling mould are extremely resistant and survive under adverse **condition**
(A) Both the Statement are incorrect.
(B) Only Statement I is incorrect and Statement II is correct.
(C) Only Statement I is correct and Statement II is incorrect.
(D) Both the Statement are correct.

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ELP

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NEET-BIOLOGY **ELP NO.-5** **BIOLOGICAL CLASSIFICATION**

1. Read the following statements w.r.t. fungi and select the incorrect option.
(a) Aseptate and multinucleate fungal hyphae are referred as coenocytic.
(b) In oomycetes members, cellulosic cell wall is present.
(c) Fungal cellulose is made up of acetylglucosamine
(d) Septum in members of class basidiomycetes have no pore.
(e) Fungal cells have multicisternal golgi bodies.
(A) (b), (c) & (e) (B) (a), (c) & (e) (C) (d) & (e) (D) (b), (d) & (e)

2. Which of the given pairs is correctly matched?
(A) Gametangial contact — Transfer of genetic material by fertilization tube
(B) Somatogamy — Direct fusion of gametes
(C) Spermatization — Seen in *Rhizopus*
(D) Planogametic copulation — Fusion of two gametangia

3. Choose incorrect option w.r.t. features of fungi
(A) Mostly terrestrial
(B) Reserve food is glycogen
(C) Prefer to grow in warm and humid places
(D) Are chemoautotroph

4. What is the site of karyogamy and meiosis in Sac fungi?
(A) Ascus (B) Basidium (C) Zygospore (D) Oospore

5. In the members of class oomycetes, cell wall is made up of
(A) Chitin (B) Cellulose (C) Suberin (D) Lignin

6. Ascospore is similar from basidiospore as they are
(A) Diploid nature (B) Sexual spore
(C) Endogenous in nature (D) Asexual spore

7. Select a set of edible members of ascomycetes
(A) *Morchella* and *Agaricus* (B) *Rhizopus* and Truffles
(C) *Morels* and Truffles (D) *Agaricus* and *Mucor*

8. The causative organism of white rust disease of Crucifer is
(A) *Rhizophus* (B) *Puccinia* (C) *Albugo* (D) *Phytopthora*

9. The most common mode of reproduction in yeast is
(A) Budding (B) Binary fusion
(C) Fragmentation (D) None of the above

10. **Statement I:** The fungus in which entire body get transformed into reproductive structures such fungus are known as Holocarpic fungus

Statement II: The fungus in which a part of mycelium develops into reproductive structures such fungus are known as Eucarpic fungus

(A) Both the Statement are correct.

(B) Only Statement I is incorrect and Statement II is correct.

(C) Only Statement I is correct and Statement II is incorrect.

(D) Both the Statement are incorrect

11. The spore form during unfavourable condition in some fungus is called as

(A) Zoospore (B) Sporangiospore

(C) Conidia (D) Chlamydospore

12. The zoospores forms during favourable condition is produced by the member of class

(A) Phycomycetes (B) Ascomycetes

(C) Basidiomycetes (D) Deuteromycetes

13. Select the incorrect option w.r.t Zoospore

(A) They are motile

(B) They are specially produced by aquatic members

(C) They can be uniflagellate or biflagellate

(D) They are produced during unfavourable conditions

14. Select the correct option w.r.t chlamydospores

(A) They are thin wall motile spores

(B) They form during favourable condition

(C) They act as perennating structure

(D) They can not tolerate harsh conditions

15. Which of the following class of fungus is called as Conjugation fungi

(A) Oomycetes (B) Zygomycetes

(C) Basidiomycetes (D) Deuteromycetes

16. The fungus which was responsible for great Irish famine belongs to

(A) Algal fungi (B) Conjugation fungi

(C) Sac Fungi (D) Fungi imperfect

17. Read the following statement

a. The mycelium is coenocytic

b. Cell wall is made up of cellulose

c. The gametes are commonly multinucleated

d. Sexual spore is zygospore

e. Asexual spores are motile in nature.

Select the correct statement for zygomycetes

(A) a, b, c & d (B) b, d & e (C) a, c & d (D) a, b & e

18. The pink bread mould is extensively used in

(A) Antibiotic production (B) As food

(C) Biochemical and genetic work (D) In brewing industry

19. The motile structure is completely absent in life cycle of

(A) *Albugo* (B) *Synchytrium*

(C) *Saprolegnia* (D) *Aspergillus*

20. The member of ascomycetes commonly called as weed of laboratory

(A) *Penicillium* (B) *Claviceps*

(C) *Aspergillus* (D) *Erisyphe*

1. Viral diseases are
(A) Poliomyelitis
(B) Smallpox & measles
(C) Typhoid
(D) Both (A) and (B)

2. Read the following statements
(A) virus contains either DNA or RNA as genetic material
(B) Virus can have both capsid and envelope
(C) Viruses that infect animals can have single stranded RNA
(D) Bacteriophages usually have ds DNA
How many statements are not correct?
(A) One (B) Two (C) Three (D) Four

3. TMV in characterised with
(A) 3:1 ratio of nucleotides: Capsomere
(B) Tadpole like structure
(C) ds RNA as genetic material
(D) Thick envelope

4. Mycorrhizal association formed between
(A) *Pinus* root and *Boletus*
(B) *Cycas* root and *Puccinia*
(C) *Alnus* root and *Puccinia*
(D) *Cycas* root and *Boletus*

5. Pioneer community during ecological succession on rock is
(A) Blue green algae
(B) Mycoplasma
(C) Lichens
(D) Cyanobacteria

6. The Dolipore septum is the characteristic feature of
(A) Phycomycetes
(B) Ascomycetes
(C) Basidiomycetes
(D) Deuteromycetes

7. In Basidiomycetes _____ is the meant for proper distribution of dikaryons at the time of cell division
(A) Crozier method
(B) Clamp Connection
(C) Dolipore septum
(D) Simple septum

8. The member of Basidiomycetes lacking dolipore septum are
(A) *Agaricus* and *Puccinia*
(B) *Armillaria* and *Ustilago*
(C) *Puccinia* and *Ustilago*
(D) *Agaricus* and *Lycoperdon*

9. The site for karyogamy and meiosis in Agaricus is
(A) Club – shaped structure (B) Sac like structure
(C) Round shaped structure (D) Oval shaped structure

10. The Poisons mushrooms (Toadstools)belong to class
(A) Conjugation fungi (B) Sac fungi
(C) Club fungi (D) Imperfect fungi

11. The Sexual spore in the life cycle of *Ustilago* is
(A) Ascospore (B) Basidiospore
(C) Conidia (D) Chlamydospores

12. The Causative agent for Early blight of Potato is
(A) *Heliminthosporium* (B) *Alternaria*
(C) *Cercospora* (D) *Fusarium*

13. Select the odd one w.r.t Imperfect fungi
(A) *Colletotrichum* (B) *Trichophyton*
(C) *Trichoderma* (D) *Lycoperdon*

14. Select the correct option w.r.t living character of virus
(A) Lack protoplast (B) Absence of respiration
(C) Infectious and host specific (D) Absence of energy storing system

15. Match the following

	Column - I		**Column - II**
(I)	Tobacco mosaic	(a)	Potato leaf roll virus
(II)	Cucumber mosaic	(b)	Banana bunchy top virus
(III)	Potato leaf roll	(c)	TMV
(IV)	Bunchy top of banana	(d)	Cucumber mosaic virus

(A) (I)-(a), (II)-(b), (III)-(c), (IV)-(d)
(B) (I)-(c), (II)-(d), (III)-(a), (IV)-(b)
(C) (I)-(d), (II)-(c), (III)-(b), (IV)-(a)
(D) (I)-(b), (II)-(d), (III)-(c), (IV)-(a)

16. The genetic material in plant viruses is
(A) ssDNA (B) dsDNA
(C) ssRNA (D) dsRNA

17. Which of the following is true for mycorrhiza with fungal hyphae forming wooly covering and Hartwig net?
(A) Ectomycorrhiza with Glomus as fungal partner
(B) Endomycorrhiza with Boletus as fungal partner
(C) Ectomycorrhiza with Boletus as fungal partner
(D) Endomycorrhiza with Glomus as fungal partner

18. Stunted growth in absence of Mycorrhiza can seen in
(A) Pine (B) *Ephedra* (C) Cycas (D) Mango

19. Read the following statements and select the incorrect statement w.r.t tobacco mosaic virus.
(A) It is rod like elongated virus which is 3000 A^0 long and 180 A^0 in diameter.
(B) It consists of 2130 capsomeres, arranged helically to form the capsid.
(C) Its genetic material is ds RNA.
(D) Its RNA consists of 6400 nucleotides

20. The causal agent for Bovine spongiform encephalopathy has
(A) Abnormally folded protein (B) Infectious RNA
(C) Infectious DNA (D) Envolope.

21. Select the incorrect statement regarding lichens
(A) Lichens are perennial organisms
(B) Phycobiont is mostly a member of Chlorophyceae or Cyanophyceae
(C) They are sensitive to air pollution
(D) The fungal partner constitutes hardly 5% of its body

22. Select the odd one w.r.t genetic material in viruses.
(A) Pox virus (B) Influenza virus
(C) Cauliflower mosaic virus (D) Herpes Virus

23. Match the following

Column I	**Column II**
(a) *Fusarium*	(i) Early blight of potato
(b) *Colletotrichum*	(ii) Red rot of sugarcane
(c) *Helminthosporium*	(iii) Wilts disease
(d) *Alternaria*	(iv) Brown leaf spot of rice

(A) (a) - (iii), (b) - (i), (c) - (ii), (d) - (iv)
(B) (a) - (iv), (b) - (ii), (c) - (iii), (d) - (i)
(C) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i)
(D) (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)

24. **Assertion:** Infectious agent discovered by T.O. Diener, lacks protein coat that is found in virus
Reason: Viroids have RNA of high molecular weight
(A) Both Assertion & Reason are true and the reason is the correct explanation of the assertion
(B) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.
(C) Assertion is true but reason is false
(D) Both Assertion and reason are false

25. **Assertion:** In Basidiomycetes Basidiospores are produced endogenously in the Basidium
Reason: In Basidiomycetes the Basidium is sac like structure
(A) Both Assertion & Reason are true and the reason is the correct explanation of the assertion
(B) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.
(C) Assertion is true but reason is false
(D) Both Assertion and reason are false

NEET-BIOLOGY **ELP NO.-1** **PLANT KINGDOM**

1. The artificial system of classification is based on
(A) One or few anatomical features (B) One or few morphological features
(C) Many morphological features (D) Many internal features

2. Classification system given by Linnaeus was based on
(A) Androecium structure (B) Flower arrangement
(C) Leaf morphology (D) Plant habit

3. Natural classification system proponents are
(A) Bentham and Hooker (B) Hutchinson and Takhtajan
(C) Linnaeus and Aristotle (D) Both (A) & (B)

4. (A) Number and codes are assigned to few of the selected characters in numerical taxonomy.
(B) Phylogenetic classification systems are based on evolutionary relationships between the various organisms.
(C) Cytotaxonomy is based on cytological information like chromosome number, structure & behaviour.
(A) A and B are incorrect (B) Only C is correct
(C) Only A is incorrect (D) B and C are incorrect

5. Each character is given equal importance and at the same time hundreds of characters can be considered in
(A) Cladistics (B) Phenetics
(C) Chemotaxonomy (D) Cytotaxonomy

6. Match the following column I and II :

Column I	**Column II**
Ⅰ. Linnaeus	(a) Evolutionary relationship
Ⅱ .Bentham and Hooker	(b) Five kingdom classification
Ⅲ .Whittaker	(c) Artificial classification
	(d) Classification of flowering plants
	(e) Initial classification

(A) I-a, b II-c,e III-d (B) I-d,e II-c III-a,b
(C) I-c,e II-a,b III-d (D) I-c,e II-d III-a,b

7. The most accepted classification system, at present is:
(A) Chemotaxonomy (B) Artificial classification system
(C) phylogenetic classification (D) Karyotexonomy

8. Branch of taxonomy that deals with several characters at a time is known as –
(A) Cytotaxonomy (B) Phenetics
(C) Numerical taxonomy (D) Both B & C

9. Mark the Artificial system of classification
(A) Give equal weightage to vegetative & sexual characters
(B) Separated closed related species
(C) Assumes that organism belonging to same taxa have common ancestor
(D) Both A & B

10. DNA sequence is bases of grouping organism in
(A) Karyotaxonomy (B) Cytotaxonomy
(C) Phenetics (D) Chemotaxonomy

11. Which of the following systems of classification involves usage of one or few morphological characters for grouping of organisms?
(A) Artificial system (B) Natural system
(C) Phylogenetic system (D) Bentham and Hooker's system

12. Classification of organisms on the basis of fossils record that play important role in elucidation of evolutionary relationships is
(A) Earliest systems (B) Phylogenetic systems
(C) Morphotaxonomy (D) Artificial system

13. Sexual system of classification is
(A) Artificial system
(B) Based on stamens characters
(C) Based on corolla and carpels characters
(D) Both (A) & (B)

14. The Bentham and Hooker's classification is
(A) Classification of taxa based on actual examination
(B) Artificial system of classification
(C) Phylogenetic system of classification
(D) Based on evolution

15. A system of classification, in which a large number of traits are considered, is
(A) Natural system (B) Phylogenetic system
(C) Artificial system (D) Synthetic system

16. The book 'Genera plantarum' was written by
(A) Engler & Prantl (B) Bentham & Hooker
(C) Bessey (D) Hutchinson

17. Phylogenetic classification is one which is based on
(A) Overall similarities (B) Utilitarian system
(C) Habits of plants (D) Common evolutionary descent

18. Phenetic classification is based on
(A) The ancestral lineage of existing organisms
(B) Observable characteristics of existing organisms
(C) Dendrograms based on DNA characteristics
(D) Sexual characteristics

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NEET-BIOLOGY **ELP NO.-2** **PLANT KINGDOM**

1. Non-motile gametes are characteristically found in
(A) Rhodophyta (B) Bryophyta (C) Phaeophyta (D) Chlorophyta

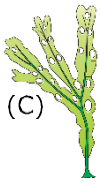
2. **Assertion** : Sexual reproduction may be is isogamous, anisogamous or oogamous in brown Algae
Reason : In brown Algae, Sexual reproduction is accompanied by complex post fertilisation Development.
(A) Assertion is correct but reason is false
(B) Both assertion & reason are correct
(C) Assertion & reason both are correct & reason is correct explanation of assertion
(D) Both assertion & reason are incorrect.

3. Algae are not
(A) Fresh water forms (B) Marine water forms
(C) Terrestrial (D) Heterotrophs always

4. Substance found in cell wall of brown Algae is
(A) Carageen (B) Agar-agar (C) Algin (D) Both B & C

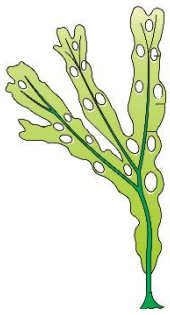
5. How many given algae have chlorophyll a and b in their plant body :
(i) Laminaria (ii) Chara
(iii) Fucus (iv) Volvox
(v) Polysiphonia (vi) Chlorella
(vii) Ectocarpus (viii) Dictyota
(ix) Chlamydomonas (x) Ulothrix
(A) 6 (B) 7 (C) 5 (D) 3

6. Identify the following given diagram:

(A)  (B)  (C)  (D) 

(A) (A)-Chara, (B)-Fucus, (C)-Laminaria, (D)-Porphyra
(B) (A)-Chara, (B)-Laminaria, (C)-Fucus, (D)-Porphyra
(C) (A)-Chara, (B)-Laminaria, (C)-Porphyra, (D)-Fucus
(D) (A)-Polysiphonia, (B)-Laminaria, (C)-Porphyra, (D)-Fucus

7. How many statements are right for given figure :



(a) It includes in brown algae
(b) It represent diplontic life cycle
(c) It contain chlorophyll a, d and xanthophylls
(d) it's gametes are pyriform have unequal flagella.
(e) It's reserve food present in the form of floridean starch.

(A) 4 (B) 2 (C) 1 (D) 3

8. Mark the incorrect statement
(A) Most common spore formed in Algae is non-motile
(B) Ulothrix produces motile isogametes
(C) Kelps are generally found in marine water
(D) Half of the total CO_2 fixation on earth is carried out by Algae.

9. Red Algae are named so because of the predominance of
(A) Xanthophyll (B) R-phycoerythrin
(C) Carotene (D) Chlorophyll A & B

10. Plant body is differentiated in holdfast, stipe and Frond in
(A) Ulva (B) Laminaria
(C) Oedogonium (D) Acetabularia

11. Ectocarpus is
(A) Unicellular green Algae (B) Filamentous
(C) Branched red Algae (D) Colonial green Algae

12. The thallus organisation of volvox is
(A) Multicellular coccoid (B) Colonial & nonflagellate
(C) Unicellular (D) Colonial

13. The pyrenoids are made up of
(A) Proteinacecous centre and starchy Sheath
(B) Core of nucieic acid surrounded by protein
(C) Core of protein surrounded by fatty sheath
(D) Core of starch surrounded by sheath of protein

14. Ulothrix filaments produce:
(A) Heterogametes (B) Basidiospores
(C) Isogametes (D) Anisogametes

15. Blue green algae are not included along with true algae because:

(A) They are mostly nitrogen fixing
(B) They show symbiosis
(C) They are terrestrial
(D) The lack membrane bound organelles

16. Anteriorly placed, equal, 2-8, flagella are characteristic to

(A) Blue green algae
(B) Green algae
(C) Brown algae
(D) Red algae

17. Which set of characters is specific to red algae?

(A) Phycobilins, Chlorophyll a and c
(B) Chlorophyll a and d, Floridean starch
(C) Flagella absent, Mannitol
(D) Fucoxanthin, Floridean starch

18. Motile, asexual and endogenous spores produced in algal members are called

(A) Zoospores
(B) Aplanospores
(C) Conidia
(D) Cyst

NEET-BIOLOGY **ELP NO.-3** **PLANT KINGDOM**

1. Bryophytes are also called _____ of plant kingdom.
(A) Fishes (B) Amphibians (C) Reptiles (D) Aves

2. Bryophytes are
(A) Always homosporous (B) Always heterosporous
(C) Sometimes heterosporous (D) Seldom homosporous

3. The male gametes of bryophytes are
(A) Multiflagellated (B) Uniflagellated
(C) Non-motile (D) Biflagellated

4. Plant body of liverworts is
(A) Thalloid in Porella (B) Thalloid in Marchantia
(C) Leafy in Marchantia (D) More than one option is correct

5. Gemmae are
(A) Unicelled structures (B) Multicelled asexual buds
(C) Diploid sporophytic structures (D) Haploid sexual structures

6. Ecologically the most important moss is
(A) Sphagnum (B) Funaria (C) Polytrichum (D) Pogonatum

7. Select incorrect statement w.r.t. characters of true moss
(A) Multicelled branched rhizoids
(B) Presence of scales
(C) Presence of protonema
(D) Erect leafy axis as mature gametophyte

8. All given members are monoecious, except
(A) Marchantia (B) Funaria (C) Anthoceros (D) Sphagnum

9. Find odd one w.r.t. ploidy level in bryophytes
(A) NCC (B) VCC (C) Spore (D) Foot

10. Sporophyte of mosses is _____ than liverworts.
(A) Least differentiated (B) Equally differentiated
(C) More differentiated (D) Undifferentiated

11. Consider the following structure

I. Unicellular rhizoids

II. Dorsi-Ventral thallus

III. Contains gametophores

Above character relate with :-

(A) Sphagnum (B) Marchantia (C) Equisetum (D) Pinus

12. Protonema is :-

(A) Fossil pteridophyte

(B) A part of the sporophyte of funaria

(C) The juvenile phase of the moss gametophyte

(D) None of the above

13. Bryophytes comprise

(A) Sporophytes is of longer duration

(B) Dominant phase of gametophytes which is parasitic

(C) Dominant phase of gametophytes which produces spores

(D) Small sporophyte phase and generally parasitic on gametophyte

14. Presence of Gemma cup, two rows of appendicular leaves on main plant body and branched assimilatory filaments are characters of

(A) All liverworts (B) Some liverworts (C) All mosses (D) Some mosses

15. Which of the following represent main difference between algae and bryophytes

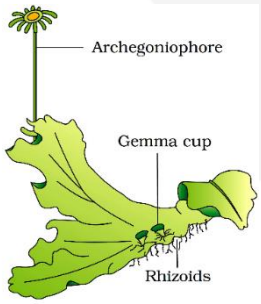
A. Algae found in water and bryophytes found in terrestrial habitat

B. Algae contain chl. a and Bryophytes have both chl. a and chl. b

C. Algae have unicellular and non-jacketed sex organs and bryophytes have multicellular sex organs covered by sterile jacket.

(A) A & B (B) B & C (C) Only B (D) A & C

16. Select no. of right statements for to given figure :-



(a) It is male plant of Marchantia

(b) It contain branched assimilatory filament

(c) It include in liverworts

(d) Its archegonia found in archegonial disc

(e) It contain multicellular rhizoids

(A) 3 (B) 4 (C) 2 (D) –

17. Consider the following events in Bryophytes

I. Protonema formation

II. Fertilisation

III. Embryo formation

IV. Formation of new leafy gametophyte

V. Spore germination

Arranged above events for life cycle of funaria after spore formation :-

(A) I-IV-V-II-III (B) V-I-II-III-IV (C) III-IV-V-I-II (D) V-I-IV-II-III

18. Select the incorrect statements for bryophytes :
(A) The plant body of liverworts is thalloid
(B) Mosses have upright, cylinder axis bearing spirally arranged leaves
(C) Spores germinate to form directly leafy gametophyte in mosses
(D) Their zygote produce sporophyte

19. Bryophytes are not characterised by
(A) Sporophyte parasitic over gametophyte
(B) Independent gametophyte
(C) Absence of vascular tissues
(D) Independent sporophyte

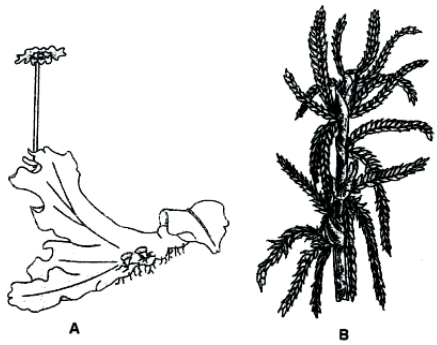
20. Stems and leaves of bryophytes are
(A) Analogous to vascular plants for transport
(B) Homologous to vascular plants for transport
(C) Analogous to algae & fungal thallus
(D) None of these

21. Non-vascular embryophyte with leaves is
(A) Riccia (B) Porella (C) Selaginella (D) Macrocystis

22. Find set of features related to Funaria
a. Protonema
b. Prothallus
c. Gametophore
d. Thallus body
e. NCC in antheridium
f. Haplodiplontic
g. True plant organs in sporophyte
h. Fragmentation
(A) b, d, e, g (B) a, d, f, g (C) a, c, f, g, h (D) a, c, f, h

23. In Funaria, 20 chromosomes are present in rhizoids, then the number of chromosome in calyptra, theca and foot will be
(A) 20, 40, 40 respectively
(B) 40, 20, 20 respectively
(C) 20, 40, 20 respectively
(D) 40, 10, 20 respectively

24. Identify the plants A and B in the figures given below



(A) A - Female Marchantia, B - Sphagnum
(B) A - Riccia, B – Marchantia
(C) A - Marchantia, B – Funaria
(D) A - Male Marchantia, B - Sphagnum

NEET-BIOLOGY **ELP NO.-4** **PLANT KINGDOM**

1. Pteridophytes are also called
(A) Vascular amphibians of plant kingdom
(B) First tracheophytes
(C) Botanical snakes
(D) All of these

2. A. Companion cells and sieve tubes are absent in pteridophytes.
B. Gametophyte of pteridophytes require cool, dry and shady places to grow.
C. Prothallus is found in Dryopteris
(A) Only C is correct (B) Only A is incorrect
(C) A and B are correct (D) Only B is incorrect

3. Strobilus is found in
(A) Equisetum (B) Adiantum (C) Marsilea (D) Rhynia

4. Spread of living pteridophytes is restricted to narrow geographical regions due to need for
(A) Water (B) Food
(C) Chemicals (D) More than one option is correct

5. True ferns are associated with
(A) Macrophylls (B) Microphylls (C) Strobilus (D) Thalloid sporophyte

6. Select a set of heterosporous genera.
(A) Marsilea, Azolla (B) Salvinia, Pteridium
(C) Adiantum, Azolla (D) Pteris, Lycopodium

7. Select the correct match :
(A) Psilopsida-Dryopteris (B) Lycopsida - Selaginella
(C) Sphenopsida-Pteris (D) Pteropsida – Equisetum

8. Find the correct option w.r.t. pteropsida
(A) Selaginella (B) Equisetum (C) Dryopteris (D) Lycopodium

9. Dryopteris is/has
(A) Gametophyte as main plant body (B) Homosporous
(C) Non-motile male gametes (D) Shows seed habit

10. _____ is used as biofertilizer:
(A) Azolla (B) Marsilea (C) Equisetum (D) Salvinia

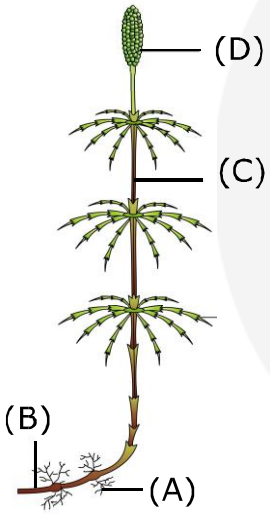
11. Prothallus are normaly thalloid structures they represents
(A) Sporophyte of funaria
(B) Sporophyte of fern
(C) Gametophyte of homosporous pteridophytes
(D) Gametophyte of pinus

12. Independent alternation of generations is present in:
(A) Angiosperms (B) Gymosperms (C) Pteridophytes (D) Bryophytes

13. Archegonium of Selaginella and Equisetum develop
(A) In megaspore and prothallus (B) Only on prothallus
(C) Only in megaspore (D) In gametophyte phase of both plants

14. Consider the following events :
I. Fertilisation
II. Prothallus formation
III. Liberation of spores
IV. Embryo formation
Arrange the above events in a correct sequence in the life cycle of pteridophytes :
(A) I, II, III, IV (B) III, II, I, IV (C) II, III, I, IV (D) IV, I, III, II

15. Which is wrong option for given figure :



(A) A Represent unicellular rhizoids of plant
(B) B Represent rhizome of plant
(C) C Represent internode of plant
(D) D Represent strobilus of plant

16. How many given plants have haplo-diplontic life cycle

(i) Sphagnum	(ii) Ectocarpus	(iii) Selagenella
(iv) Volvox	(v) Polysinoponia	(vi) Pinus
(vii) Fucus	(viii) Laminaria	(ix) Marchantia

(A) 5 (B) 3 (C) 6 (D) 7

17. The cones bearing microporophylls are known as
(A) Male strobili (B) Macrosporangiate
(C) Female strobili (D) Both 2 & 3

18. Which one of the following is a vascular cryptogam?
(A) Cedrus (B) Equisetum (C) Ginkgo (D) Marchantia

NEET-BIOLOGY **ELP NO.-5** **PLANT KINGDOM**

1. The tallest gymnospermic plant is
(A) Pinus (B) Sequoia (C) Cycas (D) Cedrus

2. Endosperm in gymnosperms is
(A) n (B) 2n (C) 3n (D) 4n

3. Pollen grain is
(A) Highly reduced male gametophyte
(B) Well developed male gametophyte
(C) Highly reduced sporophyte
(D) Well developed female gametophyte

4. A. Siphonogamy is found in Pinus
B. Stem branches are monomorphic in Pinus
(A) A and B are incorrect (B) Only A is correct
(C) Only B is correct (D) A and B are correct

5. Pollination in gymnosperms is by
(A) Water (B) Insects (C) Air (D) Animals

6. After fertilisation ovules turn into
(A) Fruit (B) Seed (C) Cone (D) Embryo

7. The archegoniate spermatophytes are
(A) Angiosperms (B) Bryophytes (C) Pteridophytes (D) Gymnosperms

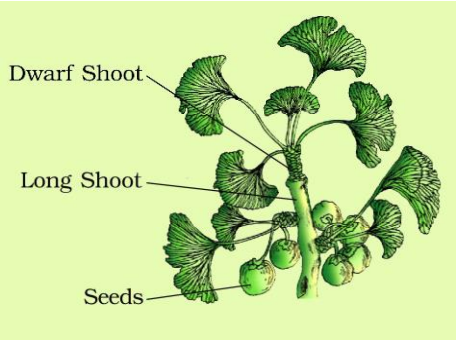
8. Cyanobacteria is found in association with
(A) Coralloid roots of Pinus (B) Mycorrhizal roots of Pinus
(C) Coralloid roots of Cycas (D) Mycorrhizal roots of Cycas

9. Needle leaf of conifers is a
(A) Xerophytic adaptation (B) Mesophytic adaptation
(C) Hydrophytic adaptation (D) Halophytic adaptation

10. Microsporongia and megasporangia are found on different strobilus in :
(A) Fern (B) Selaginella (C) Pinus (D) Moss

11. How many statements are wrong :-
A. Bryophytes have dependent sporophyte
B. Male gametophyte of Gymnosperm contain less number of cell compare to gametophyte of bryophytes
C. Pteridophytes have independent gametophyte and sporophyte stage
D. Moss contain unicellular rhizoids
E. Gametophyte of pteridophytes grow in dry conditions
(A) 4 (B) 1 (C) 3 (D) 2

12. How many statements are wrong about given figure :-



(a) Seeds are not inclosed by ovary wall
(b) Contain branched shoot
(c) Its male gamete are motile
(d) It is a fossil plant found as specimen
(e) It is represent homospory
(A) 5 (B) 3 (C) 4 (D) 2

13. How many given plants or organisms are known as living fossils
(i) Rhvnia (ii) Cycas
(ii) Pinus (iv) Ginkgo biloba
(v) Ephedra
(A) 3 (B) 2 (C) 5 (D) 1

14. Which group of plantae represents smallest group with perennial plants only :
(A) Pteridophyta (B) Angiosperms (C) Bryophyta (D) Gymnosperms

15. Coralloid roots have a symbiotic association with
(A) Photosynthetic green algae
(B) N_2-fixing cyanobacteria
(C) Fungus
(D) Photosynthetic brown

16. Gymnosperms have
(A) Tap root system
(B) Seeds enclosed within the fruit
(C) Rhizoids
(D) Branched stems always

17. Member of plantae having endospermic, perispermic, polycotyledonous and winged seeds is also related to
(A) Sulphur shower (B) Largest ovule
(C) Double fertilization (D) Placentation

18. How many generations are present in the seed of gymnosperm?
(A) 2 (B) 3 (C) 1 (D) 4

19. Gametophytic plant body is nonvascular in
(A) Algae and liverworts
(B) Mosses and ferns
(C) Gymnosperms and angiosperms
(D) All of these

20. Endosperm of gymnosperm is ontogenetically similar to angiospermic
(A) Endosperm (B) Embryo sac
(C) Archegonium (D) Megasporangla

NEET-BIOLOGY **ELP NO.-6** **PLANT KINGDOM**

1. Independent free living, photosynthetic gametophyte is not found in life cycle of
(A) Funaria (B) Marchantia (C) Eucalyptus (D) Riccia

2. Female gametophyte in angiosperms is called
(A) Endosperm (B) Carpel (C) Ovule (D) Embryo sac

3. Select correct w.r.t. diplohaplontic life cycle
(A) Found in Polysiphonia and Gnetum
(B) Both gametophyte and sporophyte phases are present independent to each other
(C) Common in green algae
(D) Gametic meiosis occurs

4. The phanerogams with ovary are
(A) Angiosperms (B) Gymnosperms (C) Bryophytes (D) Pteridophytes

5. All plants have two cotyledons in their seed, except
(A) Pea (B) Eucalyptus (C) Sunflower (D) Orchids

6. Terminal receptive part of pistil which act as a landing plantform for pollen is
(A) Style (B) Ovary (C) Ovule (D) Stigma

7. Fusion of male gamete with diploid secondary nucleus produces _____ and it is known as _____ (respectively).
(A) PEN; Triple fusion (B) PEN; Syngamy
(C) Zygote; Syngamy (D) Zygote; Triple fusion

8. A typical embryo sac is
(A) 8-nucleated and 7-celled (B) 7-nucleated and 7-celled
(C) 8-nucleated and 8-celled (D) 7-nucleated and 8-celled

9. Timber is obtained from
(A) Coriander (B) Mustard (C) Teak (D) Cotton

10. In angiosperms the sporophylls are organised into
(A) Seeds (B) Fruits (C) Flowers (D) Seed coats

11. Which of the following angiosperm is almost microscopic?
(A) Eucalyptus (B) Wolfia
(C) Acacia (D) Colocasia

12. Endosperm of angiosperm is

(A) Triploid usually (B) Diploid

(C) Haploid (D) Tetraploid

13. Fusion of a male gamete with the secondary nucleus forms the

(A) Zygote (B) Embryo

(C) Seed (D) Endosperm

14. An event unique to angiosperms is

(A) Double fertilization (B) Sexual reproduction

(C) Pollination (D) Spore formation

15. Which of the following cells of embryo sac degenerate after fertilisation in angiosperms?

(A) Synergids (B) Polar nuclei

(C) Antipodal cells (D) Both (A) & (C)

16. In angiosperms, the megaspore develops into

(A) Pollen grain (B) Embryo sac

(C) Stigma (D) Ovary

17. The germination of pollen grain results in the formation of

(A) Primary endosperm nucleus (B) Embryo

(C) Pollen tube (D) Polar nuclei

18. Eucalyptus is different from Cedrus in the presence of

(A) Syngamy (B) Seeds

(C) Archegonia (D) Triple fusion

NEET-BIOLOGY **ELP NO.-7** **PLANT KINGDOM**

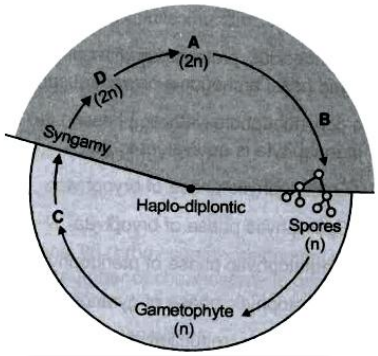
1. Find odd one w.r.t. haplontic life cycle
(A) Ectocarpus (B) Ulothrix (C) Spirogyra (D) Chlamydomonas

2. Haplo-diplontic condition is exhibited by
(A) Most algae (B) Bryophytes (C) Angiosperms (D) Gymnosperms

3. Haplontic life cycle is represented by
(A) Volvox (B) Cycas
(C) Selaginella (D) Salvinia

4. An alga which exhibits diplontic life cycle is
(A) Spirogyra (B) Fucus (C) Polysiphonia (D) Ulothrix

5. Identify the labels A, B, C and D in the figure given below



(A) A - Sporophyte; B – Meiosis; C - Gametogenesis; D - Endosperm
(B) A - Sporophyte; B – Mitosis; C - Gametogenesis; D - Zygote
(C) A - Gametophyte; B – Meiosis; C - Gametogenesis; D - Zygote
(D) A - Sporophyte; B – Meiosis; C - Gametogenesis; D - Zygote

6. Which one of the following has haplontic life cycle?
(A) *Polytrichum* (B) *Caldophora*
(C) *Wheat* (D) *Funania*

Directions for the question 7 to 25: In each of the questions given below, there are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below:
(A) Both the Assertion (A) and Reason (R) are correct, and the reason is the correct explanation for the assertion.
(B) Both the Assertion (A) and Reason (R) are correct, but the reason is not the correct explanation for the assertion.
(C) The Assertion (A) is correct, but the Reason (R) is incorrect.
(D) Both the Assertion (A) and Reason (R) are incorrect.

7. **Assertion (A):** During the life cycle of any sexually reproducing plant, there is alternation of generations between gamete-producing haploid gametophyte and spore-producing diploid sporophyte.
Reason (R): Different plant groups as well as individuals may show different patterns of life cycles – haplontic, diplontic, or intermediate.

8. **Assertion (A):** In plants, both haploid and diploid cells can divide by mitosis.
Reason (R): This ability leads to the formation of different plant bodies - haploid and diploid.

9. **Assertion (A):** The haploid plant body produces gametes by mitosis, representing a gametophyte.
Reason(R): Following fertilization, the zygote also divides by mitosis to produce a diploid sporophytic plant body.

10. **Assertion (A):** Haploid spores are produced by the diploid sporophytic plant body by meiosis.
Reason (R): These spores, in turn, divide by mitosis to form a haploid plant body once again, completing the alternation of generations in sexually reproducing plants.

11. **Assertion (A):** Bryophytes and pteridophytes exhibit an intermediate condition (Haplo-diplontic); both phases are multicellular.
Reason (R): They differ in their dominant phases.

12. **Assertion (A):** In bryophytes, a dominant, independent, photosynthetic, thalloid or erect phase is represented by a haploid gametophyte, alternating with the short-lived multicellular sporophyte.
Reason (R): All pteridophytes exhibit a pattern where the diploid sporophyte is represented by a dominant, independent, photosynthetic vascular plant body, alternating with multicellular, saprophytic/autotrophic, independent but short-lived haploid gametophyte.

13. **Assertion(A)**: While most algal genera are haplontic, some, such as Ectocarpus, Polysiphonia, and kelps, exhibit a haplo-diplontic life cycle pattern.
Reason (R): Fucus, an alga, represents a diplontic life cycle.

14. Which phase represents the dominant, photosynthetic phase in plants with a haplontic life cycle?
(A) Sporophytic generation (B) Zygote
(C) Gametophyte (D) Haploid spores

15. In the haplontic life cycle of plants like Volvox, Spirogyra, and certain Chlamydomonas species, how are haploid spores formed?
(A) Mitosis in the zygote (B) Meiosis in the zygote
(C) Mitosis in the sporophyte (D) Meiosis in the gametophyte

16. What characterizes the sporophytic generation in plants following meiosis in the zygote?
(A) Free-living sporophytes (B) Haploid spores
(C) Photosynthetic phase (D) One-celled zygote

17. Which phase represents the dominant, photosynthetic, independent phase in plants with a diplontic life cycle?
(A) Haploid gametophyte (B) Diploid sporophyte
(C) Haploid spores (D) Zygote

18. Which plant species represents the diplontic life cycle pattern according to the provided data?
(A) Volvox (B) Spirogyra (C) Fucus sp. (D) Chlamydomonas

19. In the diplontic life cycle pattern observed in seed-bearing plants like gymnosperms and angiosperms, what characterizes the gametophytic phase?
(A) Single-celled gametophyte (B) Multi-celled sporophyte
(C) Independent photosynthetic phase (D) Haploid spores

20. Which life cycle pattern is exhibited by bryophytes and pteridophytes according to the provided data?
(A) Haplontic (B) Diplontic (C) Haplo-diplontic (D) Intermediate

21. What characterizes the dominant phase in bryophytes according to the data?
(A) Diploid sporophyte (B) Haploid gametophyte
(C) Multicellular saprophyte (D) Independent vascular plant body

22. What is the dominant phase represented by in pteridophytes?
(A) Diploid sporophyte (B) Haploid gametophyte
(C) Thalloid phase (D) Short-lived multicellular sporophyte

23. Which life cycle pattern is exhibited by algae such as Ectocarpus, Polysiphonia, and kelps?
(A) Haplontic (B) Diplontic (C) Haplo-diplontic (D) Intermediate

24. Which alga is an example of a diplontic life cycle pattern?
(A) Volvox (B) Spirogyra (C) Fucus (D) Chlamydomonas

25. What is the dependency of the sporophyte phase in bryophytes on the gametophyte according to the provided data?
(A) Totally independent (B) Partially dependent
(C) Multicellular (D) Short-lived

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ELP

Educator Led Practice

NEET-BIOLOGY **ELP NO.-1** **MORPHOLOGY OF FLOWERING PLANTS**

1. Which of the following structure shows negative geotropic growth:-
(A) Prop root (B) Stilt root (C) Pneumatophore (D) Tap root

2. Given diagram shows :-

(A) Stilt root of Maize (B) Prop Root of Banyan
(C) Conical root of carrot (D) Pneumatophore of *Rhizophora*

3. Few millimetres above the root cap is _____ and it have _____ walled cells :-
(A) Region of maturation, thick (B) Region of elongation, thin
(C) Region of meristem, thin (D) Region of meristem, thick

4. Which of the following is incorrect?
(A) Roots helps in water and mineral absorption from soil.
(B) Roots provide a proper anchorage.
(C) Roots store food material and synthesise plant growth regulators.
(D) Roots lack meristematic activity.

5. In banana plant, type of stem and modification of stem is respectively :-
(A) Rhizome and sucker (B) Sucker and rhizome
(C) Rhiozome and corm (D) Rhizome and stolon

6. In turmeric, stem is a :-
(A) Tuber (B) Bulb (C) Rhizome (D) Corm

7. Underground stem of pineapple is :-
(A) Runner (B) Sucker (C) Stolon (D) Offset

8. Zaminkand is a stem because :-
(A) It stores food (B) It is produced form radicle
(C) It is underground (D) It has nodes and internodes

9. In some plants 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. Here we are talking about :-
(A) *Pistia* and *Eichhornia*
(B) Peppermint and Jasmine
(C) Banana, pineapple and *Chrysanthemum*
(D) *Opuntia* and *Euphorbia*

10. In which of the following stem carries out photosynthesis like leaf and leaves are modified into spines :-

(A) Citrus (B) Pistia (C) Opuntia (D) Oxalis

11. Potato is (underground) stem because it :-

(A) Possesses axillary buds (eyes) (B) Lacks chlorophyll

(C) Does not bear roots (D) Contains reserve food

12. Root hairs develop from

(A) Region of maturation (B) Region of elongation

(C) Region of meristematic activity (D) Root cap

13. Which of the following plant parts is generally green when young and later often becomes woody and dark brown?

(A) Stem (B) Seed (C) Leaves (D) Flower

14. Which of the following groups of plants have underground stems?

(A) *Potato, ginger, turmeric, Euphorbia, zaminkand*

(B) *Potato, ginger, turmeric, zaminkand, Colocasia*

(C) *Potato, Citrus, Opuntia, zaminkand, Colocasia*

(D) *Potato, cucumber, watermelon, zaminkand, Colocasia*

15. Match the following stem modifications given in column I with their examples given in column II and select the correct combination from the options given below.

Column-I		**Column-II**	
(Stem Modifications)		**(Found in)**	
A.	Underground stem	I.	Euphorbia
B.	Stem tendril	II.	Opuntia
C.	Stem thorns	III.	Potato
D.	Flattened stem	IV.	Citrus
E.	Fleshy cylindrical stem	V.	Cucumber

(A) A-I, B-II, C-III, D-V, E-IV (B) A-II, B - III, C-IV, D - V, E – I

(C) A-III, B-IV, C-V, D-I, E-II (D) A-III, B - V, C - IV, D - II, E – I

NEET-BIOLOGY **ELP NO.-2** **MORPHOLOGY OF FLOWERING PLANTS**

1. Read the following statements and find out incorrect statement.
(A) A typical leaf consists of three main parts leaf base, petiole and lamina.
(B) The leaf is attached to the stem by the leaf base while the petiole helps hold the blade to light.
(C) The lamina (leaf blade) is the green expanded part of the leaf with vein and veinlets.
(D) A bud is present in the axil of petiole of compound leaf but not in the axil of the simple leaf.

2. Alternate phyllotaxy is found in :-
(A) *Ocimum* (B) Sunflower (C) *Nerium* (D) Guava

3. A leaf is identified from a leaflet by :-
(A) Presence of flat green and broad part (B) Photosynthetic nature
(C) Presence of axillary bud (D) Occurrence of chlorophyll

4. In neem, number of leaflets are present on a common axis called :-
(A) Lamina (B) Stipule (C) Rachis (D) Petiole

5. A modification of petiole is :-
(A) Phyllode (B) Phylloclade (C) Cladode (D) Corm

6. *Australian Acacia* is a popular examples of :-
(A) Phylloclade (B) Phyllode (C) Cladode (D) Ochreate

7. In which of the following plants, the leaves are small and short-lived, the petioles expand and become photosynthetic to form phyllode?
(A) *Asparagus* (B) *Cactus*
(C) *Australian Acacia* (D) *Opuntia*

8. Inflorescence is meant for :-
(A) Bearing flowers (B) Ensuring cross pollination
(C) Protection of flower (D) Fruits formation

9. Racemose inflorescence is identified by :-
(A) Acropetal arrangement of flowers on peduncle
(B) Presence of sessile flowers
(C) Continuous growth of main axis
(D) Both (A) and (C)

10. Cymose inflorescence is identified by :-
(A) Basipetal arrangement of flowers on the main axis (Peduncle)
(B) The limited growth of the main axis as main axis terminates in a flower
(C) Both (A) and (B)
(D) Presence of sessile flower

11. Fill in the blanks :-
a. In racemose type of inflorescence the flowers are borne laterally in a .....1.....succession
b. In cymose type of inflorescence the flowers are borne in a.....2.....order.
(A) 1 - acropetal, 2 - basipetal
(B) 1 - basipetal, 2 - acropetal
(C) 1 - acropetal, 2 - acropetal
(D) 1 - basipetal, 2 - basipetal

12. An inflorescence is a group of :-
(A) Petals (B) Stamens (C) Flowers (D) Carpels

13. Spike of spikelets inflorescence is commonly occurs in:-
(A) Cruciferae
(B) Papilionatae / Fabaceae
(C) Poaceae / Gramineae
(D) Solanaceae

14. Presence of racemose head (Capitulum) is a character belongs to :-
(A) Malvaceae (B) Compositae (C) Liliaceae (D) Solanaceae

15. Assertion : A simple leaf has undivided lamina.
Reason : Leaves showing pinnate and palmate venations have various type of incisions.
(A) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
(B) If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
(C) If Assertion is true but Reason is false.
(D) If both Assertion and Reason are false.

NEET-BIOLOGY **ELP NO.-3** **MORPHOLOGY OF FLOWERING PLANTS**

1. In which of the following perianths are found?
(A) Lily (B) China rose (C) Rose (D) Pea

2. Choose the incorrect match :-
(A) Zygomorphic flowers (Bilateral symmetry) - Pea, gulmohur, bean, *Cassia*
(B) Asymmetric (irregular flower) - *Canna*
(C) Inferior ovary - Pea
(D) Superior ovary/Hypogynous flower - mustard, china rose and brinjal

3. Which of the following is an incorrect match?
(A) Perigynous flower - Plum, rose and peach
(B) Monadelphous - Pea
(C) Epigynous flower - Guava, cucumber, and ray florets of sunflower
(D) Polyadelphous - *Citrus*

4. Which of the following combinations is false?
(A) Apocarpous - Carpels free - Lotus, Rose
(B) Syncarpous - Carpels fused - Mustard, tomato
(C) Placenta - Arrangement of ovules within ovary
(D) Arrangement of ovules within ovary - Ovulation

5. Pollen receptor in gynoecium is its :-
(A) Ovary (B) Style (C) Stigma (D) Thalamus

6. Epiphyllous condition is indicated by :-
(A)  (B)  (C)  (D) 

7. Maize grain is a :-
(A) Seed (B) Fruit (C) Flower (D) Inflorescence

8. Drupe fruit is found in :-
(A) Mustard and *Argemone* (B) Sunflower and Marigold
(C) Mango and Coconut (D) Pea and bean

9. Legume fruit is found in :-
(A) Gram, arhar, sem, moong and soyabean
(B) Sweet pea, *Lupin*, *Sesbania, Trifolium* and muliathi
(C) Groundnut, *Indigofera, sunhemp, Pisum* and lentils
(D) All of the above

10. Drupe fruit of mango develops from :-
(A) Monocarpellary superior ovaries and are one seeded
(B) Monocarpellary inferior ovaries and are many seeded
(C) Monocarpellary superior ovaries and are many seeded
(D) Bicarpellary superior ovaries and are many seeded

11. Match the columns I and II, and choose the correct combination from the options given below :-

Column I	Column II
a. *Colocasia*	1. Flattened stem
b. Watermelon	2. Stem thorn
c. *Opuntia*	3. Storage stem
d. *Euphorbia*	4. Stem tendril
e. *Bougainvillea*	5. Fleshy cylindrical stem

(A) a - 3, b - 4, c - 5, d - 1, e - 2
(B) a - 3, b - 2, c - 1, d - 5, e - 4
(C) a - 4, b - 2, c - 5, d - 1, e - 3
(D) a - 3, b - 4, c - 1, d - 5, e - 2

12. Ginger multiplies vegetatively by or edible part of ginger is :-
(A) Bud (B) Stem (C) Tuber (D) Rhizome

13. Morphology of Flowering Plants-
Find out the false statement :-
(A) In dicotyledonous seeds, cotyledons are often fleshy and full of reserve food
(B) Generally, mocotyledonous seeds are endospermic
(C) Generally, dicotyledonous seeds are non-endospermic
(D) Most of the monocotyledonous seeds have fleshy cotyledons

14. Which of the following monocotyledonous seeds is non-endospermic?
(A) Maize (B) Coconut (C) Orchid (D) Wheat

15. The aleurone layer in maize grain is especially rich in :-
(A) Proteins (B) Starch (C) Lipids (D) Auxins

16. The structure coleorhiza in a maize grain is the covering of :-
(A) Radicle (B) Plumule (C) Scutellum (D) Aleurone layer

17. Plumule is covered by :-
(A) Root cap (B) Coleorrhiza (C) Coleoptile (D) Hypocotyl

18. Scutellum is the first leaf of :-
(A) Monocot (B) Dicot (C) Gymnosperm (D) Pteridophytes

NEET-BIOLOGY **ELP NO.-4** **MORPHOLOGY OF FLOWERING PLANTS**

1. Trimerous flowers, superior ovary and axile placentation is characteristic features of :-
(A) Liliaceae (B) Papilionaceae (C) Cucurbitaceae (D) Solanaceae

2. Pulses belongs to which plant family?
(A) Gramineae (B) Solanaceae (C) Liliaceae (D) Fabaceae

3. Belladona is the drug alkaloid extracted from the leaves of :-
(A) *Datura* (B) *Solanum* (C) *Atropa* (D) *Rauwolfia*

4. Neel is obtained from :-
(A) *Crocus sativus* (B) *Haematoxylon compechianum*
(C) *Indigofera tinctoria* (D) *Aconitum heterophyllum*

5. Which of the following is not the member of Liliaceae?
(A) Aloe (B) *Colchicum*
(C) *Pisum* (D) *Asparagus*

6. Vexillary aestivation is characteristic of the family :-
(A) Fabaceae (B) Asteraceae
(C) Solanaceae (D) Brassicaceae

7. How many plants in the list given below have marginal placentation?

Mustard, Gram, Tulip, Asparagus, Arhar, Sun Hemp, Chilli, *Colchicum*, Onion, Moong, Pea, Tobacco, Lupin.

(A) Four (B) Five (C) Six (D) Three

8. Which of the following is a very good medicinal plant?
(A) Aloe (B) Pea (C) Lupin (D) Tulip

9. The correct floral formula of chilli is :-
(A) $Br \oplus \female P_{3+3}\overset{\frown}{A}_{3+3}\underline{G}_{(3)}$ (B) $\oplus \female K_{(5)}\overset{\frown}{C}_{(5)}A_{(5)}\underline{G}_{(2)}$
(C) $\% \female K_{(5)}\, C_{1+3+(2)}A_{(9)+1}\underline{G}$ (D) $\female K_{2+2}C_4A_{2+4}\underline{G}_{(2)}$

10. **Assertion:** Inflorescence in Compositae is capitulum.
Reason: Compositae is a dicot family.
(A) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion.
(B) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
(C) If assertion is true but the reason is false.
(D) If both assertion and reason are false.

11. **Assertion:** Fruit is caryopsis in Poaceae.
Reason: Placentation is parietal in Poaceae.
(A) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion.
(B) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
(C) If assertion is true but the reason is false.
(D) If both assertion and reason are false.

12. Point out the correct example of Cruciferae –
(A) Mustard (B) Pea (C) Onion (D) Brinjal

13. Read the following four statements (A - D):
(A) Zygomorphic flowers are found in Fabaceae family.
(B) Monoadelphous stamens are found in Fabaceae family.
(C) Papilionaceous corolla is found in Fabaceae family.
(D) Inferior ovary is found in Fabaceae family.
How many of the above statements are wrong?
(A) Four (B) One (C) Two (D) Three

14. Aestivation of petals in family Malvaceae is –
(A) Valvate (B) Imbricate (C) Twisted (D) Vexillary

15. Shepherd's purse plant belongs to family –
(A) Cruciferae (B) Malvaceae (C) Solanaceae (D) Leguminosae

16. Monoadelphous androecium is found in –
(A) Compositae (B) Liliaceae (C) Malvaceae (D) Cruciferae

17. Characteristic feature of Malvaceae family is
(A) Monothecous anthers (B) Didynamous stamens
(C) Presence of staminodes (D) Basal placentation

18. Diadelphous condition is common in –
(A) Malvaceae (B) Cruciferae (C) Liliaceae (D) Fabaceae

19. Root nodules occurs in plants of family –
(A) Fabaceae (B) Liliaceae (C) Malvaceae (D) Compositae

20. Presence of racemose head (Capitulum) and bicarpellary syncarpous ovary with basal placentation belongs to
(A) Malvaceae (B) Compositae (C) Liliaceae (D) Solanaceae

21. Which of the following families have the largest geographical distribution
(A) Malvaceae (B) Leguminosae (C) Solanaceae (D) Compositae

22. Bean and gram belongs to the family -
(A) Liliaceae (B) Fabaceae (C) Solanaceae (D) Cruciferae

23. Fruit legume is characteristic feature of –
(A) Solanaceae (B) Liliaceae (C) Fabaceae (D) Malvaceae

NEET-BIOLOGY **ELP NO.-1** **ANATOMY OF FLOWERING PLANTS**

1. Which of the following statements is incorrect for secondary meristems?
(A) They regenerate the parts of grasses damaged by grazers
(B) They are the cylindrical meristems
(C) They occur in the mature regions of roots and shoots
(D) They appear later than primary meristems in the life of a plant.

2. Tissue is :-
(A) Group of cells which are similar in origin and function
(B) Group of organs which are similar in origin and function
(C) Cells which are similar in function but not in origin
(D) Group of cells which are not similar in origin and function

3. Plant tissues are divided into meristematic and permanent tissues on which of the following basis?
(A) Whether the plant is a dicot or a monocot
(B) Whether the cells those constitutes the tissue are capable of dividing or not
(C) Position
(D) Origin

4. Branch of botany dealing with the internal organization of plants is called :-
(A) Cytology (B) Physiology
(C) Anatomy (D) Ecology

5. The axillary bud is constituted by :-
(A) Primary meristem (B) Secondary meristem
(C) Cylindrical meristem (D) Lateral meristem

6. What is the function of lateral meristem?
(A) It gives rise to the lateral branches
(B) It increases girth of the plant axis
(C) It increases girth as well as length of the plant axis
(D) It increases only length of the plant axis

7. The intrafascicular cambium :-
(A) Is a simple permanent tissue (B) Is a meristematic tissue
(C) Is a complex permanent tissue (D) Is secondary meristem

8. Choose odd one out with respect to primary meristem :-
(A) Apical meristem (B) Fascicular cambium
(C) Cork cambium (D) Intercalary meristem

9. The tissue which participates in the secondary growth is
(A) Lateral meristem (B) Apical meristem
(C) Intercalary meristem (D) Primary meristem

10. The cambial ring is generally
(A) More active on the inner side than on the outer
(B) More active on the outer side than on the inner
(C) Equally active towards both sides
(D) Equally inactive towards both sides

11. All of the following statements are correct for cells of parenchyma except:-
(A) They are generally isodiametric
(B) They have lignified cell walls
(C) They may be spherical, oval, polygonal or elongated in shape
(D) They are the mature cells

12. Collenchyma tissue is a _____tissue.
(A) Living and non-mechanical (B) Dead and mechanical
(C) Living and mechanical (D) Dead and non-mechanical

13. Sclerenchyma tissue is a _____tissue.
(A) Living and non-mechanical (B) Dead and mechanical
(C) Living and mechanical (D) Dead and non-mechanical

14. The parenchymatous cells are :-
(A) Dead (B) Thick-walled
(C) Thin-walled (D) Thick walled and dead

15. Collenchyma differs from parenchyma in :-
(A) Possessing thick cell wall (B) Lacking protoplasm
(C) Containing chloroplasts (D) Being meristematic

16. Which among the following are generally absent in the collenchyma?
(A) Chloroplasts (B) Vacuoles
(C) Intercellular spaces (D) Pectin deposition

17. Lignified cell walls are present in the :-
(A) Parenchyma (B) Sclerenchyma
(C) Collenchyma (D) Chlorenchyma

18. The elongated, thick walled and tapering cells are :-
(A) Parenchymatous (B) Collenchymatous
(C) Chlorenchymatous (D) Sclerenchymatous

19. Sclereids are commonly found in :-
(A) Young stems and petioles of leaves (B) Fruit wall of many plants
(C) Primary roots (D) Fleshy stems

20. Which of the following is not true about 'sclereids'?
(A) These are groups of living cells
(B) These are found in fruit wells and pulp of guava and pear fruit.
(C) These are also called stone cells
(D) These are form of sclerenchyma

NEET-BIOLOGY **ELP NO.-2** **ANATOMY OF FLOWERING PLANTS**

1. Companion cells in plants are associated with
(A) Vessels (B) Sieve tube elements
(C) Tracheid's (D) Phloem fibers

2. Component of phloem which is absent in most of the monocots is
(A) Phloem parenchyma (B) Sieve pores
(C) Sieve tube (D) Companion cell

3. What is the function of vessels in flowering plants?
(A) Transport of food (B) To get rid of excess water
(C) Photosynthesis (D) Transport of water and minerals

4. The component which does not belong to xylem is
(A) Vessel (B) Tracheid (C) Sieve tube (D) Fibres

5. Which of the following statements is correct?
(A) Angiosperms lack vessels in their xylem
(B) The presence of vessels in a characteristic feature of angiosperms
(C) The cells of vessels are living
(D) Vessels is a long cylindrical tube-like cell made up of many vessel members

6. The central lumens are obliterated in
(A) Xylem fibres (B) Tracheids (C) Vessels (D) Sieve tubes

7. Which of the following xylem elements is living?
(A) Vessel (B) Tracheid (C) Fibre (D) Parenchyma

8. The presence of vessels and companion cells is a characteristic of
(A) Ferns (B) Gymnosperms (C) Bryophytes (D) Angiosperms

9. The functions of sieve tubes are controlled by the nucleus of
(A) Sieve cells (B) Companion cells (C) Phloem fibres (D) Phloem parenchyma

10. Whose main function is storage of food?
(A) Phloem parenchyma (B) Tracheids
(C) Vessels (D) Tracheae

11. In which of the following characters, a monocot root differs from a dicot root?
(A) Radial vascular bundles (B) Large pith
(C) Presence of root hair (D) Absence of root hair

12. In dicots vascular bundles are generally :-
(A) Open (B) Close (C) Radial (D) Bicollateral

13. The ground tissue of leaf is called :-
(A) Parenchyma (B) Collenchyma (C) Mesophyll (D) Vascular Tissue

14. Which of the following component of epidermal tissue system possess chloroplast?
(A) Trichomes (B) Guard cells (C) Subsidiary cells (D) Cuticle

15. The conjuctive tissue lies between the
(A) Xylem and phloem (B) Pericycle and endodermis
(C) Epidermis and cortex (D) Epidermis and hypodermis

16. The casparian strips are present on the plant cells which are
(A) Bean shaped (B) Dumb bell shaped
(C) Barrel shaped (D) lens shaped

17. In which of the following characters, a monocot root differs from a dicot root?
(A) Radial vascular bundles
(B) Large pith
(C) Connjuctive tissue in between xylem and phloem
(D) Single layered endodermis

18. Vascular bundles surrounded by a sclerenchymatous bundle sheath is a feature of
(A) Dicot root (B) Monocot root
(C) Dicot stem (D) Monocot stem

19. The central most portion of stem of dicotyledonous plants is occupied by
(A) Vascular bundles (B) Pericycle
(C) Pith (D) Cortex

20. Which of the following is not true for the vascular bundles of monocotyledonous stems?
(A) Scattered in the ground tissue (B) Possess water-containing cavities
(C) 'Ring' arrangement (D) Conjoint and closed

21. The epidermis in a dorsiventral leaf
(a) Covers both adaxial and abaxial surfaces
(b) Is not covered by cuticle
(c) Bears more stomata on the upper side
(d) May even lack stomata on the upper side Which of the above statements are correct?
(A) (a) and (c) (B) (b) and (d) (C) (a) and (d) (D) (b) and (c)

22. The cambium ring of roots resembles the cambium ring of stem in
(A) Its mode of function (B) Its origin from ground tissue
(C) Its wavy outline (D) All of these

23. The presence of cambium in the vascular bundles provides them the ability to
(A) Radially transport the food (B) Form secondary tissues
(C) Prevent water loss due to transpiration (D) Conduct photosynthesis

NEET-BIOLOGY **ELP NO.-1** **PHOTOSYNTHESIS IN HIGHER PLANTS**

1. CO_2 is required for photosynthesis. This conclusion was drawn by performing?
(A) Variegated leaf experiment (B) Moll's half leaf experiment
(C) Bell – jar experiment (D) C. Niel experiment

2. First action spectrum of photosynthesis was described in?
(A) Cladophora (B) Volvox (C) Chlorella (D) Spirulina

3. Primary pigment of photosynthesis?
(A) Forms reaction centre of photosynthesis
(B) Forms LHC
(C) Absorbs only short wavelength of light
(D) Both (A) & (B)

4. Maximum absorption of light takes place in?
(A) Red and far red (B) Blue and violet
(C) Green (D) Blue and red

5. The graph which explains the rate of photosynthesis?
(A) Absorption spectrum (B) Action spectrum
(C) Both (A) and (B) (D) None

6. The molecules which prevents the damage of pigments are called?
(A) Photosystem (B) LHP
(C) Antenna molecules (D) Accessory pigments

7. Which among the following is present only in grana lamellae?
(A) PSI (B) PSII
(C) Both (A) and (B) (D) None

8. Assertion: light reaction takes place on thylakoid membrane
Reason: Chlorophyll pigments are present on thylakoid membrane
(A) Both A and R is true , R explains A
(B) Both A and R is true, R does not explain A
(C) A is true , R is false
(D) A and R are false

9. Which among the following is semi-autonomous organelle?
(A) Golgi apparatus (B) Chloroplast
(C) Nucleus (D) All the above

10. Who proved that O_2 is evolved from H_2O and not from CO_2?
(A) Moll's half leaf (B) Joseph (C) Cornelius (D) Ruben

11. The water soluble photosynthetic pigment is?
(A) Chlorophyll a (B) Xanthophyll
(C) Anthocyanin (D) Chlorophyll b

12. During photosynthesis the raw material used are?
(A) Glucose (B) Sugar (C) Starch (D) CO_2 and O_2

13. The first step of Z scheme is?
(A) Splitting of H_2O (B) Excitation of electrons
(C) Release of O_2 (D) Synthesis of ATP

14. Where is the physical location of water splitting complex?
(A) In the lumen of thylakoid membrane, with PSI
(B) Towards the stroma side of thylakoid membrane, PSII
(C) Towards the lumen side of membrane of thylakoid membrane, PSII
(D) On the outer side of membrane of thylakoid with PSI

15. Which of the following is not a function of accessory pigments?
(A) Absorption of shorter wavelength of light spectrum
(B) Enable to trap a wider range of wavelength
(C) Protection of chl-a
(D) Release of electrons on absorption of light

16. Cyclic photophosphorylation normally occurs in?
(A) Stroma (B) Matrix (C) Grana lamellae (D) Stroma lamellae

17. Select incorrect statement w.r.t LHC?
(A) Made up of hundreds of pigment molecules
(B) Pigment molecules are bound to lipids
(C) Harvest different wavelengths of light
(D) Help to make photosynthesis more efficient

18. LHC
(A) Enables absorption of wider wavelengths of light
(B) Consists of accessory pigments
(C) Has hundreds of pigment molecules
(D) More than one option is correct

19. Which among the following is primary photosynthetic pigment?
(A) Chl-b (B) Chl-a (C) Chl-c (D) Carotenoids

20. Action spectrum and absorption of which pigment is approximately same?
(A) Chl-a (B) Chl-b (C) Carotenoids (D) Xanthophylls

NEET-BIOLOGY **ELP NO.-2** **PHOTOSYNTHESIS IN HIGHER PLANTS**

1. Photosynthesis is
(A) Anabolic (B) Catabolic (C) Endergonic (D) Both (A) and (B)

2. What are the regions in which maximum photosynthesis takes place?
(A) Red region (B) Blue region
(C) Green region (D) Both red and blue regions

3. Which among the following participates in both cyclic and non- cyclic photophosphorylation?
(A) PSI (B) PSII
(C) Both PSI and PSII (D) None

4. Which are the group of pigments that converts light energy to chemical energy?
(A) Photosystem (B) LHC (C) LHP (D) Proteins

5. Which among the following makes photosynthesis more efficient?
(A) Photosystem (B) LHC (C) LHP (D) Proteins

6. What is the range of PAR?
(A) 400-700 (B) 400-800 (C) 500-700 (D) 700-900

7. Which among the following have electrons that get excited upon receiving light energy?
(A) LHC (B) LHP (C) Reaction centre (D) All the above

8. As part of the electron transport chain during terminal oxidation, what is the cytochrome that donates electrons to O_2?
(A) Cytochrome-b (B) Cyto-C (C) Cyto-a3 (D) Cyto-f

9. The light reaction of photosynthesis does not produce which of the following?
(A) O_2 (B) ATP, $NADPH_2$
(C) High-energy electrons (D) Sugar

10. Photosynthesis begins with which of the following steps?
(A) ATP formation (B) Glucose formation
(C) Photolysis of water (D) Activation of chlorophyll by light

11. What statement about the C_4 pathway is false?
(A) It requires more energy than the C_3 pathway for the production of glucose
(B) It overcomes loss due to photorespiration
(C) The CO_2 acceptor is a C_3 compound
(D) It is inhibited by high CO_2 concentration

12. What is the first electron acceptor in photosystem-I?
(A) Cytochrome (B) Plastocyanin
(C) An iron-sulphur protein (D) Ferredoxin

13. In photosynthesis, what is the first substance a green plant produces?
(A) A simple sugar (B) Starch (C) Fats (D) Proteins

14. What is the first electron acceptor of an excited chlorophyll molecule of photosystem II?
(A) Quinone (B) Cytochrome
(C) Iron-sulphur protein (D) Ferredoxin

15. What is the ultimate gain of light reaction?
(A) ATP & $NADPH_2$ (B) $NADPH_2$
(C) Only ATP (D) Only O_2

16. During the light reaction of photosynthesis, which of the following occurs?
(A) Chlorophyll is produced (B) Water splits to form $2H^+$ & O_2
(C) CO_2 is given off as a waste (D) Sugar is formed from CO_2 and water

17. What is the process of splitting water in photosynthesis called?
(A) Dark reaction (B) Photolysis (C) Electron transfer (D) Phototropism

18. In the half-leaf experiment of photosynthesis, KOH solution is used because?
(A) It provides O_2 to the leaf. (B) It provides moisture to the leaf.
(C) It helps in CO_2 fixation. (D) It absorbs CO_2

19. During the process of photosynthesis, the raw materials used are?
(A) Glucose (B) Chlorophyll (C) Starch (D) CO_2 and H_2O

20. Photosynthesis is most active in?
(A) Sun light (B) Yellow light (C) Red light (D) Green light

NEET-BIOLOGY **ELP NO.-3** **PHOTOSYNTHESIS IN HIGHER PLANTS**

1. Structurally, chlorophyll a and b are different as?
(A) Chl a has a methyl group and Chl b has an aldehyde group.
(B) Chl a has an aldehyde group and Chl b has a methyl group.
(C) Chl a has an ethyl group and Chl b has an aldehyde group.
(D) Chl a has a carboxyl group and Chl b has an aldehyde group

2. In plants during the process of photosynthesis?
(A) CO_2 is taken in (B) O_2 is taken in
(C) CO_2 is taken out (D) O_2 is taken in and CO_2 is given out

3. The function of ATP in photosynthesis is the transfer of energy from the?
(A) Dark reaction to the light reaction (B) Light reaction to the dark reaction
(C) Chloroplasts to mitochondria (D) Mitochondria to chloroplasts

4. The process of taking in CO_2 by plants and releasing O_2 is termed as?
(A) Transpiration (B) Respiration
(C) Photosynthesis (D) Endosmosis

5. Chlorophyll in chloroplasts is located in
(A) Grana (B) Pyrenoid
(C) Stroma (D) Both grana and stroma

6. What is common between chloroplasts, chromoplasts and leucoplasts?
(A) Storage of starch, proteins and lipids
(B) Possession of thylakoids and grana
(C) Presence of pigments
(D) Ability to multiply by a fission-like process

7. Which enzyme is most abundantly found on earth?
(A) Catalase (B) Rubisco (C) Nitrogenase (D) Invertase

8. How can we describe the conversion of phosphoglyceric acid to phosphoglyceraldehyde during photosynthesis?
(A) Oxidation (B) Hydrolysis (C) Electrolysis (D) Reduction

9. What conditions are C_4 plants adapted to?
(A) Hot and dry climate (B) Temperate climate
(C) Cold and dry climate (D) Hot and humid climate

10. Which is the first carbon dioxide acceptor in C_4 plants?
(A) Pyruvate (B) Phosphoenol pyruvate
(C) Ribulose biphosphate (D) Ribulose 5, phosphate

11. During photosynthesis, water is split and oxygen is released during?
(A) Photolysis (B) Red drop (C) Pasteur effect (D) Calvin cycle

12. Where does the energy required by PS II to synthesize ATP come from?
(A) Proton gradient (B) Electron gradient
(C) Reduction of glucose (D) Oxidation of glucose

13. Why is the dark reaction in photosynthesis called that?
(A) It can occur in the dark also (B) It does not directly depend on light energy.
(C) It cannot occur during daylight (D) It occurs more rapidly at night

14. For which of the following is RUBP the primary CO_2 acceptor?
(A) C_4 plants (B) C_3 plants (C) C_2 plants (D) Both C_3 and C_4 plants

15. In the light reaction, what is the correct sequence of electron flow?
(A) PS II, plastoquinone, cytochromes, PS I, ferredoxin
(B) PS I, plastoquinone, cytochromes, PS II, ferredoxin
(C) PS I, ferredoxin, PS II
(D) PS I, plastoquinone, cytochromes, PS II, ferredoxin

16. C_3 plants do not contain which of the following enzyme?
(A) RuBP carboxylase (B) PEP carboxylase
(C) NADP reductase (D) ATP synthase

17. The first stable product formed when CO_2 is added to PEP is?
(A) Pyruvate (B) Glyceraldehyde-3-phosphate
(C) Phosphoglycerate (D) Oxaloacetate

18. Which of the following is true about bundle sheath cells?
(A) Are rich in RuBisCO
(B) Are rich in PEP carboxylase
(C) Lack RuBisCO
(D) Lack both RuBisCO and PEP carboxylase

19. Chlorophyll is composed of which metal ion?
(A) Iron (B) Copper (C) Magnesium (D) Zinc

20. How does CAM help plants?
(A) Conserving water (B) Secondary growth
(C) Disease resistance (D) Reproduction

NEET-BIOLOGY **ELP NO.-4** **PHOTOSYNTHESIS IN HIGHER PLANTS**

1. What is a process that makes an essential difference between C_3 and C_4 plants?
(A) Transpiration (B) Glycolysis (C) Photosynthesis (D) Photorespiration

2. What favours photorespiration?
(A) Low light intensity
(B) Low O_2 and high CO_2
(C) Low temperature
(D) High O_2 and Low CO_2

3. Photorespiration involves oxidation of ?
(A) PGA (B) RuBP (C) Chlorophyll a (D) Both (A) and (B)

4. Peroxisomes are involved in which type of reactions?
(A) Calvin cycle
(B) Glyoxylate cycle
(C) Glycolate cycle
(D) Bacterial photosynthesis

5. Photorespiration occurs in?
(A) Four cell organelles
(B) Two cell organelles
(C) One cell organelle
(D) Three cell organelle

6. The optimum temperature for photosynthesis is?
(A) 25-35°C (B) 10-15°C (C) 35-40°C (D) 20-25°C

7. It is only the green part of the plant, which takes part in?
(A) Respiration
(B) Transpiration
(C) Photosynthesis
(D) Osmosis

8. The concentration of CO_2 in the atmosphere is approximately?
(A) 0.003 % (B) 0.03 % (C) 0.30 % (D) 3.00 %

9. Respiration and photosynthesis both require?
(A) Green cells (B) Sun lights (C) Cytochromes (D) Organic fuel

10. ADP + iP = ATP in grana is called?
(A) Phosphorylation
(B) Oxidative phosphorylation
(C) Photophosphorylation
(D) Photolysis

11. Which of the following is not a significance of photosynthesis?
(A) Glucose synthesis for most of consumer
(B) Increase in greenhouse effect
(C) Provides O_2 for synthesis of ozone umbrella
(D) Provides O_2 for cell respiration

12. The specific characteristic of C_4-plants is?
(A) Bulliform cells (B) Isobilateral leaf
(C) Kranz anatomy (D) Parallel veins configuration

13. Discovery of Emerson effect has already shown the existence of?
(A) Two distinct photosystems
(B) Light and dark reactions of photosynthesis
(C) Photophosphorylation
(D) Photorespiration

14. which is the limiting factor for photosynthesis?
(A) Light (B) Water
(C) Carbon dioxide (D) Chlorophyll

15. First organic compound produced during for photorespiration is
(A) Serine (B) Glycolate
(C) Indole acetic acid (D) Malic acid

16. Which of the following Is involved in transfer of electrons in photosynthesis-
(A) Phytochrome (B) Cytochrome (C) Photohormone (D) Desmosome

17. In dark rection, the first reaction is the
(A) Carboxylation (B) Decarboxylation
(C) Dehydrogenation (D) Deamination

18. From which source charged molecule of P – 680 gets the electron?
(A) From P-700 (B) From Water
(C) From $NADPH_2$ (D) None of the above

19. Main factor which limits the rate of photosynthesis on a clear day of C_3 plant is
(A) Chlorophyll (B) Light (C) CO_2 (D) Water

20. In the leaves of C_4 plants, malic acid formation during CO_2 fixation occurs in the cells of:-
(A) Epidermis (B) Mesophyll
(C) Bundle Sheath (D) Phloem

NEET-BIOLOGY **ELP NO.-1** **RESPIRATION IN PLANTS**

1. Which of the following is an essential feature of respiration?
(A) It liberates energy
(B) It provides O_2
(C) Utilize CO_2
(D) Synthesize complex compounds

2. In cellular respiration, what role does molecular oxygen play?
(A) It causes the breakdown of citric acid.
(B) To combine with glucose to produce carbon dioxide.
(C) To combine with carbon from organic molecules to produce carbon dioxide.
(D) To combine with hydrogen from organic molecules to produce water.

3. What enzyme is inhibited by an excess of ATP?
(A) Phosphofructokinase (B) Hexokinase
(C) Aldolase (Lyases) (D) Pyruvate decarboxylase

4. What is respiration?
(A) anabolic + exergonic (B) catabolic + exergonic
(C) catabolic + endergonic (D) anabolic + endergonic

5. In glycolysis, what removes electrons during oxidation?
(A) Molecular oxygen (B) ATP
(C) Glyceraldehyde (D) NAD^+

6. During the early stages of alcoholic fermentation there is a high rate of yeast growth. After some time the rate decreases. Which of the following conditions in the culture medium is least likely to have caused this?
(A) Depletion of glucose (B) Depletion of oxygen
(C) Depletion of mineral salts (D) Accumulation of waste products

7. During glycolysis, what catalyses the phosphorylation of glucose?
(A) phosphoglucomutase (B) phosphoglucoisomerase
(C) hexokinase (D) phosphorylase

8. Pyruvic acid, the key product of glycolysis can have many metabolic fates. What does it form under aerobic conditions?
(A) lactic acid (B) $CO_2 + H_2O$
(C) acetyl Co – A + CO_2 (D) ethanol + CO_2

9. Fructose-1,6-Biphosphate is broken down by which enzyme?
(A) Hexokinase (B) Phosphatase (C) Aldolase (D) None of these

10. Pyruvate (pyruvic) dehydrogenase is used in converting?
(A) Pyruvate to glucose (B) Glucose to pyruvate
(C) Pyruvic acid to lactic acid (D) Pyruvate to acetyl coA

11. Where does glycolysis occur?
(A) Mitochondria (B) Chloroplast (C) Cytoplasm (D) Peroxisome

12. When anaerobic respiration occurs after glycolysis, what is it called?
(A) Fermentation (B) Fragmentation (C) Restoration (D) Multiplication

13. Glycolysis and the Krebs cycle are connected by which of the following?
(A) Acetyl CoA (B) Oxalosuccinic acid
(C) Pyruvic acid (D) Citric acid

14. What is the energy-releasing process in which the substrate is oxidised without an external electron acceptor called?
(A) Fermentation (B) Photorespiration
(C) Aerobic respiration (D) Glycolysis

15. What catalyses the conversion of fructose–6–phosphate to fructose 1, 6- bis/Fructose 1,6 diphosphate?
(A) Phosphofructokinase (B) Aldolase
(C) Hexokinase (D) None of these

NEET-BIOLOGY **ELP NO.-2** **RESPIRATION IN PLANTS**

1. What is the basis of the chemiosmotic theory of ATP synthesis in chloroplasts and mitochondria?
(A) Membrane potential (B) Accumulation of Na ions
(C) Accumulation of K ions (D) Proton gradient

2. In which stage of complete glucose oxidation do the most ATP molecules form from ADP?
(A) Glycolysis
(B) Krebs cycle
(C) Conversion of pyruvic acid to acetyl Co-A
(D) Electron transport chain

3. The location of the electron Transport System (ETS) is in the mitochondrial
(A) Outer membrane (B) Intermembrane space
(C) Inner membrane (D) Matrix

4. What mediates the conversion of pyruvic acid into ethyl alcohol?
(A) Phosphatase (B) Dehydrogenase
(C) Decarboxylase & dehydrogenase (D) Catalase

5. In respiration, what is the final electron acceptor?
(A) CO_2 (B) O_2 (C) H_2 (D) NADH

6. Total number of ATP produced by complete oxidation of one molecular of glucose is?
(A) 30 (B) 38 (C) 60 (D) Only 10

7. All enzymes of the TCA cycle are located in the mitochondrial matrix except one which is located in inner mitochondrial membranes in eukaryotes and in the cytosol in prokaryotes. Which is this enzyme?
(A) Isocitrate dehydrogenase (B) Malate dehydrogenase
(C) Succinate dehydrogenase (D) Lactate dehydrogenase.

8. What reaction is incorrectly paired with its location?
(A) ATP synthesis/inner membrane of the mitochondrion.
(B) Fermentation/cell cytosol
(C) Glycolysis/cell cytosol
(D) Krebs cycle/cristae of the mitochondrion

9. Where are respiratory enzymes located?

(A) Mitochondrial matrix (mitochondria) and Inner membrane

(B) Perimitochondrial space

(C) Cristae

(D) Outer membrane

10. In which of the following reactions is $FADH_2$ produced?

(A) Succinic acid to fumaric acid

(B) Fumaric acid to malic acid

(C) Succinyl Co-A to succinic acid

(D) Isocitric acid to oxaloacetic acid

11. What process uses oxygen directly?

(A) Glycolysis

(B) Fermentation

(C) Electron transport

(D) Krebs citric acid cycle

12. The inner mitochondrial membrane has complex V of the ETS. Which one is it?

(A) NADH dehydrogenase

(B) Cytochrome c oxidase

(C) Ubiquinone

(D) ATP synthetase

NEET-BIOLOGY **ELP NO.-3** **RESPIRATION IN PLANTS**

1. What does it mean if R. Q. is less than 1.0 in respiratory metabolism?
(A) Carbohydrates are used as a respiratory substrate
(B) Organic acids are used as a respiratory substrate
(C) The oxidation of the respiratory substrate consumed more oxygen than the amount of CO_2 released
(D) The oxidation of the respiratory substrate consumed less oxygen than the amount of CO_2 released

2. Amino acid synthesis involves which intermediate compound?
(A) Malic acid (B) Citric acid
(C) a-ketoglutaric acid (D) Isocitric acid

3. What is the energy coin of a cell?
(A) DNA (B) RNA (C) ATP (D) Minerals

4. When one molecule of glucose is oxidized in aerobic respiration, what is formed?
(A) 36 ATP molecules (B) 38 ATP molecules
(C) 3 ATP molecules (D) 15 ATP molecules

5. Which of the following exhibits the greatest rate of respiration?
(A) Growing shoot apex (B) Germinating seed
(C) Root tip (D) Leaf bud

6. Which of molecule transport electrons between complex III and IV?
(A) Cytochrome C (B) Ubiquinone
(C) FAD (D) FMN

7. How many rounds of krebs cycle require to oxidise one molecule of glucose?
(A) One (B) Two
(C) Three (D) Four

8. What is the precursor for carotenoids, terpenes and gibberellins?
(A) Acetyl co-a (B) Succinyl co-a
(C) Oxaloacetic acid (D) Ketoglutaric acid

9. What is the most favoured substrate for respiration?
(A) Carbohydrates (B) Fats
(C) Proteins (D) Organic acids

10. A competitive inhibitor of succinate dehydrogenase?
(A) Malate (B) Malonate
(C) Oxaloacetic acid (D) Ketoglutarate acid

NEET-BIOLOGY **ELP NO.-1** **PLANT GROWTH AND DEVELOPMENT**

1. What is the primary precursor of I.A.A?
(A) Phenylalanine (B) Tyrosine (C) Tryptophan (D) Valine

2. Which of the following is responsible for inducing cell division and delay in senescence?
(A) cytokinins (B) auxins (C) GA (D) ABA

3. Which of the following helps in the growth of the plant body?
(A) Lateral meristems (B) Apical meristems
(C) Both apical and lateral meristems (D) None of these

4. Choose the incorrectly matched pair from the following.
(A) Auxins – "to grow" (B) Gibberellins – "gibberella fujikuroi"
(C) Cytokinins – Herring sperm DNA (D) Abscisic acid – Flowering hormone

5. Some growth regulators affect stomatal opening. How is the closure of stomata brought about?
(A) Abscisic acid (B) Kinetin
(C) Gibberellic acid (D) Indole butyric acid

6. If a plant's terminal bud is removed, what will happen?
(A) The plant will die. (B) The lateral buds will grow.
(C) The shoot will die. (D) All its leaves will fall.

7. In bioassay of what are the Avena curvatures used?
(A) ABA (B) GA_3 (C) IAA (D) Ethylene

8. What plant hormone promotes seed dormancy, bud dormancy and stomatal closure?
(A) IAA (B) Abscisic acid (C) GA (D) Cytokinin

9. Which of the following pairs is incorrectly matched?
(A) IAA – Cell wall elongation (B) Abscisic acid – Bolting
(C) Gibberellic acid – Stem elongation (D) Cytokinin – Cell division

10. Prunning of plants promotes branching because the axillary buds get sensitized to what?
(A) Ethylene (B) Gibberellin (C) Cytokinin (D) IAA

11. Phases of growth is:
(A) Meristematic phase (B) Elongation phase
(C) Maturation phase (D) All of the above

12. Terpenes are precursors of
(A) Auxin (B) Cytokinin (C) Abscisic acid (D) Gibberellic acid

13. The growth of pollen tube is measured in
(A) Fresh weight (B) Size (C) Length (D) Cell number

14. Identify the correct statement
(A) Sigmoid curve is a characteristic of living organism in a natural environment.
(B) Initial phase of slow growth is stationary phase.
(C) Genetic factors do not affect growth.
(D) Interfascicular cambium & cork cambium are examples of re-differentiated cells.

15. Find the correct sequence.
(A) Meristematic cell → Differentiation → Mature cell → Senescence.
(B) Mature cell → Expansion → Meristematic cell → Cell division → Senescent cell
(C) Mature cell → Differentiation → Meristematic cell → Senescence
(D) Senescent → Cell division → Mature cell → Senescence

16. With limited nutrient supply, finally rate of growth slows down leading to.
(A) Lag phase (B) Log phase
(C) Exponential phase (D) Stationary phase

17. Which of the following is an effect of auxin?
(A) Senescence (B) Petiole elongation in rice plants
(C) Parthenocarpy (D) Overcome apical dominance

18. Fruits can be left on tree for longer so as to extend the market period. This is due to
(A) Auxin (B) Gibberellins (C) Cytokinins (D) Ethylene

19. Which of the following is used to kill dicotyledonous plants?
(A) GA (B) ABA (C) 2, 4-D (D) Kinetin

20. The gaseous hormone that could fit in the group. of growth promoter as well as growth inhibitor but it is largely an inhibitor is
(A) GA (B) ABA (C) Ethylene (D) Auxin

NEET-BIOLOGY **ELP NO.-2** **PLANT GROWTH AND DEVELOPMENT**

1. Growth can be measured in various ways. For measuring growth, which of the following can be used as parameters?
(A) increase in cell number (B) increase in cell size
(C) increase in length and weight (D) All of these

2. Growth in plants is?
(A) Restricted to certain regions or structure
(B) Irreversible
(C) Change in size
(D) All of the above

3. The growth in plants can be best expressed as:
(A) Open (B) Determinate
(C) Closed (D) Redundant

4. Development is a term that includes all changes that a plant goes through during its life cycle:
(A) till germination of seed (B) during its vegetative growth
(C) from germination till flowering (D) from germination to senescence

5. Plants follow different pathways in response to the environment to form different kinds of structures. This ability is called:
(A) Efficiency index (B) Plasticity
(C) Norm of reaction (D) Developmental noise

6. The growth curve of a meristematic cells at tip of plant and an embryo will be:
(A) Linear and Y shaped respectively (B) J shaped and Y shaped respectively
(C) Y shaped and J shaped respectively (D) Linear and J shaped respectively

7. Difference in shape of leaves produced in air and those in water represents heterophyllous development in;
(A) Cotton (B) Coriander (C) Larkspur (D) Butter cup

8. Plasticity in plant growth means:
(A) Plants roots are extensible (B) Plant growth is dependent on environment
(C) Stems can extend (D) None of the above

9. Fruit and leaf drop at early stages can be prevented by:
(A) Cytokinins (B) Ethylene (C) Gibberellic acid (D) Auxins

10. Plant growth is:
(A) Indeterminate (B) Open (C) Diffused (D) Both (A) and (B)

11. Growth promoters are
(A) Auxin (B) Gibberellins (C) Cytokinins (D) All of these

12. Who observed that canary grass responded to phototropism?
(A) Charles Darwin of his for Francis Darwin
(B) E. Kurosawa
(C) Skoog
(D) Cousins

13. Inhibitor- B is
(A) Auxin (B) Cytakinin (C) ABA (D) GA

14. To increase the length of sugarcane, it is sprayed with
(A) Auxin (B) GA (C) ABA (D) Cytokinin

15. Find the mismatch pair
(A) GA – Bolting (B) Parthenocarpy in tomatoes - Auxin
(C) NAA - Natural auxin (D) Dormie – ABA

16. Nutrient mobilisation is promoted by
(A) Auxin (B) GA (C) Cytokinin (D) ABA

17. Identify the correct statement.
(A) Cork is an example of secondary meristem.
(B) Turgidity of cells helps in extension growth.
(C) Idealised growth curve of cells growing in culture is sigmoid.
(D) Both (B) and (C)

18. Measurement & comparison of total growth per unit time in plants is
(A) Absolute growth rate (B) Relative Growth Rate
(C) Lag phase (D) Log Phase

19. Auxin was isolated by
(A) Darwin (B) FW Went (C) Skoog (D) Miller

20. Which of the following is an herbicide?
(A) 2, 4-D (B) GA (C) Ethylene (D) None of these

NEET-BIOLOGY **ELP NO.-3** **PLANT GROWTH AND DEVELOPMENT**

1. Which one of the following growth regulators is known as 'stress hormone'?
(A) Abscisic acid (B) Ethylene (C) GA_3 (D) Indole acetic acid

2. During seed germination its stored food is mobilized by:
(A) Ethylene (B) Cytokinin (C) ABA (D) Gibberellin

3. Which one of the following acids is a derivative of carotenoids?
(A) Indole-butyric acid (B) Indole-3-acetic acid
(C) Gibberellic acid (D) Abscisic acid

4. Which one of the following pairs is not correctly matched?
(A) Abscisic acid – Stomatal closure
(B) Gibberellic acid – Leaf fall
(C) Cytokinin – Cell division
(D) IAA – Cell wall elongation

5. Differentiation of shoot is controlled by:
(A) High gibberellins – cytokinin ratio (B) High auxin – cytokinin ratio
(C) High cytokinin – auxin ratio (D) High gibberellin – auxin ratio

6. The differentiated cells have lost the capacity to divide, such cell regain the capacity of division under certain conditions, such phenomenon is termed as
(A) Differentiation (B) Dedifferentiation
(C) Redifferentiation (D) None of the above

7. Cells produced after dedifferentiation once again lose the capacity to divide but get matured to perform certain functions. This phenomenon is termed as:
(A) Dedifferentiation (B) Dedifferentiation
(C) Redifferentiation (D) None of the above

8. _____ is the natural Cytokinin that was extracted and isolated from corn Kernels and Coconut milk
(A) Kinetin (B) Zeatin (C) Adenine (D) Purine

9. Identify the correct function of ethylene
(A) Ethylene promotes senescence of leaves.
(B) Ethylene is used to inhibit the flowering.
(C) Ethylene cause stunted growth of roots.
(D) Ethylene inhibit root hair formation.

10. Growth in dorsiventral leaf is measured in terms of:
(A) Length of leaf (B) Increase in cell number
(C) Surface area increase (D) None of these

11. Ethephon is used in
(A) Malting process (B) Elongate the shape of apple
(C) Promoting female flowers in cucumbers (D) Producing new leaves of chloroplast

12. All GA_g are
(A) Acidic (B) Basic (C) Neutral (D) Both acidic & neutral

13. Who controls xylem differentiation of helps in cell division?
(A) Auxin (B) Cytokinin (C) GA (D) ABA

14. Spraying juvenile conifers with which hormone will hasten. the maturity period?
(A) Auxin (B) Cytokinin (C) GA (D) Ethylene

15. Which hormone helps the deep-water rice plants to remain above the water?
(A) Auxin (B) Cytokinin (C) GA (D) Ethylene

16. The site of perception of light/dark duration are
(A) Leaves (B) Flowers (C) Stem (D) Roots

17. Promotion of flowering by a period of low temperature is called
(A) Photoperiodism (B) Vernalisation (C) Seed dormancy (D) Parthenocarpy

18. Which hormone hastens fruit ripening in tomatoes?
(A) ABA (B) Ethephon (C) GA (D) 2, 4-D

19. The plants that show no correlation between exposure to light duration and induction of flowering are called
(A) Long-day plants (B) Short-day plants
(C) Day-neutral plants (D) None of these

20. Stress hormone is
(A) ABA (B) GA (C) Auxin (D) Ethylene

1. All of the following are basis of classification of animals except
(A) Body symmetry (B) Number of cells (C) Nature of coelom (D) Arrangement of cells

2. Organ level of organisation is present in the members of which phylum?
(A) Platyhelminthes (B) Cnidaria (C) Ctenophora (D) Porifera

3. What is true for open circulatory system?
(A) Capillaries are present
(B) Blood is circulated only through a series of vessels of varying diameter
(C) Present in earthworm
(D) Cells and tissues are directly bathed in blood

4. Triploblastic acoelomate animals belong to which phylum?
(A) Platyhelminthes (B) Ctenophora
(C) Aschelminthes (D) Annelida

5. When any longitudinal plane passing through the central axis of the body divides the organism into two identical halves, it is called
(A) Bilateral symmetry (B) Asymmetry
(C) Radial symmetry (D) Biradial symmetry

6. Which of the following is incorrect w.r.t. notochord?
(A) Rod-like structure
(B) Ectodermally derived
(C) Present on the dorsal side
(D) Absent in animals ranging from phylum Porifera to Echinodermata

7. Mark the incorrect statement for the phyla, Platyhelminthes to Echinodermata.
(A) All groups represent organ/organ - system level of organization
(B) All are bilaterally symmetrical
(C) All are triploblastic
(D) None of these

8. True Coelom is cavity between alimentary canal and body wall enclosed by -
(A) Ectoderm and endoderm
(B) Mesoderm on both sides
(C) Ectoderm on both sides
(D) Mesoderm and ectoderm

9. Identify the figures and selected the correct option.

A B C

(A) A-Coelomate; B-Pseudocoelomate; C-Acoelomate,
(B) A-Pseudocoelomate; B-Coelomate, C-Acoelomate
(C) A-Coelomate; B-Acoelomate; C-Pseudocoelomate
(D) A-Coelomate; B-Acoelomate; C-Eucoelomate

10. Radial symmetry occurs in-

(A) Porifera and Coelenterata
(B) Coelenterata and Platyhelminthes
(C) Arthropoda and Mollusca
(D) Coelenterata and Echinodermata

11. Which one of the following statement regarding coelom of given animals is correct?

(A) Molluscs are acoelomates.
(B) Insects are pseudocoelomates.
(C) Flatworms (platyhelminthes) are coelomates.
(D) Round worms (aschelminthes) are pseudo- coelomates.

12. Match the features given in column I with their examples given in column II and choose the correct match from the option given below.

	Column-I (Features)	**Column-II (Examples)**
A.	Pseudocoelomates	(i) Hydra, Adamsia
B.	Diploblastic	(ii) Ctenoplana, Aurelia
C.	Cellular level of organization	(iii) Ascaris, Wuchereria
D.	Radial symmetry	(iv) Sycon, Spongilla
E.	Metamerism	(v) Pheretima, Neries

	A	**B**	**C**	**D**	**E**
(A)	(v)	(ii)	(iv)	(iii)	(i)
(B)	(ii)	(i)	(iii)	(v)	(iv)
(C)	(iii)	(ii)	(iv)	(i)	(v)
(D)	(iii)	(i)	(iv)	(ii)	(V)

13. **Assertion:** Animals possessing coelom are called coelomates.
Reason: Annelids, molluscs, arthropods, echinoderms, hemichordates and chordates are acoelomates.

(A) Assertion and reason both are true and the reason is correct explanation of assertion.
(B) Assertion and reason both are true but reason is not correct explanation of assertion.
(C) Assertion is true but reason is wrong.
(D) Assertion and reason both are wrong.

NEET-BIOLOGY **ELP NO.-2** **ANIMAL KINGDOM**

1. Digestive system in phylum Platyhelminthes
(A) Has one opening to the outside of the body
(B) Has two openings to the outside of the body
(C) Is absent in most of the members
(D) Opens through excretory pore to the outside of the body

2. Choose the odd one w.r.t. coelenterates
(A) Ectoderm (B) Mesoderm (C) Mesoglea (D) Endoderm

3. Select the correct option w.r.t. sponges
(A) All are marine
(B) All are asymmetrical
(C) Usually monoecious
(D) Collar cells line spongocoel only

4. Development may be direct or indirect in the members of which phylum?
(A) Porifera (B) Aschelminthes (C) Ctenophora (D) Platyhelminthes

5. Which of the following is a fresh water sponge?
(A) Sycon (B) Spongilla (C) Cnidaria (D) Corals

6. Comb jellies belong to -
(A) Porifera (B) Ctenophora (C) Euspongia (D) Pleurobrachia

7. Given below are four statements regarding Aschelminthes.
A. They are bilaterally symmetrical and triploblastic.
B. They are dioecious.
C. All are plants or animals' parasites.
D. They are acoelomate.
Mark the option that has both the correct statements.
(A) A, B (B) B, C (C) A, C (D) B, D

8. Which is universal for sponges?
(A) Marine
(B) Calcareous spicules
(C) High regenerative Power
(D) Radial symmetry

9. Polyp phase is absent in -
(A) Aurelia (B) Hydra (C) Physalia (D) Obelia

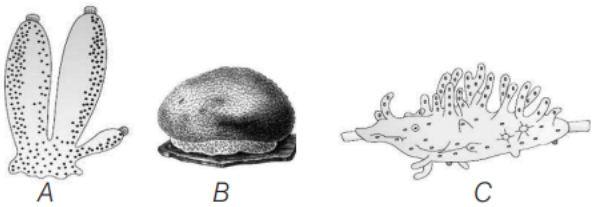
10. Identify the figure A, B, C and D and select the correct option.

(A) A-Pleurobrachia, B-Cnidoblast, C-Aurelia, D-Adamsia
(B) A-Aurelia, B-Adamsia, C-Cnidoblast, D-Pleurobrachia
(C) A-Cnidoblast, B-Pleurobrachia, C-Adamsia, D-Aurelia
(D) A-Adamsia, B-Aurelia, C-Pleurobrachia, D-Cnidoblast

11. Which of the following group of animals reproduces only by sexual means?
(A) Cnidaria (B) Ctenophora (C) Porifera (D) Protozoa

12. Which of the following statement(s) is/are correct regarding phylum aschelminthes?
(i) The body is circular in cross-section hence the name roundworms.
(ii) Alimentary canal is complete with a well- developed muscular pharynx.
(iii) Sexes are separate (dioecious), i.e., males and females are distinct.
(iv) Nephridia help in osmoregulation and excretion.
(A) (i) and (ii) (B) (i), (ii) and (iii) (C) (iii) and (iv) (D) All of these

13. Examine the figures A, B and C. In which one of the four options all the items A, B and C are correctly identified?



	A	**B**	**C**
(A)	Sycon	Euspongia	Spongilla
(B)	Euspongia	Spongilla	Sycon
(C)	Spongilla	Sycon	Euspongia
(D)	Euspongia	Sycon	Spongilla

14. Which of the following phylum is being described by the given statements?
(i) These are primitive multicellular animals and have cellular level of organization.
(ii) Digestion is intracellular.
(iii) They have a water transport or canal system.
(iv) They reproduce asexually by fragmentation and sexually by formation of gametes.
(A) Ctenophora (B) Porifera (C) Coelenterata (D) Platyhelminthes

15. **Assertion:** Sponges have a water transport or canal system.
Reason: In canal system water enters through ostia in the spongocoel from where it goes out through the osculum.
(A) Assertion and reason both are true and the reason is correct explanation of assertion.
(B) Assertion and reason both are true but reason is not correct explanation of assertion.
(C) Assertion is true but reason is wrong.
(D) Assertion and reason both are wrong.

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ELP

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NEET-BIOLOGY **ELP NO.-3** **ANIMAL KINGDOM**

1. Metameric segmentation is present in

(A) Ascaris (B) Balanoglossus (C) Pila (D) Pheretima

2. Choose the correct match w.r.t. excretory structure

(A) Fasciola – Excretory tube
(B) Ancylostoma – Flame cells
(C) Laccifer – Malpighian tubules
(D) Chaetopleura – Proboscis gland

3. Select the incorrect match w.r.t. fertilisation

(A) Ctenophores – External
(B) Roundworms – Internal
(C) Sponges – Internal
(D) Echinoderms – Interna

4. All are correct w.r.t. respiratory organ of animal shown below, except

(A) Feather like gills
(B) Present in the members of second largest phylum
(C) Present in visceral hump
(D) Help in respiration and excretion

5. Match column-I with column-II and choose the correct option

Column-I	**Column-II**
a. Asterias	(i) Jointed appendages
b. Sycon	(ii) Canal system
c. Apis	(iii) Excretory system is absent
d. Nereis	(iv) Parapodia

(A) a(ii), b(iii), c(iv), d(i) (B) a(iii), b(ii), c(i), d(iv)
(C) a(i), b(ii), c(iii), d(iv) (D) a(iv), b(iii), c(ii), d(i)

6. Sexes are separate in

(A) Pleurobrachia (B) Taenia (C) Nereis (D) Hirudinaria

7. All are the functions of water vascular systemin echinoderms except

(A) Locomotion (B) Respiration
(C) Reproduction (D) Capture and transport of food

8. Match column-I with column-II and choose the correct match.

Column-I	**Column-II**
a. Euspongia	(i) Calcareous shell
b. Corals	(ii) Exoskeleton of calcium carbonate
c. Pinctada	(iii) Spongin fibres
d. Echinus	(iv) Calcareous endoskeleton

(A) a(iii), b(ii), c(i), d(iv) (B) a(iii), b(iv), c(i), d(ii)
(C) a(iv), b(iii), c(ii), d(i) (D) a(i), b(ii), c(iii), d(iv)

9. In most of the members of largest phylum, the body consists of
(A) Head, muscular foot and visceral hump (B) Head, thorax and abdomen
(C) Proboscis, collar and trunk (D) Cephalothorax and abdomen

10. Which of the following organism is correctly matched with its common name?
(A) Adamsia-sea anemone (B) Aurelia-comb jelly
(C) Ancylostoma-pin worm (D) Aplysia-sea mouse

11. Arthropoda is characterized by-
(A) Triploblastic, bilateral symmetry and abdominal appendages
(B) Bilateral symmetry and pair of wings
(C) Exoskeleton, metmeric segmentation and jointed appendages
(D) Acoelomate and radial symmetry

12. Which of the following statements (i-v) are incorrect?
(i) Parapodia are lateral appendages in arthropods used for swimming.
(ii) Radula in molluscs are structures involved in excretion.
(iii) Aschelminthes are dioecious.
(iv) Echinoderm adults show radial symmetry.
(v) Ctenophorans are diploblastic.
(A) (i) and (ii) (B) (i), (iv) and (v) (C) (i) and (iii) (D) (iii) and (v)

13. Which of the following statement(s) is/are correct regarding phylum mollusca?
(A) They are bilaterally symmetrical, triploblastic and coelomate animals.
(B) Body is covered by a calcareous shell and is unsegmented with a distinct head, muscular foot and visceral hump.
(C) The mouth contains a file-like rasping organ for feeding, called radula.
(D) All of the above

14. Aquatic annelids (like Nereis) possess lateral appendages swimming. called which help in
(A) Parapodia (B) Visceral hump (C) Radula (D) Spicules

15. Column I contains zoological names of animals and column II contains their common name. Match the following and choose the correct option.

Column-I	**Column-II**
A. Physalia	I. Sea anemone
B. Meandrina	II. Brain coral
C. Gorgonia	III. Sea fan
D. Adamsia	IV. Portuguese man-of-war

(A) A – III; B – II; C – I; D – IV
(B) A – IV; B – III; C – II; D – I
(C) A – IV; B – II; C – III; D – I
(D) A – II; B – III; C – I; D – IV

16. Column-I contains the characteristics features and column-II contains the function/ location. Select the correct match from the option given below.

Column-I (Characteristic feature)	**Column-II (Function/Location)**
A. Water canal system	(i) Sponges
B. Comb plates	(ii) Help in swimming
C. Nephridia	(iii) Present in mollusca
D. Jointed appendages	(iv) Characteristics of roundworm
E. Muscular foot	(v) Found in Arthropoda
	(vi) Helps in reproduction
	(vii) Platyhelminthes
	(viii) Helps in osmoregulation and excretion
	(ix) Eight ciliated external rows present in a body of Ctenophora.

	A	**B**	**C**	**D**	**E**
(A)	(i)	(ix)	(viii)	(v)	(iii)
(B)	(iii)	(i)	(vi)	(ii)	(v)
(C)	(ii)	(v)	(i)	(iv)	(ix)
(D)	(iii)	(vi)	(iv)	(v)	(i)

17. Which of the following belong to phylum arthropoda?

(A) Bombyx and Apis (B) Laccifer and Anopheles
(C) Locusta and Limulus (D) All of the above

18. Which of the following is a living fossil?

(A) Balanoglossus (B) Limulus (C) Echinus (D) Ancylostoma

19. Read the following statements and answer the question.

(i) They are exclusively marine, radially symmetrical, diploblastic organisms with tissue level of organisation.
(ii) Body bears eight external rows of ciliated comb plates, which help in locomotion.
(iii) Digestion is both extracellular and intracellular.
(iv) Reproduction takes place only by sexual means.
Which of the following phylum is being described by above statements?

(A) Platyhelminthes (B) Mollusca (C) Ctenophora (D) Arthropoda

20. **Assertion:** The most distinctive feature of echinoderms is the presence of water vascular system.
Reason: Water vascular system helps in locomotion, capture and transport of food and respiration.
(A) Assertion and reason both are true and the reason is correct explanation of assertion.
(B) Assertion and reason both are true but reason is not correct explanation of assertion.
(C) Assertion is true but reason is wrong.
(D) Assertion and reason both are wrong.

NEET-BIOLOGY **ELP NO.-4** **ANIMAL KINGDOM**

1. Chordates are characterised by the presence of
(A) Double, ventral, solid nerve cord (B) Dorsal heart
(C) Notochord (D) Only organ level of organisation

2. Select the correct statement w.r.t. notochord in urochordates.
(A) Extends from head to tail in adults (B) Present in larval tail only
(C) Persists throughout the life of organism (D) Replaced by vertebral column

3. Chordates differ from non-chordates in all except
(A) Presence of paired pharyngeal gill slits (B) Position of heart
(C) Presence of three germ layers (D) Presence of post anal tail

4. All chordates are not vertebrates because
(A) Notochord is present in all vertebrates throughout life
(B) Ventral muscular heart is present
(C) Notochord is not replaced by a cartilaginous or bony vertebral column in protochordates
(D) Kidneys are present for excretion and osmoregulation

5. Which of the following is not a feature of vertebrates?
(A) Ventral muscular heart (B) Kidneys for osmoregulation
(C) Dorsal, single, solid nerve cord (D) Paired fins or limbs

6. Select the incorrect statement w.r.t. chordates.
(A) Notochord is dorsal to gut (B) Notochord is dorsal to nerve cord
(C) Nerve cord is dorsal to gut (D) Nerve cord is dorsal, single and hollow

7. Poikilotherms with internal fertilization, oviparity and direct development are all,
(A) Ascidia (B) Hemidactylus (C) Aligator (D) Chameleon

8. How many among following are able to maintain constant body temperature and can fly?

Pteropus, Neophron, Columba, Struthio, Pavo, Macaca

(A) One (B) Two (C) Four (B) Three

9. Select the mismatch w.r.t. scientific name in column I and common name in column II.

Column I	**Column II**
(A) Dog	Canis
(B) Clarias	Magur
(C) Calotes	Garden lizard
(D) Corvus	Crow

10. Which of the following is a jawless vertebrate?
(A) Petromyzon (B) Scolidon (C) Calotes (D) Macropus

11. Choose the odd one w.r.t. cyclostomes.
(A) Sucking and circular mouth (B) Presence of paired fins
(C) Absence of jaws (D) Scales are absent

12. In chondrichthyes, scales are
(A) Cycloid (B) Ganoid (C) Ctenoid (D) Placoid

13. Chondrichthyes differ from Osteichthyes in possessing
(A) Claspers (B) Bony endoskeleton
(C) Air bladder (D) Operculum

14. Cloaca is present in
(A) Pteropus, Felis (B) Rana, Ichthyophis
(C) Labeo, Exocoetus (D) Camelus, Delphinus

15. Which of the following animal is a homeotherm and is oviparous?
(A) Elephas (B) Pristis (C) Exocoetus (D) Aptenodytes

16. Choose the mismatch.
(A) Equus – Similar types of teeth
(B) Columba – Pneumatic bones
(C) Crocodilus – Scutes
(D) Neophron – Air sacs connected to lungs

17. Select the odd one w.r.t. external fertilization.
(A) Betta (B) Bufo (C) Carcharodon (D) Pterophyllum

18. Which of the following is incorrect w.r.t. Aves?
(A) Forelimbs have scales
(B) Air sacs supplement respiration
(C) Crop and gizzard are the additional chambers in the digestive tract
(D) Endoskeleton is fully ossified

19. Exclusive characters of members of class mammalia are all of the following except
(A) Pulmonary respiration (B) Ear pinnae
(C) Mammary glands (D) Hair

20. Four-chambered heart and epidermal scales on body are present in
(A) Bufo (B) Pristis (C) Canis (D) Crocodilus

21. **Statement I:** Amphibia, Reptilia, Aves and Mammals included in super class tetrapoda.
Statement II: They have two pairs of limbs, adapted for walking, running, climbing, burrowing, swimming or flying.
(A) Both statements are correct
(B) Statement I is correct & II is incorrect
(C) Statement I is incorrect & II is correct
(D) Both statements are incorrect

NEET-BIOLOGY **ELP NO.-1 STRUCTURAL ORGANISATION IN ANIMALS**

1. Which of the following statement is correct?
(A) Adhering junctions keep the cells intact
(B) Compound epithelia is meant for secretion
(C) Simple columnar epithelia facilitates diffusion
(D) Intercellular substances are not the part of tissue.

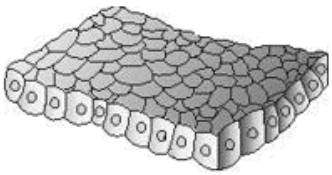
2. Stomach and colon are lined by respectively -
(A) Simple squamous epithelium and simple squamous epithelium
(B) Simple cuboidal epithelium and simple columnar epithelium
(C) Stratified columnar epithelium and simple cuboidal epithelium
(D) Simple columnar epithelium and simple columnar epithelium

3. Select the mismatch :
(A) Wall of blood vessels - simple columnar epithelium
(B) PCT - simple columnar epithelium
(C) Stomach - simple cuboidal epithelium
(D) Fallopian tubes – ciliated epithelium

4. Which type of cell junctions are meant for preventing leakage across an epithelium
(A) Tight junctions (B) Adhering junctions
(C) Gap junctions (D) Interdigitations

5. Single layer of flattened cells with irregular boundaries is observed in all of the following except :
(A) Blood vessels (B) Ducts of glands
(C) Lining of oesophagus (D) Two of the above

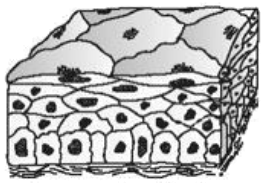
6. Select the option in which the given epithelia is found.



(A) Lining of alveoli (B) Lining of colon
(C) DCT (D) Lining of blood vessels

7. What is not correct about microvilli?
(A) Also known as brush bordered epithelia
(B) Found in small intestine and PCT both
(C) Meant for movement of fluid
(D) These are infoldings of cell membrane

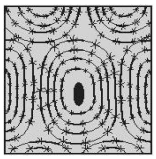
8. In the diagram, an epithelia is shown. Identify the correct set of organs or tissues in which the given epithelia is found.



(A) Lining of alveoli, lining of stomach
(B) PCT and lining of small intestine
(C) Skin epithelia, lining of colon
(D) Skin epithelia, pancreatic ducts

9. ***Assertion:*** Gap junction perform cementing function to keep the neighbouring cells together.
Reason: Tight junction facilitate the cells to communicate with each other by connecting the cytoplasm of adjoining cells, for rapid transfer of ions, small and big molecules, etc.
(A) If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(B) If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.
(C) If Assertion is true but the Reason is false.
(D) If both the Assertion and Reason are false.

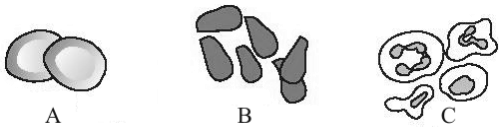
10. Given diagram is of a specialised connective tissue. Identify it.



(A) Bone
(B) Cartilage
(C) Bone marrow
(D) Blood

11. Identify the specialised connective tissue on the basis of following features :
A. Intercellular material is solid and non-pliable
B. Non – compressible
C. Content increases with age specially upto 25 yrs.
(A) Bones
(B) Cartilage
(C) Blood
(D) Both (A) and (B)

12. Identify the given blood cells (A-C) :



	A	**B**	**C**
(A)	RBC	WBC	Blood platelets
(B)	WBC	RBC	Blood platelets
(C)	Blood platelets	RBC	WBC
(D)	RBC	Blood platelets	WBC

13. ***Assertion:*** Mast cells in the human body release excessive amounts of inflammatory chemicals, which cause allergic reactions.
Reason: Allergens in the environment on reaching human body stimulate mast cells in certain individuals.
(A) If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(B) If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.
(C) If Assertion is true but the Reason is false.
(D) If both the Assertion and Reason are false.

14. Which type of tissue forms glands ?
(A) Nervous (B) Epithelium (C) Muscular (D) Connective

15. Goblet cells (in GIT) are a type of –
(A) Multicellular gland (B) Unicellular gland
(C) Intercellular gland (D) Salivary gland

16. Which of the following statements is false about the glands ?
(A) Goblet cells secrete mucus
(B) Exocrine glands possess duct for secretion of mucus, milk, saliva, earwax, digestive enzymes, oil and other cell products
(C) Glandular epithelium consists of specialized columnar or cuboidal cells
(D) Endocrine glands secrete a variety of enzymes only

17. Which of the following statements is correct about the loose connective tissue ?
I. Areolar tissue and adipose tissue are the examples of loose connective tissue
II. Loose connective tissue has cells and fibres loosely arranged in a semifiuid ground substance
III. Areolar connective tissue connects skin with muscles
IV. Often areolar connective tissue serves as a support frame work for epithelium
(A) All (B) Only II (C) Only III (D) Only I, II and IV

18. Tendons and ligaments are the examples of –
(A) Bone (B) Cartilage
(C) Dense regular connective tissue (D) Dense irregular connective tissue

19. Ligament connects
(A) Muscle to skin (B) Bone to bone
(C) Muscle to muscle (D) Muscle to bone

20. Areolar tissue joins
(A) Integument to muscle (B) Bones to muscle
(C) Bone to bone (D) Fat body to muscle

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ELP

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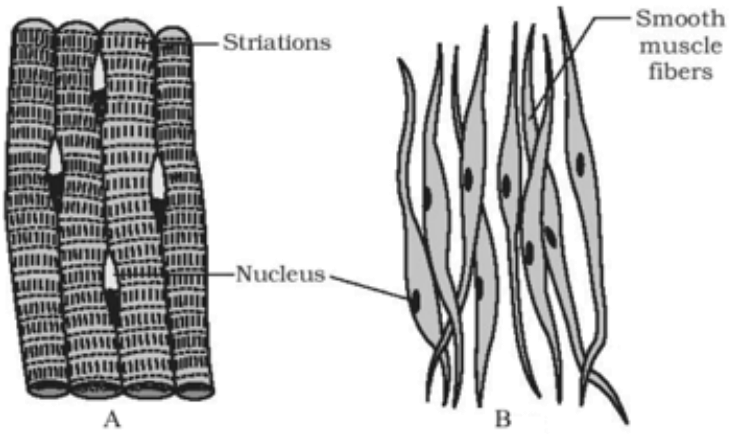
NEET-BIOLOGY **ELP NO.-2 STRUCTURAL ORGANISATION IN ANIMALS**

1. P, Q and R are 3 types of muscle tissues. Select the option with correct information.

(A) P is smooth muscle with long and unbranched cylindrical fibres.
(B) Q is smooth muscle without striations.
(C) P is skeletal muscle with little blood supply.
(D) P is cardiac muscle without striations.

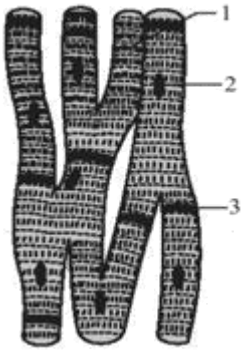
2. A and B are two types of muscle tissues given is diagram. Select the option in which A and B are correctly compared.



	Feature	**A**	**B**
(A)	Blood supply	Highly vascular	Highly vascular
(B)	Striations	Absent	Present
(C)	Branching	Unbranched	Unbranched
(D)	Nature	Voluntary	Voluntary

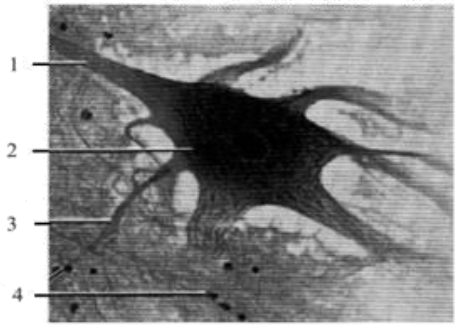
3. Heart possess :
(A) Cardiac muscles only
(B) Cardiac muscles + Neural tissue
(C) Cardiac muscles + Neural tissues + Epithelial tissues
(D) Cardiac muscles + Neural tissues + Epithelial tissues + Connective tissues

4. Identify the muscle tissue given with correct labelling.



(A) Smooth muscle, 1 = Striations, 3 = Gap junctions
(B) Skeletal muscle, 2 = Nucleus, 3 = Striations
(C) Cardiac muscle, 1 = Striations, 3 = Intercalated discs
(D) Cardiac muscle, 2 = Intercalated discs, 2 = Striations

5. Labelled diagram of neural tissue is given. Select the option with correct set of labellings.



(A) 1 - Axon, 3 - Neuroglea, 4 – Dendrite
(B) 2 - Cell body, 3 - Dendrite, 4 - Neuroglea
(C) 1 - Cell body, 2 - Axon, 4 – Neuroglea
(D) 1 - Axon, 2 - Dendrite, 3 - Cell body

6. Which statement is not correct regarding neural tissue ?
(A) Neuron is an excitable cell
(B) Neuroglial tissues are half the volume of neural tissues of body
(C) Neurons are responsible for responsiveness of our body
(D) Neurons and neuroglial cells, both are excitable cells

7. Which of the following statement is correct ?
(A) Dendrites posses Nissl's granules
(B) Schwann cell is found in unmyelinated neurons
(C) Axoplasm is rich in proteins
(D) Two of the above.

8. ***Assertion:*** Thick layers of muscles are present in the wall of alimentary canal.
Reason: These muscles help in the mixing of food materials with the enzymes coming from different glands in the alimentary canal.
(A) If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(B) If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.
(C) If Assertion is true but the Reason is false.
(D) If both the Assertion and Reason are false.

9. ***Assertion:*** All motor neurons are efferent neurons.
Reason: Motor neurons conduct nerve impulses from the spinal cord to the brain.
(A) If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(B) If both Assertion and Reason are true but the Reason is not a correct explanation of the Assertion.
(C) If Assertion is true but the Reason is false.
(D) If both the Assertion and Reason are false.

10. Which of the following muscle fibres do not show striation and taper at both ends?
(A) Cardiac muscle fibres (B) Smooth muscle fibres
(C) Skeletal muscle fibres (D) Voluntary muscle fibres

11. Which one of the following has alternate striations and is branched?
(A) Biceps under autonomous control
(B) Iris muscle under control of will
(C) Heart muscle, involuntary
(D) Muscle of visceral organs under autonomous control

12. Muscles involved in the movement of arm are
(A) Striated (B) Unstriated (C) Cardiac (D) Smooth

13. Cardiac muscle contracts
(A) Slowly and get fatigue (B) Quickly and do not get fatigue
(C) Slowly and do not get fatigue (D) Quickly and get fatigue

14. Which pair of structures distinguish a nerve cell from other cells?
(A) Vacuoles and fibres (B) Nucleus and mitochondria
(C) Perikaryon and dendrites (D) Flagellum and medullary sheath

15. When a neuron is suitably stimulated, an electric disturbance is generated in its plasma membrane. This disturbance swiftly travels in a direction of
(A) Axon to dendrite
(B) Dendrite to next neuron
(C) Cell body to axon
(D) Dendrite to another dendrite of same neuron

16. Which property is shown by both muscle fibers and nerve fibers?
(A) Contractility (B) releasing neurotransmitters
(C) Extensibility (D) Excitability

17. Smooth muscles are
(A) involuntary, fusiform, non-striated
(B) voluntary, multinucleate, cylindrical
(C) involuntary, cylindrical, striated
(D) voluntary, spindle-shaped, uninucleate

18. In the cardiac muscles,
(A) cell junctions fuse the plasma membrane of adjacent cells
(B) contraction of one cell does not affect the other cells
(C) intercalated discs prevent the communication among cardiac cells
(D) All of the above

19. What is the function of neuroglial cells ?

(A) Formation of neurons

(B) Destruction of neurons

(C) Protection of neurons

(D) Transmission of impulse along the neurons

20. Which of the following tissue exerts greatest control over the body's responsiveness to changing conditions.

(A) Muscular tissue

(B) Connective tissue

(C) Neural tissue

(D) Epithelial tissue

NEET-BIOLOGY **ELP NO.-1** **BIOMOLECULES**

1. 98% of living organism is formed of six elements -carbon, hydrogen, nitrogen, oxygen and
(A) S & Mg (B) Mg & Na (C) Ca & P (D) P & S

2. The most abundant organic compounds in the cell is:
(A) Lipid (B) Water (C) Protein (D) Carbohydrate

3. All the elements present in a sample of earth's crust are also present in a sample of living tissue. Which of the following element is second highest in human body ?
(A) Carbon (B) Oxygen (C) Hydrogen (D) Nitrogen

4. Secondary metabolites are produced by :
(A) Plants (B) Fungi (C) Microbial cells (D) All of the above

5. How many of the following must be present in acid soluble fraction of protoplasm ?
Fructose-6-P, Hyaluronate, Lecithin, Aquaporin proteins, ATP, $NADP^+$, Glycogen, Alanine, RNA, Serine
(A) Three (B) Four (C) Seven (D) Five

6. Which of the following secondary metabolite is a toxin ?
(A) Codeine (B) Monoterpenes (C) Concanavaline–A (D) Ricin

7. The lowest molecular weight compounds in acid insoluble fraction are :
(A) Proteins (B) Nucleic acids (C) Polysaccharides (D) Lipids

8. Correct order of abundance of oxygen, sulphur, magnesium and calcium in the earth crust?
(A) O > Ca > Mg > S (B) S > O > Mg > Ca
(C) Ca > O > S > Mg (D) Mg > Ca > S > O

9. Order of occurence of elements in human body is:
(A) O, C, N, H (B) O, C, H, N
(C) Na, Ca, C, O (D) K, Ca, C, O

10. In the following groups which one group shows correct option for secondary metabolites ?
(A) Vinblastin, Morphin, Codein & Concavalin
(B) Lysine, Ricin, Abrin & Arginine
(C) Glycine, Tryptophan & Arginine
(D) Phenyl alanine, Abrin & Lysine

11. External Coat composed of cellulose like material (Tunicin) occurs in -
(A) Hemichordata (B) Urochordata
(C) Cephalochordata (D) Cyclostomata

12. Find out the incorrect statement(s).

(A) All the elements present in sample of earth's crust are also present in a sample of living S_3 tissue.

(B) During chemical analysis trichloroacetic acid (Cl_3CCOOH) is used

(C) Relative abundance of carbon and hydrogen with respect to other elements is higher in earth's crust than in any living organisms.

(D) All of the above.

13. Sucrose, a common table sugar is composed of:

(A) glucose +fructose (B) glucose + galactose

(C) fructose + galactose (D) Fructose + galactose

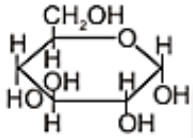
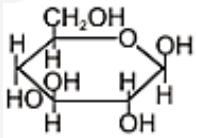
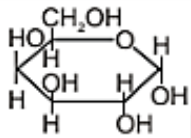
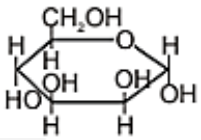
14. Which sugar is present in milk?

(A) Glucose (B) Lactose (C) Cellulose (D) Glycogen

15. The principal polysaccharide stored in human body is:

(A) starch (B) glycerol (C) cellulose (D) glycogen

16. Which of the following is the structure of α-D-glucose?

(A)  (B)  (C)  (D) 

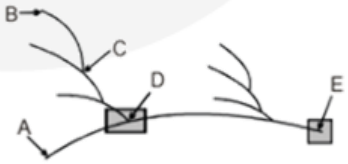
17. Which of the following biomolecules does not give Iodine test?

(A) Cellulose (B) Starch (C) Glycogen (D) Animal starch

18. Exoskeleton of arthropods have a complex polysaccharide, called:

(A) Cellulose (B) Chitin (C) Inulin (D) Glycogen

19. How many statements are correct about the given diagrammatic representation of glycogen?



(1) A and B are non-reducing ends and α-1,6-glycosidic bonds are present at C & D positions.

(2) B and E are reducing ends

(3) A and E are reducing ends

(4) β-1, 4-glycosidic bonds are present at C and D positions and only E is the reducing end.

(A) Three (B) Four (C) Two (D) Only one

20. Match the column-I to column-II

Column-I	**Column-II**
(a) Acidic amino acid	i. Lysine
(b) Basic amino acid	ii. Valine
(c) Neutral amino acid	iii. Tyrosine
(d) Aromatic amino acid	iv. Glutamic acid

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

(C) a-i, b-iii, c-iv, d-ii (D) a-iv, b-ii, c-i, d-iii.

1. **Statement I:** Hydrolases are the enzymes which catalyse the hydrolysis of ester, ether, peptide, glycosidic, C-C or P-N etc. bonds.
Statement II: Lyases are the enzymes catalysing the linking together of two compounds like joining of C-O, C-N, P-O etc. bonds.
(A) Statement I is correct but Statement II is incorrect
(B) Statement I incorrect but Statement II is correct
(C) Both Statement I and Statement II are correct
(D) Both Statement I and Statement II are incorrect

2. The class numbers 4 and 6 respectively as per Systematic Code Number (E.C.) of enzymes are of :
(A) Lyases, Hydrolases (B) Ligases, Lyases
(C) Lyases, Ligases (D) Isomerases, Ligases

3. **Statement I:** Enzymes which catalyse transfer of a group (other than Hydrogen) from one substrate to other are Transferases
Statement II: Enzymes which catalyse removal of groups from substrates by mechanisms other than hydrolysis leaving double bonds are Reductases.
(A) Statement I is correct but Statement II is incorrect
(B) Statement I incorrect but Statement II is correct
(C) Both Statement I and Statement II are correct
(D) Both Statement I and Statement II are incorrect

4. Which of the following enzymes are of class Transferases :
(A) Lipases, Peptidases (B) Aldolase, Decarboxylase
(C) Kinases, Carbonic Anhydrase (D) Kinases, Transaminase

5. When Co-factor is removed from Enzyme, Catalytic activity
(A) Remains the same (B) Decreases
(C) Increases (D) Is completely lost

6. Rate of any chemical process is calculated as
(A) $\delta p / \delta r$ (B) $\delta p/\delta t$ (C) $\delta r/\delta t$ (D) $\delta p + \delta r/\delta t$

7. Which one of the following statements is correct, with reference to enzymes?
(A) Holoenzyme = Apoenzyme + Co-factor
(B) Coenzyme = Apoenzyme + Holoenzyme
(C) Holoenzyme = Coenzyme + Co-factor
(D) Apoenzyme = Holoenzyme + Coenzyme

8. Km is related to -

(A) Temperature (B) ES complex

(C) pH (D) None of these

9. Which of the following is not an attribute of enzymes?

(A) They are substrate specific in nature. (B) They are proteinaceous in nature.

(C) They are used up in the reaction. (D) They speed up rate of biochemical reaction.

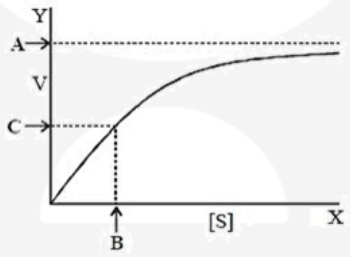
10. Match column-I (function) with column-II (Types of enzymes) and select the correct option.

	Column-I (Types of Function)		**Column-II (Types of enzymes)**
A.	Enzymes catalysing breakdown without addition of water.	I.	Isomerases
B.	Enzyme catalyzes the conversion of an aldose sugar to a ketose sugar.	II.	Oxidoreductase
C.	Enzyme where catalysis involves transfer of electrons.	III.	Ligases
D.	Enzyme catalysing bonding of two components with the help of ATP.	IV.	Lyases

(A) A-I; B-IV; C-III; D-II (B) A-I; B-IV; C-II; D-III

(C) A-IV; B-I; C-II, D-III (D) A-IV; B-I; C-III; D-II

11. The adjoining graph shows change in concentration of substrate on enzyme activity. Identify A, B and C.



	A	**B**	**C**
(A)	K_i	K_m	V_{max}
(B)	$\frac{V_{max}}{2}$	K_m	K_i
(C)	V_{max}	K_m	$\frac{V_{max}}{2}$
(D)	K_m	V_{max}	$\frac{V_{max}}{2}$

12. The Km value of the enzyme is the value of the substrate concentration at which the reaction reaches to-

(A) Zero (B) 2 V_{max} (C) $\frac{1}{2} V_{max}$ (D) $\frac{1}{4} V_{max}$

13. Which of the following statements about enzymes is incorrect?

(A) Enzymes are denatured at high temperature but in certain exceptional organisms, they are effective even at 80°-90°C.

(B) Enzymes require optimum pH for maximal activity.

(C) Most enzymes are proteins but some are lipids.

(D) Enzymes are highly specific.

14. The catalytic efficiency of two different enzymes can be compared by the-

(A) Km value (B) pH optimum value

(C) Formation of the product (D) Molecular size of the enzyme

15. What will happen when the cofactor is removed from the enzyme?

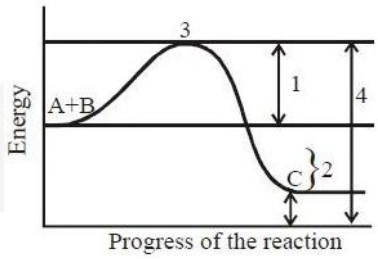
(A) Catalytic activity of the enzyme is lost.

(B) Enzyme preserves in a temporarily inactive state

(C) The substurate molecules are not closely related to enzymes molecules.

(D) Both (B) and (C)

16. The given graph shows concept of activation energy with labelled 1, 2, 3, & 4. Co-relate the statements I, II, III & IV with 1, 2, 3 & 4.



I. Segment representing the energy of activation.

II. Segment representing the amount of free energy released by the reaction.

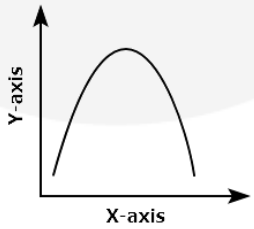
III. Transition state.

IV. Segment would be the same regardless of whether the reaction were uncatalysed or catalysed.

(A) I-1, II-3, III-2, IV-4 (B) I-1, II-2, III-3, IV-4

(C) I-1, II-3, III-2, IV-4 (D) I-1, II-2, III-4, IV-3

17. The curve given below shows enzymatic activity with relation to three conditions (pH, temperature and substrate concentration.) Identify the correct representation of two axes (x and y).



	x-axis	**y-axis**
(A)	Enzymatic activity	pH
(B)	Temperature	Enzymatic activity
(C)	Substrate concentration	Enzymatic activity
(D)	Enzymatic activity	Temperature

18. Which statement is incorrect about coenzyme?

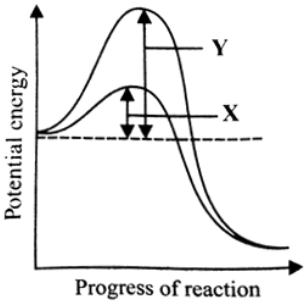
(A) Every coenzyme is a cofactor and every cofactor is a coenzyme.

(B) Every coenzyme is a cofactor and every cofactor is not a coenzyme.

(C) Most of the coenzymes are nucleotides and are composed of vitamins.

(D) Coenzymes are the active constituents of enzyme.

19. What is denoted by X and Y in the given graph?



	X	**Y**
(A)	Activation energy without enzyme	Activation energy with enzyme
(B)	Activation energy with enzyme	Activation energy without enzyme
(C)	Substrate concentration with enzyme	Substrate concentration without enzyme
(D)	Substrate concentration without enzyme	Substrate concentration with enzyme

NEET-BIOLOGY **ELP NO.-3** **BIOMOLECULES**

1. Which group does Ribose have on 2'-C position which makes it different from Deoxyribose:
(A) H (B) CH_3 (C) OH (D) SH

2. Most abundant organic compound in Biosphere is :
(A) Chitn (B) Cellulose (C) Collagen (D) RuBisCO

3. Which of the following is not Nitrogenous base :-
(A) Cytosine (B) Thymine (C) Uracil (D) Thiamine

4. 5-Methyl uracil is :
(A) Adenine (B) Guanine (C) Thymine (D) Cytosine

5. **I.** Acetic acid can form cholesterol.
II. Anabolic pathway is endergonic while catabolic pathway is exergonic.
III. All biomolecules have a turn over i.e. they are constantly being changed into some other biomolecules and also made from other biomolecules.
IV. Flow of metabolites through metabolic pathway has a definite rate and direction. It is called dynamic state of body constituents.
(A) All are correct (B) All are wrong
(C) I and II are correct (D) Only IV is correct

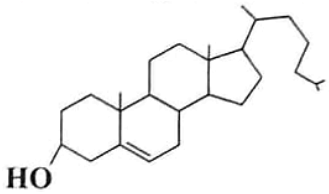
6. In a nucleotide, phosphate group is linked to which carbon of sugar :
(A) C-1 (B) C-2 (C) C-4 (D) C-5

7. How many H-bonds are present between Adenine & Thymine; and Guanine & Cytosine respectively :
(A) 2 ; 3 (B) 3 ; 2 (C) 2 ; 2 (D) 3 ; 3

8. Living state is defined as
(A) Equilibrium dynamic state
(B) Equilibrium steady state
(C) Non-equilibrium dynamic state
(D) Non-equilibrium steady state

9. Molecular weight of lipids is
(A) 10,000 Da (B) > 10,000 Da
(C) < 18 Da (D) Less than 800 Da

10. Identify the following molecule.



(A) Phospholipid (B) Cholesterol (C) Lecithin (D) Oleic acid

11. Select the statement which holds true for lipids
(A) Glycerol is trihydroxy propane
(B) Arachidonic acid has 20 C excluding carboxyl carbon
(C) Palmitic acid has 18 C carbon excluding carboxyl carbon
(D) Neural tissues have lipids with more simple structures

12. **Statement I:** Gingelly oil have lower melting point and hence remain as oil in winters.
Statement II: Lecithin is a phospholipid.
(A) Both statements are correct (B) Statement I is correct & II is incorrect
(C) Statement I is incorrect & II is correct (D) Both statements are incorrect

13. In a nucleotide, phosphate group is linked to A by B bond. Choose the option which correctly fill the blanks

	A	**B**
(A)	Adenine	Ester
(B)	Sugar	Ether
(C)	Sugar	Ester
(D)	Nitrogen base	Glycosidic

14. Choose the mismatch w.r.t. components and the bond linking them
(A) Monosaccharides – Glycosidic bond
(B) Amino acids – Peptide bond
(C) Glycerol and fatty acids – Ether bond
(D) Nucleotides – Phosphodiester bond

15. Which structure is absolutely necessary for the many biological activities of proteins?
(A) Tertiary (B) Quaternary
(C) Primary (D) Secondary

16. Which of the following is an example of biosynthetic pathway?
(A) Formation of pyruvic acid from glucose
(B) Formation of amino acids from proteins
(C) Formation of ethanol from pyruvic acid
(D) Formation of cholesterol from acetic acid

17. Match column I (organic compound) with column II (examples) and choose the correct combination from the given options.

Column-I (Organic Compounds)	**Column-II (Examples)**
A. Fatty acid	I. Glutamic acid
B. Phospholipid	II. Tryptophan
C. Aromatic amino acid	III. Lecithin
D. Acidic amino acid	IV. Palmitic acid

(A) A-I; B-II; C-III; D-IV (B) A-IV; B-III; C-II; D-I
(C) A-II; B-III; C-IV; D-I (D) A-III; B-IV; C-I; D-II

18. Match the protein given in column I with its function given in column II and choose the right option.

Column I (Proteins)	**Column I (Functions)**
A. Collagen	I. Glucose transport
B. Trypsin	II. Hormone
C. Insulin	III. Intercellular ground substance
D. GLUT-4	IV. Enzyme

(A) A–III; B–IV; C–II; D–I
(B) A–IV; B–I; C–II; D–III
(C) A–II; B–IV; C–I; D–III
(D) A–III; B–IV; C–I; D–II

19. Pick out the correct statement.
(A) Chitin is a homopolymer.
(B) Collagen is the most abundant protein in the whole of the biosphere.
(C) Proteins are linear chains of amino acids linked by ester bonds.
(D) In a polysaccharide, the individual monosaccharides are linked by a phosphodiester bond.

20. Which of the given option is correct for the following statements?
(i) The metabolic pathway in which acetic acid is converted into cholesterol is an endothermic one.
(ii) Anabolic pathway is endergonic while catabolic pathway is exergonic.
(iii) Without metabolism there can not be a living state
(A) All are correct
(B) All are wrong
(C) (i) and (ii) are correct
(D) Only (iii) is correct

NEET-BIOLOGY **ELP NO.-4** **BIOMOLECULES**

1. Which is correct option with reference to Competitive Inhibition :

	K_m	V_{max}
(A)	Remains Same	Increases
(B)	Increases	Remains same
(C)	Decreases	Remains same
(D)	Remains Same	Decreases

2. Rates of physical and chemical processes are influenced by temperatures. A general rule is that
(A) Doubles by half for every 10 degree Celsius change in either direction
(B) Decreases by half for every 10 degree Celsius change in either direction
(C) Doubles or Decreases by half for every 10 degree Celsius change in either direction
(D) Doubles by half for every 5 degree Celsius change in either direction

3. When Substrate and Inhibitor bind at the same active site of Enzyme,it is termed as
(A) Competitive inhibition (B) Non Competitive inhibition
(C) Allosteric inhibition (D) Irreversible inhibition

4. The activity of Enzyme is affected by all except
(A) Substrate concentration (B) pH
(C) Temperature (D) All

5. Inhibition of succinic dehydrogenase by malonate is an example of
(A) Competitive inhibition (B) Non Competitive inhibition
(C) Allosteric inhibition (D) Irreversible inhibition

6. Enzymes involved in feedback inhibition are
(A) Apoenzymes (B) Holoenzymes
(C) Allosteric enzymes (D) Co-factors

7. Allosteric enzymes have
(A) 1 active site (B) 1 active site and 1 Allosteric site
(C) 2 Allosteric sites (D) 1 active site and many allosteric sites

8. Lock and Key mechanism is given by
(A) Koshland (B) Fisher (C) Kunhe (D) Arrehenius

9. Select false statements for an enzyme promoting a chemical reaction by-
(i) Lowering the energy of activation.
(ii) Causing the release of heat, which acts as a primer.
(iii) Increasing molecular motion.
(iv) Changing the free energy difference between substrate and product.
(A) (i) and (iv) (B) (ii), (iii) and (iv) (C) (ii) and (iii) (D) (iii) and (iv)

10. The steps in catalytic cycle of an enzyme action are given in random order.
(i) The enzyme releases the products. Now enzyme is free to bind another substrate.
(ii) The active sites, now in close proximity of substrate breaks the bond of substrate and forms E-Pcomplex.
(iii) Binding of substrate induces the enzyme to alter its shape fitting more tightly around the substrate.
(iv) The substrate binds to the active site of enzyme (i.e., fitting into the active site).
The correct order is-
(A) (i), (ii), (iii), (iv) (B) (i), (iii), (ii), (iv) (C) (iv), (iii), (ii), (i) (D) (i), (ii), (iv), (iii)

11. **Assertion:** When the inhibitor closely resembles the substrate in its molecular structure and inhibits the activity of the enzyme, it is known as competitive inhibitor.
Reason: The inhibitor competes with the substrate for the substrate binding site of the enzyme and their result is substrate cannot bind and as a result, the enzyme action declines.
(A) Assertion and reason both are true and the reason is correct explanation of assertion.
(B) Assertion and reason both are true but reason is not correct explanation of assertion.
(C) Assertion is true but reason is wrong.
(D) Assertion and reason both are wrong.

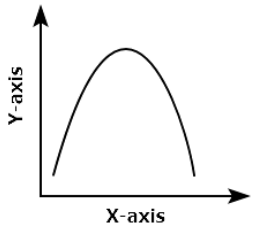
12. Which of the following is wrongly matched?

(A) Ribozyme	-	Proteinaceous in nature.
(B) Apoenzyme	-	The protein part of enzyme.
(C) Co-enzyme	-	Loosely attached organic cofactor of haloenzyme
(D) Co-factors	-	Non-protein part of haloenzyme

13. Turn over number of enzyme depends upon -
(A) Size of enzyme molecule. (B) Number of the active sites.
(C) Concentration of substrate molecule. (D) Molecular weight of as enzyme.

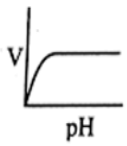
14. Inorganic catalyst work efficiently at temperature and pressure.
(A) High, low (B) Low, high (C) Low, low (D) High, high

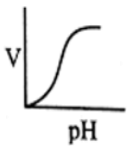
15. The curve given below shows enzymatic activity with relation to three conditions (pH, temperature and substrate concentration.) Identify the correct representation of two axes (x and y).

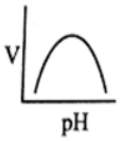


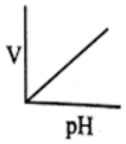
x-axis	**y-axis**
(A) Enzymatic activity	pH
(B) Temperature	Enzymatic activity
(C) Substrate concentration	Enzymatic activity
(D) Enzymatic activity	Temperature

16. Which one of the given graph shows the effect of pH on the velocity of a typical enzymatic reaction (V)?

(1) 

(2) 

(3) 

(4) 

17. **Statement I:** Enzymes increase the activation energy.
Statement II: A substrate molecule can be acted upon by a particular enzyme.
(A) Both Statement I and Statement II are correct.
(B) Both Statement I and Statement II are incorrect.
(C) Statement I is correct but Statement II is incorrect.
(D) Statement I is incorrect but Statement II is correct.

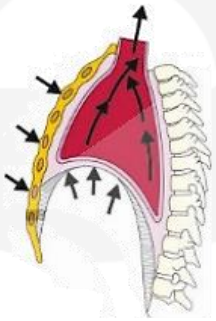
NEET-BIOLOGY **ELP NO.-1** **BREATHING AND EXCHANGE OF GASES**

1. The last product of respiration to obtain energy in animals?
(A) CO_2 (B) Alcohol
(C) O_2 (D) Lactic acid

2. Pulmonary respiration is found in
(A) Reptiles (B) Aves (C) Mammals (D) All of these

3. Respiration is helpful in
(A) Removing waste from the body
(B) Producing energy within the body
(C) Production of proteins
(D) Production of carbohydrates

4. Given below is the diagrammatic representation, explaining mechanism of breathing. Choose the correct option w.r.t. given diagram.



(A) Diaphragm becomes dome shaped due to contraction of its muscles and decreases the volume of thoracic cavity
(B) Volume of thoracic cavity decreases due to contraction of external intercostal muscles
(C) Contraction of external intercostal muscles shifts the ribs inwards and downwards
(D) Diaphragm is relaxed and arched upwards which decreases the volume of thoracic cavity

5. Presence of respiratory organ in animal depends on-
(A) Habitat and level of organization (B) Habitat only
(C) Level of organization only (D) Symmetry in body

6. A respiratory surface must be-
(A) Thin (B) Moist
(C) Having more surface area (D) All of these

7. Respiratory organs of insects are: -

(A) General Body surface (B) Book lungs

(C) Lungs (D) Tracheal tubes

8. 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:

(A) A-ii, B-i, C-iv, D-iii (B) A-i, B-iv, C-ii, D-iii

(C) A-i, B-iii, C-ii, D-iv (D) A-i, B-ii, C-i.v, D-iii

9. Lower invertebrates like sponges, coelenterates, flatworms, etc., exchange O_2 with CO_2 by-

(A) Simple diffusion (B) Trachea (C) Lungs (D) Gills

10. Trachea divides into primary bronchi at level of which Thoracic vertebrae :

(A) 2^{nd} (B) 3^{rd} (C) 4^{th} (D) 5^{th}

11. Air is breathed in through

(A) Trachea → lung → larynx → pharynx → alveoli

(B) Nose → larynx → pharynx→ alveoli → bronchioles

(C) Nostrils → pharynx → larynx → trachea → bronchi → bronchioles → alveoli

(D) Nose → mouth → lungs

12. Arrange the following in the order of increasing volume

1. Tidal volume
2. Residual volume
3. Expiratory reserve volume
4. Inspiratory reserve volume

(A) 1 < 2 < 3 < 4 (B) 1 < 4 < 3 < 2 (C) 1 < 3 < 2 < 4 (D) 1 < 4 < 2 < 3

13. The trachea is supported by cartilaginous rings, which are ..... shaped

(A) C (B) L (C) O (D) S

14. **Assertion:** During inspiration, the volume of thorax increases.

Reason: This happens due to the relaxation of diaphragm and inspiratory muscles.

(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.

(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.

(C) If the assertion is true but the reason is false.

(D) If both the assertion and reason are false.

15. Lungs have a number of alveoli for

(A) Having spongy texture and proper shape

(B) More surface area for diffusion of gases

(C) More space for increasing volume of inspired air

(D) More nerve supply

NEET-BIOLOGY **ELP NO.-2** **BREATHING AND EXCHANGE OF GASES**

1. Trachea is lined with incomplete rings of
(A) Fibrous cartilage (B) Calcified cartilage
(C) Elastic cartilage (D) Hyaline cartilage

2. Which one of the following is correct regarding larynx?
(A) It is sound box or voice box
(B) One pair of vocal cords is responsible for sound production.
(C) It is an organ made of cartilage and connects the pharynx to the trachea
(D) All of these

3. Which one of the following statement is not correct regarding trachea?
(A) It usually lies posterior to the muscular oesophagus
(B) It splits into right and left bronchi to supply air to the lungs
(C) Opening to the trachea is covered by epiglottis
(D) Tracheal rings are C-shaped

4. The trachea divides into two smaller tubes called.....
(A) Bronchi (B) Alveoli (C) Microtrachea (D) Eustachian tubes

5. Cartilaginous rings in trachea are incomplete at which surface.
(A) Dorsal (B) Ventral (C) Lateral (D) Ventrolateral

6. Wall of alveoli is composed of
(A) Simple squamous epithelium (B) Simple cuboidal epithelium
(C) Pseudostratified epithelium (D) Simple columnar epithelium

7. Thoracic cage of man is formed of
(A) Ribs and sternum only (B) Ribs, sternum and thoracic vertebrae
(C) Ribs, sternum and lumbar vertebrae (D) Ribs and thoracic vertebrae only

8. During inspiration
(A) Diaphragm and external intercostal muscles relax
(B) Diaphragm and internal intercostal muscles relax
(C) Diaphragm and external intercostal muscles contract
(D) Diaphragm and internal intercostal muscles contract

9. How much amount of air is inspired or expired per minute during normal breathing by an adult man?
(A) 500-800 ml (B) 1000-1100 ml (C) 2500-3000 ml (D) 6000-8000 ml

10. A lung contains many small balloon like air sacs called-
(A) Gas spaces (B) Alveoli (C) Bronchi (D) Bronchiole

11. Match the following:

1. Tidal volume	-	A. Tidal volume and inspiratory reserve volume and expiratory reserve volume.
2. Inspiratory reserve volume	-	B. Additional volume of air a person can inspire by a forcible inspiration.
3. Expiratory reserve volume	-	C. Volume of air remaining in the lungs even after a forcible expiration
4. Residual volume	-	D. Tidal volume and inspiratory reserve volume
5. Inspiratory reserve capacity	-	E. Volume of air inspirited or expired during a normal respiration
6. Vital capacity	-	F. Vital capacity + residual volume
7. Total lung capacity	-	G. Additional volume of air a person can expire by a forcible expiration.

(A) 1–E, 2–C, 3–B, 4–G, 5–D, 6–A, 7–F (B) 1–E, 2–G, 3–B, 4–C, 5–A, 6–D, 7–F
(C) 1–E, 2–C, 3–G, 4–B, 5–D, 6–A, 7–F (D) 1–E, 2–B, 3–G, 4–C, 5–D, 6–A, 7–F

12. The muscles present between ribs are called
(A) Phrenic muscles (B) Intercostal muscles
(C) Cardiac muscles (D) Voluntary muscles

13. If expiratory reserve volume is 1100 ml, inspiratory reserve volume is 2500 ml, residual volume is 1200 ml and tidal volume is 500 ml, what shall be the vital capacity
(A) 1600 ml (B) 2800 ml (C) 2300 ml (D) 4100 ml

14. **Assertion:** Gills are highly vascularised
Reason: Gills are used for respiration
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

15. Partial pressure of oxygen in Alveoli, atmospheric air and tissues will be :-
(A) (0.3, 40, 45) mm Hg (B) (104, 159, 40) mm Hg
(C) (0.3, 104, 28) mm Hg (D) (159, 104, 40) mm Hg

NEET-BIOLOGY **ELP NO.-3** **BREATHING AND EXCHANGE OF GASES**

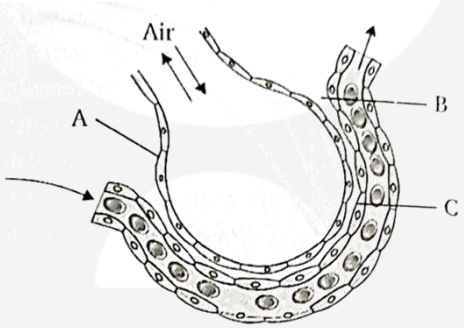
1. Respiratory membrane at our lungs is composed of ___A___ layers and has average thickness of ___B___ mm. Select the option, which correctly fills A and B-

(A) A- 3, B- more than one
(B) A- 1, B- more than one
(C) A- 3, B- less than one
(D) A- 6, B- less than one

2. Upon increasing which of the following factor, rate of gaseous exchange at lungs will be decreased?

(A) Partial pressure gradient
(B) Solubility of gases
(C) Thickness of respiratory membrane
(D) Area of respiratory membrane

3. Identify A, B and C in the diagram of a section of respiratory membrane:



Options	A	B	C
(A)	One-celled thick squamous epithelium	Basement substance	Endothelium of alveolar capillary
(B)	Thin alveolar wall	Endothelium of alveolar capillary	Basement substance
(C)	Basement substance	Thin alveolar wall	Endothelium of alveolar capillary
(D)	Endothelium of alveolar capillary	One-celled thick alveolar wall	Basement substance

4. Identify A, B, C and D w.r.t. partial pressure of oxygen and carbon dioxide.

Respiratory gas	Atmospheric air	Alveoli	Blood (Deoxygenated)	Blood (Oxygenated)	Tissues
O_2	159 mm Hg	**A**	40 mm Hg	**B**	40 mm Hg
CO_2	**C**	40 mm Hg	45 mm Hg	40 mm Hg	**D**

(A) A = 104 mm Hg, B = 95 mm Hg, C = 0.3 mm Hg, D = 45 mm Hg
(B) A = 180 mm Hg, B = 95 mm Hg, C = 3 mm Hg, D = 45 mm Hg
(C) A = 104 mm Hg, B = 95 mm Hg, C = 30 mm Hg, D = 15 mm Hg
(D) A = 159 mm Hg, B = 40 mm Hg, C = 45 mm Hg, D = 30 mm Hg

5. H_2CO_3 is converted into CO_2 and H_2O with the help of an enzyme known as
(A) Carboxylase (B) Carbonic dehydrogenase
(C) Carbonium anhydrase (D) Carbonic anhydrase

6. How much percentage of CO_2 is transport in the form of carbamino compounds ?
(A) 70% (B) 90% (C) 5% (D) 23%

7. The largest amount of CO_2 is transport in blood as
(A) Carbamino compounds (B) Bicarbonates
(C) Carbonic acid (D) Carbonate ions

8. How much fraction of oxygen is transported to tissue through RBCs?
(A) 100% (B) 56% (C) 45% (D) 97%

9. How much amount of oxygen is delivered by 100 ml of oxygenated blood to the body tissues under normal physiological conditions?
(A) 5 ml (B) 20 ml (C) 15 ml (D) 10 ml

10. **Assertion:** Respiratory rhythm is maintained by the respiratory centre in medulla region of brain.
Reason: A chemosensitive area in the medulla can alter the respiratory mechanism
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) If the assertion is true but the reason is false.
(D) If both the assertion and reason are false.

11. At higher CO_2 concentration, oxygen Hb dissociation curve of haemoglobin will
(A) Move to left (B) Move to right (C) Become irregular (D) Not Move

12. Oxygen haemoglobin dissociation curve will shift to right on decrease of
(A) Acidity (B) Carbon dioxide concentration
(C) Temperature (D) pH

13. Two statements are given here, read these and answer accordingly
Statement- I: Carbonic anhydrase is present in the erythrocytes.
Statement- II: In erythrocytes, the carbon dioxide combines with water to form carbonic acid.
(A) Statement I is correct but Statement II is incorrect
(B) Statement I incorrect but Statement II is correct
(C) Both Statement I and Statement II are correct
(D) Both Statement I and Statement II are incorrect

14. Respiratory rhythm centre is present in :-
(A) cerebellum (B) Cerebrum (C) Medulla oblongata (D) Pons

15. Asthma is a respiratory disease caused due to
(A) Infection of trachea (B) Infection of lungs
(C) Bleeding into pleural cavity (D) Spasm in bronchial muscles

NEET-BIOLOGY **ELP NO.-1** **BODY FLUIDS AND CIRCULATION**

1. Which of the following statements is false?
(A) Blood consists of a fluid matrix
(B) Blood Has formed elements
(C) Lymph is the most commonly used body fluid by most of the higher organisms
(D) Lymph helps in the transport of certain substances.

2. Plasma is a straw coloured, viscous fluid constituting nearly ____ % of blood –
(A) 55 (B) 45 (C) 90 (D) 10

3. The amount of water present in blood plasma is –
(A) 99% (B) 90-92% (C) 10% (D) 55%

4. I. Proteins contribute 6 - 8% of the blood plasma
II. Plasma contains very high amount of minerals
Ill. Plasma without the clotting factors is called serum
IV. Glucose, amino acids, lipids, etc., are also present in the plasma as they are always in transit in the body.
Of the above statements –
(A) All are correct (B) Only II is false
(C) Only I, III, IV is correct (D) All are false

5. Formed elements of blood include –
(A) RBC, WBC and blood platelets (B) All solutes present in blood
(C) Proteins present in blood (D) All minerals (elements)

6. Which of the following statements is false?
(A) Erythrocytes are the least abundant of all the cells in blood.
(B) The number of RBCs in adult man per mm^3 of blood is 5 million to 5.5. million.
(C) RBC are formed in the red bone marrow in the adults.
(D) RBCs are non-nucleate in most of the mammals.

7. What is the amount of haemoglobin present in 100 ml blood of human blood?
(A) 45gm (B) 18-20gm (C) 12-16gm (D) 6 -8gm

8. Mammalian RBCs are in shape-
(A) Oval (B) Biconvex (C) Biconcave (D) Sickle like

9. All of the following statement are correct about WBCs except –
(A) They are nucleate and least constancy in shape
(B)They are relatively lesser in number which averages 6000-8000 mm^{-3} of blood.
(C) They are generally short lived
(D) They help in blood clotting

10. All of the following are granulocytes except-
(A) Neutrophils (B) Eosinophils (C) Basophils (D) Lymphocytes

11. Megakaryocytes produce-
(A) Leucocytes (B) Lymphocytes (C) Bone cells (D) Thrombocytes

12. Find the correct descending order of percentage proportion of leucocytes in human blood.
(A) Neutrophils → Basophils → Lymphocytes → Acidophils → Monocytes
(B) Neutrophils → Monocytes → Lymphocytes → Acidophils → Basophils
(C) Neutrophils → Lymphocytes → Monocytes → Acidophils → Basophils
(D) Neutrophils → Acidophils → Basophils → Lymphocytes → Monocytes

13. **Assertion-(A)** physician might order a white cell count for a patient with symptoms of an infection.
Reason-(R) An increase in the number of white blood cells (leukocytes) may indicate that the person is struggle with an infection.
(A) Both assertion and reason are true and reason is correct explanation of assertion.
(B) Both assertion and reason are true and reason is not correct explanation of assertion.
(C) Assertion is true but reason is false.
(D) Both assertion and reason are false.

14. Leucopenia is the condition where
(A) Leucocytes decrease below 5000 per cubic mm of blood
(B) Bone marrow is destroyed
(C) Total number of lymphocytes decrease from 2% to 5%
(D) Leucocytes increase above 6000 per cubic mm

15. Make correct pairs

Column I	**Column II**
(P) Water	i. Immunity
(Q) Fibrinogen	ii. Solvent of substance
(R) Albumin	iii. Blood clotting
(S) Globulin	iv. Regulation of osmosis

	P	Q	R	S
(A)	ii	iii	iv	i
(B)	i	iv	iii	ii
(C)	ii	iii	i	iv
(D)	iii	ii	iv	i

16. According to statements find the correct option:
(i) Erythrocytes, leucocytes and platelets are collectively called formed elements
(ii) WBC are the most abundant of all the cells in blood.
(iii) Blood plasma constituted about 55% of blood
(iv) Blood is light yellow coloured and slightly viscous extra cellular fluid
(A) TFTF (B) TTTT (C) TFFT (D) TTFF

17. Immunoglobulins are produced by
(A) Lymphocytes (B) Spleen
(C) Leucocytes (D) Monocytes

18. Which plasma protein helps in clotting or coagulation of blood?
(A) Albumin (B) Fibrinogen (C) Globulin (D) Both (A) and (C)

19. Which plasma protein play an important role in osmotic balance.

(A) Albumin (B) Fibrinogen (C) Globulin (D) Prothrombin

20. Granulocytes are

(A)Neurogenic (B) Lymphocytes (C) Monocytes (D) None of these

21. Largest number of white blood corpuscles are

(A) Eosinophils (B) Basophils (C) Neutrophils (D) Monocytes

22. What is the life span of RBC in humans?

(A) 120 days (B) 210 days (C) 220 days (D) 200 days

23. **Assertion-(A):** RBC are the most abundant of all the cells in blood.

Reason-(R): RBC have a red coloured, iron containing complex protein called haemoglobin.

(A) Both assertion and reason are true and reason is correct explanation of assertion.

(B) Both assertion and reason are true and reason is not correct explanation of assertion.

(C) Assertion is true but reason is false.

(D) Both assertion and reason are false.

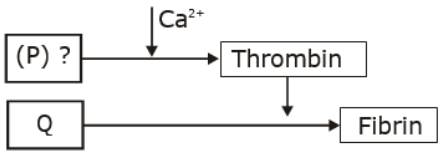
NEET-BIOLOGY **ELP NO.-2** **BODY FLUIDS AND CIRCULATION**

1. Thrombokinase is produced in
(A) RBC (B) WBC (C) Blood vessels (D) Blood platelets

2. ABO blood grouping is based on:
(A) Surface antibodies on RBC (B) Surface antigen on WBC
(C) Surface antigen on RBC (D) Plasma antigens

3. In the ABO system of blood groups, if both antigens A & B are present but no antibody, the blood group of the individual would be?
(A) B (B) O (C) AB (D) A

4. What P and Q indicate in the given figure?



(A) Thrombhoplast, Proaccelerin (B) Prothrombin, Fibrinogen
(C) Globulin, FSF (D) Plasma thromboplastin, Fibrin stabilizing

5. Which of the following is not useful in blood clotting
(A) Fibrin (B) Calcium (C) Platelets (D) Bilirubin

6. Which of the following blood groups is universal donor and universal acceptors respectively?
(A) AB, O (B) O, AB (C) AB, A (D) A, AB

7. Rh factor is responsible for-
(A) Sickle cell anemia (B) Erythroblastosis foetalis
(C) AIDS (D) Turner syndrome

8. In developing foetus, erythroblastosis foetalis is caused by-
(A) Haemolysis (B) Phagocytosis by Platelets
(C) Failure of blood clotting (D) Phagocytosis by WBC.

9. Which of the following are not correct:
(i) An injury or a trauma stimulates the platelets in the blood to release certain factors which activate the mechanism of coagulation.
(ii) Certain factors released by the tissues at the site of injury also can initiate coagulation.
(iii) Clotting factors present in plasma are in active form.
(iv) Calcium ions play a very important role in clotting.
(A) Only (i), (ii) (B) Only (ii), (iii), (iv)
(C) Only (i), (iv) (D) Only (iii)

10. Which of the following statement are correct?

I. Ca^{+2} is necessary for blood coagulation

II. Coagulation in blood vessel is prevented during normal condition by heparin

III. Clotting of blood involves changes of fibrinogen to fibrin by thrombin

IV. Blood clotting involves cascading process involving a number of factors present in the active form always

(A) I, III, IV (B) II, IV (C) I, II, III (D) III, IV

11. A patient with blood group 'B' was injured in an accident and has lost a lot of blood during injury. Which blood group the doctor should effectively use in this case?

(A) AB (B) A/O (C) B/O (D) AB/A/B

12. Select the incorrect statement from the following:

(A) Clot is formed mainly by a network of fibrin in which the died and damaged formed element of blood are trapped.

(B) Inactive fibrinogen is converted to fibrin by the hormone thrombin.

(C) Prothrombin is converted into thrombin by the enzyme complex thrombokinase.

(D) Injured tissue released certain factors which initiate coagulation.

13. Select the incorrect statement from the following:

(A) When platelet releases certain factor which initiate clotting it is known as intrinsic pathway.

(B) When injured tissue releases certain factor which initiate clotting it is known as extrinsic pathway.

(C) Calcium plays a minor role in clotting.

(D) Coagulation prevent excessive loss of blood from the body from injured part.

14. Which enzyme causes conversion of prothrombin into thrombin?

(A) Thrombinase (B) Fibrinogen (C) Thrombokinase (D) Rennin

15. Which of the following is responsible for ABO grouping?

(A) Presence or absence of clotting factors.

(B) Compatibility of blood groups during blood transfusion.

(C) Presence or absence of surface antigens (A and B) on WBCs.

(D) Presence or absence of two surface antigens (A and B) on the RBCs.

16. What is correct for blood group 'O'?

(A) No antigens but both a and b antibodies are present

(B) A antigen and b antibody are present

(C) Antigen and antibody both absent

(D) A and B antigens and a, b antibodies are present

17. The risk of hemolytic disease of the newborn exists when the mother is _____ and the child is _____.

(A) Rh+; Rh- (B) Rh-; Rh- (C) Rh-; Rh+ (D) Rh+; Rh+

18. _____ plays an important role in blood clotting.

(A) Sodium (B) Chlorine (C) Calcium (D) Potassium

19. An individual has Rh antigens on the surface of their red blood cells and anti A and anti B antibodies in the plasma. The blood type of this individual is:

(A) AB^+ (B) AB^- (C) O^+ (D) O^-

20. What prevents clotting of blood in blood vessels?

(A) Serotonin (B) Fibrinogen (C) Heparin (D) Fibrin

21. **Assertion-(A):** Blood group 'O' have Antigen-A and Antigen-B.

Reason-(R): It does not have any antibodies.

(A) Both assertion and reason are true and reason is correct explanation of assertion.

(B) Both assertion and reason are true and reason is not correct explanation of assertion.

(C) Assertion is true but reason is false.

(D) Both assertion and reason are false.

NEET-BIOLOGY **ELP NO.-3** **BODY FLUIDS AND CIRCULATION**

1. Lymph differs from blood in
(A) Absence of RBC
(B) Absence of WBC
(C) Excess of water
(D) Absence of leucocyte

2. Lymph is modified blood that contains
(A) RBC and WBC
(B) RBC, WBC and protein
(C) WBC and all protein
(D) All contents of blood except RBC and certain protein

3. **Assertion-(A):** Lymph is a colourless fluid containing specialised lymphocytes
Reason- (R): It has Haemoglobin
(A) Both assertion and reason are true and reason is correct explanation of assertion.
(B) Both assertion and reason are true and reason is not correct explanation of assertion.
(C) Assertion is true but reason is false.
(D) Both assertion and reason are false.

4. Which of following statements is wrong about lymph.
I. Lymph is a colourless fluid containing specialised cell called Erythrocyte
II. The fluid present in lymphatic system is called lymph
III. It contains specialized lymphocytes which are responsible for immunity of the body
IV. Lymph is an important carrier for nutrients and hormones
V. Fats are absorbed through lymph in the lacteals present in the intestinal villi
(A) Only I (B) III and IV (C) II and III (D) Only IV

5. Which of the following statements is correct?
I. Lymphatic system collects tissue fluid/interstitial fluid and drains it back to the major veins
II. Interstitial fluid (tissue fluid) and lymph have almost similar composition
III. Exchange of nutrients and gases, etc. between the blood and cells always occurs through tissue fluid
IV. Interstitial fluid has the same mineral distribution as that in plasma
(A) All
(B) Only III and IV
(C) Only I and II
(D) Only I

6. Lymph
(A) Transports oxygen to brain
(B) Transports CO_2 to lungs
(C) Returns interstitial fluid to blood
(D) Returns RBCs and WBCs to lymph nodes

7. Open circulatory system is found in –

(A) Arthropods and Molluscs (B) Annelids and Chordates

(C) Annelids and arthropods (D) Fishes and Arthropods

8. Closed circulatory system is found in –

(A) Arthropod and chordates (B) Molluscs and chordates

(C) Amphibians and Molluscs (D) Annelids and chordates

9. Advantages of closed circulatory system over open circulatory system includes which of the following?

(A) Closed system can direct blood to specific tissues

(B) Exchange occurs more rapidly

(C) Close circulatory system can support higher levels of metabolic activity

(D) All of above

10. Which of the following statements is wrong about the closed circulatory system?

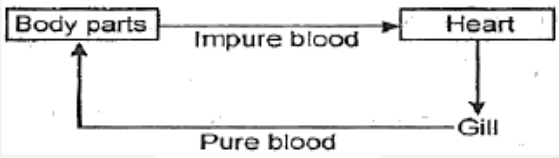
(A) Blood remains within blood vessels and never comes in direct contact with the body cells

(B) In it flow of fluid can be more precisely regulated

(C) There is no blood capillary

(D) Blood flow is more rapid due to higher pressure

11. In fishes the blood circulation is represented as -



The above flow of blood indicates it is a

(A) Double circulation (B) Single circulation

(C) Incomplete single circulation (D) Incomplete double circulation

12. Incomplete double circulation is found in which of the following animals?

(A) Only Birds (B) Only Mammals

(C) Birds and Mammals (D) Amphibians and Reptiles

13. Which of the following has a closed type of circulatory system?

(A) Cockroach (B) Fish (C) Scorpion (D) Mollusca

14. Single heart circuit occurs in

(A) Fishes (B) Frogs (C) Reptiles (D) Man

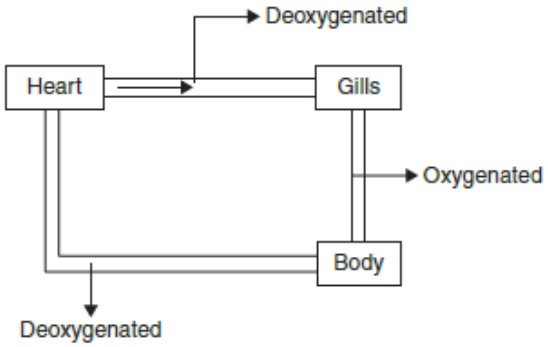
15. Four chambered heart is found in

(A) Cobra (B) Tortoise (C) Salamander (D) Pteropus

16. Incomplete double circulation is found in

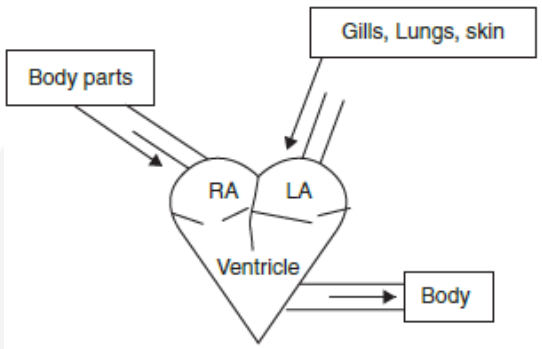
(A) Amphibia (B) Reptiles (C) Fishes (D) Both (A) and (B)

17. The given diagram represent circulation in



(A) Fishes (B) Amphibians (C) Birds (D) Reptiles

18. The given diagram shows circulation found in



(A) Amphibian (B) Reptiles (C) Both (A) and (B) (D) Birds

19. Mammals has ___ (i) ____ and ___ (ii) ___ circulatory system.
(A) (i)- open, (ii)- single (B) (i)- open, (ii)- double
(C) (i) - closed, (ii) - single (D) (i) - closed, (ii)- double

20. Double circulatory system is found in _____
(A) Arthropod and Aves (B) Molluscs and Fish
(C) Amphibian and Aves (D) Mammals and Aves

NEET-BIOLOGY **ELP NO.-4** **BODY FLUIDS AND CIRCULATION**

1. Which of the following statements is not true?
(A) Human circulatory system, consists of a muscular chambered heart, a network of closed branching blood vessels and blood, the fluid which is circulated.
(B) In human beings the heart is situated in the abdominal cavity, in between the two lungs slightly tilted to the left.
(C) Human heart has the size of a clenched fist.
(D) Heart is protected by a double walled membranous bag (pericardium) with pericardial fluid.

2. Heart is derived from
(A) Ectoderm (B) Endoderm (C) Mesoderm (D) All of these

3. Human heart is
(A) Neurogenic (B) Myogenic (C) Cardiogenic (D) Digenic

4. Which of the following statements is true?
(A) Heart is ectodermal in origin.
(B) In human beings the heart is situated in the thoracic cavity, in between the two lungs slightly tilted to the right.
(C) In Human Heart, the openings of the left ventricles into the aorta.
(D) Heart is protected by a single walled membranous bag (pericardium) with pericardial fluid.

5. Bicuspid valve/mitral valve is found between
(A) Left atrium and left ventricle
(B) Right atrium and right ventricle
(C) Right atrium and left ventricle
(D) Left atrium and right ventricle

6. Tricuspid valve is present between the
(A) Two atria (B) Two ventricles
(C) Left atrium and left ventricle (D) Right atrium and right ventricle

7. Chordae tendinae are found in
(A) Joints (B) Atria of heart
(C) Ventricles of heart (D) Ventricles of brain

8. Ventricles are thick-walled as compared to atrium because
(A) It is to receive blood from atria
(B) It is present on the posterior side
(C) It has to pump blood
(D) None of these

9. Match the following.

	Column-I		Column-II
A.	Superior vena cava	p.	Carries deoxygenated blood to lungs
B.	Inferior vena cava	q.	Carries oxygenated blood from lungs
C.	Pulmonary artery	r.	Brings deoxygenated blood from lower part of body to right atrium
D.	Pulmonary vein	s.	Bring deoxygenated blood from upper part of body to right atrium

(A) A - q, B - s, C - r, D – p
(B) A - s, B - p, C - q, D - r
(C) A- s, B - r, C - p, D – q
(D) A - s, B - p, C - r, D – q

10. The pacemaker of the human heart is
(A) SA node (B) tricuspid valve (C) AV node (D) SV node

11. Origin of heart beat and its conduction is represented by -
(A) SA-node → Purkinje fibres → AV-node→ Bundle of His → Heart Muscle
(B) AV-node→ Bundle of His→ SA node→ Purkinje fibres→ Heart Muscle
(C) Purkinje fibres→ AV-node→ SA node→ Bundle of His→ Heart Muscle
(D) SA-node→ AV-node→ Bundle of His→ Purkinje fibres→ Heart Muscle

12. Sino-atrial node (SAN) can generate impulses -
(A) 70 - 75 min^{-1}
(B) 40 - 55 min^{-1}
(C) 30 - 40 min^{-1}
(D) 100-120 min^{-1}

13. Atria-ventricular node (AVN) is situated in
(A) Lower left corner of left auricle, close to AV-septum
(B) Lower left corner of right auricle, close to AV-septum
(C) Upper left corner of right auricle, close to AV-septum
(D) Upper left corner of left auricle, close to AV-septum

14. Sino atrial node (SAN) is situated in
(A) Upper right corner of right auricle
(B) Lower right corner of left auricle
(C) Upper left corner of right auricle
(D) Upper left corner of left auricle

15. Purkinje fibres are present in -
(A) Left auricle
(B) Right auricle
(C) Ventricular myocardium
(D) Sino Atrial Node

16. Rate of heartbeat is determined by
(A) SA node
(B) AV node
(C) Purkinje fibres
(D) Papillary muscles

17. **Assertion-(A):** AV node is called pacemaker of heart.
Reason:-(R): It is responsible for initiating and maintaining the rhythm of heart
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) The assertion is true but the reason is false.
(D) Both the assertion and reason are false.

18. **Assertion-(A):** The wall of left ventricle is thickest among all four chambers of heart.
Reason-(R): The left ventricle has to pump blood to whole body
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) The assertion is true but the reason is false.
(D) Both the assertion and reason are false.

19. **Assertion-(A):** Human heart is myogenic.
Reason-(R): Normal activities of heart are regulated intrinsically by specialized muscle.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) The assertion is true but the reason is false.
(D) Both the assertion and reason are false.

20. **Assertion-(A):** SA node is called pacemaker of heart.
Reason-(R): It is situated at right upper corner of right auricle
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.
(C) The assertion is true but the reason is false.
(D) Both the assertion and reason are false.

1. The duration of cardiac cycle in a normal man is
(A) 0.8 seconds (B) 0.08 seconds (C) 8.0 seconds (D) 72 seconds

2. During ventricular systole the oxygenated blood is pumped into the
(A) Aorta and deoxygenated blood is pumped into the pulmonary artery.
(B) Pulmonary artery and deoxygenated blood is pumped into the artery.
(C) Aorta and deoxygenated blood is pumped into pulmonary vein.
(D) Pulmonary vein and deoxygenated blood is pumped into pulmonary artery.

3. An artery is
(A) Thick walled in which blood flows under low pressure.
(B) Thin walled in which blood flows under high pressure.
(C) Thick walled in which blood flows under high pressure.
(D) Thin walled in which blood flows under low pressure.

4. Contraction of right ventricle pumps blood into
(A) Dorsal aorta (B) Pulmonary vein (C) Coronary artery (D) Pulmonary artery

5. Arteries carry oxygenated blood except in
(A) Pulmonary artery (B) Cardiac artery (C) Hepatic artery (D) Systemic artery

6. Which of the following carries oxygenated blood?
(A) Renal vein (B) Hepatic portal vein
(C) Hepatic vein (D) Pulmonary vein

7. Hepatic portal system starts from
(A) Digestive system to liver (B) Kidney to liver
(C) Liver to heart (D) Liver to kidney

8. When ventricular systole occurs
(A) Atrial diastole coincides
(B) Tricuspid and bicuspid valves close
(C) Semilunar valves guarding pulmonary artery and aorta are forced to open
(D) All the above

9. During cardiac cycle, about _____ % of ventricular filling occurs prior to atrial contraction. _____ % ventricular filling occurs due to atrial contraction
(A) 50, 50 (B) 70, 30
(C) 30, 70 (D) 10, 90

10. First cardiac sound (lub) is associated with
(A) Closure of tricuspid and bicuspid valves (B) Opening of tricuspid valves
(C) Closure of semilunar valves (D) Opening of semilunar valves

11. The heart sound 'dupp' is produced when
(A) Tricuspid valve is opened. (B) Mitral valve is opened.
(C) Mitral valve is closed. (D) Semi-lunar valves get closed.

12. Heartbeat increases
(A) On stimulation of sympathetic nerves
(B) On stimulation of vagus nerve (parasympathetic nerve)
(C) By adrenaline secreted by adrenal medulla
(D) Both (A) and (C)

13. What would be the cardiac output of a person having 72 heart beats per minute and a stroke volume of 50 mL?
(A) 360 mL (B) 3600 mL (C) 7200 mL (D) 5000 mL

14. To obtain standard ECG a patient is connected to the machine with three electrical leads attached to the following parts except
(A) Right wrist (B) Left wrist (C) Right ankle (D) Left ankle

15. T-wave on an ECG represents
(A) Depolarization of ventricles (B) Repolarization of ventricles
(C) Repolarization of atria (D) Depolarization of atria

16. ECG depicts the depolarization and repolarization processes during the cardiac cycle. In the ECG of a normal healthy individual one of the following waves is not represented.
(A) Depolarization of atria (B) Repolarization of atria
(C) Depolarization of ventricles (D) Repolarization of ventricles

17. Which one indicates hypertension?
(A) 120/80 mmHg (B) 80/120 mmHg
(C) 160/100 mmHg (D) 40/60 mmHg

18. Coronary artery disease (CAD) is often referred to as
(A) Hypotension (B) Hypertension
(C) Atherosclerosis (D) angina

19. The state of heart when it is not pumping blood effectively enough to meet the needs of the body is called _____.
(A) Angina (B) Cardiac arrest
(C) Heart attack (D) Heart failure

20. Which of the following is not correct for blood pressure?
(i) It is not affected by atherosclerosis.
(ii) It is typically lower in veins than in arteries.
(iii) Diastolic pressure is higher than systolic pressure.
(iv) It is usually refers to as venous pressure of the systemic circulation.
(A) Only (i) and (iii) (B) Only (i), (ii) and (iii)
(C) Only (ii) and (iii) (D) Only (i), (iii) and (iv)

NEET-BIOLOGY **ELP NO.-1 EXCRETORY PRODUCTS AND THEIR ELIMINATION**

1. Removal of which of the following requires maximum amount of water?
(A) Ammonia (B) Urea (C) Uric acid (D) Both A and B

2. Flame cells are excretory structures of
(A) Planaria (B) Prawn (C) Frog (D) Earthworm

3. Select the incorrect statement w.r.t. the human kidney.
(A) Left kidney is placed a little higher than the right one
(B) Located on dorsal-side of abdominal cavity
(C) Contains only one type of nephron
(D) Located in abdomen at the level of T12 to L3

4. The opening of urinary bladder is guarded by two urethral sphincters select the correct option?
(A) Internal sphincter is involuntary
(B) External sphincter is involuntary
(C) Both the sphincters are involuntary in nature
(D) Both the sphincters are voluntary in nature

5. Choose the incorrect statement w.r.t. the cortical nephrons
(A) Most common nephrons in human kidney
(B) Bowman's capsule encloses glomerulus
(C) Vasa recta are reduced or absent
(D) Control volume of plasma under stress full conditions

6. Where do you find podocytes in human body?
(A) Brain (B) Liver (C) Kidney (D) Pancreas

7. Proximal convoluted tubule is highly specialized for reabsorption of substances. It is lined by
(A) Simple squamous epithelium
(B) Simple columnar epithelium
(C) Simple cuboidal epithelium without microvilli
(D) Simple cuboidal epithelium with microvilli

8. Which of the following cannot be considered as part of structure of a uriniferous tubule?
(A) Bowman's capsule (B) Convoluted tubule
(C) Henle's loop (D) Collecting duct

9. How many of the following are uricotelic animals?
Pigeon, Sea Horse, Elephant, Lizard, Rat, Crow, Catla, Cat
(A) 4 (B) 5 (C) 3 (D) 6

10. Which of the following structure helps in excretion and conservation of water in terrestrial arthropods?
(A) Malpighian body (B) Antennary gland
(C) Malpighian tubules (D) Keber's organs

11. Ureotelism is found in
(A) Mammals (B) Aquatic insects
(C) Tadpoles (D) Birds

12. If liver is removed from body then which component of blood increases
(A) Ammonia (B) Protein (C) Urea (D) Uric acid

13. Which of the following blood vessel would carry highest amount of urea?
(A) Hepatic Portal Vein (B) Hepatic Artery
(C) Renal Vein (D) Hepatic Vein

14. Site of urea synthesis is
(A) Nephron (B) Hepatocytes (C) Adipocytes (D) Haemocytes

15. Proboscis gland is associated with
(A) Digestion (B) Excretion (C) Circulation (D) Respiration

16. The correct order according to solubility in water is:
(A) Ammonia>uric acid>urea (B) Ammonia >urea>uric acid
(C) Uric acid>urea> Ammonia (D) Uric acid> Ammonia >urea

17. Which are the two components that are eliminated from body through urea cycle?
(A) NH_3 and CO (B) NH_3 and CO_2 (C) NH_3 Only (D) NH_3 and H_2O

18. "Columns of bertini" in kidney of animal are found as the extension of
(A) Medulla into cortex (B) Cortex into medulla
(C) Medulla into pelvis (D) Pelvis into ureter

19. Loop of henle and collecting ducts are located in kidney in
(A) Cortex (B) Medullary pyramid
(C) Columns of bertini (D) Calyces

NEET-BIOLOGY **ELP NO.-2 EXCRETORY PRODUCTS AND THEIR ELIMINATION**

1. Hyperosmolarity of interstital fluid in renal medulla is maintained by retaining high concentration of
(A) Urea (B) TMAO
(C) Urea and NaCl (D) Urea and Uric acid

2. How much amount of blood passes through the kidneys per minute in a healthy person?
(A) 125-150 ml (B) 600-700 ml
(C) 1100-1200 ml (D) 180 litre

3. Chemically glomerular filtrate is similar to blood plasma, except
(A) Urea (B) Glucose
(C) Proteins (D) Electrolytes

4. A fall in GFR can activate the JG cells to release _____, which can stimulate the glomerular blood flow and thereby restore the GFR back to normal
(A) Renin (B) Angiotensin-II (C) Rennin (D) Erythropoietin

5. Substances like glucose, amino acids and Na^+ in the filtrate are reabsorbed by
(A) Active transport
(B) Passive transport
(C) Both active and passive transport
(D) Facilitated diffusion

6. Osmotic concentration of glomerular filtrate is the highest at the bottom of the U-shaped Henle's loop. It is about_____$mOsmL^{-1}$
(A) 300 (B) 600 (C) 900 (D) 1200

7. Which part of nephron is permeable to H_2O but is almost impermeable to transport of electrolytes?
(A) PCT
(B) Descending limb of Loop of Henle
(C) Ascending limb of Loop of Henle
(D) DCT

8. Counter current mechanism helps in concentrating urine in animals and mainly operates on
a. Henle's loop b.Vasa-recta c. PCT d. DCT
(A) a only (B) b only (C) a and b (D) All of these

9. Conditional reabsorption of sodium ions occurs in which part of nephron?
(A) Bowman's capsule (B) PCT
(C) DCT (D) Loop of Henle

10. The appearance of albumin in the urine is most likely due to
(A) Increase in blood pressure
(B) Decrease in blood osmotic pressure
(C) Damage in malpighian corpuscles
(D) Damage to PCT

11. Main function of loop of Henle is
(A) Formation of urine (B) Passage of urine
(C) Conservation of water (D) Filtration of blood

12. The renal vein carries blood
(A) Towards liver (B) Into the kidney
(C) Away from the kidney (D) Towards urinary bladder

13. The mechanism of urine formation in nephron involves
(A) Ultrafiltration (B) Secretion (C) Reabsorption (D) All of above

14. The glomerular filtration rate (GFR) in a normal adult is nearly
(A) 200 ml/min (B) 250 ml/min
(C) 125 ml/min (D) 170 ml/min

15. Find the incorrect statement regarding mechanism of urine formation in man
(A) The glomerular filtration rate is about 125 ml/min
(B) Tubular secretion takes place in the PCT
(C) Aldosterone induces greater reabsorption of sodium ions
(D) The counter current system contributes in diluting the urine

16. Secretion of renin from JG cell is due to
(A) Fall in Glomerular blood flow (B) Fall in Glomerular blood pressure
(C) Fall in GFR (D) All of these

17. Which of the following activates the adrenal cortex to release aldosterone
(A) Angiotensin II (B) Angiotensin I (C) Cortisol (D) ADH

18. Which of the following is not involved in RAAS.
(A) Angiotensin (B) Aldosterone (C) Renin (D) ADH

19. Angiotensinogen is secreted by
(A) Pancreas (B) JG cells (C) Liver (D) Kidney

20. Which of the following is not released during dehydration
(A) Renin (B) Aldosterone (C) ADH (D) ANF

NEET-BIOLOGY **ELP NO.-3 EXCRETORY PRODUCTS AND THEIR ELIMINATION**

1. Human lungs remove approximately
(A) 20 ml CO_2/min. (B) 200 ml CO_2/min.
(C) 2000 ml CO_2/min. (D) 2 litres CO_2/hr.

2. Which of the following waste products remove by liver?
(A) Bilirubin (B) Biliverdin (C) Drugs (D) All of these

3. Primary function of _____ is to facilitate cooling effect on body surface.
(A) Sebum (B) Sweat (C) Wax (D) Saliva

4. Which of following gland help to remove small amount of nitrogenous wastes
(A) Lungs (B) Sebaceous glands (C) Salivary gland (D) Liver

5. Kidney stones or insoluble masses made up of
(A) Phosphate (B) Oxalates (C) Sterols (D) Phospholipids

6. Glomerulonephritis is caused due to
(A) Inflammation of glomeruli of kidney
(B) Inflammation of joints
(C) Inflammation of collecting duct
(D) Failure of kidney

7. Composition of dialysing fluid is same as_____ except the_____
(A) Blood, Proteins (B) Plasma, Glucose
(C) Plasma, Nitrogenous wastes (D) Blood, Hydrocarbons

8. Malfunctioning of kidneys lead to accumulation of urea in blood, called as:
(A) Halmaturia (B) Glucosuria (C) Albuminuria (D) Uremia

9. Sebum contains all except
(A) Sterols (B) Colostrum (C) Hydrocarbons (D) Waxes

10. Blood drained from convenient artery mix with _____pumped through dialysing unit.
(A) Serotonin (Anticoagulant) (B) Heparin (Anticoagulant)
(C) Histamin (Anticoagulant) (D) Serotonin (Coagunlant)

11. Sebum provides_____
(A) Roughness to the skin
(B) A protective dry covering for the skin
(C) A protective oily covering for the skin
(D) Scales on skin

12. Sweat glands remove

(A) NaCl (B) Urea (C) Lactic acid (D) All of these

13. Find the incorrect statement w.r.t lungs

(A) Remove small amount of CO_2

(B) Remove significant quantity of water.

(C) Remove both CO_2 and water

(D) Included in accessory structure of excretion.

14. All are correct statements w.r.t to kidney transplantation, except

(A) Ultimate method in correction of acute renal failure

(B) Functional kidney is taken from unrelated donor.

(C) Modern clinical problems have increased success rate.

(D) All of these.

15. Presence of blood in urine is known as

(A) Glycosuria (B) Polyuria (C) Hematuria (D) Ketonuria

NEET-BIOLOGY **ELP NO.-1** **LOCOMOTION AND MOVEMENT**

1. The movement which results in a change of place or location is known as
(A) Adduction (B) Flexion (C) Extension (D) Locomotion

2. Select the incorrect statement?
(A) Plant and animal both exhibit movement.
(B) All locomotion are movement but all movement are not locomotion.
(C) Methods of locomotion performed by animals with their habitats and the demand of the situation.
(D) *Hydra* can use its Cilia for capturing its prey and also use them for locomotion

3. Locomotion is used for
(a) Search of food and shelter
(b) Search for mate
(c) Search for suitable breeding ground
(d) Escaping from enemies/Predators
(A) All except b (B) All except c (C) All except d (D) All of these

4. Which of the following cells exhibit amoeboid movement?
(A) Macrophages, Leucocytes (B) Leucocytes, RBC
(C) RBC, Macrophages (D) RBC, Platelets

5. Which of the following is correct about pseudopodia?
(A) Formed by streaming of protoplasm
(B) Formed in amoeba and leucocytes
(C) Both (A) and (B)
(D) *Hydra* can use its Pseudopodia for capturing its prey and also use them for locomotion

6. The macrophages in human body exhibit
(A) Ciliary movement (B) Amoeboid movement
(C) No movement (D) Movement with the blood flow only

7. Which movement helps in the swimming of spermatozoa, maintenance of water current in the canal system of sponges?
(A) Flagellar movement (B) Ciliary movement
(C) Amoeboid movement (D) Streaming of protoplasm

8. Which of the following is involved in amoeboid movement?
(A) Centriole (B) Cilia
(C) Flagella (D) Microfilament

9. Which of the following organs is lined with cilia?
(A) Fallopian tube (B) Trachea
(C) Small Intestine (D) Both (A) and (B)

10. I. Ciliary movement occurs in most of our internal tubular organs which are lined by ciliated epithelium.
II. Hydra takes help of tentacles for both food capturing and locomotion
III. Movement of our limbs, jaws, tongue, etc, require muscular movement.
IV. Cytoskeletal elements like microfilaments are also involved in ciliated movement.
V. Ciliated epithelium is found in respiratory tract, renal tubules and reproductive tracts
Which of the above statements is false?
(A) I and III (B) III (C) III and V (D) IV and V

11. Locomotion requires a perfect coordinated activity of
(A) Muscular system (B) Skeletal system
(C) Neural system (D) All of these

12. Muscle is derived from
(A) Endoderm (B) Mesoderm
(C) Ectoderm (D) All of these

13. Muscle forms _____ of adult human body.
(A) 20–30% (B) 40–50%
(C) 80–90% (D) 60–70%

14. Which of the statement is false?
(A) Muscle has special properties like excitability, contractility, extensibility and elasticity.
(B) Muscles have been classified using different criteria, namely location, appearance and nature of regulation of their activities.
(C) Based on their location, three types of muscles are identified: (i) Skeletal (ii) Visceral and (iii) Cardiac.
(D) Muscle is a specialised tissue of ectodermal origin.

15. Which of the following is incorrect about skeletal muscles?
(A) Striped appearance under microscope hence called striated muscle.
(B) They are voluntary muscles.
(C) Primarily involved in locomotory actions and changes the body postures.
(D) They are involuntary muscles.

16. Which of the following is incorrect about visceral muscles?
(A) Non-striated muscle
(B) Involuntary in nature
(C) Located in inner walls of hollow visceral organs of the body
(D) They are under in voluntary control

17. Which of the following statements is false?
(A) Locomotion and many other movements required coordinated muscular activities
(B) Muscle is a specialized tissues of endodermal in origin
(C) Muscles which contribute about 40 - 50 % of adult body weight
(D) Muscles show contractibility, excitability and flexibility

18. Smooth muscle is
(A) Found in walls of heart only.
(B) Found in the walls of all the hollow organs except heart.
(C) Attached to the bones only.
(D) Found only in the walls of alimentary canal.

19. Cardiac muscles are different from that of skeletal muscles as the former are
(A) Striated but involuntary.
(B) Non striated and involuntary.
(C) Smooth or unstriated.
(D) Voluntary in action.

20. Which set clearly identify striated muscles?
(A) Cylindrical, Multinucleated and Unbranched
(B) Spindle, Unbranched and Uninucleated
(C) Cylindrical, Striped and Uninucleated
(D) Cylindrical, Striped and Branched

NEET-BIOLOGY **ELP NO.-2** **LOCOMOTION AND MOVEMENT**

1. Sarcolemma is a membrane found over
(A) Nerve fibre (B) Cardiac muscle
(C) Skeletal muscle fibre (D) Wall of Heart

2. Each organized skeletal muscle in our body is made up of a number of muscle bundles or fascicles held together by a common collagenous connective tissue layer called
(A) Tunicae (B) Fascia (C) Pellicle (D) Capsule

3. Sarcoplasmic reticulum is a storehouse of which ion
(A) Ca^{2+} (B) Na^{+} (C) Fe^{3+} (D) Fe^{2+}

4. The dark bands of a skeletal muscle are known as
(A) Isotropic bands (B) Anisotropic bands
(C) Intercalated disc (D) Cross bridges

5. A-band of the myofibril contains
(A) Only thick filaments (B) Only thin filaments
(C) Both thick and thin filaments (D) No filaments

6. The light bands of a skeletal muscles are known as
(A) Isotropic bands (B) Anisotropic bands
(C) Intercalated disc (D) Cross bridges

7. This central part of thick filament, not overlapped by thin filaments is called _____
(A) Z-band (B) H zone (C) A-band (D) Sarcomere

8. The functional unit of the contractile system in the striped muscle is
(A) Z-band (B) A-band (C) I-band (D) Sarcomere

9. Select the correct statement:
(A) A-band is made up of only thick myosin filament.
(B) H-zone is present in the middle of I-band.
(C) Actin and myosin are polymerized protein with contractility.
(D) This central part of thick filament, overlapped by thin filaments is called the 'H' zone

10. Which of the following statements about the striated muscles is false?
1. Thick filaments in the 'A' band are also held together in the middle of this band by a thin fibrous membrane called 'M' line.
2. In the centre of each 'I' band is an elastic fibre called 'H' line which bisects it.
3. The thin filaments are firmly attached to the 'Z' line.
4. This central part of thick filament, not overlapped by thin filaments is called the 'H' zone.

(A) All of these (B) Only 2 (C) 1 and 4 only (D) Only 1

11. Actin protein occurs in which of the following two forms?
(A) Polymeric F- actin and monomeric G- actin
(B) Monomeric F- actin and polymeric G-actin
(C) The tail and a head
(D) F-actin and G- actin, but both globular.

12. Troponin
(A) Produces sliding movement of microtubules
(B) Contains globular head
(C) Binding to Ca^{+2} produces skeletal muscle contraction.
(D) Covers the active site of actin.

13. Which muscle protein acts as ATPase?
(A) Actin (B) Troponin (C) Myosin (D) Tropomyosin

14. During resting stage the binding site of actin for myosin remains masked by
(A) Troponin (B) G-actin (C) F-actin (D) Meromyosin

15. Read the following statements (A to D) and select the one option that contains both incorrect statements.
A. Z-line is present in the centre of the light band.
B. Thin filaments are firmly attached to the M-line.
C. The central part of thick filaments, not overlapped by thin filaments is called Z-band.
D. Light band contains only thin filaments.
(A) A and D (B) B and C (C) A and C (D) B and D

16. A sarcomere is best described as a
(A) Movable structural unit within a myofibril bounded by H zones.
(B) Structural unit within a myofibril bounded by M lines.
(C) Fixed structural unit within a myofibril bounded by A bands.
(D) Structural unit within a myofibril bounded by Z lines.

17. Which of the following statements about the molecular arrangement of actin in myofibrils is correct?
1. Each actin (thin) filament is made of two 'F' (filamentous) actins helically wound to each other.
2. Each 'F' actin is a polymer of monomeric 'G' (Globular) actins.
3. Two filaments of another protein, tropomyosin also runs close to the 'F' actins throughout its length.
4. A complex protein troponin is distributed at regular intervals on the tropomyosin.

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

18. Select the total number of true statements from the following.
1. Each myosin (thick) filament is also a polymerized protein.
2. Many monomeric proteins called meromyosins constitute one thick filament.
3. Each meromyosin has two important parts, a globular head with a short arm and a tail.
4. The HMM component, i.e., the head and short arm projects outwards at regular distance and angle from each other from the surface of a polymerized myosin filament and is known as cross arm.
5. The Tail part is an active ATPase enzyme and has binding sites for ATP and active sites for actin.

(A) 1 (B) 2 (C) 4 (D) 5

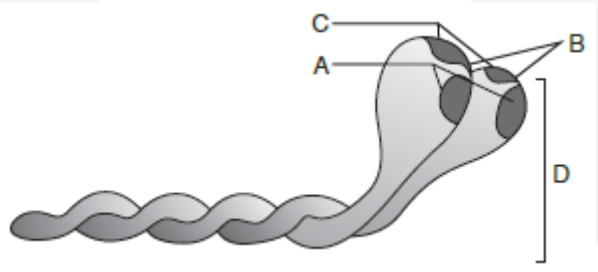
19. Which of the following statements is false?
(A) Each myosin is a polymerized protein
(B) Many meromyosin constitute one thick filament (myosin)
(C) Each meromyosin's tail is called heavy meromyosin (HMM) and head is called light meromyosin (LMM)
(D) The globular head is an active ATPase enzyme and has binding sites for ATP and active sites for actin

20. Binding of Ca^{2+} with _____ in the skeletal muscles and leads to the exposure of the binding site for _____ on the filament _____.
(A) Troponin, myosin, actin
(B) Troponin, actin, relaxin
(C) Actin, myosin, troponin
(D) Tropomyosin, myosin, relaxin

21. Following is the figure of actin (thin) filaments. Identify A, B and C.

(A) A–Tropomyosin, B–Troponin, C– Myosin
(B) A–Tropomyosin, B–Myosin, C–F Tropomyosin
(C) A–Troponin, B–Tropomyosin, C–Myosin
(D) A–Troponin, B–Tropomyosin, C–F actin

22. Identify A to D in the below figure.



(A) A–Tail, B–Head, C–Cross arm, D–ATP binding sites
(B) A–Cross arm, B–Actin binding sites, C–ATP binding sites, D–Tail
(C) A–ATP binding sites, B–Head, C–Actin binding sites, D–Cross arm
(D) A– Cross arm, B– Head, C–ATP binding sites, D–Myosin binding sites

NEET-BIOLOGY **ELP NO.-3** **LOCOMOTION AND MOVEMENT**

1. Mechanism of muscle contraction is best explained by
(A) Rotation Theory (B) Sliding filament theory
(C) Blackman's law (D) All or None Law

2. Motor end plate is a
(A) Neuromuscular junction (B) Plate of Sensory neuron
(C) Dendron of motor neuron (D) Gradient of protein motive force

3. Which of the following statements is incorrect?
(A) Muscle contraction is initiated by a signal sent by CNS via a Sensory neuron
(B) A motor neuron along with the muscle fibres connected to it constitute a motor unit
(C) The junction between a motor neuron and the sarcolemma of the muscle fibre is called the Neuromuscular junction
(D) Contraction of a muscle fibre takes place by the sliding of the thin filaments over the thick filaments.

4. When a skeletal muscle shortens during contraction which of these statements is false?
(A) The I-band shortens (B) The A-band shortens
(C) The H-zone becomes narrow (D) The sarcomeres shorten

5. Name the ion responsible for unmasking of active sites for myosin for cross-bridge activity during muscle contraction.
(A) Magnesium (B) Sodium (C) Potassium (D) Calcium

6. The muscle band that remains unchanged during muscle contraction and relaxation of the skeletal muscle is –
(A) I (B) A (C) H (D) Z line.

7. According to the sliding filament theory
(A) Actin (thin filament) moves over myosin (thick filament)
(B) Myosin moves over actin
(C) Both myosin and actin move on each other
(D) None of the above

8. A neurotransmitter _____ generates an action potential in the sarcolemma.
(A) GABA (B) Epinephrine (C) Glycine (D) Acetyl choline

9. Put the following statement in proper order to describe muscle contraction.
1. Signal sent by CNS via motor neuron.
2. Generation of action potential in the sarcolemma.
3. Release of Ca^{+2} from sarcoplasmic reticulum.
4. The neurotransmitter acetylcholine released motor endplate.
5. Sarcomere shortens.

(A) 1 → 2 → 4 → 3 → 5 (B) 1 → 4 → 2 → 3 → 5

(C) 1 → 4 → 3 → 2 → 5 (D) 5 → 4 → 3 → 2 → 1

10. Red muscle fibres are rich in
(A) Golgi bodies (B) Mitochondria (C) Lysosomes (D) Ribosomes

11. Repeated activation of the muscles can lead to the accumulation of _____ due to anaerobic breakdown of glycogen in there causing fatigue.
(A) Ethanol (B) Lactic acid (C) Citric acid (D) Butyric acid

12. **Assertion-(A):** Ca^{2+} ion plays important role in muscle contraction
Reason-(R): Calcium ion binds to subunit of troponin on actin filament and removes the masking of active sites for myosin
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion
(C) The assertion is true but the reason is false
(D) Both the assertion and reason are false

13. **Assertion-(A):** Repeated activation of the muscles will become fatigue.
Reason-(R): Aerobic breakdown of glycogen in the muscles can lead to the accumulation of lactic acid.
(A) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
(B) If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
(C) Assertion is true but Reason is false.
(D) Both Assertion and Reason are false.

14. Which of the following statement is incorrect?
(A) A motor neuron along with the muscles fibres connected to it constitute a motor unit.
(B) The reaction time of the fibres can vary in different muscles.
(C) Muscle fatigue is due to lactic acid formation due to aerobic respiration.
(D) Muscle contains a red coloured oxygen storing pigment called myoglobin.

15. Which is not the correct difference between white and red muscle fibres?

White muscle fibre	**Red muscle fibre**
1. Less myoglobin	1. More myoglobin
2. Number of mitochondria is less	2. Number of mitochondria is more
3. Amount of sarcoplasmic reticulum is low	3. Amount of sarcoplasmic reticulum is high
4. Anaerobic muscle	4. Aerobic muscle

(A) 1 (B) 2 (C) 3 (D) 4

16. The protein which maintains the muscular storage of oxygen is
(A) Myoglobin (B) Actin (C) Myosin (D) Haemoglobin

17. Which of the following statement is incorrect?
(A) Muscle contains a red coloured oxygen storing pigment called myoglobin.
(B) Myoglobin content is high in the Red fibres.
(C) The amount of sarcoplasmic reticulum is high in the Red fibres.
(D) The amount of sarcoplasmic reticulum is high in the White fibres.

18. **Assertion-(A):** White muscle fibres have very less quantity of myoglobin.
Reason-(R): White muscle fibres have high number of sarcoplasmic reticulum.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion
(C) The assertion is true but the reason is false.
(D) Both Assertion and Reason are false.

19. Myasthenia gravis is
(A) Auto immune disorder affecting neuromuscular junction
(B) Progressive degeneration of skeletal muscle mostly due to genetic disorder
(C) Rapid spasms in muscle due to low Ca^{++} in body fluid
(D) Inflammation of joints

20. Progressive degeneration of skeletal muscle, mostly due to genetic disorder, is
(A) Osteoporosis (B) Gout (C) Tetany (D) Muscular dystrophy

21. Tetany is due to
(A) Low Ca^{2+} in body fluid
(B) High Ca^{2+} in body fluid
(C) High concentration of uric acid in body fluid
(D) All

22. Which of the following statement is incorrect?
(A) Myasthenia gravis is an auto immune disorder affecting neuromuscular junction leading to fatigue, weakening and paralysis of Visceral muscle
(B) Progressive degeneration of skeletal muscle mostly due to genetic disorder is called Muscular dystrophy
(C) Repeated activation of the muscles can lead to the accumulation of lactic acid due to anaerobic breakdown of glycogen in them, causing fatigue.
(D) Rapid spasms (wild contractions) in muscle due to low Calcium in body fluid called Tetany

NEET-BIOLOGY **ELP NO.-4** **LOCOMOTION AND MOVEMENT**

1. Skeletal system consists of -
(A) Only bones
(B) Only cartilage
(C) A framework of bones and a few cartilage
(D) A framework of cartilage and a few bones

2. Bone has a very hard matrix due to presence of-
(A) NaCl (B) Ca-salts (C) Mg-salts (D) Fe-salts

3. How many bones make up the human skeleton?
(A) 216 (B) 196 (C) 300 (D) 206

4. Number of bones in human axial skeleton is -
(A) 80 (B) 106 (C) 206 (D) 108

5. Hyoid bone is -
(A) B-shaped (B) K-shaped (C) U-shaped (D) L-shaped

6. Which one of the following is not included under ear ossicles -
(A) Malleus (B) Ileum (C) Incus (D) Stapes

7. In mammals the lower jaw is made of
(A) Maxilla (B) Sphenoid (C) Mandible (D) Ethmoid

8. Hyoid bone is located
(A) At the top of the buccal cavity. (B) At the floor of the buccal cavity.
(C) In front of the skull. (D) Behind the skull.

9. Which of the following is not part of axial skeleton?
(A) Sphenoid (B) Sternum (C) Mandible (D) Humerus

10. What is the right sequence of bones in the ear ossicles of a mammal starting from the tympanum inwards?
(A) Malleus, Incus, Stapes (B) Malleus, Stapes, Incus
(C) Incus, Malleus, Stapes (D) Stapes, Incus, Malleus

11. Which of the following statements is incorrect?
(A) Skeletal system has a significant role in movement shown by the body.
(B) Bone and cartilage are specialised muscular tissues.
(C) Axial skeleton comprises 80 bones distributed along the main axis of the body.
(D) The skull is composed of two sets of bones –cranial and facial, that totals to 22 bones.

12. Human skull is -
(A) Dicondylic (B) Monocondylic (C) Procoelous (D) Hetercoelous

13. Which of the following is not the function of vertebral column?
(A) Protects spinal cord and supports the head
(B) Serves as the point of attachment for ribs and musculature of the back
(C) Supports Tarsals and Metacarpals
(D) None of these.

14. In man, the ribs are attached to
(A) Clavicle (B) Ileum (C) Sternum (D) Scapula

15. Which of the following is not correct about sternum?
(A) It is commonly called breast bone (B) It is flat bone
(C) It is 2 in number (D) It is located on the ventral mid line of thorax

16. Each typical rib is a thin flat bone connected ____ to the vertebral column and _____ to the sternum-
(A) Dorsally, ventrally (B) Ventrally, dorsally
(C) Ventrally, ventrally (D) Dorsally, dorsally

17. Which of the following ribs are called vertebrochondral ribs?
(A) 1 to 7 pairs ribs (B) 8 to 10 pairs ribs
(C) Gorilla ribs (D) Floating ribs

18. The number of bones in the vertebral column of man is
(A) 32 (B) 26 (C) 35 (D) 20

19. The number of floating ribs in human body is
(A) 6 pairs (B) 3 pairs (C) 5 pairs (D) 2 pairs

20. Three of the following pairs of the human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the non-matching pair.

Pairs of skeletal parts	**Category**
(A) Sternum and ribs	Axial skeleton
(B) Maxilla and Mandible	Facial Bone
(C) Humerus and ulna	Human skull
(D) Malleus and stapes	Ear ossicles

21. Which of the following statements is incorrect?
(A) The facial region is made up of 14 skeletal elements which form the front part of the skull.
(B) A single U-shaped bone called hyoid is present at the roof of the buccal cavity
(C) The skull region articulates with the superior region of the vertebral column with the help of two occipital condyles
(D) Ribs has two articulation surfaces on its dorsal end and is hence called bicephalic.

22. **Assertion-(A):** First seven pairs of ribs are called true ribs.
Reason-(R): These ribs are connected dorsally to the sternum.
(A) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
(B) If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
(C) Assertion is true but Reason is false.
(D) Both Assertion and Reason are false.

NEET-BIOLOGY **ELP NO.-5** **LOCOMOTION AND MOVEMENT**

1. Number of bones in human appendicular skeleton is -
(A) 180 (B) 80 (C) 126 (D) 206

2. Appendicular skeleton includes all except
(A) Hind limb
(B) Fore limb
(C) Vertebrae
(D) Pectoral and pelvic girdle

3. The hand contains ____ carpals (wrist bones), ____ metacarpals (palm bones), and ___ phalanges respectively.
(A) 14, 5, 8 (B) 8, 8, 14 (C) 8, 5, 14 (D) 8, 5, 5

4. Carpals, metacarpals, tarsals, metatarsals are __, ____, ____, and ____ in numbers respectively.
(A) 8, 5, 7, 5 (B) 8, 7, 5, 5 (C) 8, 5, 8, 5 (D) 7, 5, 5, 7

5. Scapula is a large triangular and flat bone situated in the dorsal part of the thorax between ____ to ____ ribs.
(A) 2, 5 (B) 2, 7 (C) 2, 4 (D) 2, 8

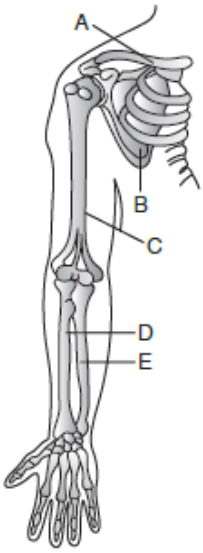
6. Which one of the following is the longest bone in human?
(A) Radius (B) Tibia (C) Femur (D) Clavicle

7. An acromion process is characteristically found in -
(A) Pelvic girdle of mammals
(B) Pectoral girdle of mammals
(C) Skull bone
(D) Vertebrae of mammals

8. Below the acromion is a depression called the _____ which articulates with the head of the humerus to form the shoulder joint.
(A) Acetabulum (B) Manubrium
(C) Occipital condyle (D) Glenoid cavity

9. Pelvic girdle consists of-
(A) Ileum, ischium and pubis
(B) Ilium, ischium and pubis
(C) Ilium, ischium and clavicle
(D) Coracoid, ischium and pubis

10. Which part is indicated as A, B, C, D, and E in the given figure?



(A) A–Clavicle, B–Scapula, C–Humerus, D–Radius, E–Ulna
(B) A–Clavicle, B–Scapula, C–Humerus, D–Radius, E–Phalanges
(C) A–Ulna, B–Humerus, C–Clavicle, D–Radius, E–Scapula
(D) A–Radius, B–Ulna, C–Scapula, D–Clavicle, E–Humerus

11. Three of the following pairs of the human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the non-matching pair.

Pairs of skeletal parts	**Category**
(A) Radius and Ulna	Upper Limb
(B) Clavicle and Scapula	Axial Skeletal
(C) Ilium and pubis	Pelvic girdle
(D) Tarsal and Metatarsals	Lower Limb

12. Joints are lubricated by
(A) Epidermis (B) Dermis (C) Tympanic membrane (D) Synovial fluid

13. Fibrous joints are found between
(A) Parietals of skull (B) Humerus and radius-ulna
(C) Glenoid cavity and pectoral girdle (D) Thumb and metatarsal

14. Which of the following pairs is correctly matched?
(A) Hinge joint – Between vertebrae
(B) Gliding joint – Between carpal and metacarpal of thumb
(C) Cartilaginous joint – between carpels
(D) Fibrous joint – Flat skull bones

15. When the head of humerus fits into glenoid cavity, the joint is
(A) Ball and socket joint (B) Hinge joint
(C) Pivot joint (D) Saddle joint

16. The shoulder and hip are
(A) Pivot joint (B) Hinge joint
(C) Saddle joint (D) Ball and socket joint

17. Articulation of the atlas with the axis is an example of
(A) Hinge joint (B) Ball and socket joint
(C) Gliding joint (D) Pivot joint

18. Synovial joints is
(A) Pivot joint, Hinge joint, Ball and socket joint
(B) Pivot joint, Hinge joint, Fibrous Joint
(C) Ball and socket joint, Fibrous Joint, Cartilaginous Joint
(D) Fibrous Joint, Cartilaginous Joint, Movable Joint

19. Which of the following pairs of joints and its location is correctly matched?
(A) Hinge joint – Knee Joint
(B) Pivot joint – Between the successive vertebrae
(C) Cartilaginous joint– Skull bones
(D) Fibrous joint – Between phalanges

20. Arthritis is -
(A) Inflammation of muscles (B) Inflammation of bone
(C) Inflammation of joints (D) Inflammation of tongue

21. Age-related disorder characterised by decreased bone mass and increased chances of fractures is called _____
(A) Rheumatoid arthritis (B) Osteoporosis
(C) Osteoarthritis (D) Muscular dystrophy

22. Gout is the inflammation of joints due to accumulation of -
(A) Urea crystal (B) NH_3 (C) Uric acid crystal (D) $CaCO_3$ crystals

23. **Assertion-(A):** Gout is inflammation of Joints.
Reason-(R): It occur due to deposition of urea in muscles.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion
(C) The assertion is true but the reason is false
(D) Both the assertion and reason are false

24. **Assertion-(A):** Osteoporosis is characterized by increase in bone mass.
Reason-(R): Its common cause is increased level of estrogen.
(A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion
(B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion
(C) The assertion is true but the reason is false
(D) Both the assertion and reason are false

NEET-BIOLOGY **ELP NO.-1** **NEURAL CONTROL AND COORDINATION**

1. Which of the following organ systems jointly coordinate and integrate all the activities of the body organs?
(A) Neural system and sensory system (B) Digestive system and respiratory system
(C) Neural system and endocrine (D) Circulatory system and respiratory system

2. Which one of the following pair of structures distinguishes a nerve cell from other types of cell?
(A) Nucleus and mitochondria (B) Perikaryon and dendrites
(C) Vacuoles and fibers (D) Flagellum and medullary sheath

3. Cytoplasm with typical cell organelles and Nissl's granule is present in the
(A)Axon Hillock (B)Cell body (C)Axon (D)Synaptic vesicles

4. The Nissl's granules are present in
a. Cell body b. Axon
c. Dendrites d. Glial cells
(A) a only (B) a, b and c (C) a and c (D) a, b, c and d

5. Multipolar neurons are found in the
(A) Retina of eye (B) Embryonic stage (C) Both (A) & (B) (D) Cerebral cortex

6. Pseudounipolar neurons occur in
(A) Pyramidal cells of cerebral (B) Retina of eye
(C) Schneiderian membrane (D) Cells of dorsal root ganglion

7. Rate of conduction of impulse will be faster in case of
(A) Myelinated nerve fibre (B) Thicker nerve fibre
(C) Non-myelinated nerve fibre (D) Both (A) and (B)

8. The somatic neural system relays impulses
(A) From CNS to involuntary organ (B) From CNS to skeletal muscles
(C) From PNS to smooth muscles (D) From PNS to voluntary organs

9. The autonomic neural system is a division of
(A) Sympathetic neural system (B) Central neural system
(C) Peripheral neural system (D) Somatic neural system

10. Find out the correct statement
(A) The PNS is the site of information processing and control
(B) All the nerves of the body associated with the PNS comprise the CNS
(C) The autonomic neural system relays impulses from the CNS to the involuntary organs of the body
(D) The CNS is divided into two divisions called sympathetic neural system and parasympathetic neural system

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ELP

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SUBJECT: NEET-BIOLOGY **ELP NO.-2** **NEURAL CONTROL AND COORDINATION**

1. When a neuron is in resting state i.e., not conducting any impulse, the axonal membrane is
(A) comparatively more permeable to Na^+ ions and nearly impermeable to K^+ ions
(B) equally permeable to both Na^+ and K^+ ions
(C) impermeable to both Na^+ and K^+ ions
(D) comparatively more permeable to K^+ ions and nearly impermeable to Na^+ ions

2. Action potential is also termed as
(A) Nerve impulse (B) Reflex action (C) Repolarisation (D) Polarisation

3. On application of a stimulus on the axonal membrane,
(A) There is a rapid influx of K^+ at that site
(B) There is a rapid efflux of Na^+ at that site
(C) There is a rapid influx of Na^+ at that site
(D) There is a rapid efflux of K^+ at that site

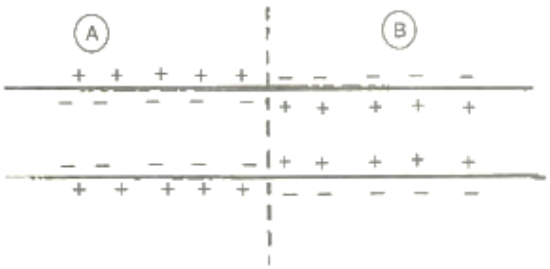
4. In the resting state of the neural membrane, diffusion due to concentration gradients, if allowed, would drive
(A) K^+ out of the cell (B) K+ and Na+ out of the cell
(C) Na^+ into the cell (D) Na^+ out of the cell

5. Action potential is
(A) decremental phenomenon (B) does not obey all or none
(C) K^+ goes from ECF to ICF (D) always same for any one neuron

6. A nerve impulse is generated when the nerve cell undergoes
(A) hyper polarization (B) repolarization (C) depolarization (D) pseudopolarisation

7. In Na^+–K^+ pump of active transport there is
(A) efflux of Na^+ and influx of K^+ (B) Only efflux of Na^+
(C) influx of Na^+ and efflux of K^+ (D) Na^+ and efflux of Na^+ only

8. In the given figure two regions (A) and (B) of a neuron are shown. Which option tells us best the state of the neuron at the two sites and the direction of flow of nerve impulse?



(A) A–Depolarised; B–Repolarised ; A to B (B) A – Resting; B – Depolarised; B to A
(C) A–Depolarised; B–Resting; A to B (D) A – Resting; B – Polarised; B to A

9. During the transmission of nerve impulse through a nerve fibre, the potential on the inner side of the plasma membrane has which type of electric charge?
(A) First positive, then negative and continue to be negative
(B) First negative, then positive and continue to be positive
(C) First positive, then negative and again back to positive
(D) First negative, then positive and again back to negative

10. During the propagation of a nerve impulse, the action potential results from the movement of
(A) Na^+ ions from extracellular fluid to intracellular fluid
(B) K^+ ions from extracellular fluid to intracellular fluid
(C) Na^+ ions from intracellular fluid to extracellular fluid
(D) K^+ ions from intracellular fluid to extracellular fluid

11. Consider the following statements regarding Na-K pump
A. It utilizes ATP.
B. It acts on a resting neuron.
C. It involves efflux of $3\ Na^+$ per ATP.
D. It involves influx of $2\ K^+$ per ATP.
E. Metabolic poisons stop the pump.
Which of the statements given above are correct?
(A) 1 and 2 (B) 1, 2 and 5 (C) 3, 4 and 5 (D) 1, 2, 3, 4 and 5

12. Unidirectional transmission of a nervous impulse through nerve fibre is due to the fact that
(A) Nerve fibre is insulated by a medullary sheath
(B) Sodium pump starts operating only at the cyton and then continues into the nerve fibre
(C) Neurotransmitters are released by dendrites and not by axon endings
(D) Neurotransmitters are released by the axon endings and not by dendrites

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ELP

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SUBJECT: NEET-BIOLOGY **ELP NO.-3** **NEURAL CONTROL AND COORDINATION**

1. Highly vascular and closely innervating protective coat around brain is known as
(A) Arachnoid (B) Piamater (C) Duramater (D) Sub arachnoid space

2. Which of the following meninges is in contact with the brain tissue?
(A) Duramater (B) Arachnoid
(C) Piamater (D) No maninx is in contact with the brain tissue

3. All of the following are parts of forebrain, except
(A) Cerebellum (B) Corpus callosum (C) Association areas (D) Hypothalamus

4. The association areas are present in the
(A)Cerebral cortex (B) Corpus callosum (C) Amygdala (D) Hypothalamus

5. The association areas are not responsible for
(A) Intersensory association (B) Communication
(C) Regulation of sexual behavior (D) Memory

6. The nerve centres which control the body temperature and the urge for eating are contained in
(A) thalamus (B) hypothalamus (C) pons (D) cerebellum

7. The limbic system is formed by
(A) Hypothalamus, epithalamus, amygdala and hippocampus
(B) Hypothalamus, amygdala and hippocampus
(C) Corpora quadrigemina and hippocampus
(D) Midbrain and hindbrain

8. The part of hind brain which is responsible for hand and eye coordination is
(A) Pons varolii (B) Thalamus (C) cerebellum (D) medulla oblongata

9. In which of the following part of brain, the nerve impulses of sound are analysed?
(A) Visual cortex area (B) Olfactory cortex area
(C) Auditory cortex area (D) Tactile cortex area

10. Satiety center of brain is present on
(A) cerebral hemisphere (B) hypothalamus
(C) cerebellum (D) medulla oblongata

11. Cerebrospinal fluid is secreted by
(A) ependymal epithelium (B) choroid plexus
(C) pituitary body (D) pineal body

12. Which of the following is/are controlled by the human brain?
(a) Balance of the body (b) Circadian rhythm of the body
(c) Human behaviour (d) Functioning of heart and kidney
(A) Only d (B) a and d (C) a, b and c (D) a, b, c, d

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ELP

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SUBJECT: NEET-BIOLOGY **ELP NO.-4** **NEURAL CONTROL AND COORDINATION**

1. The human hind brain comprises three parts, one of which is
(A) corpus callosum (B) cerebellum (C) hypothalamus (D) spinal cord

2. The part of human brain located between thalamus/hypothalamus and pons is
(A) Forebrain (B) Midbrain
(C) Hindbrain (D) Vestibular apparatus

3. Which part is involved in movement of head to locate and detect the source of a sound?
(A) Superior colliculi (B) Inferior colliculi (C) Pons (D) Medulla oblongata

4. Vomiting centre is located in the
(A) medulla oblongata (B) stomach and sometimes in duodenum
(C) Gl tract (D) hypothalamus

5. Which function will be lost due to damage of occipital lobe?
(A) Hearing (B) Speech (C) Vision (D) Memory

6. The brain stem is made up of
(A) midbrain, pons, cerebullam
(B) midbrain, pons, medulla oblongata
(C) diencephalon, medulla oblongata, cerebellum
(D) cerebellum, cerebrum, medulla oblongata

7. Which of the following is mismatched?
(A) Cerebrum – Memory (B) Olfactory lobes – Sense of smell
(C) Cerebellum – Equilibrium of body (D) Medulla oblongata – Temperature regulation

8. All the unconscious activities like heartbeat, involuntary breathing and gut peristalsis are controlled by
(A) medulla oblongata (B) cerebrum and medulla
(C) cerebellum and medulla (D) cerebrum and cerebellum

9. In the spinal cord, white matter is
(A) surrounded by gray matter (B) mixed with gray matter
(C) around the gray matter (D) absent

10. The canal passing through the midbrain is called
(A) Medulla oblongata (B) Cerebral aqueduct
(C) Eustachian tube (D) Aqueous chamber

11. Third and fourth ventricles of the brain are connected by
(A) aqueduct of Sylvius (B) foramen of Monro
(C) foramen of Magnum (D) corpus callosum

SUBJECT: NEET-BIOLOGY **ELP NO.-5** **NEURAL CONTROL AND COORDINATION**

1. Which of the following is not involved in Knee-jerk reflex?
(A) Muscle spindle (B) Motor neuron (C) Brain (D) Inter neurons

2. If the ligament directly below the kneecap is struck lightly by the edge of the hand or by a doctor's rubber hammer, knee jerk reflex occurs. This stretch reflex is
(A) Polysynaptic (B) Withdrawl (C) Monosynaptic (D) Bisynaptic

3. The somatic neural system relays impulses
(A) From CNS to involuntary organs (B) From CNS to skeletal muscles
(C) From PNS to smooth muscles (D) From PNS to voluntary organs

4. The autonomic neural system is a division of
(A) Sympathetic neural system (B) Central neural system
(C) Peripheral neural system (D) Somatic neural system

5. **Assertion [A] :** The Peripheral Nervous System (PNS) constitutes all the nerves and ganglia that lie outside the Central Nervous System(CNS) and connects the extremities of the body to the CNS.
Reason[R] : The CNS is responsible for all the information processing and control.
(A) Assertion [A] is True and Reason [R] is False.
(B) Reason [R] is True and Assertion [A] is False.
(C) Assertion [A] and Reason [R] are True and is a correct explanation to [A].
(D) Assertion [A] and Reason [R] are True but is incorrect explanation to [A].

6. Suppose the terminal ends of axon are in contact with dendrites of four adjacent neurons, the nerve impulse of the axon will
(A) Travel in all the four neurons
(B) Get distributed in all the four neurons resulting in a weak impulse
(C) Travel only in one neuron which is in closest contact and with the same intensity
(D) Travel in none of the neurons because the impulse travels from dendrites of one neuron into the axon of another neuron

7. Which one of the following does not act as a neurotransmitter?
(A) Acetylcholine (B) Epinephrine (C) Norepinephrine (D) Cortisone

8. Which of the following is not related to the autonomic nervous system?
(A) peristalsis (B) digestion (C) excretion (D) memory and learning

9. One of the examples of the action of the autonomous nervous system is
(A) Knee-jerk response (B) Pupillary reflex
(C) Swallowing of food (D) Peristalsis of the intestines

10. 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 this neuro-hormonal control system?
(A) Neurotransmitters diffuse rapidly across the cleft and transmit a nerve impulse.
(B) Hypothalamus activates the parasympathetic division of brain.
(C) Sympathetic nervous system is activated releasing epinephrin and norepinephrine from adrenal cortex.
(D) Sympathetic nervous system is activated releasing epinephrin and norepinephrine from adrenal medulla.

11. Which of following is not the action of sympathetic nervous system?
(A) Dilation of pupil
(B) Storage of bile in the gall bladder
(C) Constriction of peripheral arteries
(D) Constriction in the wall of urinary bladder

12. Which of the following is not the action of sympathetic nervous system?
(A) Slows down peristalsis
(B) Erection of hair
(C) Contraction in gall bladder
(D) Constrict arteries and raises blood pressure

13. Given below is a table comparing the effects of sympathetic and parasympathetic nervous system for four features (1-4). Which one feature is correctly described?

Feature	Sympathetic nervous system	Parasympathetic nervous system
(A) Salivary glands	Stimulates secretion	Inhibits secretion
(B) Pupil of the eye	Dilates	Constricts
(C) Heart rate	Decreases	Increases
(D) Intestinal peristalsis	Stimulates	Inhibits

SUBJECT: NEET-BIOLOGY **ELP NO.-6** **NEURAL CONTROL AND COORDINATION**

1. A synapse is formed by
(A) Pre-synaptic membrane (B) Post-synaptic membrane
(C) Synaptic cleft (D) All of these

2. If the inside of membrane becomes more negative it leads to
(A) Depolarisation (B) Repolarisation (C) Hyperpolarisation (D) Polarisation

3. Which one of the following is an example of negative feed back loop in humans?
(A) Secretion of sweat glands and constriction of skin blood vessels when it is too hot.
(B) Constriction of skin blood vessels and contraction of skeletal muscles when it is too cold.
(C) Secretion of tears after falling of sand particles in to the eye
(D) Salivation of mouth at the sight of delicious food.

4. Which one of the following statement is correct?
(A) Neurons regulate endocrine activity, but not vice versa
(B) Endocrine glands regulate neural activity and neurons system regulates endocrine glands
(C) Neither hormones control neural activity nor the neurons control endocrine activity
(D) Endocrine regulate neural activity, but not vice versa

5. Post ganglionic fibre of parasympathetic nervous system connected with sweat gland secrete
(A) Nor-adrenaline (B) Epinephrine (C) Acetylcholine (D) GABA

6. During synaptic transmission of nerve impulse, neurotransmitter (P) is released from synaptic vesicles by the action of ions (Q). Choose the correct P and Q.
(A) P = acetylcholine, Q = Ca^{++} (B) P = acetylcholine, Q = Na^{+}
(C) P = GABA, Q = Na^{+} (D) P = Cholinesterase, Q = Ca^{++}

7. Assertion: Our body secretes adrenaline in intense cold.
Reason: Adrenaline raises metabolic rate.
(A) Both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
(B) Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
(C) Assertion is true statement but Reason is false.
(D) Both Assertion and Reason are false statements.

8. Alzheimer's disease in humans is associated with the deficiency of
(A) Gamma Aminobutyric Acid (GABA) (B) Dopamine
(C) Glutamic acid (D) Acetylcholine

9. Parkinson's disease (characterized by tremors and progressive rigidity of limbs) is caused by degeneration of brain neurons that are involved in movement control and make use of neurotransmitter

(A) Acetylcholine (B) Norepinephrine (C) Dopamine (D) GABA

10. The largest cranial nerve is

(A) optic (B) facial (C) maxillary (D) trigeminal

11. Which of the following cranial nerve is not mixed?

(A) vagus (B) Trigeminal

(C) Glossopharyngeal (D) Auditory

12. In a man abducens nerve is injured. Which one of the following functions will be affected?

(A) Movement of the eye ball (B) Swallowing

(C) Movement of the tongue (D) Movement of the neck

NEET-BIOLOGY **ELP NO.-1** **CHEMICAL COORDINATION AND INTEGRATION**

1. Which of the following statement is incorrect?
(A) Neural system provides point to point rapid coordination among organs
(B) Neural coordination is slow and long lived
(C) Nerve fibres do not innervate all cells of the body
(D) None of these

2. Hormones are non-nutrient chemicals which acts as..... messengers and are produced in trace amount?
(A) Intercellular (B) Intracellular
(C) Extracellular (D) None of the these

3. Select the incorrect statement from following?
(A) Invertebrates Posses very simple endocrine system
(B) Organised endocrine bodies include Pituitary, Pineal, Thyroid, Adrenal
(C) GIT, liver, kidney also produce hormones
(D) Disfigurement of the face occurs in dwarfism.

4. Diabetes insipidus occurs due to?
(A) Hypersecretion of vasopressin (B) Hypersecretion of ADH
(C) Both (A) and (B) (D) Hyposecretion of ADH

5. Which of the hormone stimulates the synthesis and secretion of thyroid hormone?
(A) GH (Growth Hormone) (B) TSH (Thyroid Stimulating Hormone)
(C) PRL (Prolactin) (D) ACTH (Adrenocorticotropic Hormone)

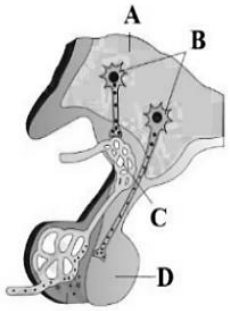
6. The posterior pituitary gland is not a true endocrine gland because?
(A) It is provided with a duct
(B) It only stores and releases hormones
(C) It is under the indirect neural regulation of hypothalamus
(D) Both (B) and (C)

7. The pituitary gland is located in a bony cavity called .... A... and is attached to .... B... by a stalk. Identify A and B to complete the given statement?
(A) A- sella tursica; B- midbrain (B) A- sella tursica; B- Cerebrum
(C) A- sella tursica; B- hypothalamus (D) A- sella tursica; B- pineal

8. Pigmentation of skin in humans is regulated by?
(A) FSH (B) LH (C) MSH (D) ACTH

9. _____ stimulates growth and development of ovarian follicles in females?
(A) FSH (B) LH (C) Prolactin (D) TSH

10. Identify A to D in the given figure and choose the correct combination?



(A) A-Hypothalamic neuron, B-Hypothalamus, C-Portal circulation, D-Posterior pituitary
(B) A -Hypothalamus, B- Hypothalamic neuron, C-Portal circulation, D-Posterior pituitary
(C) A-Hypothalamus, B- Hypothalamic neuron, C- Posterior pituitary, D-Portal circulation
(D) A-Hypothalamus, B- Hypothalamic neuron, C- Posterior pituitary, D-Neurohypophysis

11. Pars intermedia is a part of?
(A) Neurohypophysis (B) Adenohypophysis
(C) Posterior lobe of pituitary (D) Hypothalamus

12. Oxytocin and Vasopressin are stored and released by?
(A) Anterior lobe of pituitary (B) Posterior lobe of pituitary
(C) Intermediate lobe of pituitary (D) Hypothalamus

13. Gigantism and dwarfism are the disease related to?
(A) Prolactin hormone of mammary gland
(B) Growth hormone of adenohypophysis
(C) Luteinizing hormone of pituitary gland
(D) Thyroid stimulating hormone of thyroid

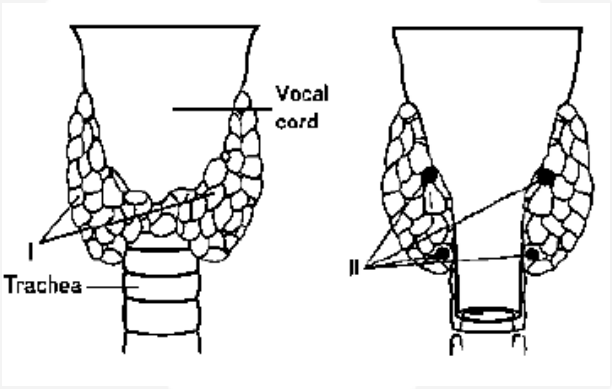
14. In females, ...A... induces the ovulation of fully mature follicle called ....B... and maintain the ....C..... after ovulation. Select the correct combination in reference to the above given statement?
(A) A-LH, B- Graafian follicles, C-pregnancy
(B) A-FSH, B- Graafian follicles, C- corpus luteum
(C) A-FSH, B- Graafian follicles, C-pregnancy
(D) A-LH, B- Graafian follicles, C- corpus luteum

15. Functions of oxytocin is/are?
(A) Smooth muscle contraction
(B) Vigorous contraction of uterus during child birth
(C) Milk ejection
(D) All of the above

NEET-BIOLOGY **ELP NO.-2** **CHEMICAL COORDINATION AND INTEGRATION**

1. Which of the following set of functions is not regulated by the hormone of the pineal gland?
(A) Diurnal rhythm and body temperature
(B) Metabolism and pigmentation
(C) Growth of bones and defense capability
(D) Diurnal rhythm and defense capability

2. Following is the diagrammatic view of the position of endocrine glands. Select the option that correctly labels the glands and their respective hormones?



(A) I - Thyroid gland - Thyroxine and TSH
(B) II - Parathyroid gland - PTH
(C) II - Thyroid gland - Thyroxine and calcitonin
(D) I - Parathyroid gland - PTH and calcitonin

3. The thyroid gland is composed of?
(A) Stromal tissues only
(B) Follicles only
(C) Stromal tissues and follicles
(D) Isthmus

4. Thyroid hormones are required for normal growth and development of humans because?
(A) Thyroid hormones regulate the basal metabolic rate in most body tissues.
(B) Thyroid hormones are regulated by negative feedback systems.
(C) Thyroid hormones contain iodine atoms.
(D) Thyroid hormones stimulate glycogen formation.

5. Which of the following disorders of the endocrine system is incorrectly matched with its description?
(A) Hypothyroidism: Iodine deficiency
(B) Goitre: Enlarged thyroid gland
(C) Hyperthyroidism: Cretinism
(D) Exopthalmic goitre: Hyperthyroidism

6. Which of the given statement correctly differentiates Myxedema from Graves' disease?
(A) Hypothyroidism in adult ages causes Graves' disease.
(B) Graves' disease is more common among males than females.
(C) Myxedema causes swelling in facial tissues due to the accumulation of interstitial fluid.
(D) Myxedema is an auto-immune disorder

7. Which of the following hormones can play a significant role in osteoporosis?
(A) Aldosterone and Prolactin (B) Progesterone and Aldosterone
(C) Estrogen and Parathyroid hormone (D) Parathyroid hormone and Prolactin

8. Which of the following pairs of hormones have antagonistic effects?
(A) T_3 and T_4 (B) ACTH and glucocorticoids
(C) PTH and TCT (Thyrocalcitonine) (D) T_3 and TSH

9. The endocrine gland that functions as a component of the lymphatic system is?
(A) Thyroid gland (B) Thymus gland
(C) Parathyroid gland (D) Pineal gland

10. Which of the following endocrine gland is responsible for reduced immune responses in old ages?
(A) Thyroid gland (B) Pineal gland
(C) Thymus gland (D) Pituitary gland

11. The thymus gland is a lobular structure located behind ....A... on the ....B... side of aorta. The thymus plays a significant role in the development of ...C... System?
Choose the correct combination of A, B and C.
(A) A-ventral, B-heart, C-immune (B) A-lateral, B-kidney, C-circulatory
(C) A-sternum, B-ventral, C-immune (D) A-dorsal, B-parathyroid, C-circulatory

12. Thymus glands release.....Hormone?
(A) T_4 (B) T_3 (C) Thymosins (D) TCT

13. A child with a weak immune system could have problems in which of the following glands?
(A) Thyroid gland (B) Parathyroid gland (C) Thymus (D) Pituitary gland

14. T-cells mature in?
(A) Peyer's patches (B) Lymph nodes (C) Thymus (D) Lungs

NEET-BIOLOGY **ELP NO.-3** **CHEMICAL COORDINATION AND INTEGRATION**

1. Adrenal gland is present at the?
(A) Lateral side of each kidney (B) Dorsal side of each kidney
(C) Posterior part of each kidney (D) Anterior part of each kidney

2. The sequence of layers presents in the adrenal cortex from inner to outer is as following?
(A) Zona reticularis, Zona fasciculata, Zona glomerulosa
(B) Zona fasciculata, Zona glomerulosa, Zona reticularis
(C) Zona glomerulosa, Zona reticularis, Zona fasciculata
(D) Zona glomerulosa, Zona fasciculata, Zona reticularis

3. The adrenal medulla secretes two hormones called adrenaline or epinephrine and noradrenaline or norepinephrine. These are commonly called as?
(A) Steroids (B) Terpenes (C) Catecholamines (D) Cytokine

4. Which of the following hormones produces anti-inflammatory reactions, suppresses immune response, stimulates RBC production, and is also involved in maintaining cardiovascular system and kidney functions?
(A) Aldosterone (B) Epinephrine
(C) Cortisol (D) Norepinephrine

5. Which of the following adrenal cortical hormone play a role in the growth of axial hair, pubic hair and facial hair during puberty?
(A) Cortisol (B) Androgens
(C) Norepinephrine (D) Epinephrine

6. Aldosterone causes all except?
(A) Reabsorption of Na^+ and water from renal tubule
(B) Excretion of K^+
(C) Excretion of Phosphate ion
(D) Absorption of K^+

7. Glucocorticoids stimulate?
(A) Gluconeogenesis (B) Lipolysis (C) Proteolysis (D) All of these

8. Which of the following glands is called emergency gland of the body?
(A) Testis (B) Adrenal (C) Thyroid (D) Pituitary

9. A man suddenly sees a tiger. His heartbeat goes up, blood pressure increases, etc. Which hormone is released at this time in his body?
(A) Corticoid (B) Parathormone
(C) Adrenaline (D) Thyroxine

10. Secretion of hormones from adrenal medulla is controlled by?
(A) Parasympathetic nervous system (B) Pituitary gland
(C) Sympathetic nervous system (D) Peripheral nervous system

11. A. Acts mainly on liver cells
B. Stimulate glycogenolysis
C. Stimulate gluconeogenesis
D. Reduces glucose uptake and utilization
Which of the following is correct about the action of glucagon from the above statements?
(A) A and B only (B) B and C only
(C) A, B and C only (D) All of these

12. Pancreas
(A) Acts as endocrine gland only
(B) Contain β-cells which secretes insulin
(C) Secrets digestive enzymes only
(D) Both (B) and (C)

13. Which one of these act as both exocrine and endocrine glands?
(A) Pancreas (B) Thyroid (C) Adrenal (D) All of these

14. Androgens stimulate?
(A) Muscular growth (B) Aggressiveness
(C) Low pitch of voice (D) All of these

15. Insulin, a peptide hormone like glucagon, has all the following effects except?
(A) Insulin acts mainly on hepatocytes and adipocytes and enhances cellular glucose uptake and utilization
(B) Insulin causes a rapid movement of glucose from blood to hepatocytes and adipocytes
(C) Insulin is hypoglycemic factor
(D) Insulin reduces glycogenesis

NEET-BIOLOGY **ELP NO.-4** **CHEMICAL COORDINATION AND INTEGRATION**

1. Which of the following hormones stimulates growth and development of female accessory sex organs and secondary sex character and also female sexual behaviour?
(A) Estrogen (B) Progesterone
(C) Androgen (Testosterone) (D) Gonadotrophin releasing hormone

2. Progesterone?
(A) Supports pregnancy (B) Stimulates the formation of mammary alveoli
(C) Stimulates milk secretion (Lactation) (D) All

3. A temporary endocrine gland in the human body is?
(A) Pineal gland (B) Corpus cardiacum
(C) Corpus luteum (D) Corpus allatum

4. Which of the following given features are appropriate for oestrogen?
(A) Stimulates the development of growing ovarian follicle
(B) Stimulates the appearance of secondary sex characters
(C) Stimulates the growth of mammary glands
(D) All of the above

5. Which of the following pairs of hormones are not antagonistic (having opposite effects) to each other?
(A) Insulin Glucagon
(B) Aldosterone Atrial natriuretic factor
(C) Relaxin Inhibin
(D) Parathormone Calcitonin

6. Which of the following peptide hormone is secreted by non-endocrine gland?
(A) ANF and erythropoietin
(B) Gastrin and secretin
(C) Cholecystokinin and gastric inhibitory peptide
(D) All of the above

7. The peptide hormone, 'Atrial Natriuretic Factor'(ANF) is secreted by?
(A) Graafian follicle (B) Atrial wall of heart
(C) Both (A) and (B) (D) None of the above

8. Juxtaglomerular cells secrete?
(A) ANF (B) erythropoietin
(C) renin (D) Both (B) and (C)

9. ANF' is a hormone, which?
(A) Is secreted in response to increased BP
(B) Decreases BP
(C) Causes vasodilation
(D) All of the above

10. Gastrin hormone acts on gastric glands so as to?
(A) Stimulates the secretion of HCl and pepsinogen
(B) Inhibits the secretion of pepsinogen
(C) Inhibits the secretion of HCl
(D) Stimulates the breakdown of pepsin hormone

11. Hormones produce their effects on target tissue by binding to specific proteins called as?
(A) Target proteins anywhere in body
(B) Activator proteins in muscles and glands
(C) Inhibitor proteins in blood
(D) Hormone receptors on target tissues

12. Among the following sets of hormones, which one contain only peptide hormones?
(A) Epinephrine, cortisol, pituitary hormones
(B) TSH, hypothalamic hormones, oestradiol
(C) Insulin, progesterone, cortisol
(D) Insulin, glucagon, prolactin

13. Hormones, which interact with membrane bound receptors normally?
(A) Enters into the cell membrane
(B) Do not enter the target cell
(C) Generate secondary messengers
(D) Both (B) and (C)

14. How does steroid hormone influence the cellular activities?
(A) Binding to DNA and forming a gene-hormone complex
(B) Activating cyclic AMP located on the cell membrane
(C) Using aquaporin channels as second messenger
(D) Changing the permeability of the cell membrane

15. Which one of the following is not a second messenger in hormone action?
(A) Calcium (B) Sodium (C) cAMP (D) cGMP

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ELP

Educator Led Practice

Cell: The Unit of Life

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	D	D	B	C	B	C	D	D	A	A	C	D	B
Que.	16	17	18	19	20										
Ans.	A	D	B	A	A										

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	B	D	B	D	D	C	C	B	C	C	A	A	D
Que.	16	17	18	19	20	21	22								
Ans.	B	D	A	A	A	D	C								

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	A	A	B	A	B	B	D	C	A	A	B	C	B	C
Que.	16	17	18	19	20	21	22	23	24						
Ans.	C	D	A	C	D	B	A	A	B						

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	A	B	C	B	D	B	B	C	A	A	A	C	D
Que.	16	17	18	19	20	21	22	23							
Ans.	C	D	C	D	C	A	D	D							

ELP-5

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	B	B	B	C	A	D	B	B	D	C	D	C	D	B
Que.	16	17	18	19	20	21	22	23	24	25					
Ans.	C	C	C	C	C	D	C	B	A	A					

ELP-6

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	A	A	C	D	C	A	D	D	D	B	C	B	C
Que.	16	17	18	19	20										
Ans.	A	C	B	C	B										

s

ELP-7

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	C	D	A	A	B	B	A	B	A	B	A	C	C	D
Que.	16	17	18	19	20	21	22								
Ans.	C	A	C	B	A	D	C								

ELP-8

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	C	D	A	A	B	B	A	B	A	B	A	C	C	D
Que.	16	17	18	19	20	21	22								
Ans.	C	A	C	B	A	D	C								

Cell Cycle And Cell Division

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	C	B	C	C	D	A	B	B	C	B	A	A	B	A
Que.	16	17	18	19	20	21	22	23	24						
Ans.	D	B	D	A	A	A	D	B	C						

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	A	A	B	A	D	A	B	D	B	D	B	A	D
Que.	16	17	18	19	20	21	22	23	24	25	26	27			
Ans.	D	B	D	B	A	B	A	A	C	A	B	D			

The Living World

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	C	B	D	D	D	C	C	C	A	C	B	A	C	A
Que.	16	17	18	19	20	21									
Ans.	C	C	B	C	B	D									

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	B	A	D	A	B	A	D	A	C	D	D	A	B	C
Que.	16	17													
Ans.	A	C													

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	D	C	A	B	B	C	D	D	D	D	C	A	B	B
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	A	D	C	B	A	D	D	C	A	D	D	A	C	C	C
Que.	31														
Ans.	A														

ELP-4

Que.	1	2	3	4	5	6	7	8	9
Ans.	D	A	B	A	D	D	B	C	C

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	B	C	A	A	B	C	A	C	A	B	C	D	C	D
Que.	16	17	18	19	20	21									
Ans.	C	D	C	A	D	D									

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	D	D	B	A	D	A	A	B	D	D	C	B	D
Que.	16	17	18	19	20	21	22	23							
Ans.	B	A	D	C	A	C	B	B							

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	C	B	C	B	D	B	B	D	D	D	A	D	B	C
Que.	16	17	18	19	20	21	22	23	24	25					
Ans.	D	D	A	C	B	D	A	B	C	C					

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	D	C	D	C	C	C	A	C	A	C	B	B	D	A
Que.	16	17	18	19	20	21	22	23							
Ans.	C	D	B	D	D	C	C	D							

ELP-5

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	A	D	B	B	B	C	C	A	A	D	A	D	C	B
Que.	16	17	18	19	20										
Ans.	A	C	C	D	B										

ELP-6

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	C	A	A	C	C	B	C	A	C	B	B	D	C	B
Que.	16	17	18	19	20	21	22	23	24	25					
Ans.	C	C	A	C	A	D	B	C	C	D					

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	A	C	B	D	C	D	D	D	A	B	D	A	A
Que.	16	17	18												
Ans.	B	D	B												

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	D	C	C	B	D	A	A	B	B	D	A	C	D
Que.	16	17	18												
Ans.	B	B	A												

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	D	B	B	A	B	A	D	C	B	C	D	B	D
Que.	16	17	18	19	20	21	22	23	24						
Ans.	A	D	C	D	C	B	D	A	D						

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	D	A	A	A	A	B	C	B	A	C	C	D	B	A
Que.	16	17	18												
Ans.	C	A	B												

ELP-5

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	A	B	C	B	D	C	A	C	D	D	A	D	B
Que.	16	17	18	19	20										
Ans.	A	A	B	D	B										

ELP-6

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	D	B	A	D	D	A	A	C	C	B	A	D	A	D
Que.	16	17	18												
Ans.	B	C	D												

ELP-7

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	B	A	B	D	B	B	A	B	A	B	B	B	C	B
Que.	16	17	18	19	20	21	22	23	24	25					
Ans.	D	B	C	D	C	B	A	C	C	B					

Morphology of Flowering Plants
ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	A	C	D	B	C	B	D	B	C	A	A	A	B	D

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	B	C	C	A	B	C	B	D	C	A	C	C	B	B

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	C	B	D	C	D	B	C	D	A	D	D	D	C	A
Que.	16	17	18												
Ans.	A	C	A												

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	C	C	C	A	C	A	B	B	C	A	C	C	A
Que.	16	17	18	19	20	21	22	23							
Ans.	C	A	D	A	B	D	B	C							

Anatomy of Flowering Plants

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	B	C	A	B	B	C	A	A	B	C	B	C	A
Que.	16	17	18	19	20										
Ans.	C	B	D	B	A										

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	D	C	B	A	D	D	B	A	B	A	C	B	A
Que.	16	17	18	19	20	21	22	23							
Ans.	C	B	D	C	C	C	A	B							

Photosynthesis in Higher Plants
ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	A	D	B	D	B	A	B	C	C	D	B	C	D
Que.	16	17	18	19	20										
Ans.	D	B	D	B	A										

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	D	A	A	B	A	C	C	D	D	D	C	A	A	A
Que.	16	17	18	19	20										
Ans.	B	B	D	D	C										

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	B	C	A	D	B	D	A	B	A	A	B	B	A
Que.	16	17	18	19	20										
Ans.	B	D	A	C	A										

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	D	B	B	D	D	C	B	C	C	B	C	A	C	B
Que.	16	17	18	19	20										
Ans.	B	A	B	C	C										

Respiration in Plants
ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	D	A	B	D	B	C	B	C	D	C	A	A	D	A

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12
Ans.	D	D	C	C	B	B	C	D	A	A	C	D

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	C	C	C	B	B	A	A	A	A	B

Plant Growth and Development

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	A	C	D	A	B	C	B	B	C	D	D	C	A	A
Que.	16	17	18	19	20										
Ans.	D	C	B	C	C										

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	D	A	D	B	D	D	B	D	D	D	A	C	B	C
Que.	16	17	18	19	20										
Ans.	C	D	A	B	A										

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	D	B	C	B	C	B	A	C	C	A	A	C	D
Que.	16	17	18	19	20										
Ans.	A	A	B	C	A										

Animal Kingdom
ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13
Ans.	B	B	D	A	C	B	B	B	A	D	D	D	C

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	B	C	B	B	B	A	D	A	B	B	B	A	B	A

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	C	C	B	A	B	C	A	B	A	C	A	D	A	C
Que.	16	17	18	19	20										
Ans.	A	D	B	C	A										

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	B	D	C	C	B	C	C	A	A	B	D	A	B	D
Que.	16	17	18	19	20	21									
Ans.	A	C	A	A	D	A									

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	D	A	D	C	C	D	D	A	A	D	A	B	B
Que.	16	17	18	19	20										
Ans.	D	A	C	B	A										

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	D	C	B	D	D	B	C	B	C	A	B	C	C
Que.	16	17	18	19	20										
Ans.	D	A	A	C	C										

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	C	A	D	D	D	D	A	A	A	B	C	A	B	D
Que.	16	17	18	19	20										
Ans.	A	A	B	D	B										

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	C	A	D	D	B	A	D	C	C	C	C	C	A	A
Que.	16	17	18	19											
Ans.	B	B	A	B											

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	B	D	C	A	D	A	D	B	C	A	A	C	C	A
Que.	16	17	18	19	20										
Ans.	D	B	A	A	A										

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	A	D	A	C	B	B	B	C	A	D	B	D	B
Que.	16	17													
Ans.	C	A													

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	B	D	A	D	D	B	A	D	C	C	A	C	B

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	D	A	A	A	A	B	C	D	B	D	B	D	A	B

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	C	A	A	D	D	B	D	A	B	B	D	C	C	D

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	A	B	C	A	A	C	C	D	D	D	C	A	A	A
Que.	16	17	18	19	20	21	22	23							
Ans.	A	A	B	A	D	C	A	B							

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	C	C	B	D	B	B	A	D	C	C	B	C	C	D
Que.	16	17	18	19	20	21									
Ans.	A	C	C	C	C	D									

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	C	A	A	C	A	D	D	C	B	D	B	A	D
Que.	16	17	18	19	20										
Ans.	D	A	C	D	D										

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	B	C	A	D	C	C	C	A	D	A	B	A	C
Que.	16	17	18	19	20										
Ans.	A	D	A	A	B										

ELP-5

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	C	D	A	D	A	D	B	A	D	D	B	C	B
Que.	16	17	18	19	20										
Ans.	B	C	C	D	D										

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	C	A	D	C	D	D	C	C	A	A	D	B	B
Que.	16	17	18	19											
Ans.	B	B	B	B											

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	C	C	A	A	D	B	C	C	C	C	C	D	C	D
Que.	16	17	18	19	20										
Ans.	D	A	D	C	D										

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	D	B	C	B	A	C	D	B	B	C	D	A	B	C

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	D	D	A	C	B	A	D	D	D	D	B	B	D	D
Que.	16	17	18	19	20										
Ans.	D	B	B	A	A										

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	B	A	B	C	A	B	D	C	B	A	C	C	A	B
Que.	16	17	18	19	20	21	22								
Ans.	D	D	C	C	A	D	C								

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	A	B	D	B	A	D	B	B	B	A	C	C	C
Que.	16	17	18	19	20	21	22								
Ans.	A	C	B	A	D	A	A								

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	B	D	A	C	B	C	B	D	A	B	A	C	C	C
Que.	16	17	18	19	20	21	22								
Ans.	A	B	B	D	C	B	C								

ELP-5

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	C	C	A	B	C	B	D	B	A	B	D	A	D	A
Que.	16	17	18	19	20	21	22	23	24						
Ans.	D	D	A	A	C	B	C	C	D						

Neural Control and Coordination

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	C	B	B	C	D	D	D	B	C	C

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12
Ans.	D	A	C	A	D	C	A	B	D	A	D	D

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12
Ans.	B	C	A	A	C	B	A	C	C	B	B	D

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11
Ans.	B	B	B	A	C	B	D	A	C	B	A

ELP-5

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13
Ans.	C	C	B	C	C	A	D	D	D	D	D	C	B

ELP-6

Que.	1	2	3	4	5	6	7	8	9	10	11	12
Ans.	D	C	B	B	C	A	A	D	C	D	D	A

ANSWER KEY

ELP-1

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	D	D	B	B	C	C	A	B	B	B	B	D	D

ELP-2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Ans.	C	B	C	A	C	C	C	C	B	C	C	C	C	C	

ELP-3

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	A	C	C	B	D	D	B	C	C	D	B	A	D	D

ELP-4

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	C	D	C	D	B	D	D	A	D	D	D	A	B