

Question Booklet No: 053552

SET - B**M.Phil/Ph.D. Entrance Examination-2018****NATURAL SCIENCES****Part I**

Gulraz Tabassum
Signature of Candidate

ROLL NO.

P	5	3	3	2	0	5	7
---	---	---	---	---	---	---	---

Jan
Signature of Invigilator

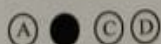
Timings: Two Hours

Total Marks: 100

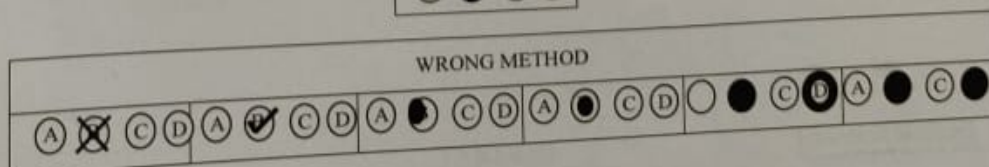
Instructions to Candidates

- Do not write your name or put any other mark of identification anywhere in the OMR Response Sheet. **IF ANY MARK OF IDENTIFICATION IS DISCOVERED ANYWHERE IN OMR RESPONSE SHEET, the OMR sheet will be cancelled, and will not be evaluated.**
- This Question Booklet contains the cover page and a total of **100 Multiple Choice Questions of 1 mark each.**
- Space for rough work has been provided at the end. Available space on each page may also be used for rough work.
- There is no negative marking in Multiple Choice Questions.
- USE OF CALCULATOR IS NOT PERMITTED.
- USE/POSSESSION OF ELECTRONIC GADGETS LIKE MOBILE PHONE, iPhone, iPad, pager ETC. are strictly **PROHIBITED.**
- Candidate should check the serial order of questions at the beginning of the test. If any question is found missing in the serial order or any other abnormality, it should be immediately brought to the notice of the Invigilator. No pages should be torn out from this question booklet.
- Answers must be marked in the OMR Response sheet which is provided separately. OMR Response sheet must be handed over to the invigilator before you leave the seat.
- The OMR Response sheet should not be folded or wrinkled. The folded or wrinkled OMR/ Response Sheet will not be evaluated.
- Write your Roll Number in the appropriate space (above) and on the OMR Response Sheet. Any other details, if asked for, should be written only in the space provided.
- Use Black or Blue Ball Pen only for filling the ovals/circles in OMR Response Sheet while answering the Questions.
- There are four options to each question marked A, B, C and D. Select one of the most appropriate option and fill up the corresponding oval/circle in the OMR Response Sheet provided to you. The correct procedure for filling up the OMR Response Sheet is mentioned below

CORRECT
METHOD



WRONG METHOD



in by the candidate

Signature of the Invigilator

1. ———apples I bought are sour

- A. An B. A C. The D. Some

2. Prefix --Merit

- A. Di B. De C. Re D. Dis

Read the following comprehension and answer questions (3-7)

At this stage of civilisation, when many nations are brought in to close and vital contact for good and evil, it is essential, as never before, that their gross ignorance of one another should be diminished, that they should begin to understand a little of one another's historical experience and resulting mentality. It is the fault of some nations to expect the people of other countries to react as they do, to political and international situations. Our genuine goodwill and good intentions are often brought to nothing, because we expect other people to be like us. This would be corrected if we knew the history, not necessarily in detail but in broad outlines, of the social and political conditions which have given to each nation its present character.

3. According to the author of 'Mentality' of a nation is mainly product of its

- A. History B. International Positions
C. Present Character D. Politics

4. The need for greater understanding between nations

- A. Was always there B. Is no longer there
C. Is more today than ever before D. Will always be there

5. The character of a nation is result of its

- A. Mentality B. National Heritage
C. Socio-political conditions D. Gross ignorance

6. According to author his countrymen should

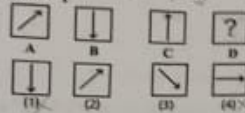
- A. Read story of other nations
B. not react to other actions
C. have contacts with other nations
D. have better understanding of other nations

7. Some nations like others to react to political situations like

- A. us B. themselves
C. others D. ignore

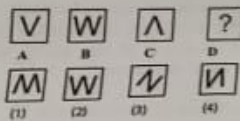
Based on relationship between A and B. Find the appropriate relation to D with respect to C.

8. Find relationship



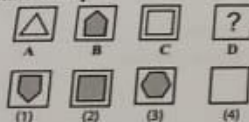
A. 1 B. 2 C. 3 D. 4

9. Find relationship



A. 1 B. 2 C. 3 D. 4

10. Find relationship



A. 1 B. 2 C. 3 D. 4

11. In a family there are husband wife, two sons and two daughters. All the ladies were invited to a dinner. Both sons went out to play. Husband did not return from office. Who was at home?

- A. Only son was at home B. Only ladies were at home
C. Only wife was at home D. Nobody was at home

12. Stone: Sculpture

- A. Easel : Painter B. Mural : Painting
C. Opera : Stage D. Clay : Pottery

13. If in a certain language, MADRAS is coded as NBESBT, how is BOMBAY coded in that code?

- A. CPNCBZ B. CPNCBZ
C. CPOCBZ D. CQOCBZ

CPNCBZ

14. Find the odd one out

- A. Vapour B. Mist
C. Hailstone D. Fog

15. Complete the series FLP, INS, LPV, ?

- A. ORY B. UXZ
C. VXY D. SVW

16. Street is related to Lane in the same way as Road is related to-

- A. Footpath B. Junction
C. Avenue D. Highway

17. This Jamia student played for India in hockey

- A. Gagan Ajeet Singh B. Dhram Pal Sing
C. Gopal Singh D. Virendra Schwag

18. Jamia Sports Complex is named after this famous player

- A. Virendra Sehswag B. Jyoti Bhambri
C. Azharuddin D. Mansoor Ali Khan Pataudi

19. In your opinion teaching profession is

- A. Temporary B. Useful
C. Full of enjoyment D. The best profession

20. Your education is successful if:

- A. It increases your respect
B. It gives you self satisfaction
C. It benefits others
D. It helps in getting employment

21. Most important work of a teacher is

- A. To organize teaching work
B. To deliver lecture in class
C. To take care of students
D. To evaluate the students

22. Educational institutions, libraries, hospitals and industries store concerned information by

- A. Operating System B. Word Processing
C. Data Management D. Informing System

23. In radio, television and cell phone, information is sent either through space in form of

- A. Cathode ray B. Electric Signal
C. Light D. Electromagnetic Waves

[Natural Sciences]

PART I

2018

[Natural Sciences]

PART I

2018

24. Methods used to transfer information to far off places instantly is called--
 A. Information Technology B. Data
 C. language D. Telecommunications
25. Temporary memory of computer is--
 A. RAM B. ROM
 C. DISK D. Secondary Memory
26. Microwaves is used for--
 A. Telecommunications B. Cancer Treatment
 C. Code Transfer D. Satellite Communications
27. Which company designed a network that apparently became Internet?
 A. US Department of Defense B. Microsoft Corporation
 C. Macintosh Corporation D. Internet Technologies Limited
28. What is a server?
 A. A computer that is very big
 B. A computer that provides/manages shared services
 C. A system of connecting computers
 D. A computer that is connected in a LAN
29. The acronym GUI means Graphical User _____
 A. Interface B. Internet
 C. Intranet D. Intermission
30. Mozilla Firefox, Google Chrome, Netscape Navigator and Opera are examples of
 A. Operating Systems B. Web sites
 C. Web Browsers D. Search Engines
31. Phishing is process by which
 A. You can catch fishes from World
 B. You can identify unsolicited junk mails
 C. Someone obtains private information through deceptive means
 D. Someone sends spam mails
32. What is a URL?
 A. A computer software program
 B. An acronym for Unlimited Resources for Learning
 C. The address of a document or "page" on the World Wide Web
 D. It's a type of code
33. Jamia Millia Islamia shifted to this place in Delhi from Aligarh in 1925-
 A. Jamia Nagar B. Karol Bagh
 C. Connaught Place D. Okhla

34. He was the first Vice-Chancellor of Jamia
 A. Hakim Ajmal Khan B. Zakir Husain
 C. Mohd. Ali Jinnah D. Mohd. Mujeeb
35. Jamia Millia Islamia became a central University in--
 A. 1968 B. 1988
 C. 1998 D. 2008
36. This former Vice-Chancellor of Jamia became the Lt. Governor of Delhi
 A. Najeeb Jung B. Mushir Hasan
 C. Zafar Qasim D. General Zaki
37. In the NIRF-2016 ranking of Universities, Jamia stands at this position
 A. 6 B. 12
 C. 37 D. 20
38. In mega cities of India, the dominant source of air pollution is
 A. Transport sector B. Thermal Power
 C. Municipal Waste D. Commercial sector
39. Which of the following is the largest source of water pollution in major rivers of India?
 A. Untreated sewage
 B. Agriculture run-off
 C. Unregulated small scale industries
 D. Religious practices
40. Which of the following pollutants can cause cancer in humans?
 A. Pesticides B. Mercury
 C. Lead D. Ozone
41. Which of the following phenomena is not a natural hazard?
 A. Wildfire C. Lightning
 B. Landslide D. Chemical contamination
42. Which of the following combinations are renewable natural resources?
 A. Fertile soil, fresh water and natural gas
 B. Clean air, phosphates and biological diversity
 C. Fishes, fertile soil and fresh water
 D. Oil, forests and tides
43. In the recently launched Air Quality Index in India, which of the following pollutants is not included?
 A. Carbon monoxide
 B. Fine particulate matter
 C. Ozone
 D. Chlorofluorocarbons

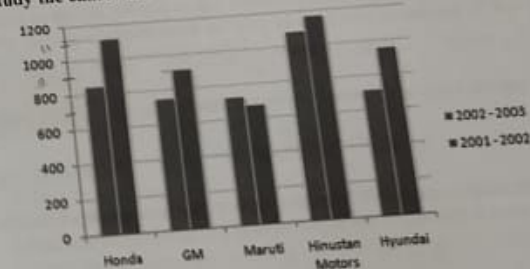
44. The primary source of organic pollution in fresh water bodies is
 A. run-off from urban areas
 B. run-off from agricultural farms
 C. sewage effluents
 D. industrial effluents
45. In a fuel cell driven vehicle, the energy is obtained from the combustion of
 A. Methane
 B. Hydrogen
 C. LPG
 D. CNG
46. 'Kyoto Protocol' is related to
 A. Ozone depletion
 B. Hazardous waste
 C. Climate change
 D. Nuclear-energy
47. Which of the following types of natural hazards have the highest potential to cause damage to humans?
 A. Earth quakes
 B. Forest fires
 C. Volcanic eruptions
 D. Droughts and Floods
48. Biomagnification means increase in the
 A. concentration of pollutants in living organisms
 B. number of species
 C. size of living organisms
 D. biomass
49. Which is the source of chlorofluorocarbons?
 A. Thermal power plants
 B. Automobiles
 C. Refrigeration and Airconditioning
 D. Fertilizers
50. Which of the following is not a renewable natural resource?
 A. Clean air
 B. Fertile soil
 C. Fresh water
 D. Salt
51. Which of the following sources of energy has the maximum potential in India?
 A. Solar energy
 B. Wind energy
 C. Ocean thermal energy
 D. Tidal energy
52. Chromium as a contaminant in drinking water in excess of permissible levels, causes
 A. Skeletal damage
 B. Gastrointestinal problem
 C. Dermal and nervous problems
 D. Liver/Kidney problems

To solve questions (53-56) refer to the following table that gives the percentage distribution of population of five states, P, Q, R, S and T on the basis of poverty line and also on the basis of sex.

State	Percentage of Population below the Poverty Line	Proportion of Males and Females	
		Below Poverty Line	Above Poverty Line
		M : F	M : F
P	25	5 : 6	8 : 7
Q	25	3 : 5	4 : 5
R	24	1 : 2	2 : 3
S	19	3 : 2	4 : 3
T	15	5 : 3	3 : 2

53. If the male population above poverty line for State R is 1.9 million, then the total population of State R is?
 A. 4.5 million
 B. 4.85 million
 C. 5.35 million
 D. 6.25 million
54. What will be the number of females above the poverty line in the State S if it is known that the population of State S is 7 million?
 A. 3 million
 B. 2.43 million
 C. 1.33 million
 D. 5.7 million
55. What will be the male population above poverty line for State P if the female population below poverty line for State P is 2.1 million?
 A. 2.1 million
 B. 2.3 million
 C. 2.7 million
 D. 3.3 million
56. If the population of males below poverty line for State Q is 2.4 million and that for State T is 6 million, then the total populations of States Q and T are in the ratio?
 A. 1 : 3
 B. 2 : 5
 C. 3 : 7
 D. 4 : 9

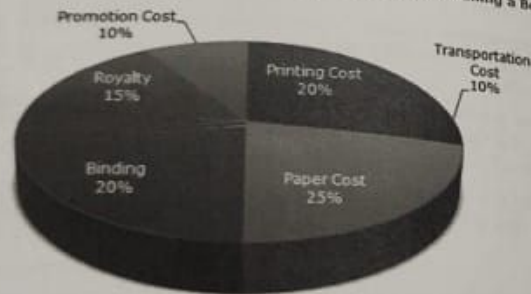
Study the chart below carefully to answer questions 57-60



57. What is the percentage change in the overall sales turnover of the five companies together between 2001 - 2002 and 2002 - 2003 ?
A. 17.21% B. 14.68% C. 12.67% D. 21.24%
58. What is the absolute change in overall sales turnover of the five companies together between 2001 - 2002 and 2002 - 2003 ?
A. 712.43 B. 142.48 C. 683.53 D. 217.24
59. Which of the companies shows the maximum percentage difference in sales turnover between the two years?
A. Honda B. GM C. Hyundai D. Maruti
60. What should have been the sales turnover of GM in 2002 - 2003 to have shown an excess of the same quantum over 2001 - 2002 as shown by the sales turnover of Maruti?
A. 953.76 B. 963.76 C. 952.76 D. 962.76

The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions (61-64) based on it.

Various Expenditures (in percentage) Incurred in Publishing a Book



61. If for a certain quantity of books, the publisher has to pay Rs. 30,600 as printing cost, then what will be amount of royalty to be paid for these books?
A. Rs. 19,450 B. Rs. 21,200 C. Rs. 22,950 D. Rs. 26,150
62. What is the central angle of the sector corresponding to the expenditure incurred on Royalty?
A. 15 B. 24 C. 54 D. 48
63. The price of the book is marked 20% above the C.P. If the marked price of the book is Rs. 180, then what is the cost of the paper used in a single copy of the book?
A. 36 B. 37.50 C. 42 D. 44.25

[Natural Sciences]

PART I

64. If 5500 copies are published and the transportation cost on these amounts to Rs. 81,000, then what should be the selling price of the books so that the publisher can earn a profit of 35%?
A. 187.50 B. 191.50 C. 175 D. 180
65. Which of the following is not an approach of analysis of qualitative data?
A. Logical Analysis B. Content Analysis C. Content Analysis D. Inductive Analysis
66. Research means
A. Searching again and again
B. Finding solution to any problem
C. Scientific approach to new truth
D. Conducting experiment
67. Which of the following is the first step in the research process?
A. Searching sources of information.
B. Survey of related literature.
C. Identification of a broad area of research.
D. Searching for solution to problem.
68. Deductive reasoning helps in
A. Sample Selection B. Hypothesis Generation C. Problem Identification D. None of the above
69. A question which requires a solution is
A. Observation B. Problem C. Data D. Experiment
70. Summarizing raw data and displaying them on compact statistical Table for analysis is
A. Tabulation B. Coding C. Transcription D. Editing
71. A necessary quality of any teacher is-
A. Vast knowledge of his subject
B. Hard Labour
C. Social Service.
D. Patriotism
72. Learning is possible
A. Only in the class room
B. Any time any where
C. Only in the presence of a teacher
D. Only through good text books

[Natural Sciences]

PART I

2018

73. What should be kept in mind while forming the curriculum?
 A. Teaching methods
 B. Students
 C. Objectives of the subjects.
 D. Interest of the pupils
74. Which of the following is celebrated as Children Day?
 A. September 5
 B. November 14
 C. September 15
 D. February 14
75. Where is National Academy of Science located?
 A. Agra
 B. Kolkata
 C. Allahabad
 D. Mumbai
76. UGC was established in the year-
 A. 1952
 B. 1953
 C. 1954
 D. 1956
77. Maximum participation of students is possible in teaching through
 A. Lecture
 B. Discussion
 C. Text Book
 D. Audio-Visuals
78. Palagrism is considered
 A. Academic Dishonesty
 B. Breach of trust
 C. a crime
 D. a mild offence
79. Ivy League Universities in the USA has
 A. 8 members
 B. 9 members
 C. 10 members
 D. 11 members
80. Let us play ----- chess
 A. a
 B. an
 C. the
 D. no article

Directions (Question 1-3): In the questions given below choose the pair which is most like the other pairs of words.

81. Anthropology: Human:: Ornithology:
 A. Paint
 B. Bird
 C. Fish
 D. Animal
82. Future: Forecast:: Regret:
 A. Time
 B. Past
 C. Sin
 D. Present
83. Tobacco: Nerves:: Alcohol:
 A. Liver
 B. Toxic
 C. Liquor
 D. Blood

84. Find the number of triangles in the given figure -



A. 8
 C. 12

B. 10
 D. 14

85. Count the number of squares in the given figure -



A. 6
 C. 9

B. 7
 D. 10

86. Choose the word which is different from the rest

A. Wheat
 C. Jowar

B. Paddy
 D. Mustard

87. Choose the pair in which the words are differently related from the rest

A. Scalpel : Surgeon
 C. Awl : Cobbler

B. Chisel : Soldier
 D. Knife : Chef

88. Choose a word which is different from the rest

A. Raft
 C. Sledge

B. Cart
 D. Chariot

89. DELHI is coded as 73541 and CALCUTTA as 82589662. How can CALCUT be coded:

A. 8259431
 C. 8251896

B. 8258213
 D. 8253691

8251896

90. Pointing to a man, a woman said, "His mother is the only daughter of my mother". How is the woman related to man?

A. Mother
 C. Cousin

B. Sister
 D. Daughter

91. A and B are married couple. X and Y are the brothers. X is brother of A. How is Y related to B-

A. Brother
 C. Son

B. Brother-in-law
 D. Son-in-law

92. Choose the odd one out-

- A. OTP B. ABA
C. SZX D. UVB

15 20 16

93. Which word does NOT belong with others-

- A. Dodge B. Flee
C. Duck D. Avoid

12 1

19 26 24

94. Which word does NOT belong with others-

- A. Evaluate B. Assess
C. Instruct D. Appraise

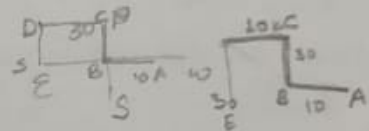
21 22 2

95. Anil states: When I went fishing the other day, every fish that I caught was a salmon, and every salmon I saw I caught. Of the following statements listed below, which one can be concluded from the observations of Anil?

- A. Salmon was the only fish that Anil saw while he was fishing.
B. While Anil was fishing, he caught no fish other than salmon.
C. In the area that Anil fished, there were no other fish.
D. All of the fish that Anil saw he caught.

96. A is 10 km West of B. C is 30 km north of B. D is 20 km east of C. E is 30 km south of D. How far is A from E?

- A. 40 km B. 15 km
C. 10 km D. 30 km



97. $80/x = x/20$.

- A. 40 B. 400
C. 800 D. 160

$$\frac{80}{x} = \frac{x}{20}$$

98. Five years ago, Shakeel was 3 times as old as Anil. Ten years later Shakeel would be twice as old as Anil. The age of Mr. Shakeel is:

- A. 50 years B. 55 years
C. 45 years D. 40 years

$$\frac{80}{40} = \frac{40}{20}$$

$$\frac{80}{40} = \frac{400}{20}$$

99. 60 % less than 80 is--

- A. 48 B. 42
C. 32 D. 12

$$\frac{80}{40} = \frac{400}{20}$$

100. By selling a toy for Rs 144 a man loses 10%. The price he should sell to gain 10 % is-

- A. Rs 176 B. Rs. 150
C. Rs. 196 D. Rs. 100

196

26

$$x - 10\% = 144$$

$$x = 144 + 10\%$$

[Natural Sciences]

PART I

2018

$$144 + \frac{1}{100}$$

$$\frac{144 + 1}{100} = \frac{145}{100} = 1.45$$

Question Booklet No. 184011

M.Phil/Ph. D. Entrance Examination-2018
BIOSCIENCES
(Part-II)

ROLL NO.

P	5	3	3	2	0	5	7
---	---	---	---	---	---	---	---

Gulnaz Jabbar
Signature of Candidate

Pa

Signature of Invigilator

Timings: Two Hours

Total Marks: 100
(Part II(a) – 50 marks)
(Part II (b) – 50 marks)

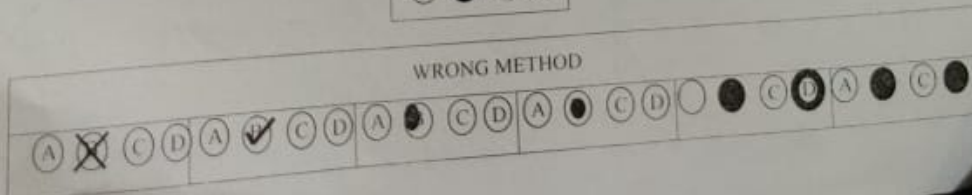
Instructions to Candidates

1. Do not write your name or put any other mark of identification anywhere in the OMR Answer Sheet. IF ANY MARK OF IDENTIFICATIONS IS DISCOVERED ANYWHERE IN OMR ANSWER SHEET, the OMR sheet will be cancelled, and will not be evaluated.
2. This Question Booklet contains this cover page and a total of **50 Multiple Choice Questions of 1 mark each in Part II (a)**. Space for rough work has been provided at the end. Available space on each page may also be used for rough work.
3. The candidate may carry this booklet.
4. There is no negative marking in Multiple Choice Questions.
5. USE OF CALCULATOR IS NOT PERMITTED.
6. USE/POSSESSION OF ELECTRONIC GADGETS LIKE MOBILE PHONE, iphone, iPad, pager ETC. is not permitted.
7. Candidate should check the serial order of questions at the beginning of the test. If any question is found missing in the serial order or any other abnormality, it should be immediately brought to the notice of the invigilator. No page should be torn out from this question booklet.
8. Answers must be marked in the OMR answer sheet which is provided separately. OMR answer sheet must be handed over to the invigilator before you leave the seat.
9. The OMR answer sheet should not be folded or wrinkled. The folded or wrinkled OMR/Answer Sheet will not be evaluated.
10. Write your Roll Number in the appropriate space (above) and on the OMR Answer Sheet. Any other details, if asked for, should be written only in the space provided.
11. Use Black or Blue Ball Pen only for filling the ovals/circles in OMR Answer Sheet while answering the Questions.
12. There are four alternative answers to each question marked A, B, C and D. Select one of the answers you consider most appropriate and fill up the corresponding oval/circle in the OMR Answer Sheet provided to you. For your Choice of answers darken the correct oval/circle completely. If the correct answer is 'B', the corresponding oval/circle should be completely filled and darkened as shown below.

CORRECT
METHOD



WRONG METHOD



Signature of the Invigilator

PART-II(B)

Max Marks: 50

Answer any five questions (10 marks each)

1. Explain antisense RNA technology.
 2. Describe the catabolism of purines in human.
 3. Write a note on real time PCR.
 4. What are the renewable sources of energy? Explain.
 5. Enlist bacterial exotoxins and describe the mode of action of any two.
 6. Explain the role of mitochondria in regulating apoptotic control in cells.
 7. Describe immobilized metal affinity chromatography with a suitable example.
 8. Give an account of the mechanism of vision in human.
 9. Describe the processes involved in the production of transgenic mice.
 10. What is the difference between tissue culture and micropropagation?
- max 50
in P.M.D.*

1. Edman reagent cleaves polypeptides.
 - A. After positively charged residues
 - B. After bulky nonpolar residues
 - C. At the C – terminus
 - D. At the N – terminus
2. The catalytic centre for the prokaryotic RNA polymerase holoenzyme is
 - A. Alpha – Alpha subunit
 - B. Beta – Beta dash subunit
 - C. Omega subunit
 - D. Sigma subunit
3. Which of the following statement is/are correct
 - A. RNA Pol-I is most active at low ionic strength of Mn^{++} or Mg^{++}
 - B. RNA Pol-II is most active at high ionic strength of Mn^{++}
 - C. RNA Pol-III is most active at broad range of ionic strength
 - D. All of these
4. Group I and Group II introns have following common features
 - A. Self splicing
 - B. GU – AG dinucleotide conserved sequence
 - C. Release intron in linear form
 - D. All of these
5. Which is not a glycolytic enzyme
 - A. Pyruvate carboxylase
 - B. Pyruvate kinase
 - C. Phosphoglycerate mutase
 - D. Phosphoglucose isomerase
6. How many ATP equivalents are required for synthesis of one mole of glucose from pyruvate
 - A. 6
 - B. 4
 - C. 2
 - D. 0
7. HMP pathway is mainly regulated by the level of
 - A. AMP
 - B. GTP
 - C. NADPH
 - D. F26BP
8. Which of the following employs iron-sulphur centre for its catalysis
 - A. Citrate synthetase
 - B. Aconitase
 - C. α -ketoglutarate-DH
 - D. Fumarase
9. Precursor of series-3 prostaglandins is:
 - A. Arachidonic acid
 - B. Omega-3 fatty acid
 - C. Omega-6 fatty acid
 - D. Omega-9 fatty acid
10. Which of the following is not an example of autosomal dominant trait?
 - A. Brachydactyly
 - B. Marfan syndrome
 - C. Familial hyper cholestolemia
 - D. Cystic fibrosis
11. Philadelphia chromosome is generated by translocation between
 - A. Chromosome 18 and Chromosome 6
 - B. Chromosome 22 and Chromosome 9
 - C. Chromosome 22 and Chromosome 3
 - D. Chromosome 16 and Chromosome 4
12. Position effect is the result of
 - A. Mutations
 - B. Deletions
 - C. Inversions
 - D. Transversions
13. In a trisomic individual the number of chromosome is
 - A. $2n - 1$
 - B. $2n + 2$
 - C. $2n + 3$
 - D. $2n + 1$

14. Catabolic activator protein (CAP) acts as
 A. Apo-repressor
 B. Co-repressor
 C. Apo-inducer
 D. Inducer
15. Highly repetitive sequences in DNA are characterized by
 A. 2 to 10 base pairs repeated tandem 10^3 to 10^7 times in a genome
 B. A slowness to reanneal as compared to unique sequences
 C. Unique sequences transcribed together
 D. Their absence in human DNA
16. During exposure of light, photo-oxidation of chlorophyll takes place in absence of
 A. Chlorophyll-a
 B. Chlorophyll-b
 C. Carotenoids
 D. Phycobillins
17. The cells that help in folding or rolling of leaves in grasses are called
 A. Trichoblast
 B. Guard cells
 C. Bulliform cells
 D. Mucilagenous cells
18. Phylloclade is found in
 A. *Asparagus*
 B. *Opuntia*
 C. *Nerium*
 D. *Bryophyllum*
19. Which one is a biofertilizer
 A. *Chara*
 B. *Mangifera indica*
 C. *Azolla*
 D. *Azadairachta indica*
20. The survival of *Mycobacterium* after ingestion by macrophages is attributed to
 A. Bacterial inhibition of complement activation via the alternative pathway
 B. The bacterium's rapid escape from the endosome into the cytoplasm of infected cells
 C. The poor immunogenicity of the cell wall glycolipids
 D. Bacterial inhibition of phagolysosome formation and interference with endosomal acidification
21. In order for the virus to replicate
 A. Capsid must enter the host cell cytoplasm
 B. The host cell must be undergoing mitosis
 C. The host cell must lack a cell membrane
 D. Genome must be released in the cytoplasm
22. Rennet is used in
 A. Bread making
 B. Fermentation
 C. Cheese making
 D. Antibiotic synthesis
23. Each HIV particle possesses glycoprotein called _____ on its surface
 A. CD4
 B. gp120
 C. CXCR4
 D. gp8
24. SRP sequence is related to the
 A. Transport to plasma membrane
 B. Transport from Golgi to ER
 C. Transport from ER to Golgi
 D. Transport to ER
25. GPCR activation leads to activation of
 A. Protein kinase
 B. Tyrosine kinase receptor
 C. Iron receptor
 D. Pyruvate kinase
26. Skeletal muscle contraction does not involve
 A. Troponin
 B. Myosin
 C. Tropomyosin
 D. Calmodulin
27. Nucleus pore attaches to
 A. GAP protein
 B. Laminin
 C. Karyophorin
 D. Nerosporin
28. Which of the following amino acids is mostly likely to disrupt an alpha helix?
 A. Proline
 B. Leucine
 C. Glycine
 D. Valine
29. Which of the following statements about haemoglobin is correct?
 A. 2,3-Bisphosphoglycerate (BPG) increases the affinity of haemoglobin for oxygen
 B. Deoxygenated haemoglobin has a higher binding affinity for protons than has oxyhaemoglobin
 C. Haemoglobin has a higher affinity for oxygen than does myoglobin
 D. One molecule of haemoglobin binds sixteen molecules of oxygen - four per subunit
30. Which of the following acid has the lowest pKa value?
 A. Acetic acid
 B. Sulphuric acid
 C. Dilute HCl
 D. Oxalic acid
31. Where does inhibitor binds on enzyme in competitive inhibition?
 A. At active site
 B. Allosteric site
 C. Does not bind on enzyme
 D. Binds on substrate
32. Myoglobin and the subunits of haemoglobin have:
 A. Very different primary and tertiary structures
 B. Very similar primary and tertiary structures
 C. Very similar primary structures, but different tertiary structures
 D. Very similar tertiary structures, but different primary structures
33. Which of the following statement is true about two-dimensional electrophoresis?
 A. Separates proteins of identical molecular weight, same pI but different charge
 B. Separates proteins of different molecular weight and different pI
 C. Separates proteins of identical molecular weight that differ in pI
 D. Isoelectric focusing is also termed as two-dimensional electrophoresis
34. Respiratory centre is located in:
 A. Hypothalamus
 B. Cerebellum
 C. Cerebrum
 D. Medulla oblongata
35. The pacemaker of heart is:
 A. Bundle of HIS
 B. AV node
 C. SA node
 D. Purkinje fibres

HbO₂

K_a 1.0
pH = 7.4

pH 7.4
pKa 6.1

36. Uric acid is the major nitrogenous waste in :
 A. Frog
 B. Birds ✓
 C. Fishes
 D. Man
37. The organ of corti is concerned with:
 A. Hearing ✓
 B. Seeing
 C. Tasting
 D. Balancing
38. Metabolic rate in mammals is controlled by:
 A. Pancreas
 B. Liver
 C. Thyroid ✓
 D. Pituitary
39. The central fluid filled cavity of blastula is known as:
 A. Archenteron
 B. Blastocoel ✓
 C. Blastocyst
 D. Morula
40. Which hormone possesses anti-insulin effect:
 A. Cortisol ✓
 B. Aldosterone
 C. Calcitonin ✓
 D. Oxytocin ✓
41. Missense mutation is:
 A. Replacement of one purine by another purine
 B. Substitution of one or more amino acids for another in protein
 C. Substitution of nitrogenous base in a functional codon leading to stop codon
 D. Replacement of purine by pyrimidine
42. The TPC arm of tRNA contains nucleotides:
 A. Uridine and pseudouridine
 B. Ribothymidine and uridine
 C. Thymidine and pseudouridine
 D. Ribothymidine and pseudouridine
43. The arithmetic mean and mode of a data are 24 and 12 respectively, then the median of the data is
 A. 20
 B. 18 ✓
 C. 21
 D. 22
44. Coefficient of correlation between two variables can be
 A. Always non zero
 B. More than +1
 C. Less than -1
 D. Any positive or negative value lie in $[-1, +1]$
45. The mean and standard deviation of Poisson probability distribution is given by
 A. Mean = np, standard deviation = \sqrt{npq} ✓
 B. Mean = m, standard deviation = m
 C. Mean = standard deviation = 1
 D. None of these
46. Which of the following statements is correct?
 A. Ultraviolet radiation has a longer wavelength than infrared radiation
 B. Infrared radiation has a lower wave number than visible light
 C. Infrared radiation has a shorter wavelength than visible light
 D. Microwave radiation possesses more energy than infrared radiation ✓

47. Which method of plant propagation involves the use of girdling?

- A. Grafting
 B. Cutting
 C. Layering
 D. Micropropagation

48. High Concentration of ethylene is present in

- A. Young leaves
 B. Meristematic regions
 C. Buds
 D. Ripening fruits

49. Most effective pesticide is

- A. Carbamates
 B. Organophosphates
 C. Organochlorines ✓
 D. All of these

50. Which of the following is the dormancy inducer?

- A. 2-4 D
 B. ABA ✓
 C. GA4
 D. GA3

RAM VUX IN GAMA

$\lambda \propto \frac{1}{\nu}$

$E = \frac{hc}{\lambda}$