



NATIONAL INFOTECH SECONDARY SCHOOL

+2 ENTRANCE EXAM -2081

SET – II

TIME: 2:15 Hrs.

FM: 100

Attempt all the question

BIOLOGY

1. If a nucleoside is deleted during DNA replication what happens to the organisms?

- a. It brings a problem in reproduction c. The chromosome doesn't function
- b. Genetic disorder occurs. d. Its having Problem in cell division

2. Mitosis is also called somatic cell division because

- a. Somatic cell can divide only by mitosis. c. It occurs in zygote
- b. It occurs only in somatic cell d. It doesn't occur in germ cell.

3. Which one of the following blood group is the most common?

- a. AB b. O c. A d. B

4. Assertion (A) & Reason (R) are given below. Study its & select best option.

Assertion (A) – O negative is universal donor

Reason (R) – It has neither antigen nor Rh- factor

- a. A is right R is true c. A & R both are wrong
- b. A is right R is false. d. A is wrong R is true

5. MI Stands for

- a. Slow rate of heart beat.
- b. Rate of heart beat more than 100 beats / minute
- c. Death of Cardiac muscles in a particular region
- d. Clogging of coronary artery.

6. Graveyard of R.B.C. is called

- a. Lung b. Kidney c. Liver d. Heart

7. One molecules of Haemoglobin can carry

- a. Four atoms of oxygen c. Four molecules of oxygen.
- b. Two atoms of oxygen d. Two molecules of oxygen.

8. Which one of the following hybrid is different from others?

- a. Zebroid b. Liger c. Beefalo d. Mule

9. Absconding is the process of

- a. Sudden death of Queen Bee.
- b. process to leave comb by Queen Bee & Drone Bee for copulation
- c. Shifting of all members of honey bee from one place to another.
- d. Separation of honey bee because of multiple Queen Bee

10. In which one of the following cross phenotypic & genotypic ratios will remain same?

- a. Test cross b. None c. monohybrid cross d. Dihybrid cross

11. Hysterosalpingography stands for

- a. A technic to find condition of male reproductive tract to discharge semen.
- b. A technic to find possibilities of heart attack
- c. A technic to find condition of female reproductive tract for conceiving
- d. A technic to find blockage of blood vessel

12. Nereis belong to phylum

- a. Mollusca b. Echinodermata c. Annelida, d. Arthropoda

13. Abhinash observed a plant & found some of the characteristics as below:

- i) Vascular bundles are scattered in stem
- ii) Having adventitious root
- iii) Having trimerous flower.

It means this plant can be kept in

- a. Gymnosperm b. Angiosperm c. Bryophyta d. Pteridophyta

14. Which one of the following castes of honey bee develops by parthenogenesis?

- a. Queen Bee
- b. Worker Bee
- c. Queen & Worker Bee
- d. Drone

15. Which castes of Honey bee take largest time to develop from egg to adult?

- a. Queen bee
- b. Drone bee
- c. Worker & drone bee
- d. Worker bee

16. Nerve ring is present in

- a. Annelida
- b. Arthropoda
- c. Platyhelminthes
- d. Aschelminthes

17. Organ of Bojanus is an

- a. excretory organ of Arthropods
- b. excretory organ of Mollusks.
- c. Respiratory organ of Arthropods
- d. Respiratory organ of mollusks

18. Which one of the following group of plants is called amphibian plants?

- a. Bryophyta
- b. Algae
- c. Pteridophyta
- d. Gymnosperm

19. A moss plant is shown in figure, identify its classification & label A & B.

- a. Algae, A – Sporophyte, B – Gametophyte
- b. Bryophyta, A – Sporophyte, B – Gametophyte
- c. Bryophyta, A – Gametophyte, B – Sporophyte
- d. Tracheophyta, A – Sporophyte, B – Gametophyte

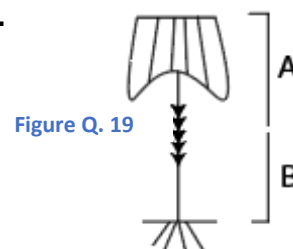


Figure Q. 19

20. To which kingdom do organisms having cell walls belong?

- a. monera, Fungus, animalia
- b. Fungus, Plantae, animalia
- c. Fungus, Plantae, Protista
- d. Fungus, Plantae, monera

CHEMISTRY

21. Which one of the following compound can be used to prevent our skin from dryness?

- a. $C_6H_{12}O_6$
- b. C_2H_5OH
- c. $C_3H_5(OH)_3$
- d. $C_3H_6(OH)_2$

22. Which one of the following statement is incorrect about homologous series?

- a. All of them have same physical properties.
- b. All of them can be represented by a general formula
- c. Difference between two consecutive member is of $-CH_2$
- d. All of them have same chemical properties.

23. Molecular formula of siderite is

- a. FeS_2
- b. Fe_2O_3
- c. Fe_3O_4
- d. $FeCO_3$

24. Malachite is an ore of

- a. Aluminum
- b. Copper
- c. Iron
- d. Silver

25. Distillation can be used to refine a metal having

- a. low boiling point
- b. low melting points
- c. High melting point
- d. High boiling point

26. A hydrocarbon of alkyne homologous series have number of hydrogen atom is six. It means it has number of carbon atom is

- a. 3
- b. 4
- c. 5
- d. 6

27. Which one of the following represents functional group of carboxylic acid?

- a. $-OH$
- b. $-COOH$
- c. $-CO-$
- d. $-CHO$

28. Internal pesticide means

- a. It kills pest when they consumed.
- b. It kills pests when they come in contact.
- c. It kills pests when they inhale in air
- d. All of the above.

29. The relation of caterpillar & Fungus in yarchagumba is

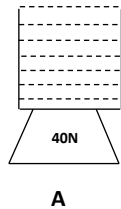
- a. Commensalism
- b. Symbiotic
- c. None
- d. Parasitic

- 30. Which one of the following statement is not correct about catalyst?**
- It changes rate of chemical reaction.
 - Its amount remains same as a result of chemical reaction.
 - It doesn't take part in chemical reaction.
 - It takes part in chemical reaction.
- 31. An element belongs to 5th period of modern periodic table. It means**
- it has five valence electrons
 - it has five orbits
 - It is an element of 5 group
 - its valency is five
- 32. Mendeleev's periodic table is based on**
- Atomic number
 - No. of electron
 - Atomic mass
 - No. of Neutron
- 33. Which one of the following has least ionization Potential**
- Potassium
 - Sodium
 - Cesium
 - Lithium
- 34. Electronic configuration of any element is $1S^2, 2S^2 2P^6, 3S^2 3P^2$. It means it falls to**
- 3rd period & 14 group
 - 3rd period & 13 group
 - 3rd period & 15 group
 - 2nd period & 14 group
- 35. Which one of the following statement is right?**
- Non-metallic properties decrease as we move from left to right in a period.
 - Reactivity of non-metal increase as we move from top to bottom in a non-metallic group.
 - Reactivity of metal is decreased as increase in size of atom.
 - Metallic properties decrease as we move from left to right in a period.
- 36. A chemical reaction written by student is as follows: -**
- $$\text{NaOH} + x \rightarrow \text{NaCl} + \text{H}_2\text{O}$$
- Here x represents
- MgCl_2
 - KCl
 - HCl
 - CaCl_2
- 37. A particular gas gives dark white fumes when reacts with conc. HCl. Which one of the following statement is incorrect about above reaction?**
- It is a fume of NH_4Cl
 - Gas is Ammonia
 - It is an addition reaction
 - Gas is acidic in nature
- 38. Rain is considered as acid rain. When P^{H} value of rain water is.**
- less than seven but more than five
 - between six & seven.
 - More than seven
 - less than five
- 39. A particular gas is passed though lime water it turns milky in colour, if it is passed for long time it becomes colourless because of formation of**
- NaHCO_3
 - $\text{Ca}(\text{HCO}_3)_2$
 - Na_2CO_3
 - CaCO_3
- 40. Which one of the following is considered as greenhouse gase.**
- O_2
 - CO_2
 - H_2
 - N_2

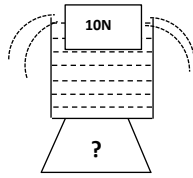
PHYSICS

- 41. Weight is added at bottom of hydrometer or, lactometer because :-**
- It should get sink.
 - It can displace liquid equal to its weight.
 - None of them.
 - It can float vertically straight to get uniform reading.

42.



A



B

What will the reading of weighting machine of B?

- a. 30N b. 60N c. 40N d. 50N

43. What amount of heat energy is required to boil 10 kg of water at 48°C?

- a. $2.184 \times 10^5 \text{J}$ b. $2.184 \times 10^8 \text{J}$ c. $2.184 \times 10^6 \text{J}$ d. $2.184 \times 10^3 \text{J}$

44. Bottle of cold drink is not filled completely because

- a. its volume is decreased as it cools down.
b. its mass is increased as it cools down.
c. its volume is increased as it cools down.
d. its mass is decreased as it cools down.

45. S.I. unit of force is

- a. kg ms^{-2} b. All of them c. newton d. kg m/s^2

46. Force of gravitation is always

- a. May be attractive or repulsive c. None
b. Attractive in nature d. Repulsive in nature

47. The force of gravitation acting between two bodies A & B is 4N on lunar surface. Both bodies are kept in water at same distance, then the force of gravitation between them

- a. will be less than 4N c. None
b. remain same d. will be more than 4N

48. At what height acceleration due to gravity will be $\frac{1}{3}$ rd of earth surface if its radius is R?

- a. 2R b. $\sqrt{2}R$ c. R^2 d. $\sqrt{3}R$

49. An ice block of density 0.9 g/cm³ is kept on water surface. What its percentage part remains inside the water?

- a. 90% b. 60% c. 10% d. 40%

50. Which one of the following factors doesn't affect up thrust acting on body?

- a. Volume of displaced liquid c. Density of liquid
b. Immersed volume of body. d. Depth of liquid

51. At what temperature water has highest density?

- a. 0°C b. 4°C c. 10°C d. 17°C

52. A light ray 'x' is focused on surface 'PQ' to pass from medium 'A' to 'B'. A is denser medium & B is rarer medium. If 'c' stands for its usual meaning which one represent refracted ray of x

- a. N c. M
b. P d. O

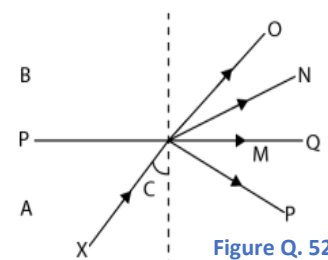


Figure Q. 52

53. Nyctalopia is caused by

- a. Disorder of ciliary muscle c. Disorder of eye lens
b. Disorder of rod cell. d. Disorder of optic nerves

54. Which defect of vision is shown in figure?

- a. Astigmatism c. Cataract
b. Myopia d. Hypermetropia

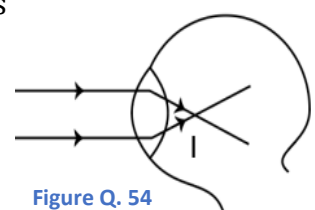


Figure Q. 54

55. Cladding is used in optic fiber

- a. to cover optic fiber
- b. to create denser medium
- c. to make dispersion of light
- d. to create rarer medium

56. A particular type of optical instrument is kept in black box. Its incident rays & reflected rays are given in figure. Identify the instrument kept in box.

- a. Convex lens
- b. Plano-convex lens
- c. Concave lens
- d. Prism

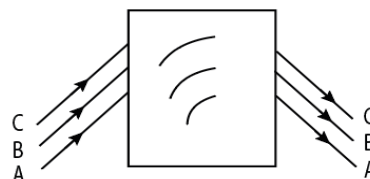


Figure Q. 56

57. A person wants to play a radio of '12v' from its main supply of current in its home. Which type of transfer & what will be ratio of primary windings to secondary windings?

- a. Step down transformer & ratio 3:55
- b. Step up transformer & ratio 3:55
- c. Step down transformer & ratio 55:3
- d. Step up transformer & ratio 55:3

58. Which one of the following factor doesn't affect strength of electromagnet?

- a. By direction of current
- b. Number of turns of coil
- c. All of the above
- d. Strength of current

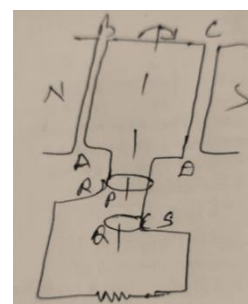


Figure Q. 59

59. Name the instrument shown in figure.

- a. D.C. generator
- b. D.C. Motor
- c. A.C. generator
- d. A.C. Motor

60. Which one of the following Phenomena can't be done by key hole surgery?

- a. Myeloid
- b. Gall stone
- c. Cindery stone
- d. Biopsy

MATHS

61. At what point circle $x^2 + y^2 + 2gx + 2fy + c = 0$ touches x - axis.

- a. $(g \pm \sqrt{g^2 - c}, 0)$
- b. $(-f \pm \sqrt{f^2 - c}, 0)$
- c. $(-g \pm \sqrt{g^2 - c}, 0)$
- d. $(f \pm \sqrt{f^2 - c}, 0)$

62. What is the value of $\cos 22^\circ 30'$ is

- a. $\frac{\sqrt{2-\sqrt{2}}}{4}$
- b. $\frac{\sqrt{2+\sqrt{2}}}{2}$
- c. $\frac{\sqrt{2-\sqrt{2}}}{2}$
- d. $\frac{\sqrt{2+\sqrt{2}}}{4}$

63. In a ΔABC , $\sin 2A + \sin 2B + \sin 2C = \dots$

- a. $4 \sin A \sin B \sin C$
- b. $2 \sin A \sin B \sin C$
- c. $4 \sin A \sin B \cos C$
- d. $4 \sin A \cos B \sin C$

64. If $\vec{a} + \vec{b} + \vec{c} = 0$ where $\vec{a}, \vec{b}$ and $\vec{c}$ are unit vectors then $\vec{a} \cdot \vec{b} = \dots$

- a. $-\frac{1}{2}$
- b. $\frac{1}{2}$
- c. 0
- d. -1

65. Which of the following represents reflection in $x + y = 0$

- a. $\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$
- b. $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$
- c. $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$
- d. $\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$

66. Which of the following is formula to evaluate standard deviation for continuous series?

- a. $\sigma = \sqrt{\frac{\sum fm^2}{N} - \left(\frac{\sum fm}{N}\right)^2}$
- b. None
- c. $\sigma = \sqrt{\frac{\sum f(m-\bar{x})^2}{N}}$
- d. both (a) and (b)

67. A, B and C are the subsets of universal set U. If "A and B" and "B and C" are the overlapping sets and A and C are disjoint sets then write the formula of $n(A \cup B \cup C)$.

- a. $n(A) + n(B) + n(C) - n(A \cap B) + n(B \cap C)$
- b. $n(A) + n(B) + n(C) - n(A \cap B) - n(B \cap C) - n(C \cap A)$
- c. $n(A) + n(B) + n(C) - n(A \cap B) - n(B \cap C)$
- d. $n(A) + n(B) + n(C) + n(A \cap B) + n(B \cap C)$

68. Find the value of 'x' in the adjoining?

- a. 10cm
- b. 8cm
- c. 12cm
- d. 9cm

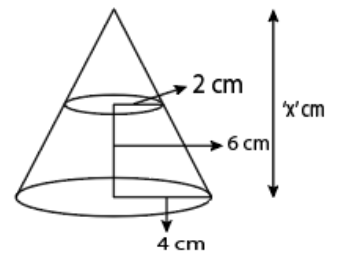


Figure Q. 68

69. Which of the following is true?

- a. Mean = 3Median - 2Mode
- b. Mean = 3Median + 2Mode
- c. Median = 2Mode - 3Mean
- d. Mode = 3Median - 2Mean

70. The probability of solving a mathematical problem by two students A and B are $\frac{1}{3}$ and $\frac{1}{4}$ respectively. If the problem is given to the both students, find the probability of solving.

- a. $\frac{5}{12}$
- b. $\frac{1}{12}$
- c. $\frac{1}{2}$
- d. $\frac{7}{12}$

71. Solve :- $6^{x-5} + 6^{6-x} = 7$

- a. 6
- b. 5
- c. None of above
- d. both (a) and (b)

72. What is the area of equilateral triangle ΔABC ?

- a. $\frac{2x}{\sqrt{3}} \text{ cm}^2$
- b. $\frac{\sqrt{3}}{2} x^2 \text{ cm}^2$
- c. $\frac{\sqrt{3}}{4} x^2 \text{ cm}^2$
- d. $\frac{x^2}{\sqrt{3}} \text{ cm}^2$

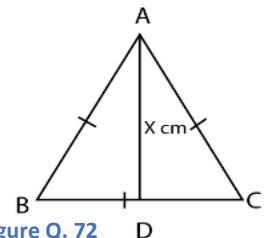


Figure Q. 72

73. Which of the following is true?

- a. $t_n = S_n - S_{n+1}$
- b. $t_n = S_n \cdot S_{n-1}$
- c. $t_n = S_n + S_{n-1}$
- d. $t_n = S_n - S_{n-1}$

74. If $a^2 = by + cz$, $b^2 = cz + ax$ and $c^2 = ax + by$ then what is the value of $\frac{x}{a+x} + \frac{y}{b+y} + \frac{z}{c+z}$

- a. 1
- b. 2
- c. $x + y + z$
- d. 0

75. In the given figure, D is mid-point of AB. If $3DE = BC = 24\text{cm}$ then find the area of ΔABC .

- a. 148 cm^2
- b. 384 cm^2
- c. 192 cm^2
- d. 196 cm^2

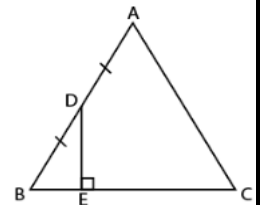


Figure Q. 75

76. Find the value of x in the figure.

- a. 20°
- b. 80°
- c. 60°
- d. 40°

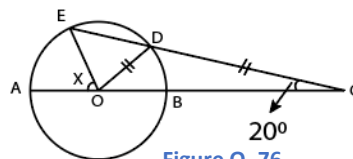


Figure Q. 76

77. If $f(x) = 2x + 7$, find the value of $f^{-1}(x + 2)$.

- a. $\frac{x-5}{2}$
- b. $\frac{x-7}{2}$
- c. $\frac{x+5}{2}$
- d. $x + 7$

78. Which of the following is equal to $2 \begin{vmatrix} a & c \\ b & d \end{vmatrix}$

- a. $\begin{vmatrix} 2a & c \\ b & d \end{vmatrix}$
- b. $\begin{vmatrix} a & 2c \\ b & 2d \end{vmatrix}$
- c. $\begin{vmatrix} 2a & 2c \\ 2b & 2d \end{vmatrix}$
- d. $\begin{vmatrix} a & c \\ 2b & d \end{vmatrix}$

79. Equation of straight line perpendicular to $x - y = 0$ and through origin is

- a. $y - x = 0$
- b. $x + y = 0$
- c. $mx + y = 0$
- d. $y = mx$

80. Equation of straight lines perpendicular to $ax^2 + 2hxy + by^2 = 0$ passing through origin is

- a. $bx^2 - 2hxy - ay^2 = 0$
- b. $bx^2 - 2hxy + ay^2 = 0$
- c. $bx^2 + 2hxy - ay^2 = 0$
- d. $bx^2 + 2hxy + ay^2 = 0$

ENGLISH

Read the following text and select the correct option.

Time management is a crucial skill that can significantly impact an individual's success and productivity. It involves organizing and planning how to divide your time between various activities. Good time management allows individuals to work smarter, not harder, ensuring that they complete their tasks efficiently.

One of the primary benefits of effective time management is reduced stress. When you control your time and know what needs to be done, you can approach tasks with a clear mind and avoid last-minute rushes. This can lead to a more balanced and fulfilling life, as it allows for time to relax and engage in leisure activities.

Moreover, time management enhances your ability to prioritize tasks. By setting clear goals and deadlines, you can focus on what is most important and urgent. This prevents procrastination and ensures that essential tasks are completed on time. Additionally, effective time management can improve your decision-making skills. With a structured schedule, you have more time to evaluate options and make informed choices.

In today's fast-paced world, where distractions are abundant, mastering time management is more important than ever. Whether you are a student trying to juggle assignments and exams or a professional handling multiple projects, managing your time effectively can lead to greater success and satisfaction.

81. What is the primary benefit of effective time management mentioned in the passage?

- a) Enhanced creativity
- b) Increased income
- c) Improved social skills
- d) Reduced stress

82. According to the passage, how does time management help with prioritizing tasks?

- a) It helps focus on important and urgent tasks.
- b) It increases the number of tasks to be completed.
- c) It eliminates the need for deadlines.
- d) It allows for more leisure activities.

83. Why is time management particularly important in today's world, according to the passage?

- a) Because it increases income
- b) because social interactions are more demanding
- c) Because technology has made tasks easier
- d) Because distractions are abundant

84. What skill is improved through effective time management as per the passage?

- a) Decision-making skills
- b) Writing skills
- c) Athletic skills
- d) Artistic skills

85. What does the passage suggest is a result of avoiding last-minute rushes?

- a) Higher levels of anxiety
- b) Increased workload
- c) Decreased productivity
- d) More time for relaxation and leisure

86. Choose the correct article:

"He has been appointed ___ manager of the new project."

- a) the
- b) no article
- c) a
- d) an

87. Choose the correct relative pronoun to complete the sentence:

"He is the kind of person ___ everyone likes."

- a) whose
- b) which
- c) who
- d) whom

88. Choose the correct form of the verb to complete the sentence:

"If he ___ harder, he would have passed the exam."

- a) studies
- b) is studying
- c) studies
- d) had studied

89. Choose the correct preposition to complete the sentence:

"He was accused ___ stealing the money."

- a) with b) about c) of d) for

90. Choose the correct preposition to complete the sentence:

"She is good ___ mathematics."

- a) with b) about c) at d) in

91. Choose the correct relative pronoun to complete the sentence:

"The city ___ I was born is famous for its history."

- a) that b) when c) which d) where

92. Identify the word with the different final sound:

- a) Cough b) Though c) Rough d) Tough

93. Choose the correct article:

"Can you give me ___ advice on this matter?"

- a) the b) no article c) a d) an

94. Choose the correct form of the verb to complete the sentence:

"By the time she arrives, we ___ our dinner."

- a) will have finished b) will finish c) had finished d) have finished

95. Choose the correct passive form of the sentence:

"The committee will review the applications next week."

- a) The applications will be reviewed by the committee next week.
b) The applications have been reviewed by the committee next week.
c) The applications are reviewed by the committee next week.
d) The applications were reviewed by the committee next week.

96. Choose the correct passive form of the sentence:

"They had completed the project before the deadline."

- a) The project has been completed before the deadline.
b) The project had been completed before the deadline.
c) The project is completed before the deadline.
d) The project was completed before the deadline.

97. Choose the correct tag question:

"Let's go for a walk, ___?"

- a) won't we b) shall we c) don't we d) will we

98. Choose the correct tag question:

"Everyone enjoyed the party, ___?"

- a) won't they b) aren't they c) don't they d) didn't they

99. Choose the correct indirect speech form of the sentence:

"She said, 'I will help you tomorrow.'"

- a) She said that she will help me tomorrow.
b) She said that she would help me the next day.
c) She said that she would help me tomorrow.
d) She said that she will help me the next day.

100. Choose the correct indirect speech form of the sentence:

"He asked, 'Why didn't you attend the meeting?'"

- a) He asked why I haven't attended the meeting.
b) He asked why hadn't I attended the meeting.
c) He asked why I didn't attend the meeting.
d) He asked why I hadn't attended the meeting.