Sky Tutorials
fly beyond the sky...
IIT-JEE | NEET | Foundation
NEET

Time: 200 Minute **M.M. 720**

ALL INDIA SKY TEST SERIES

Pulse Batch – Neet

Date : 06/11/2023

SYLLABUS

PHYSICS	CHEMISTRY	BOTANY	ZOOLOGY
Heat & Wave	**Previous**	Cell: the unit of life, Cell cycle & cell division, Biomolecules, The Living World, Biological Classification, Plant Kingdom, Morphology of Flowering Plants, Anatomy of Flowering Plants	**Human Health and Disease**

Please read the instructions carefully. You are allotted **5** minutes specifically for this purpose.

INSTRUCTIONS:

1. This Question paper is divided in to four parts physics, chemistry, botany, zoology and each part is further divided into two sections.
   Section –A contains 35 Questions Section B contains 15 questions. Please ensure that the Questions paper you have received contains **ALL THE QUESTIONS** in each Part.
2. **In Section A all the 35 Questions are compulsory and in Section B Contain 15 Question, out of these**
   15 Questions, candidates can choose to attempt any 10 Questions.
   Each Question has four choices (a), (b), (c), (d) out of which **only one is correct & Carry 4 marks each 1 mark** will be deducted for each wrong answer.

GENERAL INSTRUCTION

1. Use only **blue/black pen (avoid gel pen)** for darkening the bubble.
2. Indicate the correct answer for each question by filling appropriate bubble in your **OMR** answer sheet.
3. The answer sheet will be checked through computer hence; the answer of the question must be marked by –shading the circles against the question by dark **blue/black pen**
4. Blank papers, Clipboards, Log tables, Slide Rule, Calculator, Cellular Phones Papers and Electronic Gadgets in any form are **not** allowed to be carried inside the examination hall.

Name of the candidate: _____

Signature of the candidate: _____**Signature of the invigilator:** _____

PHYSICS

SECTION - A

1. 10 gm of ice at –20°C is added to 10 gm of water at 50°C. Specific heat of water = 1 cal / gm-°C, specific heat of ice = 0.5cal /gm-°C. Latent heat of ice = 80cal /gm. Then, resulting temperature is :-
(a) –20°C (b) 15°C (c) 0°C (d) 50°C

2. Two identical rods with different thermal conductivities K_1 and K_2 and different temperature are first placed along length and then along area, then the ratio of effective thermal conductivity in both cases is :-
(a) $\frac{4K_1K_2}{(K_1+K_2)^2}$ (b) $\frac{K_1}{K_2}$
(c) $\frac{K_1+K_2}{K_1-K_2}$ (d) None of these

3. 1 g of ice at 0°C is mixed with 1 g of steam at 100°C. After thermal equilibrium is achieved, the temperature of the mixture is :-
(a) 100°C (b) 55°C (c) 75°C (d) 0°C

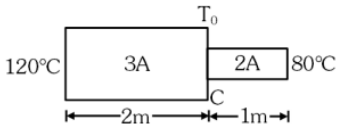
4. Two cylinders P and Q have the same length and diameter are made of different materials having thermal conductivities in the ratio 2 : 3 These two cylinders are combined to make a cylinder. One end of P is kept at 100°C and the other end of Q at0°C. The temperature at the interface of P and Q is:-
(a) 30°C (b) 40°C (c) 50°C (d) 60°C

5. Two spheres made of same substance have diameters in the ratio 1 : 2. Their thermal capacities are in the ratio of
(a) 1 : 2 (b) 1 : 8 (c) 1 : 4 (4) 2 : 1

6. If a ball of 80 kg mass hits an ice cube and temperature of ball is 100°C, then how much ice converted into water? Specific heat of ball is 0.2 cal g^{-1} , Latent heat of ice = 80 cal g^{-1} :-
(a) 20 g (b) 200 g
(c) 2×10^3 g (d) 2×10^4 g

7. Temperature of on ideal black body is 327°C. Then find up to what temperature, it must be heated so that black body radiate double energy. $\left(2^{1/4} = 1.19\right)$
(a) 614 k (b) 714 k (c) 314 k (d) 414 k

8. A metal rod of length 3m has cross sectional area 3A and 2A as shown in the following figure. The two ends are maintained at temperature 120°C and 80°C, then temperature of point C is :-



(a) 87°C (b) 107° (c) 97°C (d) 117°C

9. The temperature of body is increased by 20% then amount of radiation emitted by it would be increased nearly
(a) 107% (b) 105% (c) 102% (d) 100%

10. In a closed calorimeter 1.2 kg ice at 0°C is mixed with 1 kg water at = 24°C . The fraction of ice which do not melts is (L_{fusion} = 80 cal/gm) :
(a) 1 (b) 3/4 (c) 1/6 (d) 1/2

11. If two rods of length L and 2L having coefficient of linear expansion α and 2α respectively are connected end to end, the average coefficient of linear expansion of the composite rod, equals
(a) $\frac{6}{10}\alpha$ (b) $\frac{5}{2}\alpha$ (c) $\frac{10}{6}\alpha$ (d) N.O.T.

12. If 20 gm of water at 30^0C is mixed with 40 gm of ice at 0^0C temperature then amount of ice melt is :
(a) 7.5 gm (b) 32.5 gm
(c) 15 gm (d) ice does not melt

13. The coefficient of linear expansion of crystal in one direction is α_1 and that in other two directions perpendicular to it is α_2 & α_3 The coefficient of cubical expansion is.
(a) $\alpha_1 + \alpha_2$ (b) $\alpha_1 + \alpha_2 + \alpha_3$
(c) $\alpha_1 + 2\alpha_2$ (d) None of these

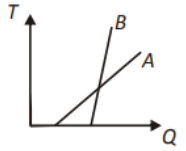
14. If a 5 kg body falls to the ground from a height of 30 m and if all of its mechanical energy is converted into heat. The heat produced will be (approx)
(g = 10 m/s2)
(a) 1500 J (b) 357.1 cal
(c) 254 cal (d) 1 and 2 both

15. Two rods of length l_1 and l_2 are made of materials whose coefficient of linear expansion are α_1 and α_2 respectively. If the difference between two lengths is independent of temperature, then:
(a) $\frac{l_1}{l_2} = \frac{\alpha_1}{\alpha_2}$ (b) $\frac{l_1}{l_2} = \frac{\alpha_2}{\alpha_1}$
(c) $l_2^2\alpha_1 = l_1^2\alpha_2$ (d) $\frac{\alpha_1^2}{l_1} = \frac{\alpha_2^2}{l_2}$

16. The radius of a ring is R and its coefficient of linear expansion is α. If the temperature of ring decreases by θ, then its circumference will decreases by.

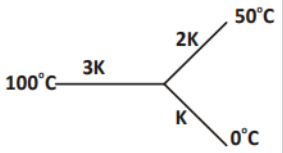
(a) $\pi R\alpha\theta$ (b) $2\pi R\alpha\theta$ (c) $\pi R\alpha\frac{\theta}{2}$ (d) $\pi R\alpha\frac{\theta}{4}$

17. The temperature (T) of two bodies A and B of equal masses varies with heat supplied (Q) as shown in the graph. If the specific heat of body A is C_A and the specific heat of body is C_B , then :



(a) $C_A = C_B$ (b) $C_A > C_B$
(c) $C_A < C_B$ (d) $C_A = \frac{C_B}{2}$

18. Three rods of same dimensions have thermal conductivities 3K, 2K and K. They are arranged as shown, with their ends at 100^0C, 50^0C and 0^0C. The temperature of their junction is.



(a) 75^oC (b) $\frac{200}{3}$ ^{o}C (c) 40^o (d) $\frac{100}{3}$ ^{o}C

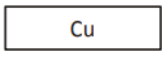
19. On heating one end of a rod, the temperature of whole rod will be uniform when :
(a) K = 1 (b) K = 0 (c) K = 100 (d) K = ∞

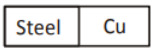
20. The dimensional formula for thermal resistance is:
(a) $\left[M^{-1}L^{-2}T^3\theta\right]$ (b) $\left[ML^2T\theta\right]$
(c) $\left[M^{-1}L^2T^3\theta\right]$ (d) None of these

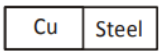
21. Which of the following law states that "good absorbers of heat are good emitters" :
(a) Stefan's law (b) Kirchoff's law
(c) Planck's law (d) Wien's law

22. Two spheres of the same material have radii r and 4r and temperatures $2T_0$ and T_0 respectively. The ratio of rate of radiation of energy by the spheres is
(a) 1 : 1 (b) 1 : 2 (c) 2 : 1 (d) 3 : 1

23. Heat current is maximum in which of the following? (rods are of identical dimension $K_{Cu} > K_{Steel}$)

(a) 

(b) 

(c) 

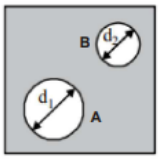
(d) 

24. A black body is heated from 127^0C to 927^0C. The ratio of radiation emitted will be
(a) 1 : 256 (b) 1 : 64 (c) 1 : 4 (d) 1 : 81

25. Two thermometers, one celsius and other Fahrenheit are put into a hot bath. The reading on Fahrenheit is just three times the reading on Celsius. The temperature of the bath is :
(a) $\frac{100}{3}$ ^{o}C (b) $\frac{80}{3}$ ^{o}C (c) $\frac{110}{3}$ ^{o}C (d) $\frac{70}{3}$ ^{o}C

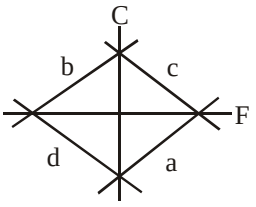
26. A strip consisting of two different metals riveted together is heated, it will :
(a) Bend towards the metal with higher coefficient of thermal expansion
(b) Bend towards the metal with lower coefficient of thermal expansion
(c) Not bend at all
(d) Twist itself into a helix.

27. In a metallic sheet shown in the figure there are two holes A and B. When heat is supplied to the sheet the diameter of :



(a) Hole A increases while the diameter of hole B decreases
(b) Hole B increases while the diameter of hole A decreases
(c) Both holes is increases
(d) Both holes decreases

28. Which of the curves in figure represents the relation between Celsius and Fahrenheit temperature?



(a) a (b) a (c) a (d) a

29. On a new scale of temperature (which is linear) and called the W scale, the freezing and boiling points of water are 39° W and 239° W respectively. What will be the temperature on the new scale, corresponding to a temperature of 39°C on the Celsius scale.
(a) 200°W (b) 139°W
(c) 78°W (d) 117°W

30. Two spheres of the same size are made of the same material but one is hollow and the other is solid. They are heated to the same temperature. Then which sphere will expand more?
(a) same (b) hollow sphere
(c) solid sphere (d) no conclusion

31. A solid metal ball has a spherical cavity. If the ball is heated, the volume of the cavity will.
(a) increase (b) decrease
(c) remain unaffected
(d) remain unaffected but the shape of the cavity will change

32. When water is heated from 0°C to 10°C, its volume.
(a) decrease (b) increase
(c) remains unchanged
(d) first decreases and then increases

33. Two metal rods of the same length and area of cross-section are fixed end to end between rigid supports. The materials of the rods have Young module Y_1 and Y_2, and coefficient of linear expansion α_1 and α_2. The junction between the rods does not shift and the rods are cooled.
(a) $Y_1\alpha_1 = Y_2\alpha_2$ (b) $Y_1\alpha_2 = Y_2\alpha_1$
(c) $Y_1\alpha_1^2 = Y_2\alpha_2^2$ (d) $Y_1^2\alpha_1 = Y_2^2\alpha_2$

34. A metal ball is being weighed in liquid whose temperature is raised continuously. Then the apparent weight of the ball.
(a) remain unchanged (b) increase
(c) decrease (d) changes erratically

35. A steel rod of length 25 cm has a cross-sectional area of 0.8 cm². The force required to stretch this rod by the same amount as the expansion produced by heating it through 10°C is ($\alpha_{steel} = 10^{-5}/^oC$ and $Y_{steel} = 2\times10^{10}N/m^2$)
(a) 40 N (b) 80 N
(c) 120 N (d) 160 N

SECTION -B

36. Two tuning forks of frequencies 256 Hz and 258 Hz are sounded together. The time interval between consecutive maxima heard by the observer is :
(a) 2 s (b) 0.5 s (c) 250 s (d) 252 s.

37. A tuning fork of frequency 500 Hz is sounded on a resonance tube. The first, second and third resonance are obtained at 17 cm, 52 cm and 87 cm respectively. The velocity of sound in ms–1 is
(a) 170 (b) 350 (c) 520 (d) 850.

38. Laplace assumed that sound propagation in a gas takes place under :
(a) isothermal conditions
(b) adiabatic conditions
(c) both
(d) none of these.

39. A compression is formed at a place in the medium. The rarefaction will be formed at the same place after a time :
(a) T (b) T/3 (c) T/2 (d) 2T

40. The essential properties of a medium for the propagation of mechanical waves are :
(a) Inertia and mass (b) Inertia and elasticity
(c) Elasticity only (d) Inertia only

41. A wave is represented by the equation $y = 4\sin\left\{\pi\left(\frac{2}{3}t - \frac{x}{3}\right)\right\}$ where x is in meters and t in seconds. The velocity of the wave is:
(a) 1 m/s (b) 2 m/s (c) 5 m/s (d) 10 m/s

42. A simple harmonic progressive wave is represented by the equation: $y = 18\sin 2\pi(0.2x - 2t)$ where a and x are in cm and t is in seconds. At any instant the phase difference between two particles separated by 1.0 cm in the x –direction is:
(a) 18^0 (b) 36^0 (c) 54^0 (d) 72^0

43. If equation of a sound wave is y = 0.0015 sin (2468 t + 125.2 x). Then its wavelength will be :
(a) 0.2 unit (b) 0.05 unit
(c) 0.3 unit (d) 2 unit

44. A wave of frequency 300 Hz has velocity 180 m/sec. The distance between nearest points 30° out of phase is :
(a) 0.6 cm (b) 5 cm (c) 60 cm (d) 120 cm

45. The speed of sound is independent of change of:
(a) Temperature
(b) Density
(c) Pressure (at constant temperature)
(d) All of the above

46. In which one of the following, the velocity of sound is maximum:
(a) Gas (b) Liquid
(c) Solid (d) All of the above

47. The equation of wave motion (with t in second and x in metre) is given by $y = 7\sin\left[7\pi t - 0.4\pi x + \frac{\pi}{3}\right]$ the velocity of wave will be:
(a) $\frac{2\pi}{49}$ m/s (b) $\frac{49}{2\pi}$ m/s
(c) 49 π m/s (d) 17.5 m/s

48. A wave of frequency 500 Hz has velocity 360 m/sec. The distance between nearest points 60° out of phase is :
(a) 0.6 cm (b) 12 cm (c) 60 cm (d) 120 cm.

49. A source S_1 of sound gives 5 beats/ sec when sounded with another source S_2 of frequency 100 Hz. Second harmonic of the source S_1 produces 5 beats /sec with a sound source S_3 of frequency 205 Hz. Then fundamental frequency of S_1 is :
(a) 95 Hz (b) 100 Hz (c) 105 Hz (d) 205 Hz

50. A tuning fork and a sonometer give 5 bps both when the length of the wire is 1 m and 1.05 m. The frequency of the fork is.
(a) 420 Hz (b) 410 Hz
(c) 210 Hz (d) 205 Hz

CHEMISTRY

SECTION - A

51. Among the following complex ions, the one which shows geometrical isomerism will be.
(a) $[Cr(H_2O)_4Cl_2]^+$ (b) $[Pt(NH_3)_3Cl]$
(c) $[Co(NH_3)_6]^{3+}$ (d) $[Co(CN)_5(NC)]^{3-}$

52. The optically active coordination complex ion among the following is
(a) trans - $[Co(en)_2Cl_2]^+$
(b) $cis-[Co(en)(NH_3)_2Cl_2]^+$
(c) $[Co(NH_3)_6]^{3+}$
(d) $[Fe(CN)_6]^{3+}$

53. Which one of the following is wrongly matched?
(a) $[Cu(NH_3)_4]^{2+}$ - Square planar
(b) $[Ni(CO)_4]$ - Neutral ligand
(c) $[Fe(CN)_6]^{3-}$ - sp^3d^2
(d) $[Co(en)_3]^{3+}$ - Follows EAN rule

54. The correct order of magnetic moments (spin only values in BM) among the following is
(a) $[MnCl_4]^{2-} > [CoCl_4]^{2-} > [Fe(CN)_6]^{4-}$
(b) $[MnCl_4]^{2-} > [Fe(CN)_6]^{4-} > [CoCl_4]^{2-}$
(c) $[Fe(CN)_6]^{4-} > [MnCl_4]^{2-} > [CoCl_3]^{2-}$
(d) $[Fe(CN)_6]^{4-} > [CoCl_4]^{2-} > [MnCl_4]^{2-}$

55. The metal ionin complex A has EAN identical to the atomic number of krypton A is
(Atomic number of Cr = 24, Fe = 26, Pd = 46)
(a) $[Pd(NH_3)_6]Cl_4$ (b) $[Cr(NH_3)_5CI]SO_4$
(c) $Na_4[Fe(CN)_6]$ (d) $K_3[Fe(CN)_6]$

56. 138 g ethyl alcohol is mixed with 72 g of water. The ratio of mole fraction of alcohol to water is
(a) 3 : 4 (b) 1 : 2 (c) 1 : 4 (d) 1 : 1

57. What is the molarity of 0.2 N Na_2CO_3 solution?
(a) 0.1 M (b) 0 M (c) 0.4 M (d) 0.2 M

58. Which of the following concentration factors affected by change in temperature?
(a) Molarity (b) Molality
(c) Mole fraction (d) Weight fraction

59. 5 L of a solution contains 25 mg of $CaCO_3$. What is its concentration in ppm?
(a) 25 (b) 1 (c) 5 (d) 2500

60. What is the value of K_c if K_b and k_f are 1.2×10^{-3} and 1.4×10^{-2} respectively?
(a) 11.66 (b) 0.88 (c) 1.166 (d) 8.8

61. Calculate K_c for the reversible process given below if $K_p = 167$ and $T = 800^oC$.
$CaCO_{3(s)} \rightleftharpoons CaO_{(s)} + CO_{2(g)}$
(a) 1.95 (b) 1.85 (c) 1.89 (d) 1.60

62. A 20 litre container at 400 K contains $CO_{2(g)}$ at pressure 0.4 atm and an excess of SrO (negalect the volume of solid SrO). The volume of the container is now decreased by moving the movable piston fitted in the container. The maximum volume of the container, when pressure of CO_2 attains its maximum value, will be.
(Given that : $SrCO_{3(s)} \rightleftharpoons SrO_{(s)} + CO_{2(g)}, K_p = 1.6$ atm)
(a) 10 litre (b) 4 litre (c) 2 litre (d) 5 litre

63. Which one of the following aqueous solution of salts has the lowest pH value?
(a) CH_3COONa (b) $NaCl$
(c) NH_4OOCCH_3 (d) NH_4Cl

64. 25 mL of 0.2 M $Ca(OH)_2$ is neutralized by 10 mL of 1 M HCl. Then pH of resulting solution is.
(a) 1.37 (b) 9 (c) 12 (d) 7

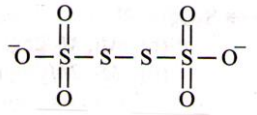
65. A monobasis weak acid solution has a molarity of 0.005 M and pH of 5. What is its percentage ionization in this solution?
(a) 2.0 (b) 0.2 (c) 0.5 (d) 0.25

66. Concentration of the Ag^+ ions in a saturated solution of $Ag_2C_2O_4$ is 2.2×10^{-4} mol L^{-1}. Solubility product of $Ag_2C_2O_4$
(a) 2.66×10^{-12} (b) 4.5×10^{-11}
(c) 5.3×10^{-12} (d) 2.42×10^{-8}

67. For $Fe(OH)_3$, the solubility product K_{sp} is.
(a) $27S^4$ (b) S^2 (c) $4S^3$ (d) $8S^4$

68. When equal volume of $AgNO_3$and NaCl solutions are mixed, the precipitation of AgCl ($K_{sp} = 1.81 \times 10^{-10}$)
(a) 10^{-3} M (Ag^+) and 10^{-10} M (Cl^-)
(b) 10^{-5} M (Ag^+) and 10^{-5} M (Cl^-)
(c) 10^{-6} M (Ag^+) and 10^{-5} M (Cl^-)
(d) 10^{-4} M (Ag^+) and 10^{-4} M (Cl^-)

69. The oxidation states of S stoms $S_4O_6^{2-}$ from left to right respectively are



(a) +6, 0,0, +6 (b) +3, +1, +1, +3
(c) +5, 0,0, +5 (d) +4, +1, +1, +4

70. H_5IO_6 is a
(a) strong reducing agent
(b) strong base
(c) strong oxidizing agent
(d) weak base.

71. The ratio between kinetic energy and the total energy of the electrons of hydrogen atom according to Bohr's model is :
(a) 1 : 1 (b) 1 : 5 (c) 1 : 2 (d) 2 : 1

72. The ratio of the difference in energy of electron between the first second Bohr's orbit to that between second and third Bohr's orbit is:
(a) $\frac{1}{3}$ (b) $\frac{27}{5}$ (c) $\frac{9}{4}$ (d) $\frac{4}{9}$

73. Of the following transitions in hydrogen atom, the one which gives an absorption line of maximum wavelength is:
(a) n = 1 to n = 2 (b) n = 3 to n = 8
(c) n = 2 to n = 1 (d) n = 8 to n = 3

74. What possible can the ratio of the Broglie wavelengths for two electrons having the same initial energy and accelerated through 50 V and 200 V?
(a) 3 : 10 (b) 10 : 3 (c) 1 : 2 (d) 2 : 1

75. The number of electrons in sulphur atom having $n + l = 3$
(a) 2 (b) 4 (c) 6 (d) 8

76. Maximum numbers of electrons in a subshell is given by:
(a) $(2l + 1)$ (b) $2(2\,l + 1)$
(c) $(2\,l + 1)^2$ (d) $2(2\,l + 1)^2$

77. How many electrons in $_{19}K$ have $n = 3; l = 0$?
(a) 1 (b) 2 (c) 4 (d) 3

78. The number of nodes in a 4d – orbital is:
(a) 0 (b) 1 (c) 2 (d) 3

79. Number of electrons present in 6 g of CO_3^{2-} is.
(a) 1.806×10^{24} (b) 1.9264×10^{24}
(c) 3.7324×10^{24} (d) None of these

80. Mass of calcium that has same number of atoms as in 16 g CH_4 is.
(a) 200 g (b) 100 g (c) 40 g (d) 20 g

81. 20 moles of A and 14 moles of B are mixed and allowed to react according to the equation.
$A + 2B \rightarrow 3C$
What is the maximum number of moles of C which could be prepared?
(a) 14 (b) 21 (c) 13 (d) 7

82. The empirical formula and molecular mass of a compound are CH_2O and 180 g respectively. What will be the molecular formula of the compound?
(a) $C_9H_{18}O_9$ (b) CH_2O
(c) $C_6H_{12}O_6$ (d) $C_2H_4O_2$

83. For the reaction $A + 2B \rightarrow C$, 5 mol of A and 8 mol of B will produce
(a) 5 mole of C (b) 4 mole of C
(c) 8 mole of C (d) 13 mole of C

84. Which of the following contains the least number of molecules?
(a) 4.4 g CO_2 (b) 3.4 g NH_3
(c) 1.6 g CH_4 (d) 3.2 g SO_2

85. An ionic bond $A^+ + B^-$ is most likely to be formed when
(a) the ionization energy of A is high and the electron affinity of B is low
(b) the ionization energy of A is low and the electron affinity of B is high
(c) the ionization energy of A and the electron affinity of B is high
(d) the ionization energy of A and the electron affinity of B is low.

SECTION- B

86. The corret order of the increasing ionic character is.
(a) $BeBr_2 < MgBr_2 < CaBr_2 < BaBr_2$
(b) $BeBr_2 < MgBr_2 < BaBr_2 < CaBr_2$
(c) $BeBr_2 < BaBr_2 < MgBr_2 < CaBr_2$
(d) $BaBr_2 < MgBr_2 < CaBr_2 < BeBr_2$

87. $SnCl_4$ is a covalent liquid because.
(a) Electron clouds of the Cl^- ions are weakly polarized to envelop the cation
(b) Electron clouds of the Cl^- ions are strongly polarized to envelop the cation
(c) Its molecules are attracted to one another by strong van der Waals forces
(d) Sn shows inert pair effect.

88. Which of the following species are hypervalent?
1. ClO_4^- 2. BF_3 3. SO_4^{2-} 4. CO_3^{2-}
(a) 1, 2, 3 (b) 1, 3 (c) 3, 4 (d) 1, 2

89. Which of the following has been arranged in increasing order of size of the hybrid orbitals?
(a) $sp < sp^2 < sp^3$ (b) $sp^3 < sp^2 < sp$
(c) $sp^2 < sp^3 < sp$ (d) $sp^2 < sp < sp^3$

90. Consider the following molecules:

H_2O	H_2S	H_2Se	H_2Te
I	II	III	IV

Arrange these molecules in increasing order of bond angles
(a) I < II < III < IV (b) IV < III < II < I
(c) I < II < IV < III (d) II < IV < III < I

91. For BF_3 molecules which of the following is true?
(a) B – atom is sp^2 hybridised
(b) There is a $P\pi - P\pi$ back bonding in this molecule
(c) Observed B – F bond length is found to be less than the expected bond length
(d) All of these

92. Of the following molecules, the one, which has permanent dipole moment, is.
(a) SiF_4 (b) BF_3 (c) PF_3 (d) PF_5

93. Which of the following is least volatile?
(a) HF (b) HCl (c) HBr (d) HI

94. Which one of the following does not have intermolecular H – bonding?
(a) H_2O (b) o – nitro phenol
(c) HF (d) CH_3COOH

95. Among the following species, which has the minimum bond length?
(a) B_2 (b) C_2 (c) F_2 (d) O_2^-

96. Number of π bonds and σ bonds in **Napthalene** is.
(a) 6, 19 (b) 4, 20 (c) 5, 19 (d) 5, 20

97. The molecular formula of the compound formed from B and C will be.
(a) BC (b) B_2C (c) BC_2 (d) B_4C_3

98. Which one of the following is the correct of interactions?
(a) Covalent < hydrogen bonding < vander Waals < dipole – dipole
(b) Vander Waals < hydrogen bonding < dipole - dipole< covalent
(c) Vander Waals < dipole – dipole < hydrogen bonding < covalent
(d) Dipole – dipole < vander Waals < hydrogen bonding < cavalent

99. Match the columns

	Column – I		Column – II
A	BeH_2	(p)	Odd electron molecules
B.	SF_6	(q)	Expanded octet
C.	NO_2	(r)	Incomplete octet of central atom

(a) A – (p), B – (q), C – (r)
(b) A – (q), B – (r), C – (p)
(c) A – (r), B – (q), C – (p)
(d) A – (r), B – (p), C – (q)

100. **Assertion:** Shape of NH_3 molecule is tetrahedral.
Reason: In NH_3 nitrogen is sp^3 hybridized
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct

BOTANY

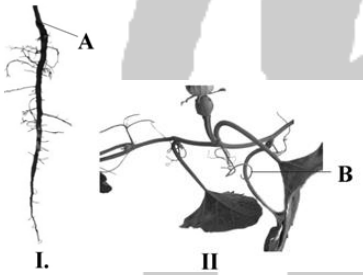
SECTION – A

101. How many of the given plants show the phyllotaxy, where single leaf arises at each node?
Alstonia,Calotropis,Chilli,China rose,Guava,Datura, Sunflower
(a) Three (b) Four (c) Five (d) Six

102. Mango is similar to coconut in
(a) Being a composite fruit
(b) Having a fleshy edible mesocarp
(c) Being parthenocarpic in nature
(d) Having stony endocarp

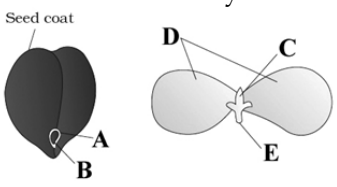
103. Negatively geotropic roots
(a) Are present in plants of swampy area
(b) Are the fibrous roots of mangrove plants
(c) Are meant for assimilation of CO_2
(d) Both (b) and (c)

104. Examine the given figures and choose the correct lables for A & B.



(a)	A - Taproot of mustard	B - Leaf tendril of pea
(b)	A - Adventitious root of *Monstera*	B - Modification of leaf base
(c)	A - Fibrous root of grass	B - Stolon of mint
(d)	A - Taproot of *Brassica*	B - Stem tendril of cucurbits

105. Which one of the options shows the correct labelling of the parts marked as A, B, C and D in a typical structure of dicotyledonous seeds ?



(a) A - Hilum, B - Micropyle, C - Radicle, D - Cotyledon, E - Plumule
(b) A - Hilum, B - Micropyle, C - Plumule, D - Cotyledon, E - Radicle
(c) A - Micropyle, B - Hilum, C - Plumule, D - Cotyledon, E - Radicle
(d) A - Hilum, B - Micropyle, C - Plumule, D - Radicle, E - Cotyledon

106. Find the incorrect statement:
(a) In pinnately compound leaf rachis is present
(b) Rachis, actually represents the mid-rib of the leaf in a pinnately compound leaf
(c) In palmately compound leaf rachis is present
(d) Silk cotton has got palmately compound leaf

107. Find the incorrect statement:
(a) A flower is modified shoot wherein the shoot apical meristem changes into floral meristem
(b) The arrangement of flowers on the floral axis is called inflorescence
(c) Petals and sepals are modified leaves
(d) Sunflower is a solitary flower but not an inflorescence

108. Collenchyma differs from parenchyma in
(a) Being storage in function
(b) Not having chloroplast
(c) Having deposition of pectin on cell wall
(d) Being dead

109. Find the mismatched pair.
(a) Vessels : Not found in most of the gymnosperms
(b) Tracheids : Dead and without protoplasm
(c) Xylem fibre : Living and thin walled
(d) Xylem parenchyma : Stores tannins

110. All are related to guard cells, except
(a) In dicots, inner wall are thick
(b) These are sclerenchymatous
(c) Contain chloroplast
(d) Regulate opening and closing of stomata

111. Choose the correct option to fill the blanks. 'In grasses, the guard cells are ____ shaped'.
(a) Round (b) Bean
(c) Kidney (d) Dumb-bell

112. Which of the following do not constitute the ground tissue system in plants?
A. Pericycle B. Endodermis
C. Mesophyll D. Epidermis
E. Veins in leaf F. Xylem and phloem
(a) A, B & C (b) C, D & E
(c) A, C & F (d) D, E & F

113. Identify the statements as true (T) or false (F) and choose the correct option.
A. Conjunctive tissue is parenchyma cells which lie between xylem and phloem in dicot root.
B. Complementary cells are formed by the activity of phellogen.

	A	B
(a)	T	T
(b)	T	T
(c)	F	T
(d)	F	F

114. Which of the following statements is not correct w.r.t. pericycle?
(a) The thick walled pericycle gives mechanical support to the plants.
(b) Pericycle may act as storage organ of food materials, when it is composed of parenchymatous cell.
(c) It is parenchymatous in both monocot and dicot stems.
(d) In dicot root, the pericycle becomes meristematic and forms a part of the cambial ring

115. Match the following columns and select the **correct** option.

	Column – I		Column – II
A.	*Penicillium*	(i)	Zygospore
B.	*Rhizopus*	(ii)	Imperfect fungus
C.	*Ustilago*	(iii)	Ascospore
D.	*Colletotrichum*	(iv)	Basidiospore

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

116. In unfavourable conditions, plasmodium of slime mould forms
(a) Fruiting body (b) Wall-less spores
(c) Mycelium (d) Biflagellate spores

117. The archaebacteria which obtain energy for the synthesis of organic food from the oxidation of sulphur to sulphuric acid under aerobic conditions are also
(a) Capable of tolerating high temperature
(b) Present in the gut of several ruminant animals
(c) Found in extreme saline environment
(d) Responsible for the production of biogas

118. Euglenoids have
(a) Two flagella of same size
(b) Lipid rich layer called pellicle
(c) Pigments identical to those present in higher plants
(d) Heterotrophic mode of nutrition only in the presence of sunlight

119. Select the **incorrect** match from the following.
(a) Morels – Edible ascocarps
(b) *Neurospora crassa* – Drosophila of plant kingdom
(c) Truffles – Club fungi
(d) *Saccharomyces cerevisiae* – Baker's yeast

120. Viruses possess all the following properties, except
(a) They are non-cellular organises
(b) Possess both DNA and RNA
(c) Capsid protects nucleic acid
(d) Have inert crystalline structure outside living cells

121. Select the **correct** statement.
(a) Viroids have double stranded RNA
(b) RNA of viroids have high molecular weight than viruses
(c) Mumps and Herpes are viral diseases
(d) The name virus was given by D.J. Ivanowsky

122. The homosporous vascular cryptogams
(a) Show the events precursor to the seed habit
(b) Have male and female reproductive structures on the same plant
(c) Are aquatic ferns only
(d) Show haplontic life-cycle pattern

123. Coralloid roots of *Cycas* are associated with
(a) Nitrogen fixing cyanobacteria
(b) Water absorbing basidiomycetes
(c) Chemosynthetic heterotrophic bacteria
(d) Chemoautotrophic archaebacteria

124. Which of the following statements is/are **not** correct for phycobiont member of lichens?
A. They are mostly members of chlorophyceae.
B. They are the dominant partner.
C. They absorb water and minerals from the surroundings.
D. They form the main body of lichen.
(a) B only (b) B, C and D
(c) B and D only (d) A only

125. On the basis of the following features, identify the algae from the given options.
Inner cellulosic cell wall is covered outside by algin. Pear-shaped gametes bear two laterally attached flagella.
(a) *Chara* (b) *Porphyra*
(c) *Spirogyra* (d) *Laminaria*

126. In liverworts, gemmae are
(a) Non-green, multicellular vegetative structure
(b) Green, unicellular asexual buds
(c) Non-green, unicellular vegetative buds
(d) Green, multicellular asexual buds

127. Majority of the red algae are marine and reach the maximum depth in sea water where no other
type of photosynthetic organism grow. Red colour of these algae is due to the abundance of
(a) Chlorophyll a (b) Chlorophyll b
(c) Fucoxanthin (d) Phycoerythrin

128. Select the **correct** statement from the following.
(a) Zygotic meiosis does not occur in *Volvox*
(b) *Fucus* does not show the same life-cycle pattern as most of the algae show
(c) In both bryophytes and pteridophytes, the dominant phase is diploid sporophyte
(d) All vascular plants are seed bearing plants

129. All the following features of the living organisms are associated with worker-bees, **except**
(a) Growth (b) Metabolism
(c) Consciousness (d) Reproduction

130. All of the following multiply by fragmentation, **except**
(a) Fungi (b) Filamentous algae
(c) Protonema of moss (d) Unicellular algae

131. "X" being a higher category is the assemblage of families which exhibit a few "Y" characters. The "Z" characters are less in a number as compared to different genera included in a family. Identify "X", "Y", and "Z".
(a) X - Order; Y - Similar; Z - Similar
(b) X - Genus; Y - Similar; Z - Different
(c) X - Species; Y - Different; Z - Similar
(d) X - Class; Y - Different; Z – Different

132. One of the information that is provided in a herbarium sheet is
(a) Family of specimen
(b) Habitat of the specimen
(c) Date and time at which specimen was collected
(d) Economic importance of the specimen

133. The book 'Flora' contains
(a) Names of various animal species found in an area
(b) Information of one taxon only
(c) Complete listing of animals found in a particular area
(d) Information about plants found in a particular area

134. The taxonomical aid which is used for identification of plants and animals based on the similarities and dissimilarities
(a) Is storehouse of collected organisms that are dried, pressed and preserved on sheets
(b) Is serving as quick referral systems in taxonomical studies
(c) Is generally analytical in nature
(d) Provides the actual account of habitat and distribution of organisms

135. Read the following statements A and B and choose the **correct** option.
Statement A: The number of similar characteristics goes on increasing from species to kingdom.
Statement B: Higher the category, greater is the difficulty of determining the relationship to other taxa at same level.
(a) Only statement A is correct
(b) Only statement B is correct
(c) Both statements A and B are correct
(d) Both statements A and B are incorrect

SECTION - B

136. The elaborate network of filamentous proteinaceous structure
(a) Known as cytoskeleton
(b) Provides mechanical support
(c) Forms component of cilia, flagella and centrioles
(d) More than one option is correct

137. Which of the following is incorrect?
(a) Vacuoles contain water, sap, excretory product and other materials not useful for the cell
(b) Protists possess contractile vacuoles and food vacuoles
(c) Dictyosomes perform the function of packaging materials
(d) Nucleic acids cannot be digested by lysosomal enzymes

138. Select the correct statement for nucleolus:
(a) It is a site for mRNA synthesis
(b) Large and more numerous nucleoli are present in cells actively carrying out protein synthesis
(c) Nucleolus contain nucleoplasm
(d) Nucleolus is a single membrane bound structure.

139. Which of the following is wrong for cilia/flagella?
(a) Axonemal microtubules are arranged in '9 + 2' array
(b) The central tubules are connected by bridge and is also enclosed by a central sheath
(c) The peripheral doublets are interconnected by linkers
(d) Both cilia and flagella emerge from centriole – like structure called basal body so basal body also possess '9 + 2' microtubular array

140. Match the following organelles with their function

	Column – I		**Column – II**
A.	Golgi Apparatus	(i)	Detoxification of drugs
B.	SER	(ii)	Excretion
C.	Contractile vacuole	(iii)	ATP synthesis
D.	Mitochondria	(iv)	Glycosylation

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

141. Mark the similar feature between meiosis I and meiosis II.
(a) Both are equational divisions
(b) Both meiosis I and II are homotypic divisions
(c) Prophase of both the stages is divided into substages
(d) Meiosis I and II both occur at the time of gamete formation in higher plants

142. Select the **incorrect** statement.
(a) In some social insects, haploid cells divide by mitosis
(b) Mitotic divisions take place only in the apical meristem of plants
(c) Mitosis helps to restore the nucleocytoplasmic ratio
(d) Mitosis helps in cell repair

143. **A.** A bivalent is a pair of synapsed homologous chromosomes.
B. At zygotene stage, bivalent become clearly visible as tetrad.
(a) Only statement A is correct
(b) Only statement B is correct
(c) Both A and B are correct
(d) Both A and B are incorrect

144. Select the **incorrect** match.
(a) Crossing over – Pachytene
(b) Synthesis of histone – G_2 phase
(c) Synapsis – Zygotene
(d) Synthesis of nucleotides – G_1 phase

145. Arrange the following events of meiosis in their **correct** sequence of occurrence and choose the correct option.
A. Chromosomal synapsis
B. Dissolution of synaptonemal complex
C. Alignment of univalents at equator
D. Terminalisation of chiasmata
(a) A → B → D → C
(b) A → D → B → C
(c) B → A → C → D
(d) C → B → A → D

146. Choose the **correct** statement.
(a) Insulin is a heteropolymer
(b) Triglycerides are truly or strictly macromolecules
(c) High temperature leads to denaturation as well as renaturation in proteins
(d) Defence proteins can be exemplified by RuBisCO

147. If the total amount of cytosine and guanine in a dsDNA is 60%, the amount of adenine in this DNA will be
(a) 30% (b) 20% (c) 40% (d) 50%

148. Haemoglobin has four helical polypeptide chains, two α -chains and two β -chains. It is the example of
(a) Quaternary structure
(b) Tertiary structure
(c) Secondary structure
(d) Primary structure

149. Fatty acid which has 16 carbons including carboxyl carbon, is
(a) Arachidonic acid (b) Palmitic acid
(c) Stearic acid (d) Oleic acid

150. Match column I and column II and choose the **correct** option.

	Column – I		**Column – II**
A.	Alkaloids	(I)	Concanavalin A
B.	Toxins	(II)	Vinblastine
C.	Drugs	(III)	Abrin
D.	Lectins	(IV)	Morphine

(a) A(I), B(II), C(III), D(IV)
(b) A(Ii), B(Iii), C(Iv), D(I)
(c) A(Iii), B(Iv), C(I), D(Ii)
(d) A(Iv), B(Iii), C(Ii), D(I)

ZOOLOGY

SECTION - A

151. Read the following statements about health and select the incorrect one.
(a) Immune system maintains our health.
(b) Health is defined as a state of complete, physical, metal and social well-being.
(c) Health increases productivity and economic prosperity.
(d) Health increase infect and maternal mortality.

152. Which one of the following diseases is non-communicable?
(a) Diphtheria (b) Flu
(c) Cancer (d) Malaria

153. Which of the following pairs contains an infectious and a non-infectious disease respectively?
(a) Typhoid and AIDS
(b) AIDS and Cancer
(c) Pneumonia and malaria
(d) Cancer and malaria

154. Typhoid fever in human beings is caused by
(a) *Plasmodioum vivax*
(b) *Trichophyton*
(c) *Salmonella typhi*
(d) *Rhinoviruses*

155. Which of the following is the bacterial disease in humans?
(a) Pneumonia (b) Malaria
(c) Plague (d) Both (a) and (c)

156. Which one of the following sets includes bacterial diseases?
(a) Tetanus, tuberculosis, measles
(b) Diphtheria, leprosy, plague
(c) Cholera, typhoid, mumps
(d) Malaria, mumps, poliomyelitis

157. The common cold is caused by
(a) Rhinoviruses
(b) *Streptococcus pneumonia*
(c) *Salmonella typhimurium*
(d) *Plasmodium vivax*

158. Common cold differs from pneumonia as
(a) pneumonia is caused by a virus whereas common cold is caused by a bacterium
(b) pneumonia pathogen infects alveoli whereas common cold affects nose and respiratory passage but not the lungs
(c) pneumonia is a non-communicable disease whereas common cold is a communicable disease
(d) none

159. Amoebic dysentery (amoebiasis) is caused by
(a) Entamoeba histolytica
(b) E.coli
(c) Streptococcus pneumoniae
(d) Trichophyton

160. An intestinal parasite which causes blockage of the intestinal passage and whose eggs are excreted along with the faeces of infected person is _____.
(a) *Wuchereria buncrofti*
(b) *Ascaris*
(c) *Epidermophyton*
(d) *Microsporum*

161. Elephantiasis, a chronic inflammation that results in gross deformities is caused by
(a) *Ascaris* (b) *E.coli*
(c) *Wuchereria* (d) *Trichophyton*

162. Appearance of dry, scaly lesions with itching on various parts of the body are the symptoms of _____.
(a) elephantiasis (b) ringworm
(c) ascariasis (d) amoebiasis

163. Match column I with column II and select the correct option from codes given below.

Column – I		**Column-II**	
A.	Sporozoites	(i)	Infectious form of **Plasmodium**
B.	Filariasis	(ii)	**Aedes** mosquitoes
C.	Typhoid	(iii)	**Wuchereria**
D.	Chikungunya	(iv)	Widal test

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

164. The term 'Immunity' refers to
(a) mutualism between host and parasite
(b) ability of the host to fight the disease causing organisms
(c) ability of the parasite to survive within a host
(d) a fatal disease.

165. Which of the following statements regarding different barriers of innate immunity is not correct?
(a) Acid present in the stomach, saliva in the mouth, tears from the eyes prevent the growth of microorganisms and constitute physiological barriers of our body.
(b) Mucous membrane lining the respiratory, gastrointestinal and urinogenital tracts helps in trapping the microbes and constitute physiological barriers of our body.
(c) Certain types of leucocytes such as polymorphonuclear leucocytes (PMNL-neutrophils) and lymphocytes such as natural killer cells, constitute cellular barriers of our body.
(d) Virus –infected cells secrete proteins called interferons which protect non-infected cells from further viral infection and constitute cytokine barriers of our body.

166. A person has developed interferons in his body. He seems to carry an infection of
(a) tetanus (b) malaria
(c) measles (d) typhoid

167. The first line of defence in the immune system is provided by
(a) skin and mucous membrane
(b) inflammatory response
(c) the complement system
(d) none of these

168. Primary response produced due to first time encounter with a pathogen is of
(a) high intensity
(b) low intensity
(c) intermediate intensity
(d) no intensity

169. Which of the following components does not participate in innate immunity?
(a) Neutrophils (b) Macrophages
(c) B-lymphocytes (d) Natural killer cells

170. Antibodies are secreted by
(a) T-lymphocytes (b) B-lymphocytes
(c) both (a) and (b) (d) natural killer cell

171. An antibody consists of
(a) two light peptide chains and two heavy peptide chains
(b) two light peptide chains and one heavy peptide chain
(c) one light peptide chain and one heavy peptide chain
(d) one light peptide chain and two heavy peptide chains

172. Humoral immunity is associated with
(a) T-cells (b) B-cells
(c) macrophages (d) both (a) and (b)

173. The antigen binding site of an antibody is present at
(a) the constant region
(b) the C-terminal
(c) the varibal region
(d) between constant and variable region.

174. The antibody which can cross placental barrier is
(a) IgA (b) IgE (c) IgM (d) IgG

175. A protein or polysaccharide molecule that stimulates antibody formation
(a) antigen (b) antibiotics
(c) exotoxin (d) endotoxins.

176. Select the correct statements regarding the characteristics of acquired immunity.
(i) Cell-mediated immunity is responsible for acquired immunity.
(ii) It produces a primary response of low intensity.
(iii) Active and passive immunity are types of acquired immunity.
(iv) Polymorphonuclear leucocytes and natural killer cells are involved in acquired immunity.
(a) (i), (ii) and (iii) (b) (i), (iii) and (iv)
(c) (i) and (iv) (d) (i) and (iii)

177. Passive immunity can be conferred directly by
(a) vaccines (b) antitoxins
(c) colostrum (d) both (b) and (c)

178. Which form of pathogen is used in vaccination ?
(a) Activated and strong pathogenic antigens
(b) Inactivated and weakened pathogenic antigens
(c) Hyperactive and strong pathogen
(d) Preformed antibodies

179. The injection given against the snake venom contains
(a) antigenic proteins
(b) preformed antibodies
(c) attenuated pathogen
(d) all of these

180. Hepatitis B vaccine is produced from
(a) inactivated viruses
(b) yeast
(c) *Haemophilus influenza*
(c) *Salmonella typhmurium*

181. Use of vaccines and immunisation programmes have controlled which of the following infectious diseases ?
(a) Polio and tetanus
(b) Diphtheria and pneumonia
(c) Cancer and AIDS
(d) Both (a) and (b)

182. The most abundant antibody produced against allergens is
(a) IgE (b) IgA (c) IgG (d) IgM

183. The drugs used to quickly reduce the symptoms of allergy are
(a) anti-histamine and adrenaline
(b) histamine and thyroxine
(c) adrenaline and $\alpha-$interferon
(d) all of these

184. An auto-immune disease is
(a) SCID (b) rheumatoid arthritis
(c) myasthenia gravis (d) both (b) and (c)

185. The primary lymphoid organs are
(a) spleen and thymus
(b) bone marrow and thymus
(c) bone marrow and lymph node
(d) thymus and MALT.

SECTION - B

186. Which of the following statements regarding the disease typhoid is/are correct ?
(i) *Salmonella typhi* are the pathogenic bacteria which enter human intestine through contaminated food and water and migrate to other organs through blood.
(ii) Sustained high fever (39^oC *to* 40^oC), weakness, stomach pain, constipation, headache and loss of appetite are some common symptoms of typhoid.
(iii) Typhoid vaccine is available as DPT vaccine.
(iv) Widal test is used for diagnosis of typhoid fever.
(v) the patient of this diseases is not required to be treated with antibiotics.
(a) (i) and (ii) (b) (iii) and (v)
(c) (i), and (iv) (d) (i), (ii), (iii) and (iv)

187. Which of the following statements is incorrect ?
(a) Pneumonia can be transmitted to a healthy person by inhaling the droplets released by an infected person and also by sharing utensils.
(b) Pathogens causing pneumonia are *Streptococcus pneumoniae* and *Haemophilus influezae.*
(c) There is no vaccine yet available to prevent pneumonia.
(d) None of these

188. Read the following statements and select the correct option.
Statement-1 : Malarial parasite requires two hosts humans and mosquitoes to complete its life cycle.
Statement-2 : Haemozoin is a toxic substance produced by the rupturing of liver calles during malarial infection.
(a) Both statements 1 and 2 are correct.
(b) Statement 1 is corret but statement 2 is incorrect
(c) Statement 1 is incorrect but Statement 2 is incorrect.
(d) Both statement 1 and 2 are incorrect.

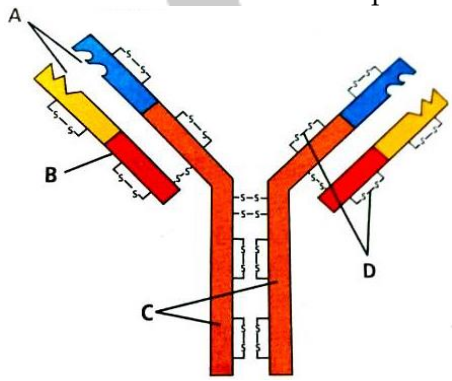
189. Read the following statements and select the correct option.
Statement 1 : Many fungi belonging to genera *Microsporum, Trichophyton and Epidermophyton* are responsible for the disease ringworm.
Statement 2 : Ringworm infection is generally acquired from soil or by using towels, clothes, comb,etc. of infected individuals.
(a) Both Statements 1 and 2 are correct.
(b) Statement 1 is correct but statement 2 is incorrect.
(c) Statement 1 is incorrect 1 and 2 are incorrect.
(d) Both statements 1 and 2 are incorrect

190. Match column I with column II and select the correct option from codes given below.

	Column I		Column II
A.	*Leishmania donovani*	(i)	Malaria
B.	*Wuchereria bancrofti*	(ii)	Amoebiasis
C.	*Trypanosoma gambiense*	(iii)	Kala azar
D.	*Entamoeba histolytica*	(iv)	Sleeping sickness
		(v)	Filariasis

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

191. Identify the making A, B, C and D in the figure given below and select the correct option.



(a) A-light chains, B-heavy chain, C-antigen binding sites, D-disulphide bonds
(b) A-disulphide bonds, B-antigen binding site, C-heavy chains, D-light chains
(c) A-antigen binding sites, B-light chain, C-heavy chains, D-disulphide bonds
(d) A-antigen binding sites, B-disulphide bonds, C-light chains, D-heavy chains

192. Following are the differences between innatge immunity and acquired immunity.

	Innate immunity	Acquired immunity
(i)	It is inherited by an organism from the parents and protects it from with throughout life.	It is acqirued by an organism after birth.
(ii)	It is also called as specific immunity	It is also called as non specific immunity.
(iii)	It consists of different types of barriers that prevent the entry of foreign agents.	It consist fo specialised cells (T-cells and B-cells and antibodies that circulate in the body fluid.)

Select the option with corret pair of differences.
(a) (i) and (ii) (b) (i) and (iii)
(c) (ii) and (iii) (d) (i), (ii) and (iii)

193. The term 'antitoxin' refers to a preparation containing
(a) B-lymphocytes and T-lymphocytes
(b) antibodies to the toxin
(c) weakend pathogen
(d) inactivated T-lymphocytes.

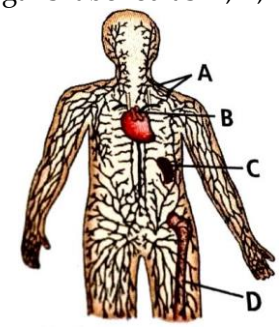
194. Read the following statements and select the correct ones.
(i) Vaccine is a preparation (or suspension) of a dead/attenuated pathogen of a disease which on inoculation (or injection) into a healthy person, provides temporary/permanent active immunity by inducing antibodies formation.
(ii) Immunisation is the process by which the body produces antibodies against the vaccine preventable diseases through administration of specific vaccines.
(iii) The principle of immunisation or vaccination is based on the property of 'memory' of the immune system.
(iv) If a person is infected with some deadly microbes to which quick immune response is required; In that case, we need to directly inject the preformed antibodies or antitoxins e.g., in case of tetanus.
(a) (i) and (ii) (b) (iii) and (iv)
(c) (i), (ii) and (iii) (d) (i) ,(ii) (iii) and (iv)

195. Read the following statements and select the correct option.
Statement -1 Active immunity is developed when a person's own cells produce antibodies in response to infection or vaccine.
Statement 2 : Injection of snake antivenom against snake bite is an example of active immunisation.
(a) Both statements 1 and 2 are correct.
(b) Statement 1 is corret but statement 2 is incorrect
(c) Statement 1 is incorrect but statement 2 is correct
(d) Both statements 1 and 2 are incorrect.

196. Read the following statements and select the correct option.
Statement 1 : When the immune system fails to recognise 'self' from 'nonself' and starts destroying body's own proteins, this leads to auto-immune diseases.
Statement -2 Addison's disease and rheumatoid arthritis are auto immune diseases.
(a) Both statements 1 and 2 are correct.
(b) Statement 1 is correct but statement 2 is incorrect.
(c) Statement 1 is incorrect but statement 2 is correct.
(d) Both statements 1 and 2 are incorrect.

197. The site where lymphocytes interact with antigens and proliferate to become effector cells are
(a) spleen and lymph nodes
(b) done marrow and thymus
(c) Peyer's patches and tonsils
(d) both (a) and (c).

198. Given below is the diagram of human lymphatic system, where A, B, C and D are lymphoid organs, Select incorrect option regarding the lymphoid organs labelled as A, B, C and D.



(a) T cells mature in B.
(b) B and T cells undergo maturation in C.
(c) B and T cells undergo proliferation and differentiation in A.
(d) B cells mature in D.

199. MALT is
(a) Muscle Associated Lymphoid Tissues
(b) Mucosal Associated Lymphoid Tissues
(c) Mucosal and Lymphoid Tissue
(d) Memory Associated

200. Read the following statements regarding spleen and select the correct option.
(i) Spleen is a large oval-shaped organ which mainly contains lymphocytes and phagocytes.
(ii) Spleen is a large reservoir of erythrocytes.
(iii) Spleen is a primary lymphoid organ.
(iv) Spleen acts as a filter of the blood by trapping blood borne microorganisms.
(a) (i) and (ii) (b) (ii) and (iv)
(c) (i), (ii) and (iii) (d) (i), (ii) and (iv)