1. Which of the following is incorrect regarding the first law of thermodynamics?
   a) It introduces the concept of the internal energy b) It introduces the concept of entropy
   c) It is applicable to any cyclic process d) It is a restatement of the principle of conservation of energy
2. Light of frequency 1.5 times the threshold frequency is incident on a photo sensitive material. What will be the photoelectric current if the frequency is halved the intensify is doubled _____
   a) 0 b) doubled c) four times d) one fourth
3. Two harmonic waves having same ω and k are travelling on a stretched string in the positive direction of X-axis. The waves have same amplitude but differ in their initial phase. The net displacement of the wave is given by :
   a) $y(x,t) = 2a\sin\left(kx - \omega t + \frac{\phi}{2}\right)$ b) $y(x,t) = 2a\cos\frac{\phi}{2}\sin\left(kx - \omega t + \frac{\phi}{2}\right)$ c) $y(x,t) = a\sin\left(kx - \omega t + \frac{\phi}{2}\right)$
   d) $y(x,t) = 2a\sin\frac{\phi}{2}\sin\left(kx - \omega t + \frac{\phi}{2}\right)$
4. The simple Bohr model cannot be directly applied to calculate the energy levels of an atom with many electrons. This is because
   a) of the electrons not being subject to a central force b) of the electrons colliding with each other
   c) of screening effects
   d) the force between the nucleus and an electron will no longer be given by Coulomb's law.
5. A cylindrical vessel is filled with water upto height H. A hole is bored in the wall at a depth h from the free surface of water. For maximum range, h is equal to
   a) H/4 b) H/2 c) 3H/4 d) H
6. Calculate the focal length of a reading glass of a person, if the distance of distinct vision is 75 crn.
   a) 75.2 cm b) 25.6 cm c) 100.4 cm d) 37.5 cm
7. A circular loop of radius R carrying a current I is placed in a uniform magnetic field B perpendicular to the loop. The force on the loop is
   a) 2πRIB b) $2\pi RI^2B^3$ c) πR^2IB d) zero
8. Two trains move towards each other with the same speed. The speed of sound is 340 m/s. If the height of the tone of the whistle of one of them heard on the other changes 9/8 times, then the speed of each train should be:
   a) 20 m/s b) 2 m/s c) 200 m/s d) 2000 m/s
9. In a reversible isochoric process:
   a) $\Delta W=0$ b) $\Delta Q=0$ c) $\Delta T=0$ d) $\Delta U=0$
10. If $\vec{a}$ and $\vec{b}$ are two vectors, then the value of $(\vec{a}+\vec{b}) \times (\vec{a}-\vec{b})$is:
    a) $\vec{a} \times \vec{b}$ b) $\vec{b} \times \vec{a}$ c) $-2(\vec{b} \times \vec{a})$ d) $2(\vec{b} \times \vec{a})$
11. A metal rod of length 10cm and a rectangular cross section of 1 cm x $\frac{1}{2}$ cm is connected to a battery across opposite faces. The resistance will be

a) maximum when the battery is connected across 1 cm x $\frac{1}{2}$ cm faces

b) maximum when the battery is connected across 10 cm x $\frac{1}{2}$ cm faces.

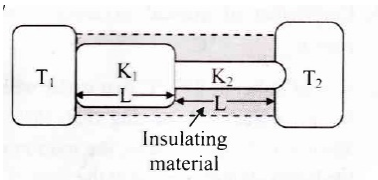
c) maximum when the battery is connected across 10 cm x $\frac{1}{2}$ crn faces

d) same irrespective of the three faces.

12. Angular momentum L and rotational kinetic energy K_R of a rigid body are related to each other by the relation. (I = moment of inertia)

a) $K_R = 2IL$ b) $K_R = \frac{L^2}{2I}$ c) $K_R = \frac{2I}{L}$ d) $K_R \frac{L^2}{I}$

13. Two conducting cylinders are connected in series with each other. They are kept between two heat baths at temperatures T_1 = 200 K and T_2 = 400 K as shown in the figure. Radius of the smaller cylinder is half the radius of bigger one, whereas, both of them have same length L. Thermal conductivities of the materials of the larger and the smaller cylinders are K_1 and K_2 respectively. In steady state, if temperature at the junction of the two cylinders is 300 K. then $\left(\frac{K_1}{K_2}\right)$ will be _____.



a) 0.13 b) 0.25 c) 0.15 d) 0.45

14. The equation of state for 5 g of oxygen at a pressure P and temperature 7, when occupying a volume V, will be:
a) PV = (5/16) RT b) PV = (5/32) RT c) PV = 5 RT d) PV = (5/2) RT

15. The magnetic moment of a short bar magnet placed with its magnetic axis at 30° to an external field of 900 G and experiences a torque of 0.02 N m is
a) 0.35 A m^2 b) 0.44 A m^2 c) 2.45 A m^2 d) 1.5 A m^2

16. Huygens' principle of secondary wavelets may be used to
a) find the velocity of light in vacuum. b) explain the particle's behaviour of light
c) find the new position of a wavefront d) explain photoelectric effect

17. A series combination ofrr, capacitors, each of value C_1 is charged by a source of potential difference 4V. When another parallel combination of n_2 capacitors, each of value C_2, is charged by a source of potential difference V, it has the same (total) energy stored in it, as the first combination has. The value of C_2, in terms of C_1, is then _____.

a) $\frac{2C_1}{n_1 n_2}$ b) $16\frac{n_2}{n_1}C_1$ c) $2\frac{n_2}{n_1}C_1$ d) $\frac{16C_1}{n_1 n_2}$

18. (A) In projectile motion, the angle between the instantaneous velocity and acceleration at highest point is 90°.
(R) At the highest point, velocity of projectile will be in horizontal direction only.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false. d) If both assertion and reason are false.
e) If assertion is false but reason is true.

19. Three needles N_1,N_2 and N_3 are made of a ferromagnetic, a paramagnetic and a diamagnetic substance respectively. A magnet, when brought close to them, will
a) attract N_1 strongly, but repel N_2 and N_3 weakly. b) attract all three of them.
c) attract N_1 and N_2 strongly but repel N_3 d) attract N_1 strongly, N_2 weakly and repel N_3 weakly

20. If a carnot engine is working between steam point and ice point, then its efficiency will be:

a) 24.9% b) 25.7% c) 26.8% d) 28.8%

21. A wire of length l meteres, made of a material of specific gravity 8 is floating horizontally on the surface of water. If it is not wet by water, the maximum diameter of the wire (in millimeters) up to which it can continue to float is: (surface tension of water is T = 70 x 10^{-3}N-m^{-1})
    a) 1.1 b) 0.75 c) 0.55 d) 1.5

22. The maximum current that can be measured by a galvanometer of resistance 40 Ω is 10 mA. It is converted into voltmeter that can read upto 50 V. The resistance to be connected in the series with the galvanometer is
    a) 2010 Ω b) 4050 Ω c) 5040 Ω d) 4960 Ω

23. In a nuclear fusion reaction, two nuclei, A & B, fuse to produce a nucleus C, releasing an amount of energy △E in the process. If the mass defects of the three nuclei are △ M_A , △ M_B & △ M_C respectively, then which of the following relations holds? Here, c is the speed of light.
    a) $\triangle M_A + \triangle M_B = \triangle M_C - \triangle E/C^2$ b) $\triangle M_A + \triangle M_B = \triangle M_C + \triangle E/C^2$ c) $\triangle M_A - \triangle M_B = \triangle M_C - \triangle E/C^2$
    d) $\triangle M_A - \triangle M_B = \triangle M_C + \triangle E/C^2$

24. A motor cyclist going round in a circular track at a constant speed has
    a) constant linear velocity b) constant acceleration
    c) acceleration of constant magnitude with its direction changing d) constant force

25. A source S_1 is producing 10^{15} photons per second of wavelength 5000 Å. Another source S_2 is producing 1.02 x 10^{15} photons per second of wavelength 5100 Å. Then, (power of S_2)1 (power of S_1) is equal to :
    a) 1.00 b) 1.02 c) 1.04 d) 0.98

26. The terminal velocity u of a small steel ball of radius r falling under gravity through a column of viscous liquid of coefficient of viscosity Il depends on mass of the ball m, acceleration due to gravity g, coefficient of viscosity Iland radius r. Which of the following relations is dimensionally correct?
    a) $v \propto \frac{mgr}{\eta}$ b) v ∝ mgηr c) $v \propto \frac{mg}{r\eta}$ d) $v \propto \frac{\eta mg}{r}$

27. A ball moving with velocity 2 m/s collides head on with another stationary ball of double the mass. If the coefficient of restitution is 0.5, then their velocities (in m/ s) after collision will be _____
    a) 0, 1 b) 1,1 c) 1, 0.5 d) 0, 2

28. The average kinetic energy of a gas molecule is:
    a) proportional to pressure of gas b) inversely proportional to volume of gas
    c) inversely proportional to absolute temperature of gas d) proportional to absolute temperature of gas

29. Which of the following is not showing the essential difference between electrostatic shielding by a conducting shell and magnetostatic shielding?
    a) Electrostatic field lines can end on charges and conductors have free charges.
    b) Magnetic field lines can end but conductors cannot end them.
    c) Lines of magnetic field cannot end on any material and perfect shielding is not possible.
    d) Shells of high permeability materials can be used to divert lines of magnetic field from the interior region.

30. Which of the following statements is not correct regarding conservation laws?
    a) A conservation law is a hypothesis based on observations and experiments.
    b) Conservation laws do not have a deep connection with symmetries of nature.
    c) A conservation law cannot be proved.
    d)
    Conservation of energy, linear momentum, angular momentum are considered to be fundamental laws of physics.

31. The velocity of light in air is 3 x 10^8 m s^{-1} and that in water is 2.2 x 10^8 m S^{-1}. The polarising angle of incidence is :
    a) 45° b) 50° c) 53.74° d) 63°

32. The electromagnetic radiations are caused by___
    a) a stationary charge b) uniformly moving charges c) accelerated charges d) All of the above

33. A body falling freely under gravity passes two points 30 m apart in 1 s. From what point above the upper point it began to fall? (Takeg= 9.8 m s^{-2}).
a) 32.1 m b) 16.0 m c) 8.6 m d) 4.0 m

34. The height at which the weight of a body becomes 1/6th, its weight on the surface of earth (radius R), is _____ .
a) 5R b) 15R c) 3R d) 4R

35. When light is refracted into a denser medium
a) its wavelength and frequency both increases
b) its wavelength increases but frequency remains unchanged .
c) its wavelength decreases -,but frequency remains the same
d) its wavelength and frequency both decreases

36. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :
Assertion: In the absence of an external electric field, the dipole moment per unit volume of a polardielectric is zero.
Reason : The dipoles of a polar dielectric are randomly oriented.
a) If both assertion and reason are true and reason is the correct explanation of assertion
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false d) If both assertion and reason are false

37. A current loop consists of two identical semicircular parts each of radius R, one lying in the x-y plane and the other in x-z plane. If the current in the loop is i, the resultant/? magnetic field due to the two semicircular parts at their common centre is _____ .
a) $\frac{\mu_0 i}{\sqrt{2}R}$ b) $\frac{\mu_0 i}{2\sqrt{2R}}$ c) $\frac{\mu_0 i}{2R}$ d) $\frac{\mu_0 i}{4R}$

38. In pure semiconductor, the number of conduction electrons is 6 x 10^{18} per cubic metre. How many holes are there in a sample of size 1 cm x 1 cm x 1 mm?
a) 3 x 10^{10} b) 6 x 10^{11} c) 3 X 10^{11} d) 6 x 10^{10}

39. A parachutist of weight W strikes the ground with his legs fixed and comes to rest with an upward acceleration of magnitude 3 g. Force exerted on him by the ground during landing is:
a) 2 W b) 3 W c) 4 W d) Zero

40. The minimum distance between an object and its real image formed by a convex lens is
a) 1.5 f b) 2 f c) 2.5 f d) 4 f

41. Which of the following properties of a wave is independent of others?
a) Velocity b) Frequency c) Amplitude d) Wavelength

42. Einstein work on the photoelectric effect provided support for the equation _____
a) E= hv b) E = mc^2 c) $E = -\frac{Rhc}{n^2}$ d) $K.E. = \frac{1}{2}mv^2$

43. The centre of mass of a body is defined as the point at which the whole of its mass is supposed to be concentrated, while centre of gravity of a body is defined as the point at which whole of its weight is supposed to be concentrated then:
a) the centre of gravity always coincides with the centre of mass
b) the centre of gravity may lie slightly below the centre of mass
c) the centre of gravity may lie slightly above the centre of mass d) none of the above

44. A packet of weight W is dropped with the help of a parachute and on striking the ground comes to rest with a retardation equal to twice the acceleration due to gravity. What is the force exerted on the ground?
a) W b) 2W c) 3W d) 4W

45. The bob of a simple pendulum of mass m and total energy E will have maximum linear momentum equal to:
a) $\sqrt{2E/m}$ b) $\sqrt{2mE}$ c) 2mE d) mE^2

46. Four cylinders contain equal number of moles of argon, hydrogen and carbon dioxide at same temperature.The energy is minimum in
a) argon b) carbon dioxide c) nitrogen d) hydrogen

47. The theory of refrigerator is based on:
a) Joule-Thomson effect b) Newton's particle theory c) Joules's effect d) none of the above

48. A solid sphere, disc and solid cylinder all of the same Thass and made of the same material are allowed to roll down (from rest) on the inclined palne, then_____
a) solid sphere reaches the bottom first b) solid sphere, reaches the bottom last
c) disc will reach the bottom first d) all reach the bottom at the same time

49. When two sound waves are superimposed, beats are produced when they have
a) Different amplitudes and phases b) Different velocities c) Different phases d) Different frequencies

50. If M_E is the mass of the earth and R_E its radius, the ratio of the acceleration due to gravity and the gravitational constant is
a) $\frac{R_E^2}{M_E}$ b) $\frac{M_E}{R_E^2}$ c) $M_E R^2_E$ d) $\frac{M_E}{R_E}$

51. The correct order of the packing efficiency in different types of unit cells is _____.
a) fcc < bcc < simple cubic b) fcc > bcc > simple cubic c) fcc < bcc > simple cubic d) bcc simple cubic

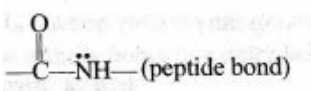
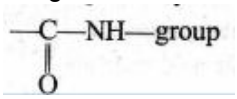
52. The kinetic energy of 1 mole of oxygen molecules in cal mol' at 27°C
a) 300 b) 600 c) 900 d) 800

53. Silicon is an important constituent of
a) sand b) atmosphere c) plants d) water bodies

54. Which of the following is not a use of baking soda?
a) In medicines as antacid b) As a component of baking powder
c) In removing permanent hardness of water d) In fire extinguishers

55. The reason for greater range of oxidation states in actinoids is attributed to :
a) The radioactive nature of actinoids b) Actinoid contraction
c) 5f, 6d and 7 is levels having comparable energies d) 4f and 5d levels being close in energies

56. When 2g of a gas A is introduced into an evacuated flask kept at 25°C. the pressure is found to be 1 atmosphere. If 3g of another gas is then added to the same flask, the total pressure becomes 1.5 atm. Assuming ideal behaviour, the ratio of their molecular weights $M_A : M_B$ is
a) 3 : 1 b) 1 : 3 c) 2 : 3 d) 3 : 2

57. For  Which statement is incorrect about peptide bond?
a) C-N bond length in proteins is longer than usual bond length of the C-N bond
b) Spectroscopic analysis shows planar structure of the 
c) C-N bond length in proteins is smaller than usual bond length of the C-N bond. d) None of the above

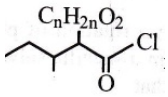
58. Assertion: Picric acid is a strong acid inspite of absence of carboxylic group.
Reason: Three $-NO_2$ groups in picric acid activate the phenolate ion.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false. d) If both assertion and reason are false.

59. A solution containing 10.2 g glycerine per litre is isotonic with a 2% solution of glucose. What is the molecular mass of glycerine?
a) 91.8 g b) 91.8 g c) 83.9 g d) 890.3 g

60. Jahn-Teller effect is not observed in high spin complexes of
a) d^7 b) d^8 c) d^4 d) d^9

61. The measurement of the electron position if associated with an uncertainty in momentum, which is equal to 1 x 10^{18} g cm s^{-1}. The uncertainty in electron velocity is, (mass of an electron is 9 x 10^{-28} g).
a) 1 x 10^{9} cms^{-1} b) 1 x 10^{6} cms^{-1} c) 1 x 10^{5} cms^{-1} d) 1 x 10^{11} cms^{-1}

62. The longest wavelength doublet absorption transition is observed at 589 and 589.6 nm. Energy difference between two excited states is :
a) 3.31 x 10^{-22} kJ b) 3.31 x 10^{-22} J c) 2.98 x 10^{-21} J d) 3.0 x 10^{-21} kJ

63. The IUPAC name of 

is
a) 1-chloro-1-oxo-2, 3-dimethyl pentane b) 2-ethyl-3-methylbutanoyl chloride
c) 2, 3-dimethylpentanoyl chloride d) 3, 4-dimethylpentanoyl chloride

64. Orbital angular momentum depends on _____
a) l b) n and l c) n and m d) m and s

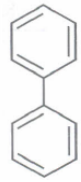
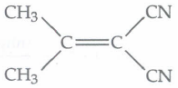
65. In acidic medium, $KMnO_4$ oxidises $FeSO_4$ solution. Which of the following statements is correct?
a) 10 mL of 1 N $KMnO_4$ solution oxidises 10 mL of 5 N $FeSO_4$ solution.
b) 10 mL of 1 M $KMnO_4$ solution oxidises 10 mL of 5 M $FeSO_4$ solution.
c) 10 mL of 1 M $KMnO_4$ solution oxidises 10 mL of 1 M $FeSO_4$ solution.
d) 10 mL of 1 N $KMnO_4$ solution oxidises 10 mL of 0.1 M $FeSO_4$ solution.

66. Which of the following does not apply to metallic bond?
a) Overlapping valence orbitals b) Mobile valence electrons c) Delocalised electrons
d) Highly directed bonds

67. An excess of $AgNO_3$ is added to 100 mL of a 0.01 M solution of dichlorotetraaquachromium (III) chloride. The number of moles of AgCl precipitated would be:
a) 0.003 b) 0.01 c) 0.001 d) 0.002

68. Assertion: According to de Broglie, the wavelengths associated with electrons and other subatomic particles can be detected experimentally.
Reason: The wavelength associated with any material particle is directly proportional to its mass.
a) If both assertion and reason are true and reason is the correct explanation of assertion
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false d) If both assertion and reason are false

69. Choose the option with correct words to fill in the blanks.
According to preferential discharge theory, out of number of ions the one which requires _____ energy will be liberated _____at a given electrode.
a) least, first b) least, last c) highest, first d) highest, last

70. In which of the following molecules, all atoms are coplanar?
a) 
b) 
c) 

d) 

71. Which one of the following statements about the zeolites is false?
a) They are used as cation exchangers
b) They have open structure which enables them to take up small molecules
c) Zeolites are aluminosilicates havinf three dimensional network
d) some of the SiO_4^{4-} units are replaced by AlO_4^{5-} and AlO_6^{9-} ions in zeolites

72. The main reason for showing anomalous properties of the first member of a group in s or p-block is
a) maximum chemical reactivity b) maximum electronegativity and different configurations
c) small size, large charge/radius ratio d) tendency to form multiple bonds

73. Which of the following pairs has elements containing same number of electrons in the outermost orbit?
a) N, O b) Na, Ca c) As, Bi d) Pb, Sb

74. The magnetic moment is associated with its spin angular momentum and orbital angular momentum. Spin only magnetic moment value of Cr^{3+} ion is

a) 2.87 B.M. b) 3.87 B.M. c) 3.47 B.M. d) 3.57 B.M.

75. Complete the following reactions:

(i) $SiO_2 + 2NaOH \longrightarrow X + H_2O$

(ii) $SiO_2 + 4HF \longrightarrow Y + 2H_2O$

(iii) $Si + 2CH_3Cl \xrightarrow[570\ K]{Cu\ powder} Z$

a)

X	Y	Z
Na_2SiO_3	SiF_4	$(CH_3)_2SiCl_2$

b)

X	Y	Z
H_2SiO_3	SiF_2	CH_3SiCl_3

c)

X	Y	Z
Na_2SiO_3	H_2SiO_3	$(CH_3)_3SiCl$

d)

X	Y	Z
Na_2SiO_3	H_2SiF_4	$(CH_3)_2SiCl_2$

76. Assertion: Magnesium metal is not used for the reduction of alumina in the metallurgy of aluminium.
Reason : MgO curve lies above Al_2O_3 curve in Ellingham diagram.

a) If both assertion and reason are true and reason is the correct explanation of assertion.

b) If both assertion and reason are true but reason is not the correct explanation of assertion

c) If assertion is true but reason is false. d) If both assertion and reason are false

77. When SO_1 is Passed in a solution of potassium iodate, the oxidation state of iodine changes from

a) + 5 to 0 b) + 5 to -1 c) -5 to 0 d) -7. to - 1

78. Eutrophication causes reduction in

a) Dissolved hydrogen b) Dissolved oxygen c) Dissolved salts d) All of the above

79. Which of the following products are not correctly matched in the given reactions?

a) $C_2H_5OCH_3 + HBr \xrightarrow{373K} C_2H_5OH + CH_3Br$ b) $C_2H_5OC_2H_5 + 2HI_{Excess} \longrightarrow C_2H_5I + C_2H_5OH$

c) $C_2H_5OC_2H_5 + HCl \xrightarrow{cold} [(C_2H_5)_2O^+H]Cl^-$ d) $(CH_3)_3COC_2H_5 \xrightarrow{HI} (CH_3)_3Cl + C_2H_5OH$

80. Which of the following metals does not show inert pair effect?

a) Thallium b) Gallium c) Indium d) Aluminium

81. What is the effect on chemical properties and physical properties of water when temperature is changed?

a) Chemical properties of water remain same but the physical state changes with change in temperature.

b) Chemical properties of water change with change in temperature but physical properties remain same.

c) There is no effect on chemical or physical properties of water when temperature is changed

d) Both chemical and physical properties of water change with change in temperature

82. Which of the following compounds has the highest boiling point?

a) $CH_3CH_2CH_2Cl$ b) $CH_3CH_2CH_2CH_2Cl$ c) $CH_3CH(CH_3)CH_2C$ d) $(CH_3)_3CCl$

83. Which of the following statements is not true about glucose?

a) It is an aldohexose. b) On heating with HI it forms n-hexane. c) It is present in furanose form.

d) It does not give 2, 4-DNP test.

84. H_2O is polar, whereas BeF_2 is not because :

a) The electronegativity of F is greater than that of O

b) H_2O involves hydrogen bonding whereas BeF_2 is a discrete molecule c) H_2O is linear and BeF_2 is angular

d) H_2O is angular and BeF_2 is linear

85. The kinetic energy of the electron is:

a) 3.4 eV b) 5.1 eV c) 13.6 eV d) 10.2 eV

86. A gas is said to behave like an ideal gas when the relation $\frac{PV}{T}$ =constant. When do you expect a real gas to behave like an ideal gas?

a) When the temperature is low b) When both the temperature and pressure are low

c) When both the temperature and pressure are high d) When the temperature is high and pressure is low

87. 20.0 gm of a magnesium carbonate sample decomposes on heating to give carbon dioxide and 8.0 gm magnesium oxide. What will be the percentage purity of magnesium carbonate in the sample? (At. wt. of Mg = 24)
a) 96 b) 60 c) 84 d) 75

88. Which of the following are basic oxides?
Mn_2O_7, V_2O_3, V_2O_5, CrO, Cr_2O_3
a) Mn_2O_7 and V_2O_3 b) V_2O_3 and CrO c) CrO and Cr_2O_3 d) V_2O_5 and V_2O_3

89. A sequence of how many nucleotides in messenger RNA makes a codon for an amnion acid?
a) Three b) Four c) One d) Two

90. The anomeric carbon in D(+) glucose is:
a) C-1 carbon b) C-2 carbon c) C-5 carbon d) C-6 carbon

91. Inductive effect involves
a) displacement of a-electrons resulting in polarisation
b) displacement of 1t-electrons resulting in polarisation c) delocalisation of a-electrons
d) delocalisation of π-electrons

92. Which of the following will not act as a tranquilizer?
a) Equanil b) Analgin c) Meprobamate d) Chlordiazepoxide

93. On the basis of the following E^0 values, the strongest oxidising agent is :
$[Fe(CN)_6]^{4-} \longrightarrow [Fe(CN)_6]^{3-} + e^-$, $E^0 = -0.35$ V
$Fe^{2+} \longrightarrow Fe^{3+} + e^-$, $E^0 = -0.77$ V
a) $[Fe(CN)_6]^{4+}$ b) Fe^{2+} c) Fe^{3+} d) $[Fe(CN)_6]^{3-}$

94. Assertion: Glass panes fixed to windows or doors of old buildings are slightly thicker at the bottom than at the top.
Reason : Glass is a pseudo solid or supercooled liquid.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false. d) If both assertion and reason are false

95. One mole of acidified $K_2Cr_2O_7$ on reaction with excess KI will liberate mole(s) of I_2
a) 3 b) 1 c) 7 d) 2

96. Pair of elements with equal values of electronegativity
a) Be, Al b) Mg, Al c) Mg, Ca d) F, Ne

97. A compound (X) having molecular formula $C_4H_8O_2$ is hydrolysed by water in presence of an acid to give a carboxylicacid (Y) and an alcohol (Z). (Z) on oxidation with chromic acid gives (Y), (X), (Y) and (Z) are:

a)

X	Y	Z
CH_3COOCH_3	CH_3COOH	CH_3OH

b)

X	Y	Z
$CH_3COOC_2H_5$	CH_3COOH	C_2H_5OH

c)

X	Y	Z
$C_2H_5COOCH_3$	C_2H_5COOH	C_2H_5OH

d)

X	Y	Z
$CH_3COOC_2H_5$	C_2H_5COOH	CH_3OH

98. Mark the correct statements
(i) Mercury can be refined by the process of distillation.
(ii) In poling, the molten impure metal is stirred with green poles of wood.
(iii) In electrolytic refining of metals, impure metal is made as cathode and a thin strip of pure metal is made as anode
a) (i) and (ii) b) (i) and (iii) c) (ii) and (iii) d) (i), (ii) and (iii)

99. Iron can be obtained by reduction of iron oxide (Fe_3O_4)With CO according to the reaction;
$Fe_3O_4 + 4CO \rightarrow 3Fe + 4CO_2$
How many kg of Fe_3O_4 should be heated with CO to get 3 kg of iron?
a) 8.12 kg b) 4.14 kg c) 6.94 kg d) 16.8 kg

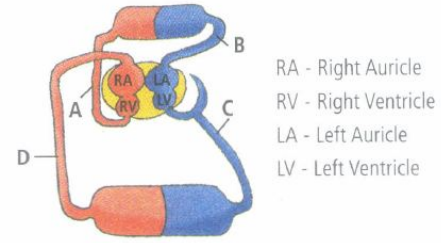
100. Which of the following sets of quantum numbers is correct for an electron in 4f orbital?

a) n = 4, l= 3, m = + 4, s = +1/2 b) n = 3, l= 2, m = -2, s = +1/2 c) n = 4, l= 3, m = + 1, s = + 1/2
d) n = 4, l= 0, m_1 = 0, m_s = + 1/2

101. Which of the following hormones is not a polypeptide?
a) LH b) FSH c) Insulin d) Thyroxine

102. Competition for light, nutrients and space is most severe between _____ .
a) closely related organisms growing in different niches
b) closely related organisms growing in the same area/ niche
c) distantly related organisms growing in the same habitat
d) distantly related organisms growing in different niches

103. In the figure given below, which blood vessel represents vena cava?



a) C b) D c) A d) B

104. Two neurons, A and B, synapse onto a third neuron, C. If neurotransmitter from A opens ligand-gated channels permeable to Na+ and K+ and neurotransmitter from B opens ligand-gated Cl- channels, which of the following statements is true?
a) An action potential in neuron A causes a depolarisation in neuron B.
b) An action potential in neuron B causes a depolarisation in neuron C.
c) Simultaneous action potentials in A and B will cause hyperpolarisation of neuron C.
d)
Simultaneous action potentials in A and B will cause less depolarisation of neuron C than if only neuron A fired an action potential.

105. Select the option that correctly identifies A, B and C in the given table

Organism	Trophic	Food Chain
Eagle	A	Grazing
Earthworm	Primary consumer	B
Frog	C	Grazing

a)

A	B	C
Top carnivore	Detritus	Secondary consumer

b)

A	B	C
Top carnivore	Detritus	Primary consumer

c)

A	B	C
Secondary consumer	Grazing	Secondary consumer

d)

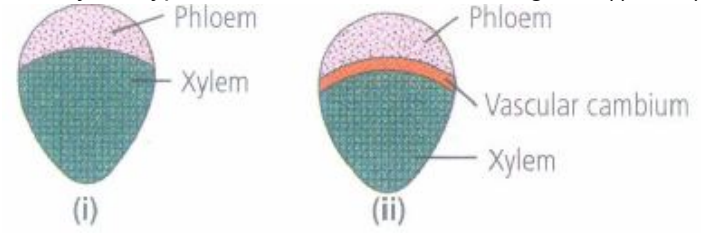
A	B	C
Scavanger	Grazing	Producer

106. Gymnosperms are also called soft wood spermatophytes because they lack:
a) Thick walled tracheids b) Xylem fibres c) Cambium d) Phloem fibres

107. Assertion : The type B spermatogonia are called primary spermatocytes.
Reason : Primary spermatocytes complete the first meiotic division leading to secondary spermatocytes.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false. d) If both assertion and reason are false.

108. Which one of the following statements in more dilute urine which one of the following statements in regard to the excretion by the human kidneys is correct?
a) Nearly 99% of the glomerular filtrate is reabsorbed by the renal tubules
b) Ascending limb of the loop of Henle is impermeable to electrolytes.
c) Descending limb of loop of Henle is impermeable to water
d) Distal convoluted tubule is incapable of reabsorbing HCO_3

109. Identify the types of vascular bundle in the figures (i) and (ii) and select the correct option.



a)

(i)	(ii)
Conjoint collateral	Conjoint bicollateral

b)

(i)	(ii)
Conjoint bicollateral	Conjoint collateral

c)

(i)	(ii)
Conjoint collateral closed	Conjoint collateral open

d)

(i)	(ii)
Conjoint collateral open	Conjoint collateral closed

110. Which one of the following pairs of animals comprises jawless fishes?
a) Mackerals and Rohu b) Lampreys and hagfishes c) Guppies and hagfishes d) Lampreys and eels.

111. In virus-infected plants the meristematic tissues in both apical and axillary buds are free of virus because
a) the dividing cells are virus resistant b) meristems have anti viral compounds
c) the cell division of meristems are faster than the rate of viral multiplication
d) viruses cannot multiply within meristem cell(s).

112. Various types of movements are generated by the_____layer of the small intestine
a) serosa b) muscularis c) mucosa d) submucosa

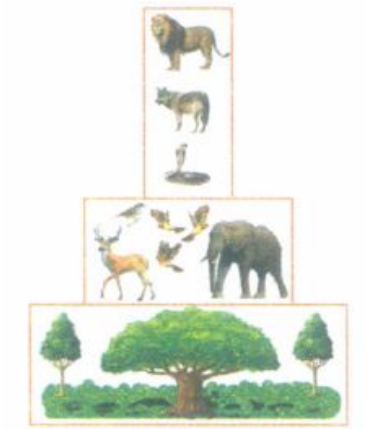
113. Match column I with column II and select the correct option from the codes given below.

Column I	**Column II**
A. Delivers blood to glomerulus	(i) Ascending and descending limbs
B. Carries urine to pelvis	(ii) Renal artery
C. Collects filtrate from Bowman's capsule	(iii) Collecting duct
D. Loop of Henle	(iv) PCT

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

114. If for some reason the parietal cells of the gut epithelium become partially non-functional, what is likely to happen?
a) The pancreatic enzymes and specially the trypsin and lipase will not work efficiently
b) The pH of stomach will fall abruptly. c) Steapsin will be more effective.
d) Proteins will not be adequately hydrolysed by pepsin into proteoses and peptones.

115. What kind of pyramid is represented by the given figure ?



a) Pyramid of numbers in a forest ecosystem. b) Pyramid of numbers in a parasitic food chain.
c) Pyramid of biomass in a forest ecosystem. d) It is a wrong pyramid.

116. Algae have cell wall made up of:
a) Cellulose, hemicellulose and pectins b) Cellulose, galactans and mannans
c) Hemicellulose, pectins and proteins d) Pectins, cellulose and proteins

117. What occurs in point mutaion?
a) Change in single base pair in DNA b) Change in single base pair in RNA
c) Change in double base pair in DNA d) Change in double base pair in RNA

118. The given organism belongs to Class

a) Phycomycetes b) Basidiomycetes c) Ascomycetes d) Deuteromycetes.

119. Harmful activity of Blue green algae is:-
a) Denitrification b) Water-bloom c) Increase alkalinity of soil d) Decrease fertility of soil

120. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is:
a) autosomal dominant b) autosomal recessive c) sex-linked dominant d) sex-linked recessive

121. Vegetative propagation in Pistia occurs by :
a) Stolon b) Offset c) Runner d) Sucker

122. Which one of the following correctly describes the location of same body parts in the earthworm Pheretima?
a) Four pairs of spermathecae in 4-7 segments
b) One pair of ovaries attached at inter segmental septum of 14th and 15th segments
c) Two pairs of testes in 10th and 11th segments d) Two pairs of accessory glands in 16th -18th segements

123. The function of intracellular membrane is not to
a) establish a number of compartments within the cell
b) provide for the neat spatial organisation of enzymes and pigments
c) keep the cell rigidity so that it does not collapse
d) provide a system of channel for the distribution of nutrients within the cell

124. When adventitious roots are shallow surface feeders then they are known as
a) Tuberous root b) Prop root c) Fibrous root d) Conial root

125. Human population growth in India____
a) tends to follow a sigmoid curve as in case of many other animal species
b) tends to reach zero population growth as in case of some animal species
c) can be reduced by permitting natural calamities and enforcing birth control measures
d) can be regulated by following the National programme of family planning

126. Tetradynamous stamens and cruciform corolla are characteristic features of
a) Solanum tuberosum (Potato) b) Abelmoscus esculentus (Lady finger) c) Ochroma lagopus (Balsa)
d) Brassica campestris (Mustard)

127. Eustachian tube is a passage connecting the
a) inner ear with pharynx b) eye with nose c) middle ear with pharynx d) middle ear with eye

128. When peacock, eats snake which eats insects depends on green plants, the peacock is -
a) a primary consumers b) a primary decomposer c) a final decomposer of plants
d) the apex of the food pyramid

129. If an organism's body pattern resembles its environment making it difficult to spot, it is called as
a) camouflage b) mimicry c) warning colouration d) both (a) and (b)

130. On the rocky sea coasts of Scotland, the larger and competitively superior barnacle Balanus dominates the intertidal area and excludes the smaller barnacle Chathamalus from that zone.
Which kind of interaction is being depicted by this example?
a) Predation b) Parasitism c) Commensalism d) Competition

131. Site of EMP pathway in eukaryotes is
a) Inner mitochondrial membrane b) Cytoplasm c) Mitochondrial matrix d) Both (2) & (3)

132. How many sperms are formed from 4 primary spermatocytes?
a) 4 b) 1 c) 16 d) 32

133. Which one of the following conditions correctly describes the manner of determining the sex in the given example?
a) Homozygous sex chromosomes (ZZ) determine female sex in Birds.
b) XO type of sex chromosomes determine male sex in grasshopper
c) XO condition in humans as found in Turner syndrome, determines female sex.
d) Homozygous sex chromosomes (XX) produce male in Drosophila

134. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :
Assertion: Biofertilisers are preferred to chemical fertilisers.
Reason: Chemical fertilisers are generally more expensive and hazardous to environment.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false d) If both assertion and reason are false

135. The common bile duct in human is formed by the joining of
a) pancreatic duct and bile duct b) cystic duct and hepatic duct c) cystic duct and pancreatic duct
d) hepatic duct and pancreatic duct.

136. Succession stages that occur on a bare rock are called
a) Psammosere b) Hydrosere c) Lithosere d) Halosere

137. Which of the following is under the direct control of neurosecretory cells?
a) Pars distalis and pars intermedia b) Pars intermedia and pars nervosa c) Pars nervosa only
d) Pars distalis only

138. During which phase(s) of cell cycle, amount of DNA in a cell remains at 4C level if the initial amount is denoted as 2C?
a) G_0 and G_1 b) G_1 and S c) Only G_2 d) G_2 and M

139. What is true of ecosystem?
a) Primary consumers are least dependent upon producers b) Primary consumers out-number producers
c) Producers are more than primary consumers d) Secondary consumers are the largest and most powerful

140. Which of the following features is used to identify a male cockroach from a female cockroach?
a) Forewings with darker tegmina b) Presence of caudal styles
c) Presence of boat shaped sternum on the 9th abdominal of anal cerci d) Presence of anal cerci

141. Water will move from the root hair through cortex if the water potentials are:

a)

Root hair	Cortex	Xylem
0	0	0

b)

Root hair	Cortex	Xylem
-2	-1	0

c)

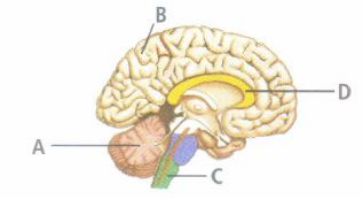
Root hair	Cortex	Xylem
0	-1	-2

d)

Root hair	Cortex	Xylem
0	-1	+2

142. Which of the following hormones can play a significant role in osteoporosis?
a) Estrogen and parathyroid hormone b) Progesterone and aldosterone c) Aldosterone and prolactin
d) Parathyroid hormone and prolactin

143. Which labelled part controls the process of breathing?



a) A b) B c) C d) D

144. Mango juice is got from _____ .

a) Epicarp b) Mesocarp c) Endocarp d) Pericarp and thalamus

145. Select the incorrect match with respect to the plant and the relative plant part modified for food storage
a) Lathyrus odoratus (Sweet potato) - Root b) Solanum tuberosum (Potato) - Stem
c) Allium cepa (Onion) - Leaves d) Dahlia (Dahlia) -Leaves

146. **Assertion:** In molluscs, feather-like gills are present in mantle cavity.
Reason: These gills have respiratory and excretory functions.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false. d) If both assertion and reason are false.

147. Which of the following contains the key tools for recombinant DNA technology?
(i) Restriction endonucleases, ligases, vectors
(ii) Ligases, host organism, polymerase enzymes
(iii) Vectors, Taq polymerase, primers
(iv) Restriction exonucleases, ligases, primers, bioreactors
a) (i), (ii) and (iii) b) (i) and (ii) c) (i), (iii) and (iv) d) (iii) and (iv)

148. **Assertion:** Electrical synapses are rare in our system.
Reason: Impulse transmission across an electrical synapse is slower than that across a chemical synapse.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false. d) If both assertion and reason are false.

149. From among the situations given below, choose the one that prevents both autogamy and geitonogamy.
a) Monoecious plant bearing unisexual flowers b) Dioecious plant bearing only male or female flowers
c) Monoecious plant with bisexual flowers. d) Dioecious plant with bisexual flowers.

150. Motor vehicles equipped with catalytic converter are advised to use unleaded petrol because
a) lead is a heavy metal b) lead causes inactivation of catalyst c) lead decreases the efficiency of vehicle
d) lead increases burning of petrol.

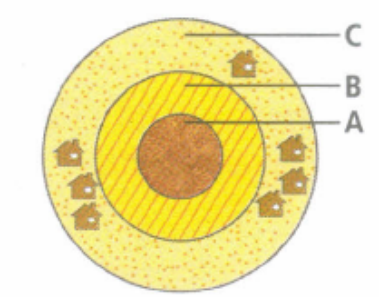
151. Identify the following animals and the classes to which they belong.

a) A-Salamandra, Amphibia; B-Ghelone, Reptilia; C-Chameleon, Reptilia
b) A-Salamandra, Reptilia; B-Ghelone, Reptilia; C-Chameleon, Reptilia
c) A-Salamandra, Amphibia; B-Ghelone, Amphibia; C-Chameleon, Amphibia
d) A-Salamandra,Urochordata; B-Ghelone, Cephalochordata; C-Chameleon, Hemichordata

152. An outer covering membrane is absent over _____ .
a) Nucleolus b) Lysosome c) Mitochondrion d) Plastids

153. Escherichia coli is used extensively in biological research as it is _____ .
a) Easily cultured b) Easily available c) Easy to handle d) Easily rnultiplied in host

154. Refer to the given figure representing different zones of a biosphere reserve.



Choose the correct answer as per the statements given below.
(i) Limited human activity is allowed such as for research and education.

(ii) An active co-operation occurs between reserve management and local people for activities like cropping, settlements, etc.

(iii) No human activity is allowed.

a)

(i)	(ii)	(iii)
A	B	C

b)

(i)	(ii)	(iii)
B	C	A

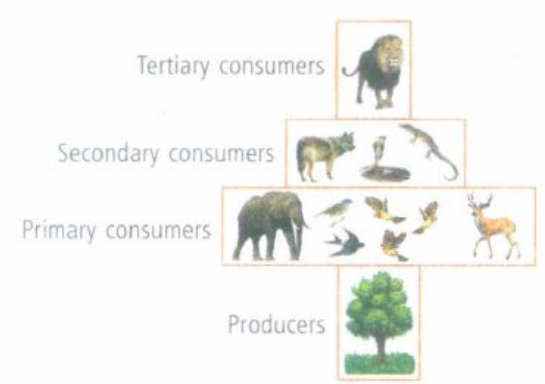
c)

(i)	(ii)	(iii)
C	A	B

d)

(i)	(ii)	(iii)
C	B	A

155. The given pyramid best represents



a) pyramid of energy in forest ecosystem b) pyramid of biomass in forest ecosystem

c) pyramid of numbers in grassland ecosystem d) pyramid of numbers in forest ecosystem.

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

Column I	Column I
A. Family	(i) Diptera
B. Order	[ii) Arthropoda
C. Class	(iii) Muscidae
D. Phylum	(iv) Insecta

a)

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

b)

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

c)

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

d)

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

157. In a ring girdled plant :

a) The root dies first b) The shoot and root die together c) Neither root nor shoot will die

d) The shoot dies first

158. Which one of the following blood groups is not possible in children from parents with combination B x AB?

a) A b) B c) AB d) O

159. A couplet in a key is

a) each statement in the key b) contrasting characters in a pair c) rejection of a statement

d) none of these.

160. Linnaeus described 5900 species of plants in his book _____ (1753) and 4326 species of animals in his book_____ (1758).

a) Philosophia Botanica, Genera Plantarum b) Historia Naturalis, Species Plantarum

c) Systema Naturae, Species Plantarum d) Species Plantarum, Systema Naturae

161. The chemical test that is used for diagnosis of typhoid is

a) ELISA-Test b) ESR- Test c) PCR- Test d) Widal-Test

162. Amitosis usually occurs in

a) eukaryotic cells b) prokaryotic cells c) meristems d) spore mother cells.

163. The products resulting from atmospheric reactions of hydrocarbons and nitrogen oxides in the presence of sunlight are called

a) Primary pollutant b) Secondary pollutant c) Tertiary pollutant d) Non-pollutant

164. Which of the following crops have been brought to India from new world?

a) Cashewnut, Potato, rubber b) Mango, tea c) Tea, rubber, mango d) Coffee

165. Myoglobin is present in
a) all muscle fibres b) white muscle fibres c) red muscle fibres d) none of these

166. Whartson's duct is associated with_____
a) sub-lingual salivary duct b) parotid salivary gland c) sub-maxillary salivary gland d) Brunner's glands

167. Strobilanthus kunthiana differs from bamboo in
a) being monocarpic b) length of juvenile phase c) being polycarpic d) none of these

168. Select what is not true of intestinal villi among followings.
a) They possess microvilli. b) They increase the surface area
c) They are supplied with capillaries and the lacteal vessels. d) They only participate in digestion of fats.

169. Which one of these animals is not a homeotherm ?
a) Camelus b) Cheone c) Macropus d) Psittacula

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

Column I	Column II
A. α-l-antitrypsin	(i) AIDS
B. Transposon	(ii) Gene therapy
C. ELISA	(iii) Emphysema
D. Retroviral vector	(iv) Mobile genetic element

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

171. Which of the following hormones is/are stored in herring bodies?
a) Both (2) & (3) b) Somatocrinin c) Vqassopressin d) Oxytocin

172. The specialised cells that make the musclar tissue are:
a) Neuroblast b) Osteoblast c) Osteocytes d) Myocytes

173. HJ Muller was awarded Nobel Prize for his____
a) discovery that chemicals can induce gene mutations
b) discovery that ionizing radiations can induce gene mutations c) work on gene mapping in Drosophila
d) efforts to prevent the use of nuclear weapons

174. Incorrect Statement in relation to the artificial system of classification is
a) Used only grass morphlogical characters
b) Based mainly on vegetative characters or androrcium Structure
c) Gave more preference to Sexual characterstics
d) Separated closely related species as they were based on a few charccters

175. **Assertion:** The final stage of meiotic prophase I is diplotene.
Reason: Diplotene is marked by terminalisation of chiasmata.
a) If both assertion and reason are true and reason is the correct explanation of assertion
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false d) If both assertion and reason are false

176. When temperature decreases, oxy-Hb curve becomes:
a) more steep b) straight c) parabola d) none of these.

177. Catalytic converters, which are fitted into automobiles for reduonq the emission of poisonous gases possess which of the following metals as catalyst?
a) Platinum-Palladium b) Rhodium c) Lead d) Both (a) and (b)

178. What is common between earthworm and Periplaneta?
a) Both have red coloured blood. b) Both possess anal styles. c) Both have Malpighian tubules
d) Both have segmented body.

179. Stirred-tank bioreactors have advantages over shake flasks because they
a) provide high temperature and pH b) provide better aeration and mixing properties
c) do not allow the entry of CO_2 d) are easy to operate.

180. Select the pair which does not match.
a) Coacervates-Aggregates of organic compounds separated by an organic membrane
b) Lamarck -Species are not immutable c) Allopatric speciation -Separated by space
d) Darwin's finches-Unique to Galapagos

181. The body having meshwork of cells, internal cavities lined with food filtering flagellated cells and indirect development are the characteristics of phylum:
a) Coelenterata b) Porifera c) Mollusca d) Protozoa

182. Which of the following statements is/are incorrect?
(i) Cyanobacteria are autotrophic microbes widely distributed in aquatic and terrestrial habitats
(ii) Anabaena, Nostoc and Oscillatoria are photosynthetic N_2 - fixing cyanobacteria
(iii) Tolypothrix (BGA) can increase rice production by about 20%.
(iv) BGA add organic matter to the soil and increase its fertility.
(v) In our country, biofertilisers are not available commercially in the markets for farmers.
a) (v) Only b) (iv) Only c) (iii) Only d) None of these

183. Choose the correct pair from the following.
a) Nucleases - Separate the two strands of DNA
b) Exonucleases - Make cuts at specific positions within DNA c) Ligases - Join the two DNA molecules
d) Polymerases - Break the DNA into fragments

184. Test cross is crossing between:
a) Genotype with dominant trait b) Genotype with recessives trait c) F1 hybrid with double recessive
d) Two F1 hybrids

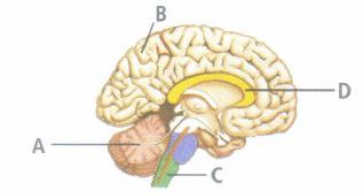
185. Assertion: In some leguminous plants, the leaf base is swollen.
Reason: The swollen leaf base is called pulvinus.
a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false. d) If both assertion and reason are false

186. Finely dissected leaf may be an adapta
a) xerophytes b) psammophytes c) halophytes d) hydrophytes

187. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as :
Assertion: As per carbonic acid exchange theory of mineral salt absorption, CO_2 released during respiration of roots forms H_2CO_3 when dissolved in soil water.
Reason: H_2CO_3 dissociates into H^+ and HCO_3 ions, where H^+ ions exchange with anions adsorbed on clay particles.
a) If both assertion and reason are true and reason is the correct explanation of assertion
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false. d) If both assertion and reason are false

188. Which of the following pairs, is correct matched?
a) Hinge joint - between vertebrae b) Gliding joint - between zygapophyses of the successive vertebrae
c) Cartilaginous - skull bones joint d) Fibrous joint - between phalanges

189. Which of the following functions is performed by the part labelled 'C' in the given figure?



a) Regulation of body temperature b) Regulation of gastric secretions c) Learning d) Maintaining posture

190. Microbial insecticide is:
a) Bacillus polymixa b) Bacillus subtillo c) Bacillus subtillo d) Bacillus thuringenesis

191. World's most problematic aquatic weed is:
a) Azalia b) Walffia c) Eichharnia d) Trapa

192. Consider the following four statements (i) - (iv) and select the correct option.
(i) Fish heart contains only oxygenated blood.
(ii) Closure of A-V valves produces the second heart sound
(iii) The vascular connection between the digestive tract and kidney is called hepatic portal system.
(iv) Purkinje fibres are nerve fibres present in the heart wall.

a)

(i)	(ii)	(iii)	(iv)
F	F	T	F

b)

(i)	(ii)	(iii)	(iv)
F	F	F	T

c)

(i)	(ii)	(iii)	(iv)
T	T	F	T

d)

(i)	(ii)	(iii)	(iv)
T	F	T	F

193. Read the following statements and select the correct option.
Statement 1: The stem tubers are the swollen ends of specialised underground stem branches, which help in vegetative propagation of the plant
Statement 2: Solanum tuberosum is an example of a stem tuber which stores inulin as the main reserve food material.
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)
Ficus benghalensis, Pisstem tuber is an oval or spherical underground swollen stem structure which does not bear adventitious roots, e.g., potato (Solanum tuberosum), Jerusalem artichoke (Helianthus tuberosus). Food reserve is starch in potato and inulin in artichokeum sativum

194. Which bone is keystone of the cranial floor?
a) Parietal b) Occipital c) Sphenoid d) Frontal

195. The chances of contracting, bird flu from a property Cooked (above 100^{o}C) chicken and eggs are:
a) Very high b) High c) Moderate d) None of these

196. Red green colourblindness is a sex linked trait. Which of the given statements is not correct regarding colourblindness?
a) It is more common in males than in females.
b) Homozygous recessive condition is required for the expression of colourblindness in females.
c) Males can be carriers of the trait.
d) Colourblind women always have colourblind father and always produce colourblind son.

197. Autumn wood can be differentiated from spring wood by
a) Broad vessels and tracheids b) Narrow vessels and tracheids c) Red colour of xylem d) Cambium

198. The prickly pear cactus became unusually abundant after its introduction in Australia, because it
a) had no coevolved herbivores b) formed new mycorrhizal association c) lost its thorns d) all of these

199. Bark does not include
a) secondary xylem b) secondary phloem c) periderm d) both (a) and (b).

200. A human female reaches menopause around the age of
a) 50 years b) 15 years c) 70 years d) 25 years.