



Corporate Office: Aakash Tower, 8, Pusa Road, New Delhi-110005, Phone : 011-47623456

MM : 720 **NEET 720-MOCK TEST SERIES for NEET-2022** Time : 3 Hrs.  
**MOCK TEST - I**

**Complete Syllabus of NEET**

**Instructions:**

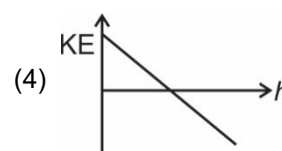
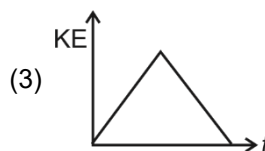
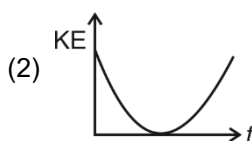
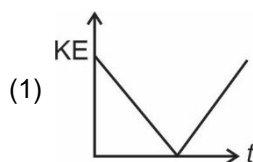
- There are two sections in each subject, i.e. Section-A & Section-B. You have to attempt all 35 questions from Section-A & only 10 questions from Section-B out of 15.
- Each question carries 4 marks. For every wrong response 1 mark shall be deducted from the total score. Unanswered / unattempted questions will be given no marks.
- Use blue/black ballpoint pen only to darken the appropriate circle.
- Mark should be dark and completely fill the circle.
- Dark only one circle for each entry.
- Dark the circle in the space provided only.
- Rough work must not be done on the Answer sheet and do not use white-fluid or any other rubbing material on the Answer sheet.

**PHYSICS**

**Choose the correct answer:**

**SECTION-A**

- Identify the vector quantity among the following  
 (1) Distance (2) Heat  
 (3) Angular momentum (4) Energy
- Distance travelled by a particle starting from rest and moving with an acceleration of  $\frac{4}{3} \text{ ms}^{-2}$ , in third second is  
 (1)  $\frac{10}{3} \text{ m}$  (2)  $\frac{19}{3} \text{ m}$   
 (3) 4 m (4) 6 m
- A ball is projected vertically up with an initial velocity. Which of the following graph represent KE of ball?



- A ball is projected from ground at angle  $\theta$  with the horizontal. After  $t = 1 \text{ s}$ , it is moving at  $45^\circ$  with the horizontal and after  $t = 2 \text{ s}$ , it is moving horizontally. What is speed of projection of ball? [ $g = 10 \text{ m s}^{-2}$ ]  
 (1)  $10\sqrt{2} \text{ m/s}$  (2)  $10\sqrt{3} \text{ m/s}$   
 (3) 20 m/s (4)  $10\sqrt{5} \text{ m/s}$
- In the equation of angular displacement of a particle moving on a circular path is given as  $\theta = 2t^3 + 0.5$ ,  $\theta$  is in radian and  $t$  in second. The angular velocity of the particle at  $t = 2 \text{ s}$  is  
 (1) 16.5 rad/s (2) 19.5 rad/s  
 (3) 24 rad/s (4) 12 rad/s

6. Bullets of 0.03 kg mass each hit a plate at a rate of 200 bullets per second with velocity of 50 m/s and reflect back with velocity of 30 m/s. The average force acting on the plate in newton is  
 (1) 120 (2) 180  
 (3) 480 (4) 245
7. A block rests on an inclined plane making an angle of  $30^\circ$  with the horizontal. The coefficient of static friction between block and the plane is 0.8. If the frictional force on the block is 10 N, then mass of block (in kg) (Take  $g = 10 \text{ m/s}^2$ )  
 (1) 2.0 (2) 2.5  
 (3) 4.0 (4) 1.5
8. A mass of 1 kg is suspended by a thread. It is lifted up with an acceleration of  $4.9 \text{ m s}^{-2}$ , and then lowered with an acceleration of  $4.9 \text{ m s}^{-2}$ . The ratio of tensions in first case to second cases is ( $g = 9.8 \text{ ms}^{-2}$ )  
 (1) 2 : 1 (2) 1 : 1  
 (3) 3 : 1 (4) 1 : 3
9. A particle moves along x axis from  $x = 1 \text{ m}$  to  $x = 3 \text{ m}$  under the effect of the force  $F = 3x^2 - 2x + 5 \text{ N}$ . Work done in process is  
 (1) 24 J (2) 38 J  
 (3) 18 J (4) 28 J
10. In stable equilibrium position, a body has  
 (1) Maximum potential energy  
 (2) Minimum potential energy  
 (3) Minimum kinetic energy  
 (4) Neither maximum nor minimum potential energy
11. Two bodies of mass 10 kg and 2 kg are moving with velocities  $(2\hat{i} - 7\hat{j} + 3\hat{k}) \text{ m/s}$  and  $(-10\hat{i} + 35\hat{j} - 3\hat{k}) \text{ m/s}$  respectively. The velocity of their centre of mass is  
 (1)  $2\hat{i} \text{ m/s}$   
 (2)  $2\hat{k} \text{ m/s}$   
 (3)  $4\hat{i} + 2\hat{j} \text{ m/s}$   
 (4)  $6\hat{i} + 2\hat{j} - 3\hat{k} \text{ m/s}$
12. A flywheel of mass 50 kg and radius of gyration about its axis of rotation of 0.5 m is acted upon by a constant torque of 12.5 N m. Its angular velocity at  $t = 5 \text{ s}$  is  
 (1) 2 rad/s (2) 5 rad/s  
 (3) 10 rad/s (4) 12 rad/s
13. A body is released from height equal to radius  $R$  of the earth. The velocity of body with which it will strike the earth surface is  
 (1)  $\sqrt{2gR}$  (2)  $2\sqrt{gR}$   
 (3)  $\sqrt{gR}$  (4)  $\sqrt{\frac{gR}{2}}$
14. The height at which the weight of an object becomes  $\left(\frac{1}{16}\right)^{\text{th}}$  of its weight on the surface of earth is ( $R$  is radius of earth)  
 (1)  $3R$  (2)  $2R$   
 (3)  $4R$  (4)  $5R$
15. A wire can be broken by a load of 20 kg-wt. The force required to break wire of same material with twice the diameter will be  
 (1) 20 kg-wt (2) 60 kg-wt  
 (3) 90 kg-wt (4) 80 kg-wt
16. If work done in increasing the size of rectangular soap film with dimensions  $8 \text{ cm} \times 3.75 \text{ cm}$  to  $10 \text{ cm} \times 6 \text{ cm}$  is  $2 \times 10^{-4} \text{ J}$ . The surface tension of film in newton per meter is  
 (1)  $2.1 \times 10^{-2}$  (2)  $1.65 \times 10^{-2}$   
 (3)  $3.3 \times 10^{-2}$  (4)  $4.2 \times 10^{-2}$
17. Two rain drops reach earth from clouds with different terminal velocities having ratio 9 : 4. Then the ratio of their volumes is  
 (1) 3 : 2 (2) 27 : 8  
 (3) 64 : 81 (4) 8 : 27
18. In a thermodynamic process, pressure of fixed mass of a gas is changed in such a manner that the gas releases 20 J of heat and 8 J of work is done on the gas. If initial internal energy of the gas was 40 J, what will be final internal energy?  
 (1) 18 J (2) 28 J  
 (3) 52 J (4) 32 J
19. Choose the correct statement.  
 (1) Internal energy is a path function, while heat is not  
 (2) Heat is a path function, while internal energy is not  
 (3) Both heat and internal energy are not path function  
 (4) Both heat and internal energy are path function

20. An ideal engine whose efficiency is 40%, receives heat at 500 K. If required efficiency is 50%, then intake temperature for the same exhaust temperature is

- (1) 800 K (2) 700 K  
(3) 400 K (4) 600 K

21. The root mean square speed of molecules of a gas is 1260 m/s. The average speed of the gas molecules is

- (1) 1161 m/s (2) 1671 m/s  
(3) 912 m/s (4) 1040 m/s

22. An object on a spring vibrates in a simple harmonic motion at a frequency of 4 hertz and an amplitude of 8 cm. If the mass of the object is 200 g, the spring constant is

- (1) 40 N/m (2) 160 N/m  
(3) 126 N/m (4) 109 N/m

23. A heavy rope is suspended from rigid support. A wave pulse is set up at the lower end. Then

- (1) The pulse travels with uniform speed  
(2) The pulse will travel with increasing speed  
(3) The pulse will travel with decreasing speed  
(4) The pulse cannot travel through rope

24. Two waves of wavelength 50 cm and 51 cm produced 12 beats per second. The velocity of sound is

- (1) 306 m/s (2) 333 m/s  
(3) 342 m/s (4) 356 m/s

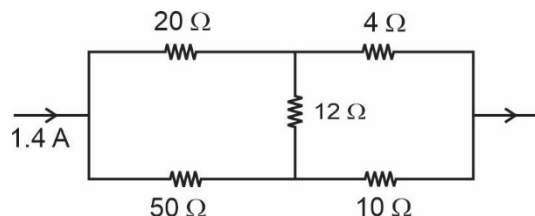
25. A positive charge is moved from low potential point A to a high potential point B. Then the electric potential energy

- (1) Increases  
(2) Decreases  
(3) Will remain same  
(4) Nothing definite can be predicted

26. A parallel plate capacitor is charged and then charging battery is disconnected. If the plates are now pulled apart with insulated handles

- (1) The capacitance increases  
(2) Potential energy decreases  
(3) Potential difference increases  
(4) Charge and potential difference both remains same

27. In the shown circuit, current through  $4\ \Omega$  resistor is

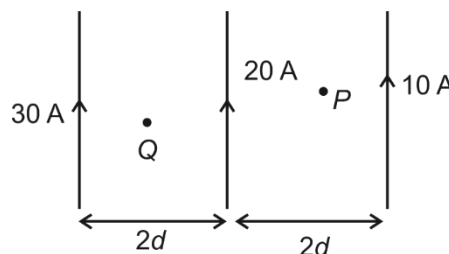


- (1) 0.6 A (2) 0.7 A  
(3) 1 A (4) 1.2 A

28. Two identical cells connected in series send 10 A current through a  $5\ \Omega$  resistor. When they are connected in parallel, they send 8 A current through same resistance. What is internal resistance of each cell?

- (1)  $2.5\ \Omega$  (2)  $1\ \Omega$   
(3)  $1.5\ \Omega$  (4)  $1.9\ \Omega$

29. Three long wires, carrying current 10 A, 20 A and 30 A are placed parallel to each other as shown. Point P and Q are in midway of wires. What is ratio of magnetic field at P to the Q?



- (1) 2 : 1 (2) 3 : 2  
(3) 2 : 3 (4) 3 : 1

30. A 0.8 m long solenoid has 800 turns and has a field density of  $2.52 \times 10^{-3}\ \text{T}$  at its centre. What is current in the wire?

- (1) 3 A (2) 2 A  
(3) 1 A (4) 4 A

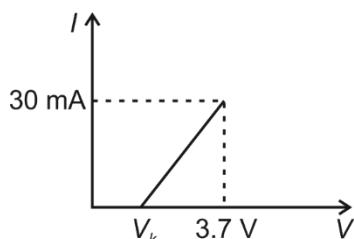
31. A charge particle having charge 2 C is thrown with velocity of  $(2\hat{i} + 3\hat{j})\ \text{m/s}$  inside a region having  $\vec{E} = 2\hat{j}\ \text{N/C}$  and magnetic field  $5\hat{k}\ \text{T}$ . The Lorentz force acting on particle is

- (1)  $(30\hat{i} - 16\hat{j})\ \text{N}$  (2)  $(15\hat{i} + 20\hat{j})\ \text{N}$   
(3)  $(15\hat{i} - 30\hat{j})\ \text{N}$  (4)  $(30\hat{i} + 15\hat{j})\ \text{N}$

32. The relative permeability of iron is 5500. What is its magnetic susceptibility?

- (1) 1 (2) 5499  
(3) 5501 (4) 4999

33. The resistance of a silicon junction diode, whose  $V - I$  characteristics is as shown in figure is ( $V_k = 0.7 \text{ V}$ )



- (1)  $0.2 \text{ k}\Omega$  (2)  $0.1 \text{ k}\Omega$   
 (3)  $1.5 \text{ k}\Omega$  (4)  $3.7 \text{ k}\Omega$
34. The horizontal component of earth's magnetic field at a place is  $4 \times 10^{-4} \text{ T}$  and dip is  $45^\circ$ . A metal rod of length  $20 \text{ cm}$  is placed in north south direction and is moved at constant speed of  $5 \text{ cm/s}$  towards East. What is e.m.f. induced in the rod?
- (1)  $4 \times 10^{-6} \text{ V}$  (2)  $2 \times 10^{-4} \text{ V}$   
 (3)  $4 \times 10^{-5} \text{ V}$  (4)  $3 \times 10^{-6} \text{ V}$
35. According to Lenz's law of electromagnetic induction
- (1) The induced emf in the direction opposing the change in magnetic flux  
 (2) The relative motion between coil and magnet produces no change in magnetic flux in any case  
 (3) Only magnet should be moved towards coil  
 (4) Only the coil should be moved towards magnet

### SECTION-B

36. A coil has resistance of  $30 \text{ ohm}$  and inductive reactance  $20 \text{ ohm}$  at  $50 \text{ Hz}$  frequency. If an ac source of  $200 \text{ V}$ ,  $100 \text{ Hz}$  is connected across the coil, current in coil will be
- (1)  $2 \text{ A}$  (2)  $4 \text{ A}$   
 (3)  $5 \text{ A}$  (4)  $6 \text{ A}$
37. A plane electromagnetic wave  $E_z = 100 \cos(6 \times 10^8 t + 4x) \text{ V/m}$ , where  $x$  is in metre and  $t$  is in second. propagates in medium, what is refractive index of the medium?
- (1)  $1.2$  (2)  $2.0$   
 (3)  $1.4$  (4)  $1.5$
38. If two coherent waves are represented by  $y_1 = 4 \sin \omega t$  and  $y_2 = 3 \sin(\omega t + \pi/3)$  interfere at a point, the amplitude of resulting wave will be about
- (1)  $7.2$  (2)  $6.1$   
 (3)  $5$  (4)  $12$

39. The fringe width in Young's double slit experiment increases when
- (1) Wavelength decreases  
 (2) Distance between sources and screen decreases  
 (3) Source slit is moved closer to slit openings  
 (4) Distance between slits plane and screen increases
40. A defective eye cannot see close objects clearly because their image is formed
- (1) On the eye lens  
 (2) Between eye lens and retina  
 (3) On the retina  
 (4) Beyond retina
41. Rainbow is formed due to
- (1) Scattering and refraction  
 (2) Scattering and reflection  
 (3) Internal reflection and dispersion  
 (4) Dispersion alone
42. When light of maximum wavelength  $300 \text{ nm}$  falls on a photoelectric emitter, photoelectrons are liberated. For another emitter however light of maximum wavelength  $600 \text{ nm}$  causes photoelectric emission. The ratio of work functions of first emitter to second emitter will be
- (1)  $1 : 2$  (2)  $2 : 1$   
 (3)  $1 : 1$  (4)  $1 : 4$
43. The Boolean equation for the circuit as shown in figure is



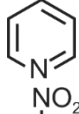

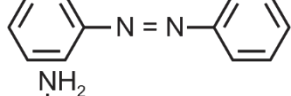

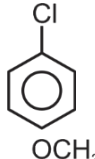
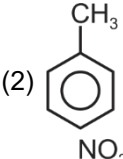
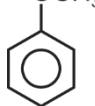
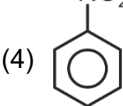
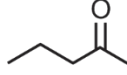
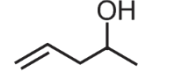
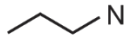
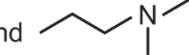
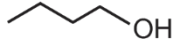
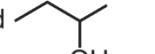
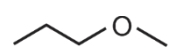
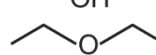
- (1)  $A \cdot B$  (2)  $\bar{A} + B$   
 (3)  $\bar{A} \cdot B$  (4)  $A + B$
44. After one alpha particle emission and one  $\beta^-$  particle emission from a nucleus
- (1) Mass number reduces by 5  
 (2) Atomic number increases by 1  
 (3) Mass number reduces by 2  
 (4) Atomic number reduces by 1
45. To measure light intensity we use
- (1) LED with forward bias  
 (2) LED with reverse bias  
 (3) Photodiode with forward bias  
 (4) Photodiode with reverse bias





46. Two trains 101 m and 99 m in length are running in opposite direction with velocities 54 km/h and 36 km/h. In what time they will completely cross each other?
- (1) 20 s (2) 8 s  
(3) 10 s (4) 16 s
47. A body of mass  $M$  is rotating in a vertical circle of radius  $r$  with critical speed. The difference in its kinetic energy at the top and the bottom is
- (1)  $2 Mgr$  (2)  $4 Mgr$   
(3)  $6 Mgr$  (4)  $3 Mgr$
48. The angular frequency of a simple pendulum is  $\omega$  rad/s. Now the length is made one fourth of the original length, the angular frequency becomes
- (1)  $\frac{\omega}{2}$  (2)  $2\omega$   
(3)  $4\omega$  (4)  $\omega$
49. The radii of circular orbits of two satellites A and B of the earth, are  $4R$  and  $R$ , respectively. If speed of satellite A is  $2V$ , then the speed of satellite B will be
- (1)  $2V$  (2)  $\frac{V}{2}$   
(3)  $4V$  (4)  $\frac{V}{4}$
50. If the distance between successive compressions and rarefaction in a sound wave is 2 m and velocity of sound is 360 m/s, then the frequency is
- (1) 180 Hz  
(2) 45 Hz  
(3) 120 Hz  
(4) 90 Hz

## CHEMISTRY

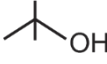
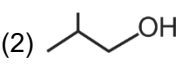
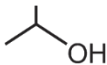
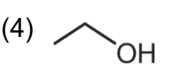
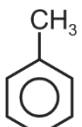
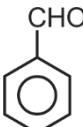
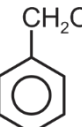
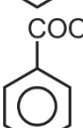
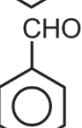
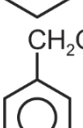
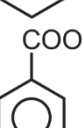


### SECTION-A

51. 21.75 g of  $\text{MnO}_2$  on reaction with HCl forms 2.8 L of  $\text{Cl}_2(\text{g})$  at STP, the percentage purity of  $\text{MnO}_2$  is (atomic mass of Mn = 55u)
- $$\text{MnO}_2 + 4 \text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + 2\text{H}_2\text{O}$$
- (1) 80% (2) 75%  
(3) 33% (4) 50%
52. Which of the following has the maximum number of electrons?
- (1) 14 g of  $\text{N}^{3-}$  ion (2) 4 g of  $\text{Ca}^{2+}$  ion  
(3) 16 g of  $\text{O}_3$  (4) 2.3 g of  $\text{Na}^+$  ion
53. The radii of 2<sup>nd</sup> Bohr orbit of  $\text{Be}^{3+}$  ion is
- (1) 26.45 pm (2) 52.9 pm  
(3) 79.35 pm (4) 105.8 pm
54. For hydrogen atom, the correct order of energy of orbitals is
- (1)  $4f > 4d > 4p > 3d > 3p > 3s$   
(2)  $4f = 4d > 3d > 4p > 3p > 3s$   
(3)  $4f > 4p > 4d = 3d > 3p > 3s$   
(4)  $4f = 4d = 4p > 3d = 3p = 3s$
55. If the value of ionisation enthalpy of K is  $x$  eV then the value of electron gain enthalpy of  $\text{K}^+$  is
- (1)  $-x$  eV (2)  $-2x$  eV  
(3)  $+2x$  eV (4)  $-\frac{1}{2}x$  eV
56. The correct order of ionic radii is represented in
- (1)  $\text{O} > \text{O}^- > \text{O}^{2-}$  (2)  $\text{Al}^+ > \text{Al}^{2+} > \text{Al}^{3+}$   
(3)  $\text{S}^{2-} > \text{K}^+ > \text{Cl}^-$  (4)  $\text{Mg}^{2+} > \text{Na}^+ > \text{N}^{3-}$
57. Which of the following pairs of compounds are isostructural?
- (1)  $\text{H}_2\text{O}$  and  $\text{SO}_3$  (2)  $\text{I}_3^-$  and  $\text{XeF}_2$   
(3)  $\text{NH}_3$  and  $\text{BF}_3$  (4)  $\text{SF}_4$  and  $\text{XeF}_4$
58. The species which does not exist is
- (1)  $\text{Li}_2$  (2)  $\text{C}_2$   
(3)  $\text{H}_2$  (4)  $\text{He}_2$
59. The number of  $\sigma$  and  $\pi$  bonds in the following compound respectively are
- $$\text{CH}_2 = \text{CH} - \overset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{CH}_2 - \text{CN}$$
- (1) 12 and 3 (2) 11 and 3  
(3) 12 and 4 (4) 11 and 4
60. The temperature at which rms velocity of  $\text{CH}_4$  will be same as that of  $\text{O}_2$  at  $27^\circ\text{C}$  is
- (1) 150 K (2) 450 K  
(3) 600 K (4) 900 K
61. van der Waals constant (a) for the gases A, B, C and D are 1.25, 3.29, 4.28 and 0.244 respectively. The gas which is most easily liquefied is
- (1) A (2) B  
(3) C (4) D

62. For the reaction,  
 $\text{CCl}_4(\text{g}) + 2\text{H}_2\text{O}(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 4\text{HCl}(\text{g})$  at constant temperature,  $\Delta H - \Delta E$  is  
 (1)  $-\text{RT}$  (2)  $\text{RT}$   
 (3)  $-2\text{RT}$  (4)  $2\text{RT}$
63. Four monobasic acids A, B, C and D have their respective  $\Delta_{\text{neut}} H^\circ$  values as  $-11.5$ ,  $-7.5$ ,  $-12.4$  and  $-8.9$  kcal/mol. Which of the following acids has the highest  $\text{pK}_a$  value?  
 (1) A (2) B  
 (3) C (4) D
64. For the reversible reactions,  
 $\text{CaCO}_3(\text{s}) \rightleftharpoons \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$   
 Which of the following does not affect the equilibrium state?  
 (1) Increase in the volume of the container  
 (2) Decrease in the volume of the container  
 (3) Addition of  $\text{CaO}(\text{s})$   
 (4) Addition of inert gas at constant pressure
65. Conjugate acid and conjugate base of  $\text{HPO}_4^{2-}$  respectively are  
 (1)  $\text{H}_2\text{PO}_4^-$  and  $\text{H}_3\text{PO}_4$  (2)  $\text{H}_2\text{PO}_4^-$  and  $\text{PO}_4^{3-}$   
 (3)  $\text{H}_3\text{PO}_4$  and  $\text{PO}_4^{3-}$  (4)  $\text{PO}_4^{3-}$  and  $\text{H}_2\text{PO}_4^-$
66. Which of the following is not a disproportionation reaction?  
 (1)  $\text{Cl}_2 + \text{OH}^- \longrightarrow \text{Cl}^- + \text{ClO}_3^- + \text{H}_2\text{O}$   
 (2)  $\text{P}_4 + \text{OH}^- + \text{H}_2\text{O} \longrightarrow \text{PH}_3 + \text{H}_2\text{PO}_2^-$   
 (3)  $\text{S}_8 + \text{OH}^- \longrightarrow 4\text{S}^{2-} + 2\text{S}_2\text{O}_3^{2-} + 6\text{H}_2\text{O}$   
 (4)  $\text{F}_2 + \text{OH}^- \longrightarrow \text{F}^- + \text{OF}_2 + \text{H}_2\text{O}$
67. The oxidation state of central bromine atom in  $\text{Br}_3\text{O}_8$  is  
 (1) +6 (2) +3  
 (3) +4 (4) +5
68. Which of the following is a method of laboratory preparation of dihydrogen?  
 (1) Electrolysis of acidified water using platinum electrodes  
 (2) Reaction of granulated zinc with dil hydrochloric acid  
 (3) Reaction of steam on hydrocarbons or coke at high temperature in the presence of catalyst  
 (4) Electrolysis of brine solution
69. The characteristic colour exhibited by Rb atom to an oxidizing flame is  
 (1) Crimson red (2) Yellow  
 (3) Red violet (4) Blue
70. The 13<sup>th</sup> group element which has the least melting point is  
 (1) B (2) Al  
 (3) Ga (4) In
71. Thermodynamically, the most stable allotrope of carbon is  
 (1) Coke (2) Fullerene  
 (3) Diamond (4) Graphite
72. Formic acid on reaction with concentrated  $\text{H}_2\text{SO}_4$  at 373 K gives  
 (1)  $\text{CO}_2$  (2)  $\text{HCHO}$   
 (3)  $\text{CH}_3\text{OH}$  (4)  $\text{CO}$
73. Kjeldahl's method is applicable to which of the following compounds?  
 (1)   
 (2)   
 (3)   
 (4) 
74. The compound which is most reactive towards electrophilic substitution reaction is  
 (1)   
 (2)   
 (3)   
 (4) 
75. Which of the following pairs of compounds are metamers of each other?  
 (1)  and   
 (2)  and   
 (3)  and   
 (4)  and 

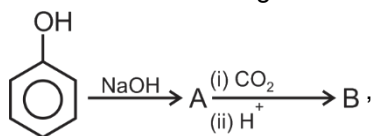
76. Ethene on reaction with Baeyer's reagent gives  
 (1) Ethane-1, 2 diol (2) Ethanoic acid  
 (3) Ethanal (4) Ethanol
77. Anti-aromatic species among the following is  
 (1)  (2)   
 (3)  (4) 
78. Maximum prescribed concentration of Cd in drinking water is  
 (1) 0.2 ppm (2) 0.02 ppm  
 (3) 0.005 ppm (4) 0.05 ppb
79. Packing efficiency of fcc unit cell is  
 (1) 74% (2) 68%  
 (3) 52.8% (4) 26%
80. Which of the following colligative property is used to determine molar masses of proteins?  
 (1) Relative lowering of vapour pressure  
 (2) Elevation in boiling point  
 (3) Depression in freezing point  
 (4) Osmotic pressure
81. Which of the following metal has the highest conductivity at room temperature?  
 (1) Na (2) Cu  
 (3) Ag (4) Au
82. Which of the following quantities changes on addition of a catalyst during a chemical reaction?  
 (1) Equilibrium constant (2) Activation energy  
 (3) Gibbs energy (4) Enthalpy
83. For the coagulation of methylene blue sol, the flocculating power of which of the following ion is maximum?  
 (1)  $\text{PO}_4^{3-}$  (2)  $\text{Al}^{3+}$   
 (3)  $\text{Cl}^-$  (4)  $\text{Ba}^{2+}$
84. Select the incorrect statement about electrolytic refining  
 (1) Impure metal is made to act as anode  
 (2) Pure metal is used as cathode  
 (3) Zinc can be refined using this method  
 (4) Impurities deposit as cathode mud
85. The compound which has the highest reducing character among the following is  
 (1)  $\text{H}_2\text{O}$  (2)  $\text{H}_2\text{S}$   
 (3)  $\text{H}_2\text{Se}$  (4)  $\text{H}_2\text{Te}$

## SECTION-B

86. The ion which has the highest magnetic moment is  
 (1)  $\text{Sc}^{3+}$  (2)  $\text{Ni}^{2+}$   
 (3)  $\text{Ti}^{3+}$  (4)  $\text{Zn}^{2+}$
87. The co-ordination complex which shows linkage isomerism is  
 (1)  $[\text{Co}(\text{NH}_3)_5\text{NO}_2]^{2+}$  (2)  $[\text{Co}(\text{NH}_3)_6]^{3+}$   
 (3)  $[\text{Co}(\text{NH}_3)_5\text{Br}]^{2+}$  (4)  $[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]^{2+}$
88. The alkyl halide which is most reactive towards dehydrohalogenation is  
 (1) R-F (2) R-Cl  
 (3) R-Br (4) R-I
89. The alcohol which reacts fastest with Lucas reagent is  
 (1)  (2)   
 (3)  (4) 
90.   $\xrightarrow[\text{(ii) H}_3\text{O}^+]{\text{(i) CrO}_2\text{Cl}_2/\text{CS}_2}$  A  $\xrightarrow{\text{conc. OH}^-}$  B + C  
 B and C are  
 (1)  and   
 (2)  and   
 (3)  and   
 (4)  and 
91. Consider the following reaction sequence,  
 $\text{CH}_3\text{CH}_2\text{Cl} \xrightarrow{\text{KCN}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B} \xrightarrow{\text{NH}_3/\Delta} \text{C} \xrightarrow{\text{Br}_2+\text{NaOH}} \text{D}$   
 Major product D is  
 (1)  $\text{CH}_3\text{CH}_2\text{NH}_2$  (2)  $\text{CH}_3\text{CH}_2\text{CONH}_2$   
 (3)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$  (4)  $\text{CH}_3\text{CH}=\text{NH}$
92. Nitrobenzene on reduction with  $\text{LiAlH}_4$  in the presence of ether yields  
 (1) Hydrazobenzene (2) Azoxybenzene  
 (3) Azobenzene (4) p-amino phenol

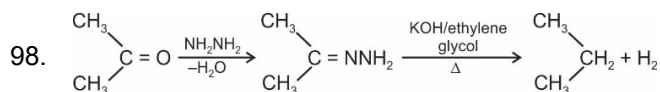


93. Purine base among the following is  
 (1) Cytosine (2) Guanine  
 (3) Thymine (4) Uracil
94. Monomer of Nylon-6 is  
 (1) Acrylonitrile (2) Styrene  
 (3) Caprolactam (4) Chloroprene
95. Antidepressant drug among the following is  
 (1) Phenelzine (2) Chloramphenicol  
 (3) Prontosil (4) Salvarsan
96. Number of P-OH bonds in pyrophosphoric acid is  
 (1) 1 (2) 2  
 (3) 3 (4) 4
97. Consider the following reaction,



The major product (B) obtained in the above reaction is

- (1) Salicylaldehyde (2) Salicylic acid  
 (3) Benzoic acid (4) Phthalic acid



The above reaction is known as

- (1) Rosenmund reduction  
 (2) Clemmensen reduction  
 (3) Wolff-Kishner reduction  
 (4) Stephen reaction
99. If the standard electrode potential for a cell,  $\text{A}^{2+}(\text{aq}) + 2\text{B}(\text{s}) \rightarrow \text{A}(\text{s}) + 2\text{B}^+(\text{aq})$  is 1.9 V, then the standard Gibbs energy for the reaction is  
 (1) 3.8 F J/mol  
 (2) -1.9 F J/mol  
 (3) -3.8 F J/mol  
 (4) -7.6 F J/mol
100. Most basic compound among the following is  
 (1)  $\text{La}(\text{OH})_3$  (2)  $\text{Eu}(\text{OH})_3$   
 (3)  $\text{Er}(\text{OH})_3$  (4)  $\text{Lu}(\text{OH})_3$

## BOTANY





### SECTION-A

101. Which of the following taxonomic category is represented by *Solanum* in the scientific name *Solanum tuberosum*?  
 (1) Family (2) Genus  
 (3) Order (4) Division
102. Select the **incorrect** statement  
 (1) In multicellular organism growth and reproduction are not synonymous  
 (2) A scientific name should be printed in italics according to binomial nomenclature  
 (3) A museum has preserved plant and animals specimens  
 (4) Taxonomy includes phylogeny as the basis of classification of organisms
103. Diatoms, which are good indicators of water pollution are  
 (1) Photosynthetic protists  
 (2) Saprophytes  
 (3) Heterotrophs  
 (4) Chemoautotrophs
104. The organisms which can fix atmosphere  $\text{CO}_2$  and releases  $\text{O}_2$  as by product is  
 (1) *Rhizobium* (2) *Rhodospirillum*  
 (3) *Wolffia* (4) *Chlorobium*
105. Prions differ from viroids as the former has/is  
 (1) DNA as genetic material  
 (2) Low molecular weight RNA  
 (3) Proteinaceous in nature  
 (4) Obligate parasite
106. Membrane less cell organelle common to both prokaryotes and eukaryotes is  
 (1) Lysosome (2) Vacuole  
 (3) Ribosome (4) Spherosomes
107. Most common type of lipids found in plasma membrane is A and they show B movement within the plasma membrane.  
 Choose the most appropriate option to fill A and B.
- | A                | B         |
|------------------|-----------|
| (1) Glycolipid   | Flip flop |
| (2) Phospholipid | Flip flop |
| (3) Glycolipid   | Lateral   |
| (4) Phospholipid | No        |



108. Which of the following is synthesized during S-phase of cell cycle?  
 (1) Tubulin protein  
 (2) Spindle fibre  
 (3) Deoxyribonucleic acid  
 (4) Nucleotides
109. Synapsis and desynapsis takes place respectively during  
 (1) Leptotene and Zygotene  
 (2) Pachytene and Diplotene  
 (3) Zygotene and Leptotene  
 (4) Zygotene and Diplotene
110. The feature not related to family Solanaceae is  
 (1) Persistent calyx  
 (2) Epipetalous condition of androecium  
 (3) Swollen placenta  
 (4) Incomplete flower with Perianth
111. Hypogynous flowers are seen in  
 (1) Plum (2) Rose  
 (3) Pea (4) Peach
112. Collenchyma is living mechanical tissue. Select the **incorrect** about it  
 (1) Has cell wall thickening  
 (2) Lacks protoplasm at maturity  
 (3) Provides mechanical support  
 (4) Generally lacks intercellular spaces
113. Ground tissue of leaf is called  
 (1) Pith (2) Medulla  
 (3) Mesophyll (4) Endodermis
114. Select the **incorrect** match  
 (1) *Salvinia* – Heterosporous  
 (2) *Pinus* – Monoecious  
 (3) *Selaginella* – Homosporous  
 (4) *Funaria* – Dominant gametophyte
115. The ploidy level of egg apparatus of embryo sac which contains three cells is  
 (1) Triploid (2) Haploid  
 (3) Diploid (4) Tetraploid
116. Active transport does **not** involve  
 (1) Energy in the form of ATP  
 (2) Membrane proteins  
 (3) Movement down the concentration gradient  
 (4) Uphill movement of substances
117. If water potential of cell A, B and C are -2, -4 and -6 respectively then the water will move from  
 (1) A → B → C (2) C → B → A  
 (3) A → C → B (4) B → C → A
118. Root nodules in some plants like soyabean export fixed nitrogen along with transpiration stream in the form of  
 (1) NH<sub>3</sub> (2) Amino acids  
 (3) Amides (4) Ureides
119. Which of the following nutrient is required for pollen germination?  
 (1) Ca (2) Zn  
 (3) B (4) Mg
120. The primary CO<sub>2</sub> acceptor in C<sub>4</sub> plants in mesophyll cells are  
 (1) PEP (2) RUBP  
 (3) RuBisCO (4) OAA
121. In PSII, the reaction centre chlorophyll a has an absorption peak at  
 (1) 680 nm (2) 700 nm  
 (3) 720 nm (4) 400 nm
122. Which of the following processes takes place in anaerobic bacteria?  
 (1) ETS (2) Krebs cycle  
 (3) Glycolysis (4) Link reaction
123. The respiratory quotient of which of the following substrate is less than one?  
 (1) Proteins (2) Organic acids  
 (3) Carbohydrates (4) Malic acid
124. The plant hormone responsible for apical dominance is  
 (1) Cytokinin (2) Auxin  
 (3) Ethylene (4) ABA
125. Which of the following hormone promotes bolting?  
 (1) ABA (2) Gibberellins  
 (3) Auxin (4) Cytokinin
126. The most common type of asexual spores in algae are  
 (1) Zoospores (2) Conidia  
 (3) Buds (4) Sporangiospores
127. All of the following produce isogametes, **except**  
 (1) *Ulothrix* (2) *Rhizopus*  
 (3) *Cladophora* (4) *Volvox*

128. Colourblindness and haemophilia are  
 (1) Autosomal recessive disorders  
 (2) Sex-linked recessive disorders  
 (3) Autosomal dominant disorders  
 (4) Sex-linked dominant disorders
129. Genetically different type of pollen grains land on stigma of ovary in  
 (1) Geitonogamy (2) Homogamy  
 (3) Cleistogamy (4) Xenogamy
130. The innermost layer of anther wall which surrounds the sporogenous tissue and nourishes the developing pollen grains is  
 (1) Epidermis (2) Endothecium  
 (3) Tapetum (4) Middle layer
131. Number of chromosomes are different in male and female individuals in  
 (1) *Drosophila* (2) Grasshopper  
 (3) Humans (4) Birds
132. In lac operon, when repressor protein binds to operator then  
 (1) There is synthesis of  $\beta$ -galactosidase enzyme  
 (2) RNA polymerase cannot bind to the promoter  
 (3) RNA polymerase binds to the promoter  
 (4) There is mutation in *i* gene
133. Select the **incorrect** about minisatellites.  
 (1) They are VNTRs  
 (2) They are surrounded by conserved restriction sites  
 (3) Size varies from 0.1 to 20 kb  
 (4) Their copy number varies from individual to individual but not from chromosome to chromosome in an individual
134. The entire collection of plants/seeds having all the diverse alleles for all genes of a given crop is called  
 (1) Genome (2) Germplasm  
 (3) Protoplasm (4) Cytoplasm
135. Himigiri is a variety of  
 (1) Mustard (2) Chilli  
 (3) Wheat (4) Cauliflower
- SECTION-B**
136. Which of the following is a commercial blood cholesterol lowering agent?  
 (1) Cyclosporin A (2) Statin  
 (3) Amylase (4) Streptokinase
137. Select the **mismatched** pair  
 (1) *Anabaena* – Autotrophic  
 (2) *Rhizobium* –  $N_2$  fixer  
 (3) *Trichoderma* – Cyclosporin A  
 (4) Tobacco – Biocontrol agent mosaic virus
138. A population interaction in which both species are benefitted is called  
 (1) Commensalism (2) Ammensalism  
 (3) Predation (4) Mutualism
139. Natality refers to  
 (1) Birth rate  
 (2) Death rate  
 (3) Death of an organism  
 (4) Number of individuals leaving the habitat
140. The pyramid which is always upright is  
 (1) Pyramid of biomass  
 (2) Pyramid of number  
 (3) Pyramid of biomass in sea  
 (4) Pyramid of energy
141. In an ecosystem the rate of production of organic matter by producers which is available to herbivores is  
 (1) Net primary productivity  
 (2) Gross primary productivity  
 (3) Secondary productivity  
 (4) Tertiary productivity
142. Which of the following is most important cause of animals and plants to become extinct?  
 (1) Co-extinction  
 (2) Overexploitation  
 (3) Alien species invasion  
 (4) Habitat loss and fragmentation
143. Which of the following is *in-situ* conservation strategy?  
 (1) Botanical gardens (2) Wildlife safari parks  
 (3) Wildlife sanctuaries (4) Cryopreservation
144. Montreal Protocol was signed in  
 (1) 1986 (2) 1987  
 (3) 1988 (4) 1989

145. Polyblend, a fine powder of recycled modified plastic, has proved to be a good material for
- (1) Making plastic bags
  - (2) Making plastic pipes and tubes
  - (3) Laying roads
  - (4) Both (1) and (2)
146. Select the **wrong** match w.r.t. symbols used in pedigree
- (1)  – Mating
  - (2)  – Affected female
  - (3)  – Mating between relatives
  - (4)  – Five unaffected offspring
147. Which of the following is **not** a stop codon?
- (1) UAA
  - (2) UAG
  - (3) AUG
  - (4) UGA
148. Casparian strips on endodermis are seen in
- (1) Monocot root
  - (2) Monocot leaf
  - (3) Monocot stem
  - (4) Dicot stem
149. Monocot stem has all, **except**
- (1) Epidermis
  - (2) Vascular bundles
  - (3) Medullary rays
  - (4) General cortex
150. All of the following do not have nucleus at maturity, **except**
- (1) Sieve tube elements
  - (2) Companion cell
  - (3) Vessel element
  - (4) Sclerenchymatous fibre

## ZOOLOGY

### SECTION-A

151. Which one of the following statement is correct regarding digestion and absorption of food in humans?
- (1) About 50% of starch is hydrolysed by salivary amylase in mouth
  - (2) Parietal cells in stomach secrete proenzyme, pepsinogen
  - (3) Micelles are small glycoprotein particles that are transported from intestine into blood capillaries
  - (4) Diglycerides and monoglycerides are broken into fatty acids and glycerol by the action of lipases in small intestine
152. Where do certain symbiotic micro-organisms normally occur in human body?
- (1) Duodenum
  - (2) Rectum
  - (3) Caecum
  - (4) Jejunum
153. Complete the analogy:  
Calorific value of carbohydrate : 4.1 kcal/g ::  
Calorific value of fat : \_\_\_\_.
- (1) 5.65 kcal/g
  - (2) 9.45 kcal/g
  - (3) 5.45 kcal/g
  - (4) 6.95 kcal/g
154. Choose the **incorrect** match among the following:
- (1) *Balanoglossus* – Body is cylindrical and is composed of anterior proboscis, a collar and a long trunk
  - (2) *Hippocampus* – Contains one auricle and one ventricle
  - (3) *Naja* – Shows ecdysis
  - (4) *Pheretima* – Excretes through Malpighian tubules
155. Characteristics: Bioluminescence, exclusively marine, radially symmetrical, diploblastic, tissue level of organization.  
Organisms which have the above mentioned characteristics belong to which phylum?
- (1) Coelenterata
  - (2) Aschelminthes
  - (3) Ctenophora
  - (4) Echinodermata
156. Which of the following feature(s) is not present in the phylum Arthropoda?
- (1) Chitinous exoskeleton
  - (2) Jointed appendages
  - (3) Compound and simple eyes
  - (4) Parapodia
157. Which of the following bone falls under the category of sesamoid bone?
- (1) Patella
  - (2) Radius
  - (3) Parietal bone
  - (4) Incus

158. \_\_\_\_\_ in some bones is the site of haemopoiesis.

Fill the blank with correct option

- (1) Epiphysis (2) Bone marrow  
(3) Periosteum (4) Perichondrium

159. The tergum, sternum and pleurite of the body of cockroach are joined by

- (1) Pronotum  
(2) Haemolymph  
(3) Arthroal membrane  
(4) Muscular tissue

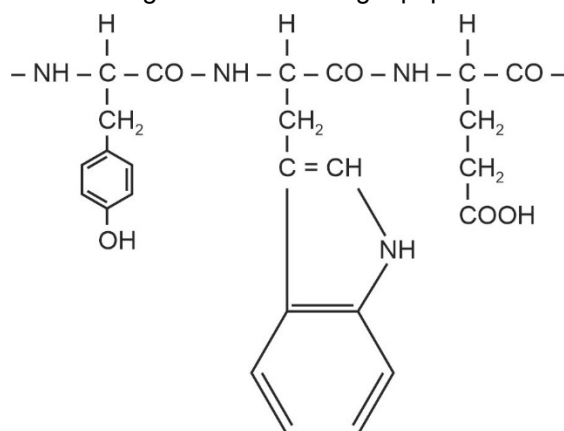
160. Which of the following statement is **incorrect** w.r.t. reproductive system and development of cockroach?

- (1) The development of *Periplaneta americana* is paurometabolous  
(2) Females produce 9-10 oothecae, each containing 14-16 eggs  
(3) Male reproductive system consists of a pair of testes, one lying on each lateral side in the 4<sup>th</sup> to 6<sup>th</sup> abdominal segments  
(4) Mushroom shaped gland is present in the 4<sup>th</sup> to 6<sup>th</sup> abdominal segments of male cockroach

161. A competitive inhibitor of succinic dehydrogenase is

- (1)  $\alpha$ -ketoglutaric acid  
(2) Acetic acid  
(3) Malate  
(4) Malonate

162. The following figure shows a tripeptide portion of a protein. Identify the **correct** sequence of amino acids arranged in the following tripeptide.



Choose the correct option:

- (1) Phenylalanine – Tyrosine – Aspartic acid  
(2) Tyrosine – Tryptophan – Glutamic acid  
(3) Tryptophan – Tyrosine – Glycine  
(4) Hydroxyproline – Alanine – Asparagine

163. Read the given statements w.r.t. co-factors:

**Statement-A:** Prosthetic groups are organic compounds which are tightly bound to the apoenzyme.

**Statement-B:** Coenzymes are organic compounds which are loosely bound to the holoenzyme to form apoenzyme.

Choose the **correct** option w.r.t. the above given statements.

- (1) Statement A is correct, statement B is incorrect  
(2) Statement A is incorrect, statement B is correct  
(3) Both statements A and B are incorrect  
(4) Both statements A and B are correct

164. Majority of  $\text{CO}_2$  in blood is transported in the form of

- (1) Carboxyhaemoglobin in erythrocytes  
(2) Carbaminohaemoglobin in plasma  
(3) Free  $\text{CO}_2$  in blood plasma  
(4) Bicarbonate in blood plasma

165. Name the disease which occurs due to inflammation of bronchi and bronchioles in which breathing becomes difficult and leads to wheezing.

- (1) Emphysema  
(2) Asthma  
(3) Pleurisy  
(4) Pneumoconiosis

166. Mark the **incorrect** option w.r.t. respiratory capacities:

- (1)  $\text{IC} = \text{TV} + \text{IRV}$   
(2)  $\text{VC} = \text{IRV} + \text{ERV}$   
(3)  $\text{EC} = \text{TV} + \text{ERV}$   
(4)  $\text{TLC} = \text{VC} + \text{RV}$

167. A boy goes to a park where he gets stung by a bee. His body shows allergic reactions. Certain cells of the body produce histamine which results in the inflammation at the site of where he was stung. These histamine-secreting cells are:

- (1) Eosinophils  
(2) Acidophils  
(3) Neutrophils  
(4) Basophils

168. Match column-I **correctly** with column-II

	Column-I		Column-II
a.	Visceral pericardium	(i)	Pace-setter of the heart
b.	Sino-atrial node	(ii)	Outer pericardial membrane
c.	Parietal pericardium	(iii)	Pace-maker of the heart
d.	Atrio-ventricular node	(iv)	Inner pericardial membrane

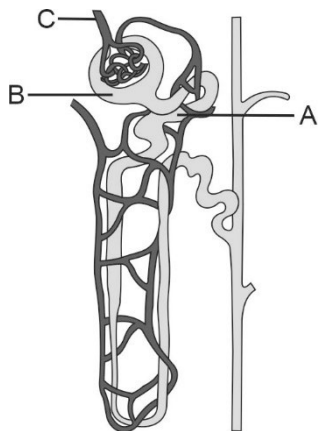
Choose the **correct** option.

- (1) a(iv), b(iii), c(ii), d(i)  
 (2) a(i), b(ii), c(iii), d(iv)  
 (3) a(ii), b(i), c(iv), d(iii)  
 (4) a(i), b(ii), c(iv), d(iii)

169. The T-wave in ECG represents:

- (1) Repolarization of both atria  
 (2) Repolarization of both ventricles  
 (3) Depolarization of both atria  
 (4) Depolarization of both ventricles

170. Observe the given diagram of nephron



Select the correct option which represents the labelling for the site where maximum reabsorption of water occurs and the labelling for the site which brings impure and oxygenated blood to the nephron respectively.

- (1) B and C                      (2) C and B  
 (3) A and C                      (4) C and A

171. Complete the analogy:

Increases blood pressure : Renin :: Decreases blood pressure: \_\_\_\_\_.

- (1) Atrial natriuretic peptide  
 (2) Adrenaline  
 (3) Serotonin  
 (4) Cortisol

172. Find the **incorrect** match.

(1)	High concentration of urea in blood	–	Uremia
(2)	High concentration of glucose in urine	–	Glycosuria
(3)	Presence of blood in urine	–	Polyuria
(4)	Inflammation of glomeruli of kidney	–	Glomerulonephritis

173. Uric acid is the main excretory product in

- (1) Pisces                      (2) Insects  
 (3) Mammals                (4) Amphibians

174. Match column-I **correctly** with column-II

Column-I	Column-II
a. Smooth muscle	(i) Thin filament
b. Actin	(ii) Involuntary
c. Red muscle	(iii) Sutures
d. Skull	(iv) Myoglobin

Choose the correct option

- (1) a(ii), b(i), c(iv), d(iii)  
 (2) a(i), b(ii), c(iii), d(iv)  
 (3) a(i), b(iii), c(ii), d(iv)  
 (4) a(iv), b(iii), c(i), d(ii)

175. Inflammation of joints due to accumulation of uric acid crystals:

- (1) Gouty arthritis            (2) Osteoporosis  
 (3) Tetany                      (4) Muscular dystrophy

176. Select the **incorrect** match

(1)	Knee joint	–	Hinge joint
(2)	Joint between atlas and axis	–	Pivot joint
(3)	Joint between carpals	–	Saddle joint
(4)	Joint between humerus and pectoral girdle	–	Ball and socket joint

177. Choose the **incorrect** statement:

- (1) Dorsal portion of midbrain consists of corpora quadrigemina  
 (2) Midbrain is located between hypothalamus of the forebrain and pons of hindbrain  
 (3) The cerebral hemispheres are connected by a tract of nerve fibres called corpus callosum  
 (4) Hypothalamus is responsible for complex functions like intersensory associations, memory and communication

178. Read the given statements:

**Statement-A:** Organ of corti rests on tectorial membrane.

**Statement-B:** Organ of corti helps to maintain equilibrium of the body.

Choose the **correct** option.

- (1) Both statements A and B are correct
- (2) Both statements A and B are incorrect
- (3) Statement A is correct, statement B is incorrect
- (4) Statement A is incorrect, statement B is correct

179. Complete the analogy:

Milk-producing hormone : Prolactin :: Milk-ejecting hormone : \_\_\_\_\_.

- (1) Oxytocin (2) Relaxin
- (3) ADH (4) Vasopressin

180. Aldosterone aids in the maintenance of

- a. Electrolytes
- b. Body fluid volume
- c. Osmotic pressure
- d. Blood pressure

How many of the above factors hold true for the functionality of aldosterone?

- (1) Four (2) Three
- (3) Two (4) One

181. Which of the following was absent in the atmosphere at the time of origin of life?

- (1)  $\text{NH}_3$  (2)  $\text{CH}_4$
- (3)  $\text{H}_2$  (4)  $\text{O}_2$

182. An important evidence in favour of organic evolution is the occurrence of

- (1) Analogous and vestigial organs
- (2) Analogous and homologous organs
- (3) Homologous organs only
- (4) Homologous and vestigial organs

183. Mating of the related individuals having common ancestors upto 4-6 generations is called:

- (1) Inbreeding
- (2) Outbreeding
- (3) Outcrossing
- (4) Interspecific hybridization

184. Which of the following is not an STD?

- (1) Down's syndrome (2) Syphilis
- (3) Genital warts (4) AIDS

185. Which of the following is not a copper-ion releasing IUD?

- (1) CuT (2) Cu7
- (3) Lippes loop (4) Multiload 375

#### SECTION-B

186. The first movements of the foetus and appearance of hair on the head are usually observed during:

- (1) 4<sup>th</sup> month (2) 5<sup>th</sup> month
- (3) 6<sup>th</sup> month (4) 7<sup>th</sup> month

187. Arrange the following structures from the point of fertilization till the point of implantation:

- a. 4-celled stage b. 2-celled stage
- c. Early morula d. Blastocyst
- e. Late morula

Choose the correct option from the following:

- (1)  $a \rightarrow b \rightarrow c \rightarrow d \rightarrow e$
- (2)  $e \rightarrow d \rightarrow c \rightarrow b \rightarrow a$
- (3)  $b \rightarrow c \rightarrow a \rightarrow d \rightarrow e$
- (4)  $b \rightarrow a \rightarrow c \rightarrow e \rightarrow d$

188. Read the following statements and select the **incorrect** one:

- (1) Opioids bind to specific opioid receptors present in CNS and GI tract
- (2) Cannabinoids interact with cannabinoid receptors present principally in the brain
- (3) Cocaine interferes with the transport of the neurotransmitter, dopamine which leads to a potent stimulating action on CNS, producing a sense of increased energy and euphoria.
- (4) Morphine does not function as an effective sedative and a painkiller

189. Most cancers are treated by the combination of

- a. Radiotherapy
- b. Chemotherapy
- c. Surgery

Choose the **correct** option

- (1) Only c (2) Only b and c
- (3) Only a and b (4) a, b and c

190. HIV is a member of group of viruses called

- (1) Retrovirus
- (2) Rhinovirus
- (3) Baculovirus
- (4) Nucleopolyhedrovirus

191. Which of the following vector is commonly used in transfer of gene of interest into the crop plants?
- (1) *Agrobacterium tumefaciens*
  - (2) *Trichoderma polysporum*
  - (3) *Monascus purpureus*
  - (4) *Penicillium notatum*
192. \_\_\_\_\_ refers to the use of bio-resources by multinational companies and other organizations without proper authorization from the countries and people concerned without compensatory payment.
- Fill the blank with a suitable option:
- (1) Bioaugmentation
  - (2) Biopiracy
  - (3) Bioremediation
  - (4) Biological patent
193. A Bt prototoxin is
- (1) A toxin produced by protozoa
  - (2) Inactive toxin
  - (3) An active toxin
  - (4) Primitive toxin
194. In pBR322 vector, a foreign gene is inserted at *Pst* I restriction site. The recombinant so formed:
- (1) Will grow in a culture medium containing ampicillin only
  - (2) Will grow in a culture medium containing both ampicillin and tetracycline
  - (3) Will grow in a culture medium containing tetracycline only
  - (4) Will grow in a culture medium containing Kanamycin only
195. Select the **incorrect** match
- (1) Gene gun – Suitable for incorporating foreign gene into animal cells
  - (2) Lysozyme – Degrades bacterial cell wall
  - (3) Chitinase – Degrades fungal cell wall
  - (4) Heat shock – Suitable for incorporating foreign gene into bacterial cells
196. Select the **incorrect** match.
- (1) Porifera – Circulatory system is absent
  - (2) Platyhelminthes – Circulatory system is absent
  - (3) Aschelminthes – Respiratory system is absent
  - (4) Annelida – Respiratory system is present
197. *Felis* belongs to class
- (1) Reptilia
  - (2) Amphibia
  - (3) Aves
  - (4) Mammalia
198. Read the following statements and choose the **correct** option.
- Statement A:** Aspartic acid is the only known acidic amino acid.
- Statement B:** Methionine is an essential amino acid.
- (1) Both statements are correct
  - (2) Both statements are incorrect
  - (3) Only statement B is correct
  - (4) Only statement A is correct
199. Select the **incorrect** match w.r.t. secondary metabolites.
- (1) Pigments – Carotenoids, Anthocyanins
  - (2) Toxins – Abrin, Ricin
  - (3) Drugs – Curcumin, Concanavalin-A
  - (4) Polymeric substances – Rubber, Gums
200. Read the following statements and state them as true (T) or false(F).
- A. DNA and RNA function as genetic material.
  - B. Nucleic acids are monomers of nucleotides.
  - C. Adenine, Guanine, Cytosine, Uracil and Thymine are nitrogenous bases.
- Choose the **correct** option.
- |     | A | B | C |
|-----|---|---|---|
| (1) | F | T | F |
| (2) | F | F | T |
| (3) | T | T | T |
| (4) | T | F | T |