

CENTRE FOR EDUCATIONAL DEVELOPMENT OF MINORITIES

OSMANIA UNIVERSITY

Minorities Welfare Department, Government of Telangana

Nizam College Campus, Gunfoundry, Hyderabad – 500001.

NEET – 2023

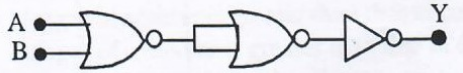
Free Coaching Programme

MODEL TEST

INSTRUCTIONS

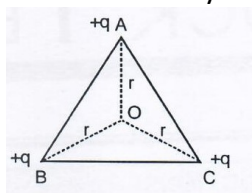
1. This test will be a 3 hours Test.
2. This test consists of Physics, Chemistry, Botany and Zoology questions with equal weightage of 180 marks.
3. Each question is of 4 marks.
4. There are four parts in the question paper, consisting Part-I Physics (Q. no.1 to 50), Part-II Chemistry (Q. no.51 to 100), Part-III Botany (Q. no. 101 to 150) and Part-IV Zoology (Q. no. 151 to 200). Each part is divided into two Sections, Section A consists of 35 multiple choice questions & Section-B consists of 15 Multiple choice questions, out of these 15 questions candidates can choose to attempt any 10 questions.
5. There will be only one correct choice in the given four choices for each question. For each question 4 marks will be awarded for correct choice, 1 mark will be deducted for incorrect choice and zero mark will be awarded for unattempted question.
6. Any textual, printed or written material, mobile phone, calculator etc. is not allowed for the students appearing for the test.
7. All calculations / written work should be done in the rough sheet provided.

SECTION-A

1. The dimensions of $a \times b$ in the relation $E = \frac{b-x^2}{at}$, where E is the energy, x is the displacement and t is time are
(1) ML^2T (2) $M^{-1}L^2T$ (3) ML^2T^{-2} (4) MLT^{-2}
2. A particle starting with certain initial velocity and uniform acceleration covers a distance of 12m in first 3 seconds and a distance of 30m in next 3 seconds. The initial velocity of the particle is
(1) 3 ms^{-1} (2) 2.5 ms^{-1} (3) 2 ms^{-1} (4) 1 ms^{-1}
3. A particle undergoes simple harmonic motion having time period T. The time taken in $3/8^{\text{th}}$ oscillation is
(1) $\frac{3}{8}T$ (2) $\frac{5}{8}T$ (3) $\frac{5}{12}T$ (4) $\frac{7}{12}T$
4. When current in a coil changes from 5 A to 2 A in 0.1 s, average voltage of 50 V is produced. The self – inductance of the coil is
(1) 6 H (2) 0.67H (3) 3 H (4) 1.67 H
5. The given electrical network is equivalent to:

(1) OR gate (2) NOR gate (3) NOT gate (4) AND gate
6. The work function of aluminum is 4.2 eV. If two photons each of energy 3.5 eV strike an electron of aluminum, then emission of electron will
(1) depend upon the density of the surface (2) possible
(3) not possible (4) none of these

7. A doubly ionized Li atom is excited from its ground state ($n=1$) to $n=3$ state. The wavelengths of the spectral lines are given by $\lambda_{32}, \lambda_{31}$ and λ_{21} . The ratios $\lambda_{32} / \lambda_{31}$ and $\lambda_{21} / \lambda_{31}$ are, respectively
 (1) 8.1, 0.67 (2) 8.1, 1.2 (3) 6.4, 1.2 (4) 6.4, 0.67
8. Two wires A and B of the same material, having radii in the ratio 1:2 and carry currents in the ratio 4:1. The ratio of drift speed of electrons in A and B is
 (1) 16:1 (2) 1:16 (3) 1:4 (4) 4:1
9. A bullet of mass 5g, travelling with a speed of 210 m/s, strikes a fixed wooden target. One half of its kinetic energy is converted into heat in the bullet while the other half is converted into heat in the wood. The rise of temperature of the bullet if the specific heat of its material is 0.030 cal/(g-C°) (1 cal = 4.2×10^7 ergs) close to:
 (1) 87.5°C (2) 83.3°C (3) 119.2°C (4) 38.4°C
10. An object undergoing SHM takes 0.5 s to travel from one point of zero velocity to the next such point. The distance between those points is 50cm. The period, frequency and amplitude of the motion is
 (1) 1s, 1Hz, 25cm (2) 2s, 1Hz, 50cm (3) 1s, 2Hz, 25cm (4) 2s, 2Hz, 50cm

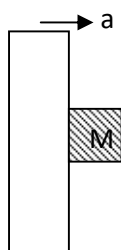
11. ABC is an equilateral triangle. Charges +q are placed at each corner as shown in fig. the electric intensity at centre O will be



- (1) $\frac{1}{4\pi\epsilon_0} \frac{q}{r}$ (2) $\frac{1}{4\pi\epsilon_0} \frac{q}{r^2}$ (3) $\frac{1}{4\pi\epsilon_0} \frac{3q}{r^2}$ (4) zero

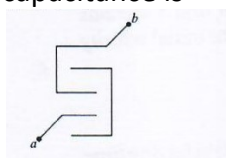
12. A metallic bar is heated from 0°C to 100°C. The coefficient of linear expansion is 10^{-5} K^{-1} . What will be the percentage increase in length?
 (1) 0.01% (2) 0.1% (3) 1% (4) 10%

13. A rough vertical board has an acceleration a along the horizontal so that a block of mass M pressing against it does not fall. The coefficient of friction between block and the board is



- (1) $> \frac{a}{g}$ (2) $> \frac{g}{a}$ (3) $= \frac{a}{g}$ (4) $> \frac{g}{a}$

14. Plates of area A are arranged as shown. The distance between each plate is d, the net capacitance is



- (1) $\frac{\epsilon_0 A}{d}$ (2) $\frac{7\epsilon_0 A}{d}$ (3) $\frac{6\epsilon_0 A}{d}$ (4) $\frac{5\epsilon_0 A}{d}$

15. A plane wave of wavelength 6250 Å is incident normally on a slit of width 2×10^{-2} cm. The width of the principal maximum on a screen distant 50cm will be
 (1) 312.5×10^{-3} cm (2) 312.5×10^{-6} m (3) 312.5×10^{-3} m (4) 312.5×10^{-6} cm

16. The heat radiated per unit area in 1 hour by a furnace whose temperature is 3000 K is ($\sigma = 5.7 \times 10^{-8} \text{ W m}^{-2} \text{ K}^{-4}$)
 (1) 1.7×10^{10} J (2) 1.1×10^{12} J (3) 2.8×10^8 J (4) 4.6×10^6 J

Two isolated conducting spheres S_1 and S_2 of radius $\frac{2}{3}R$ and $\frac{1}{3}R$ have $12 \mu\text{C}$ and $-3 \mu\text{C}$ charges, respectively, and are at a large distance from each other. They are now connected by a conducting wire. A long time after this is done the charges on S_1 and S_2 are respectively:
 (1) $4.5 \mu\text{C}$ on both (2) $+4.5 \mu\text{C}$ and $-4.5 \mu\text{C}$ (3) $3 \mu\text{C}$ and $6 \mu\text{C}$ (4) $6 \mu\text{C}$ and $3 \mu\text{C}$

18. A gun fires two bullets at 60° and 30° with horizontal. The bullets strike at some horizontal distance. The ratio of maximum height for the two bullets is in the ratio of
 (1) 2:1 (2) 3:1 (3) 4:1 (4) 1:1

19. A generator has an e.m.f. of 440 Volt and internal resistance of 400Ω. Its terminals are connected to a load of 4000 Ω the voltage across the load is
 (1) 220 Volt (2) 440 Volt (3) 200 Volt (4) 400 Volt

20. Electric field inside a copper wire of length 10 meters, resistance 2 Ω connected to a 10 volt battery is
 (1) 1 Vm^{-1} (2) 0.5 Vm^{-1} (3) 10 Vm^{-1} (4) 5 Vm^{-1}

21. A large number of liquid drops each of radius γ coalesce to form a single drop of radius R . The energy released in the process is converted into kinetic energy of the big drop so formed. The speed of the big drop is (given, surface tension of liquid T , density ρ)

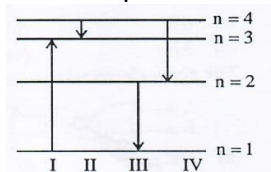
(1) $\sqrt{\frac{T}{\rho} \left(\frac{1}{r} - \frac{1}{R} \right)}$ (2) $\sqrt{\frac{2T}{\rho} \left(\frac{1}{r} - \frac{1}{R} \right)}$ (3) $\sqrt{\frac{4T}{\rho} \left(\frac{1}{r} - \frac{1}{R} \right)}$ (4) $\sqrt{\frac{6T}{\rho} \left(\frac{1}{r} - \frac{1}{R} \right)}$

22. The path difference between the two waves: $y_1 = a_1 \sin \left(\omega t - \frac{2\pi x}{\lambda} \right)$ and

$y_2 = a_2 \sin \left(\omega t - \frac{2\pi x}{\lambda} + \phi \right)$ will be

(1) $\frac{2\pi}{\lambda} \phi$ (2) $\frac{2\pi}{\lambda} \left(\phi - \frac{\pi}{2} \right)$ (3) $\frac{\lambda}{2\pi} \phi$ (4) $\frac{2\pi}{\lambda} \left(\phi + \frac{\pi}{2} \right)$

23. The diagram shows the energy levels for an electron in a certain atom. Which transition shown represents the emission of a photon with the most energy?



(1) IV (2) III (3) II (4) I

24. A body of mass 10 kg and velocity 10 m/s collides with a stationary body of mass 5 kg. After collision both bodies stick to each other, velocity of the bodies after collision will be

(1) $\frac{3}{10} \text{ m/s}$ (2) $\frac{18}{3} \text{ m/s}$ (3) $\frac{9}{20} \text{ m/s}$ (4) $\frac{20}{3} \text{ m/s}$

25. Two particles of mass m_1 and m_2 ($m_1 > m_2$) attract each other with a force inversely proportional to the square of the distance between them. If the particles are initially held at rest and then released, the centre of mass will

(1) move towards m_1 (2) move towards m_2

(3) remain at rest

(4) Nothing can be said

26. The r.m.s velocity of oxygen molecule at 16°C is 474 m/sec . The r.m.s velocity in m/s of hydrogen molecule at 127°C is

(1) 1603

(2) 1896

(3) 2230.59

(4) 2730

27. The oscillating electric and magnetic field vectors of electromagnetic wave are oriented along

(1) the same direction and in phase

(2) the same direction but have a phase difference of 90°

(3) mutually perpendicular directions and are in same phase

(4) mutually perpendicular directions but has a phase difference of 90°

28. At 0°K which of the following properties of a gas will be zero?

(1) kinetic energy

(2) potential energy

(3) vibrational energy

(4) density

29. A uniform rod of mass m , length ℓ , area of cross-section A has Young's modulus Y . If it is hanged vertically, elongation under its own weight will be

(1) $\frac{mg\ell}{2AY}$

(2) $\frac{2mg\ell}{AY}$

(3) $\frac{mg\ell}{AY}$

(4) $\frac{mgY}{A\ell}$

30. If two soap bubbles of different radii are connected by a tube. Then

(1) air flows from the smaller bubble to the bigger bubble

(2) air flows from bigger bubble to the smaller bubble till the sizes are interchanged

(3) air flows from the bigger bubble to the smaller bubble till the sizes become equal

(4) there is no flow of air.

31. In a transistor

(1) both emitter and collector have same length

(2) length of emitter is greater than that of collector

(3) length of collector is greater than that of emitter

(4) any one of emitter and collector can have greater length

32. A brass scale of a barometer gives correct reading at 0°C . $\alpha_{\text{Brass}} = 0.00002/^{\circ}\text{C}$. the barometer reads 75 cm at 27°C . The atmospheric pressure at 0°C is

(1) 74.20cm

(2) 74.62cm

(3) 74.92cm

(4) 75.04cm

33. The total length of a sonometer wire between fixed ends is 110cm . Two bridges are placed to divide the length of wire in ratio $6 : 3 : 2$. The tension in the wire is 400 N and the mass per unit length is 0.01 kg/m . What is the minimum common frequency with which three parts can vibrate?

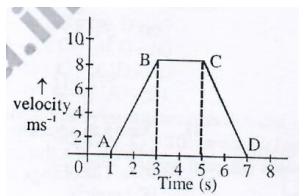
(1) 1100 Hz

(2) 1000 Hz

(3) 166 Hz

(4) 100 Hz

34. For the velocity time graph shown in the figure below the distance covered by the body in the last two seconds of its motion is what fraction of the total distance travelled by it in all the seven seconds?



(1) $\frac{1}{2}$

(2) $\frac{1}{4}$

(3) $\frac{2}{3}$

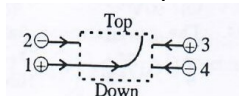
(4) $\frac{1}{3}$

35. A 25 cm long solenoid has radius 2 cm and 500 total number of turns. It carries a current of 15A. If it is equivalent to a magnet of the same size and magnetization \vec{M} (magnetic moment/volume), the $|\vec{M}|$ is
 (1) $3000\pi \text{ Am}^{-1}$ (2) $3\pi \text{ Am}^{-1}$ (3) 3000 Am^{-1} (4) 300 Am^{-1}

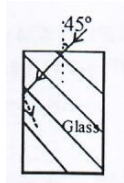
SECTION-B

36. A stone is thrown with a velocity u making an angle θ with the horizontal. The horizontal distance covered by its fall to ground is maximum when the angle θ is equal to
 (1) 0° (2) 30° (3) 45° (4) 90°

37. The figure shown the path of a positively charged particle 1 through a rectangular region of uniform electric field as shown in the figure. What is the direction of electric field and the direction of particles 2, 3 and 4?

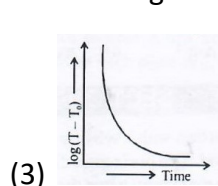
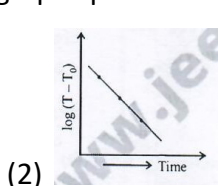
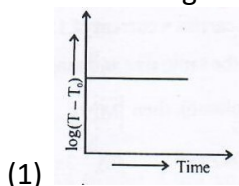


- (1) Top, down, top, down (2) Top, down, down, top
 (3) Down, top, top, down (4) Down, top, down, down
38. A circular disc A of radius r is made from an iron plate of thickness t and another circular disc B of radius $4r$ is made from an iron plate of thickness $t/4$. The relation between the moments of inertia I_A and I_B is
 (1) $I_A > I_B$ (2) $I_A = I_B$
 (3) $I_A < I_B$ (4) depends on the actual values of t and r
39. The threshold frequency for a photosensitive metal is 3.3×10^{14} Hz. If light of frequency 8.2×10^{14} Hz is incident on this metal, the cut-off voltage for the photoelectric emission is nearly
 (1) 2V (2) 3V (3) 5V (4) 1V
40. A light ray falls on a rectangular glass slab as shown. The index of refraction of the glass, if total internal reflection is to occur at the vertical face, is



- (1) $\sqrt{\frac{3}{2}}$ (2) $\frac{(\sqrt{3}+1)}{2}$ (3) $\frac{(\sqrt{2}+1)}{2}$ (4) $\frac{\sqrt{5}}{2}$
41. During an adiabatic compression, 830 J of work is done on 2 moles of a diatomic ideal gas to reduce its volume by 50%. The change in its temperature is nearly: ($R = 8.3 \text{ JK}^{-1} \text{ mol}^{-1}$)
 (1) 40K (2) 33K (3) 20K (4) 14K

42. Which of the given graphs proves Newton's law of cooling?



(4) None of these

43. When the rms voltages V_L , V_C and V_R are measured respectively across the inductor L, the capacitor C and the resistor R in a series LCR circuit connected to an AC source, it is found that the ratio $V_L : V_C : V_R = 1 : 2 : 3$. If the rms voltage of the AC sources is 100 V, the V_R is close to:
 (1) 50V (2) 70V (3) 90V (4) 100V

44. The gravitational field in a region is given by $\vec{g} = 5N/kg \hat{j} + 12N/kg \hat{j}$. The change in the gravitational potential energy of a particle of mass 1 kg when it is taken from the origin to a point (7m, -3 m) is:

- (1) 71 J (2) $13\sqrt{58}J$ (3) -71 J (4) 1 J

45. The counting rate observed from a radioactive source at $t = 0$ was $1600 \text{ counts s}^{-1}$, and $t=8 \text{ s}$, it was $100 \text{ counts s}^{-1}$. The counting rate observed as counts s^{-1} at $t = 6 \text{ s}$ will be

- (1) 250 (2) 400 (3) 300 (4) 200

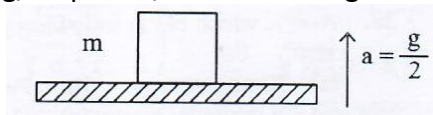
46. A galvanometer coil has a resistance of 15Ω and gives full scale deflection for a current of 4 mA. To convert it to an ammeter of range 0 to 6 A

- (1) $10 \text{ m}\Omega$ resistance is to be connected in parallel to the galvanometer
 (2) $10 \text{ m}\Omega$ resistance is to be connected in series with the galvanometer
 (3) 0.1Ω resistance is to be connected in parallel to the galvanometer
 (4) 0.1Ω resistance is to be connected in series with the galvanometer

47. The magnifying power of a telescope is 9. When it is adjusted for parallel rays, the distance between the objective and the eye piece is found to be 20 cm. the focal length of lenses are

- (1) 18cm, 2cm (2) 11cm, 9cm (3) 10cm, 10cm (4) 15cm, 5cm

48. A block of mass m is kept on a platform which starts from rest with constant acceleration $g/2$ upward, as shown in fig. work done by normal reaction on block in time t is:



- (1) $-\frac{m g^2 t^2}{8}$ (2) $\frac{m g^2 t^2}{8}$ (3) 0 (4) $\frac{3m g^2 t^2}{8}$

49. In a building there are 15 bulbs of 45 W, 15 bulbs of 100 W, 15 small fans of 10 W and 2 heaters of 1 kW. The voltage of electric main is 220 V. The minimum fuse capacity (rated value) of the building will be:

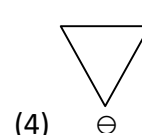
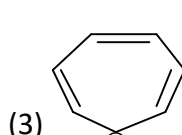
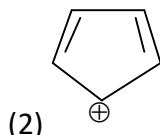
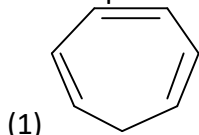
- (1) 10 A (2) 25 A (3) 15 A (4) 20 A

50. A uniform thin rope of length 12 m and mass 6 kg hangs vertically from a rigid support and a block of mass 2 kg is attached to its free end. A transverse short wave-train of wavelength 6 cm is produced at the lower end of the rope. What is the wavelength of the wavetrain (in cm) when it reaches the top of the rope?

- (1) 3 (2) 6 (3) 12 (4) 9

SECTION-A

51. Which compound amongst the following is not an aromatic compound?

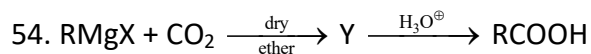


52. Identify the incorrect statement from the following

- (1) Li is the strongest reducing agent among the alkali metal
 (2) Alkali metals react with water to form their hydroxides
 (3) The oxidation number of K in KO_2 is +4
 (4) I.E of alkali metal decreases from top to bottom in one group

53. Which statement regarding polymer is not correct?

- (1) Thermosetting polymers are reusable
- (2) Elastomers have polymers chains held together by weak intermolecular process
- (3) Fibres possess high tensile strength
- (4) Thermoplastic polymers are capable of repeatedly softening and hardening with heat changes



- (1) $(\text{RCOO})_2\text{Mg}$ (2) $\text{RCOO}^{\ominus}\text{Mg}^{\oplus}\text{X}$ (3) $\text{R}_2\text{CO}^{\ominus}\text{Mg}^{\oplus}\text{X}$ (4) $\text{RCOO}^{\ominus}\text{X}^{\oplus}$

55. **Assertion (A):** ICl is more radioactive than I_2 .

Reason (R): ICl bond is weaker than I-I bond

- (1) (A) is not correct but (R) is correct
- (2) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- (3) Both (A) and (R) are correct and (R) is the incorrect explanation of (A)
- (4) (A) is correct but (R) is incorrect

56. Identify the incorrect statement from the following

- (1) The shapes of d_{xy} , d_{yz} and d_{zx} orbitals are similar to each other and $d_{x^2-y^2}$, d_{z^2} are similar to each other
- (2) All the $5d$ orbitals are different in size when compared to respective $4d$ orbitals
- (3) All the $4d$ orbitals have shapes similar to respective $3d$ orbitals
- (4) In an atom all the five $3d$ orbitals are equal in energy in free state

57. The IUPAC name of an element with atomic number 119 is

- (1) Ununoctium (2) Ununennium (3) Unnilennium (4) Unununnium

58. In one molar solution that contains 0.5 mole of salute, there is

- (1) 1000g of solvent (2) 500 ml of solvent (3) 500g of solvent (4) 100 ml of solvent

59. Match List – I with List – II

List – I (Drug class)	List – II (Drug molecule)
1) Antacids	(i) Salvarsan
2) Anti histamines	(ii) Morphine
3) Analgesics	(iii) Cimetidine
4) Anti microbial	(iv) Seldane

Choose the correct answer.

- (1) 1-iv, 2-iii, 3-i, 4-iii (2) 1-iii, 2-ii, 3-iv, 4-i (3) 1-iii, 2-iv, 3-ii, 4-i (4) 1-i, 2-iv, 3-ii, 4-iii

60. Choose the correct statement

- (1) Both diamond and graphite are used as dry lubricants
- (2) Diamond and graphite have two dimensional networks
- (3) Diamond is covalent and graphite is ionic
- (4) Diamond is sp^3 hybridized and graphite is sp^2 hybridized

61. Which amongst the following is incorrect statement?

- (1) O_2^+ ion is diamagnetic
- (2) The basic order of O_2^+ , O_2 , O_2^- and O_2^{2-} are 2.5, 2, 1.5 and 1
- (3) C_2 molecule has four electrons in its degenerate π molecular orbitals
- (4) H_2^+ ion has one electron

62. Given below are two statements.

- I: The acidic strength of monosubstituted nitrophenol is higher than phenol because of electron withdrawing nitro group

II: *o*-nitro phenol, *m*-nitro phenol and *p*-nitro phenol will have same acidic strength as they have same acidic strength as they have one nitro group attached to the phenolic ring

- (1) I is incorrect but II is correct (2) Both I and II are correct
 (3) Both I and II are incorrect (4) I is correct but II is incorrect

63. The incorrect statement regarding enzymes is

- (1) Enzymes are very specific for a particular reaction and substrate
 (2) Enzymes are biocatalyst
 (3) Like chemical catalyst enzymes reduce the activation energy of bioprocess
 (4) Enzymes are polysaccharides

64. The incorrect statement regarding chirality is

- (1) A racemic mixture shows zero optical rotation
 (2) S_N1 reaction yields 1 : 1 mixture of both enantiomers
 (3) The product obtained by S_N2 reactions of haloalkane having chirality at reactive site shows inversion of configuration

65. Given below are two statements

I: In the coagulation of a negative sol, the flocculating power of the three given ions is in the order $Al^{3+} > Ba^{2+} > Na^+$.

II: In the coagulation of a positive sol, the flocculating power of the three given salts is in the order $NaCl > Na_2SO_4 > Na_3PO_4$

- (1) I is incorrect but II is correct (2) Both I and II are correct
 (3) Both I and II are incorrect (4) I is correct but II is incorrect

66. Match

List – I	List – II
(a) Li	(i) Absorbent for CO_2
(b) Na	(ii) Electrochemical cells
(c) KOH	(iii) Coolant in fast breeder reactions
(d) CS	(iv) Photo electric cell

Choose the correct answer.

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

67. At 298K, the standard electrode potential of Cu^+ / Cu , Zn^+ / Zn , Fe^+ / Fe and Ag^+ / Ag are 0.34V, -0.76V, -0.44V and +0.80V respectively on the basis of SEP, predicts which cannot occur

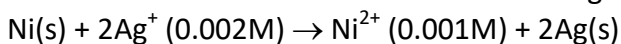
- (1) $2CuSO_4(aq) + 2Ag(s) \rightarrow 2Cu(s) + Ag_2SO_4$
 (2) $CuSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Cu(s)$
 (3) $CuSO_4(aq) + Fe(s) \rightarrow FeSO_4(aq) + Cu(s)$
 (4) $FeSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Fe(s)$

68. **I:** The boiling points of aldehydes and ketones are higher than hydrocarbons of comparable molecular masses because of weak molecular association in aldehydes and ketones due to dipole-dipole interaction.

II: The boiling points of aldehyde and ketones are lower than the alcohols of similar molecular masses due to absence of H-bonding

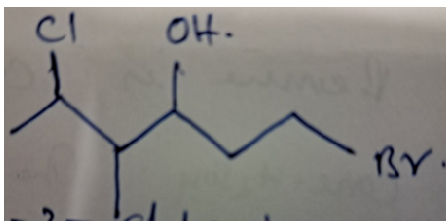
- (1) I is incorrect but II is correct (2) both I and II are correct
 (3) Both I and II are correct (4) I is correct but II is incorrect

69. Find the emf of the cell in which the following reaction takes place at 298K

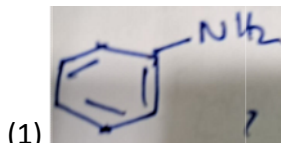


[Given that $E^\circ_{\text{cell}} = 10.5\text{V}$, $\frac{2.303RT}{F} = 0.059$ at 298K]

- (1) 1.05V (2) 1.4115V (3) 1.385 V (4) 0.9615 V
70. The IUPAC name of the complex $[\text{Ag}(\text{H}_2\text{O})_2][\text{Ag}(\text{CN})_2]$ is
 (1) diaqua silver (i) dicyanide argentite (i) (2) dicyanide silver (ii) diaquaargentate
 (3) diaqua silver (ii) dicyanide argentite (ii) (4) dicyanide silver (i) diaqua argentite (i)
71. Gadolinium has a low value of third ionisation enthalpy because of
 (1) high basic character (2) small size
 (3) high exchange enthalpy (4) high electronic activity
72. In the natural or slightly alkaline medium, KMnO_4 oxidises iodide into iodate. The change in oxidation state of manganese in this reaction is from
 (1) +6 to +5 (2) +7 to +4 (3) +6 to +4 (4) +7 to +3
73. A 10 litre flask contains 64 gram of oxygen at 27°C . The pressure inside the flask in bar is (And O_2 gas is behaving ideally) ($R = 0.0831 \mu\text{ bar K}^{-1} \text{ mol}^{-1}$)
 (1) 4.9 (2) 2.5 (3) 498.6 (4) 49.8
74. Copper crystallises in FCC unit cell with cell edge length of 3.608×10^{-8} cm. The density of copper is 8.92 g cm^{-3} . Calculate the atomic mass of copper.
 (1) 65 μ (2) 63.1 μ (3) 31.55 μ (4) 60 μ
75. The order of energy absorbed which is responsible for the color of complexes
 (A) $[\text{Ni}(\text{H}_2\text{O})_2(\text{en})_2]^{2+}$ (B) $[\text{Ni}(\text{H}_2\text{O})_4(\text{en})_2]^{2+}$ (C) $[\text{Ni}(\text{en})_3]^{2+}$
 (1) $B > A > C$ (2) $A > B > C$ (3) $C > B > A$ (4) $C > A > B$
76. The pollution due to oxides of sulphur gets enhanced due to the presence of
 (a) particulate matter (b) ozone (c) hydrocarbon (d) hydrogen peroxide
 (1) a, c, d only (2) a, d only (3) a, b, d only (4) b, c, d only
77. The correct IUPAC name of the following compound is



- (1) 6-bromo-4-methyl-2-chloro hexan-4-ol
 (2) 1-bromo-2-chloro-4-methylhexan-4-ol
 (3) 6-bromo-2-chloro-4-methylhexan-4-ol
 (4) 1-bromo-4-methyl-5-chloro hexan-3-ol
78. Which of the following square of reaction is suitable to synthesize chlorobenzene

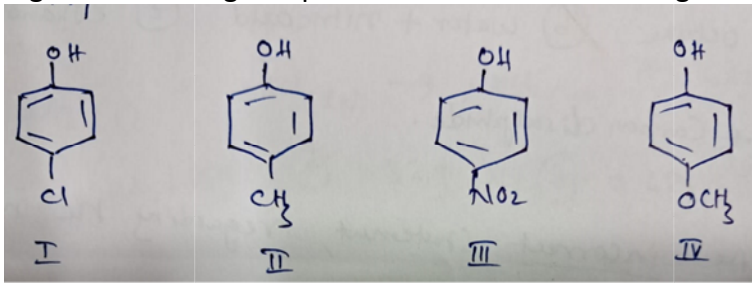


- (2) Benzene, Cl_2 , anhydrous FeCl_3

- (3) Phenol, NaNO_2 , HCl, CuCl



79. The p^{H} of the solution containing 50ml each of 0.10M sodium acetate and 0.01M acetic acid is (Given p^{K_a} of $\text{CH}_3\text{COOH} = 4.57$)
 (1) 2.57 (2) 5.57 (3) 3.57 (4) 4.57

80. What mass of 95% pure CaCO_3 will be required to neutralize 50 ml of 0.5M HCl solution according to the following reaction?
 $\text{CaCO}_3(\text{l}) + 2\text{HCl}(\text{aq}) \rightarrow \text{CaCl}_2(\text{aq}) + \text{CO}_2 + 2\text{H}_2\text{O}(\text{l})$
 (1) 9.50g (2) 1.25g (3) 1.32g (4) 3.65g
81. Nitration of benzene is carried out with concentrated HNO_3 in presence of concentrated H_2SO_4 in to provide
 (1) Nucleophile during the reaction (2) Free radical during the reaction
 (3) Electrophile during the reaction (4) Catalyst during the reaction
82. Some meta directing substitutes in aromatic substitution are given which one is most deactivating?
 (1) $-\text{COOH}$ (2) $-\text{NO}_2$ (3) $-\text{C}\equiv\text{N}$ (4) $-\text{CO}_3\text{H}$
83. In calcium fluoride having the fluorite structure, the coordination numbers for calcium ion (Ca^{+2}) and fluoride ion (F^-) are
 (1) 4 & 2 (2) 6 & 6 (3) 8 & 4 (4) 4 & 8
84. The mixture that from maximum boiling azeotrope is
 (1) heptane + octane (2) water + nitric acid
 (3) ethanol + water (4) acetone + carbon disulphide
85. Identify the incorrect statement, regarding the molecule XeO_4 .
 (1) XeO_4 molecule is square planar (2) There are four $p\pi-d\pi$ bonds
 (3) There are four sp^3-p, σ bonds (4) XeO_4 molecule is tetrahedral
86. The pair of compound boiling metals in their highest oxidation state is
 (1) $[\text{Fe}(\text{CN})_6]^{3-}$ and $[\text{Cu}(\text{CN})_6]^{2-}$ (2) $[\text{FeCl}_4]^-$ and CO_2O_3
 (3) $[\text{NiCl}_4]^{2-}$ and $[\text{COCl}_4]^{2-}$ (4) MnO_2 and CrO_2Cl_2
87. The type of Isomerism shown by the complex $[\text{CoCl}_2(\text{en})_2]$ is
 (1) Geometrical isomerism (2) Coordination isomerism
 (3) Ionisation isomerism (4) Linkage isomerism
88. Arrange the following compounds in order of decreasing acidity
- 
- (1) $\text{IV} > \text{III} > \text{I} > \text{II}$ (2) $\text{II} > \text{IV} > \text{I} > \text{III}$ (3) $\text{I} > \text{II} > \text{III} > \text{IV}$ (4) $\text{III} > \text{I} > \text{II} > \text{IV}$
89. Which of the following reaction is appropriate for converting acetamide to methanamine?
 (1) Hoffmann hypobromamide reaction (2) Stephens reaction
 (3) Gabriel phthalamide synthesis (4) carbylamine reaction
90. In a protein molecule various amino acids are linked together by
 (1) peptide bond (2) dative bond (3) α -glycosidic bond (4) β -glycosidic bond
91. Which one of the following is biodegradable polymers?
 (1) High density polythene (2) PVC

(3) Nylon-6

(4) PHBV

92. The artificial sweetener stable at cooking temperature and does not provide calories is

- (1) saccharin (2) aspartame (3) sucralose (4) alitame

93. The strongest acid among the following is

- (1) CH_3COOH (2) F_3CCOOH (3) Cl_3CCOOH (4) Br_3CCOOH

94. When SO_2 is passes through acidified $\text{K}_2\text{Cr}_2\text{O}_7$ solution

- (1) The solution turns blue (2) The solution turns blue
(3) The solution is decolorised (4) SO_2 is reduced

95. What is the product, A in the following reaction $\text{Cl} \text{---} \text{---} \text{---} \text{Cl} + \text{Mg} \rightarrow \text{A}$

- (1) Δ (2) $\text{Cl} - \text{Mg} \text{---} \text{---} \text{Mg} + \text{Cl}$
(3) Both (1) and (2) (4) None of these

96. $4d$, $5p$, $5f$ and $6p$ orbitals are arranged in the order of decreasing energy the correct option is

- (1) $5f > 6p > 4d > 5p$ (2) $5f > 6p > 5p > 4d$ (3) $6p > 5f > 5p > 4d$ (4) $6p > 5f > 4d > 5p$

97. For the second period elements the correct increasing order of first ionization enthalpy is

- (1) $\text{Li} < \text{Be} < \text{B} < \text{C} < \text{O} < \text{N} < \text{F} < \text{Ne}$ (2) $\text{Li} < \text{Be} < \text{B} < \text{C} < \text{N} < \text{O} < \text{F} < \text{Ne}$
(3) $\text{Li} < \text{B} < \text{Be} < \text{C} < \text{O} < \text{N} < \text{F} < \text{Ne}$ (4) $\text{Li} < \text{B} < \text{Be} < \text{C} < \text{N} < \text{O} < \text{F} < \text{Ne}$

98. Which are of the following molecules contains no π bond?

- (1) SO_2 (2) NO_2 (3) CO_2 (4) H_2O

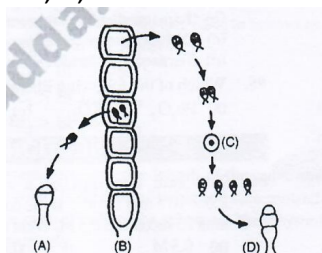
99. The volume occupied by 1.8g of water vapour at 374°C and 1 bar pressure will be ($R = 0.083 \text{ LK}^{-1}\text{mol}^{-1}$)

- (1) 96.66L (2) 55.87L (3) 3.10L (4) 5.37L

100. Which of the following cannot act both as Bronsted acid and Bronsted base?

- (1) HCO_3^- (2) NH_3 (3) HCl (4) HSO_4^-

101. Life cycle of *Ulothrix* is shown in the diagram. The correct ploidy levels at the four stages. A, B, C and D are:



- (1) A : n B : n C : 2n D : n (2) A : n B : n C : 2n D : 2n
(3) A : 2n B : n C : 2n D : n (4) A : n B : n C : n D : n

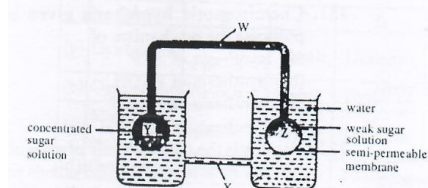
102. Connecting link between glycolysis and Krebs cycle is / before entering Krebs cycle pyruvate is changed to

- (1) oxaloacetate (2) phosphoenol pyruvate
(3) pyruvate (4) acetyl CoA

103. Differentiation of shoot is controlled by

- (1) high gibberellins : cytokinin ratio (2) high auxin : cytokinin ratio
(3) high cytokinin : auxin ratio (4) high gibberellin : auxin ratio

104. During double fertilization in plants, one sperm fuses with the egg cell and the other sperm fuses with
 (1) synergids cell (2) central cell (3) antipodal cell (4) nucellar cell
105. The diagram below is a model demonstrating the mass flow hypothesis of translocation.

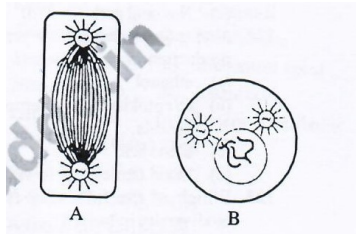


What are the structures represented by W, X, Y and Z and what is the direction of flow of solution along W?

Phloem xylem roots leaves direction of flow along W

- (1) W X Y Z from Z to Y (2) W X Z Y from Y to Z
 (3) X W Z Y from Z to Y (4) X W Z Y from Y to Z
106. Female gametophyte of angiosperms is represented by
 (1) Ovule (2) Megaspore mother cell
 (3) Embryo sac (4) Nucellus
107. Today, concentration of green house gases is high because of
 (1) Use of refrigerator (2) Increased combustion of oil and coal
 (3) Deforestation (4) All the above
108. Cross between AaBB and aaBB will form
 (1) 1 AaBB : 1 aaBB (2) All AaBB]
 (3) 3 AaBB : 1 aaBB (4) 1 AaBB : 3 aaBB
109. Which of the following is the most stable ecosystem?
 (1) Forest (2) Desert (3) Mountain (4) Ocean
110. Parthenocarpic tomato fruits can be produced by
 (1) treating the plants with low concentrations of gibberellic acid and auxins
 (2) raising the plants from vernalized seeds
 (3) treating the plants with phenylmercuric acetate
 (4) removing androecium of flowers before pollen grains are released
111. A gene pair hides the effect of another gene. The phenomenon is
 (1) epistasis (2) dominance (3) mutation (4) None of the above
112. What would happen if in a gene encoding a polypeptide of 50 amino acids, 25th codon (UAU) is mutated to UAA?
 (1) A polypeptide of 25 amino acids will be formed.
 (2) Two polypeptides of 24 and 25 amino acids will be formed
 (3) A polypeptides of 49 amino acids will be formed
 (4) A polypeptide of 25 amino acids will be formed
113. The rate at which light energy is converted to the chemical energy of organic molecules in the ecosystem's is
 (1) net primary productivity (2) gross primary productivity
 (3) net secondary productivity (4) gross secondary productivity
114. Which of the following pairs of the cell structures are important for determining the movement of molecules in or out of the plant cell?
 (1) Tonoplast + Vacuolar membrane (2) Tonoplast + Cell membrane
 (3) Cell wall + Cell membrane (4) Cell wall + Tonoplasts

115. Which stage of cell division do the following figures A and B represent respectively?



- | Fig. A | - | Fig. B |
|-------------------|---|-----------|
| (1) Metaphase | - | Telophase |
| (2) Telophase | - | Metaphase |
| (3) Late Anaphase | - | Prophase |
| (4) Prophase | - | Anaphase |

116. Pteridophytes differ from mosses/bryophytes in possessing

- | | |
|-----------------------------|------------------------------------|
| (1) independent gametophyte | (2) well developed vascular system |
| (3) archegonia structure | (4) flagellate spermatozooids |

117. Centrioles and centrosomes occur in the cells of

- | | |
|--------------------------------|----------------------|
| (1) green plants | (2) animals |
| (3) bacteria and cyanobacteria | (4) both (2) and (3) |

118. Mycorrhiza is

- (1) a symbiotic association of plant roots and certain fungi
- (2) an association of algae with fungi
- (3) a fungus parasitizing root system of higher plants
- (4) an association of Rhizobium with the roots of leguminous plants.

119. *Laminaria*(kelp) and *Fucus* (rock weed) are the examples of

- | | | | |
|---------------|-----------------|-----------------|------------------------|
| (1) red algae | (2) brown algae | (3) green algae | (4) golden brown algae |
|---------------|-----------------|-----------------|------------------------|

120. The outer layer of vacuole is called

- | | | | |
|---------------|---------------|------------------|----------------|
| (1) cell wall | (2) tonoplast | (3) plasma layer | (4) leucoplast |
|---------------|---------------|------------------|----------------|

121. A narrow layer of thin walled cells found between phloem/bark and wood of a dicot is

- | | | | |
|------------------|----------------------|----------------|---------------|
| (1) cork cambium | (2) vascular cambium | (3) endodermis | (4) pericycle |
|------------------|----------------------|----------------|---------------|

122. Bulk flow of substances over the longer distances through the vascular tissue is called

- | | | | |
|----------------------|---------------------------|----------------------|-------------------|
| (1) simple diffusion | (2) facilitated diffusion | (3) active transport | (4) translocation |
|----------------------|---------------------------|----------------------|-------------------|

123. Which one of the following is not included under in-situ conservation?

- | | | | |
|----------------------|-----------------------|-------------------|---------------|
| (1) Botanical garden | (2) Biosphere reserve | (3) National park | (4) Sanctuary |
|----------------------|-----------------------|-------------------|---------------|

124. *Monascus purpureus* is a yeast used commercially in the production of

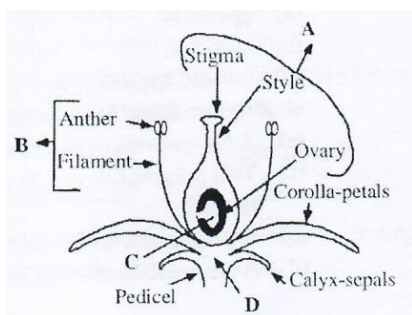
- (1) ethanol
- (2) streptokinase for removing clots from the blood vessels
- (3) Citric acid
- (4) blood cholesterol lowering statins

125. Which of the following is considered a hot-spot of biodiversity in India?

- | | |
|-------------------------|-------------------|
| (1) Indo-Gangetic Plain | (2) Eastern Ghats |
| (3) Aravalli Hills | (4) Western Ghats |

126. Which one of the following shows concept of species-area relationship?

- (1) The number of species in an area increases with the size of the area
- (2) Larger species require larger habitat areas than do smaller species



	A	B	C	D
(1)	Gynoecium	Megasporophyll	Ovule	Thalamus
(2)	Gynoecium	Stamen	Seed	Thalamus
(3)	Microsporophyll	Stamen	Ovule	Thalamus
(4)	Gynoecium	Stamen	Ovule	Thalamus

138. Match Column-I with Column-II and select the correct option from the coded given below.

Column I	Column II
A. Disintegration of nuclear membrane	(i) Anaphase
B. Appearance of nucleolus	(ii) Prophase
C. Division of centromere	(iii) Telophase
D. Replication of DNA	(iv) S-phase

- (1) A-(ii), B-(iii), C-(i), D-(iv)
 (2) A-(ii), B-(iii), C-(iv), D-(i)
 (3) A-(iii), B-(ii), C-(i), D-(iv)
 (4) A-(iii), B-(ii), C-(iv), D-(i)

139. Match the following and choose the correct option

Column I	Column II
A. Ovary	I. Groundnut, mustard
B. Ovule	II. Guava, orange, mango
C. Wall of ovary	III. Pericarp
D. Fleshy fruits	IV. Seed
E. Dry fruits	V. Fruit

- (1) A-V; B-IV, C-III; D-II; E-I
 (2) A-I; B-II; C-III; D-IV; E-V
 (3) A-I; B-III; C-II; D-IV; E-V
 (4) A-V; B-IV; C-I; D-II; E-III

140. Given below are the diagrammatic representation of position of floral parts on thalamus, condition of ovary and example. Find the correctly matched combination?

Position of floral parts on thalamus	Condition of ovary	Example
(a)	\bar{G}	Cucumber
(b)	G-	Brinjal
(c)	\underline{G}	Plum
(d)	\bar{G}	Rose

141. Consider the following statements concerning food chains:

- (i) Removal of 80% tigers from an area resulted in greatly increased growth of vegetation.
- (ii) Removal of most of the carnivores resulted in an increased population of deers.
- (iii) The length of food chains is generally limited to 3-4 trophic levels due to energy loss.
- (iv) The length of food chains may vary from 2 to 8 trophic levels.

Which two of the above statements are correct?

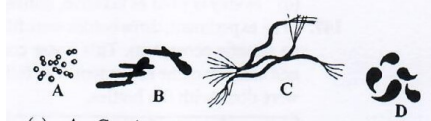
- (1) (ii) and (iii) (2) (iii) and (iv) (3) (i) and (iv) (4) (i) and (ii)

142. Match Column-I with Column-II and select the correct answer from the codes given below.

Column I	Column II
A. Trichoderma	(i) Nitrification
B. Streptomyces	(ii) Biocontrol agent
C. Nitrosomonas	(iii) Lactic acid
D. Lactobacillus	(iv) Source of antibiotic

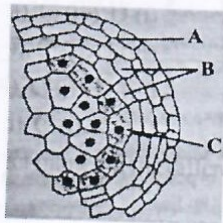
- (1) A-(ii), B-(iii), C-(iv), D-(i) (2) A-(ii), B-(iv), C-(i), D-(iii)
 (3) A-(iii), B-(i), C-(ii), D-(iv) (4) A-(iv), B-(ii), C-(i), D-(iii)

143. Choose the correct name of the different bacterial according to their shapes.



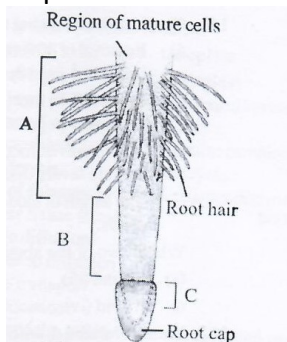
- (1) A-Cocci, B-Bacilli, C-Spirilla, D-Vibrio (2) A-Bacilli, B-Cocci, C-Spirilla, D-Vibrio
 (3) A-Spirilla, B-Bacilli, C-Cocci, D-Vibrio (4) A-Spirilla, B-Vibrio, C-Cocci, D-Bacilli

144. The given diagram shows microsporangium of a mature anther. Identify A, B and C.



- (1) A-Middle layer, B-Endothecium, C-Tapetum
 (2) A-Endothecium, B-Tapetum, C-Middle layer
 (3) A-Endothecium, B-Middle layer, C-Tapetum
 (4) A-Tapetum, B-Middle layer, C-Endothecium

145. The given figure shows the regions of root tip with labeling as A, B and C. Choose the option which shows the correct labeling of A, B and C.



- (1) A-Zone of elongation, B-Zone of meiosis, C-zone of mitosis
 (2) A-Zone of maturation, B-zone of meristematic activity, C-Zone of elongation
 (3) A-Zone of mitosis, B-zone of elongation, C-zone of root cap.
 (4) A-Region of maturation, B-Region of elongation, C-Zone of meristematic activity.

146. Select the incorrect statement from the following.

- (1) Apiculture provides generating additional income industry for the farmers.
- (2) Bee keeping is labour intensive process.
- (3) Bee venom is used to cure certain diseases like gout and arthritis.

157. A cricket player is fast chasing a ball in the field. Which one of the following groups of bones is directly contributing in this movement?
 (1) Femur, malleus, tibia, metatarsals (2) Pelvis, ulna, patella, tarsals
 (3) Sternum, femur, tibia, fibula (4) Tarsals, femur, metatarsals, tibia
158. In the chemistry of vision in mammals, the photosensitive substance is called
 (1) sclerotin (2) retinol (3) rhodopsin (4) melanin
159. Vaccine against polio viruses is an example of
 (1) auto-immunization (2) passive immunization
 (3) active immunization (4) simple immunization
160. Egg is liberated from ovary in
 (1) secondary oocyte stage (2) primary oocyte stage
 (3) oogonial stage (4) mature ovum stage
161. Animals that can tolerate a narrow range of salinity are
 (1) stenohaline (2) euryhaline (3) anadromous (4) catadromous
162. The most important component of the oral contraceptive pills is
 (1) progesterone (2) growth hormone (3) thyroxine (4) luteinizing hormone
163. Foetal ejection reflex in human female is induced by
 (1) release oxytocin from pituitary (2) fully developed foetus and placenta
 (3) differentiation of mammary glands (4) pressure exerted by amniotic fluid
164. In human female the blastocyst
 (1) Forms placenta even before implantation
 (2) Gets implanted into uterus 3 days after ovulation
 (3) Gets nutrition from uterine endometrial secretion only after implantation
 (4) Gets implanted in endometrium by the trophoblast cells
165. Which one of the following is an exotic Indian fish?
 (1) Catla catla (2) Heteropneustes fossilis
 (3) Cyprinus carpio (4) Labeo rohita
166. Which of the following primate is the closest relative of humans?
 (1) Rhesus monkey (2) Orangutan
 (3) Gorilla (4) Gibbon
167. What was the most significant trend in evolution of modern man (*Homo sapiens*) from his ancestors?
 (1) Upright posture (2) Shortening of jaws
 (3) Binocular vision (4) Increasing brain capacity
168. Classification of Porifera is based on
 (1) branching (2) spicules (3) reproduction (4) symmetry
169. The kind of epithelium which forms the inner walls of blood vessels is]
 (1) cuboidal epithelium (2) columnar epithelium
 (3) ciliated columnar epithelium (4) squamous epithelium
170. Myoglobin is present in
 (1) all muscle fibres (2) white muscle fibres only
 (3) red muscle fibres only (4) both white and red muscle fibres

171. Man, in the life cycle of Plasmodium, is
 (1) primary host b) secondary host (3) intermediate host (4) none of these
172. The most active phagocytic white blood cells are
 (1) neutrophils and eosinophils (2) neutrophils and eosinophils
 (3) lymphocytes and macrophages (4) eosinophils and lymphocytes
173. Human insulin is being commercially produced from a transgenic species of
 (1) Escherichia (2) Mycobacterium (3) Rhizobium (4) Saccharomyces
174. Obstacle to large scale transplantation of organs is
 (1) insufficiency of organ donors (2) immunological rejection of foreign bodies
 (3) religious or ethnic considerations (4) lack of effective surgical techniques
175. Dolly sheep was obtained by –
 (1) cloning the udder cell (somatic cell) fused with enucleated oocyte
 (2) Cloning of gametes
 (3) Tissue culture
 (4) None of the above
176. Which one of the following correctly represents the normal adult human dental formula?
 (1) $\frac{3}{3}, \frac{1}{1}, \frac{3}{2}, \frac{1}{1}$ (2) $\frac{2}{2}, \frac{1}{1}, \frac{3}{2}, \frac{3}{3}$ (3) $\frac{2}{2}, \frac{1}{1}, \frac{2}{2}, \frac{3}{3}$ (4) $\frac{3}{3}, \frac{1}{1}, \frac{3}{3}, \frac{3}{3}$
177. Toxic substances are detoxified in human body in
 (1) Kidney (2) lungs (3) liver (4) stomach
178. Choose the correct option with appropriate medium of circulation and transport against each animal.
- | Column A | | Column B | |
|-----------------|-------------|-------------------------------|-----------|
| A. Hydra | | I. Water surrounding the body | |
| B. Octopus | | II. Haemolymph | |
| C. Prawn | | III. Blood | |
| (1) A-(iii) | (2) B-(iii) | (3) B-(ii) | (4) C-(i) |
179. Dark purplish gland lying on the left side of abdomen is called:
 (1) liver 9B0 spleen (3) gall bladder (4) appendix
180. Which cells do not form layer and remain structurally separate?
 (1) Epithelial cells (2) Muscle cells (3) Nerve cells (4) Gland cells
181. In an egg, the type of cleavage is determined by
 (1) shape and size of the sperm
 (2) size and location of the nucleus
 (3) amount and distribution of York
 (4) number of egg membranes
182. Select the option including all sexually transmitted diseases.
 (1) Gonorrhoea, Malaria, Genital herpes
 (2) AIDS, Malaria, Filariasis
 (3) Cancer, AIDS, Syphilis
 (4) Gonorrhoea, Syphilis, Genital herpes
183. The stage transferred into the uterus after induced fertilization of ova in the laboratory is
 (1) Zygote (2) Embryo at 4 blastomere stage
 (3) Embryo at 2 blastomere stage (4) Morula

184. The incorrect statement with regard to Haemophilia is :
 (1) It is a recessive disease (2) It is a dominant disease
 (3) A single protein involved in the clotting of blood is affected
 (4) It is a sex-linked disease
185. Thorn of Bougainvillea and tendril of cucurbita are example of
 (1) analogous organs (2) homologous organs
 (3) vestigial organs (4) retrogressive evolution

SECTION-B

186. Which of the following changes occur in diaphragm and intercostals muscles when expiration of air takes place?
 (1) External intercostals muscles relax and diaphragm contracts
 (2) External intercostals muscles contract and diaphragm relaxes
 (3) External intercostals muscles and diaphragm relax
 (4) External intercostals muscles and diaphragm contract

187. Match the bones of column A with their corresponding number in column B.

Column A		Column B	
A. True ribs	I.	14	
B. Cervical vertebrae	II.	7	
C. Cranium bones	III.	8	
D. Vertebrochondral ribs	IV.	6	
(1) A-II; B-III; C-I; D-IV		(2) A-I; B-II; C-III; D-IV	
(3) A-II; B-III; C-IV; D-III		(4) A-I; B-III; C-II; D-IV	

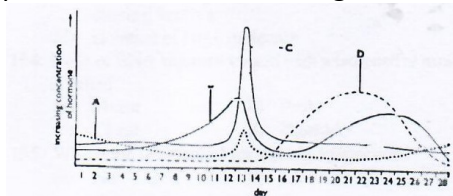
188. Match the disease in Column I with the appropriate items (pathogen / prevention / treatment) in column II.

Column A		Column B	
A. Amoebiasis	I.	Treponema pallidum	
B. Diphtheria	II.	Use only sterilized food and water	
C. Chloera	III.	DPT Vaccine	
D. Syphilis	IV.	Use oral rehydration therapy	
(1) A-II; B-III; C-IV; D-I		(2) A-I; B-II; C-III; D-IV	
(3) A-II; B-IV; C-I; D-III		(4) A-II; B-I; C-III; D-IV	

189. Match the source gland with respective hormone as well as the function correctly.

	Source gland	Hormone	Function
(1)	Anterior pituitary	Oxytocin	Contraction of uterus muscles during child birth
(2)	Posterior pituitary	Vasopressin	Stimulates reabsorption of water in the distal tubules in the nephron
(3)	Corpus luteum	Estrogen	Supports pregnancy
(4)	Thyroid	Thyroxine	Regulated blood calcium level

190. The following graph of relative concentrations of the four hormones present in the blood plasma of a woman during her menstrual cycle. Identify the hormones.



	A	B	C	D
(1)	FSH	Progesterone	LH	Oestrogen

(2)	LH	Progesterone	FSH	Oestrogen
(3)	FSH	Oestrogen	LH	Progesterone
(4)	LH	Oestrogen	FSH	Progesterone

191. Reproductive health in society can be improved by

- (i) Introduction of sex education in schools
- (ii) Increased medical assistance
- (iii) Awareness about contraception and STDs
- (iv) Equal opportunities to male and female child
- (v) Ban on aminocentesis
- (vi) Encouraging myths and misconceptions

(1) All of these (2) (i), (ii), (iv) & (vi) (3) (i), (ii), (iii), (iv) & (v) (4) (ii) and (v)

192. Choose wrong statement regarding urine formation

- (1) Filtration is non-selective process performed by glomerulus
- (2) The glomerular capillary blood pressure causes filtration of blood through three layers
- (3) GFR in a healthy individual is approximately
- (4) The ascending limb of the Henle's loop is permeable to water but allows transport of electrolytes actively or passively

193. Adaptive radiation refers to

- (1) evolution of different species from a common ancestor
- (2) migration of members of a species to different geographical areas
- (3) power of adaption in an individual to a variety of environments
- (4) adaptations due to geographical isolation

194. Which of the following is incorrect match of animal group / life style /structure / function ?

	Animal group	Lifestyle	Structure / functions
(1)	Sponges	Sessile filter feeders	Amoebocytes / carry food and wastes Spicules / support
(2)	Cnidarians	Free floating or attached	Gastrovascular cavity / digestion Cnidocytes / protection and food getting
(3)	Flatworms	Free living or parasite	Flame cells/ excretion Tegument / protection
(4)	Molluses	Terrestrial, marine, fresh	Radula / feeding mantle / motility water inhabitants

195. It is commonly said that ladies are protected from heart attacks in reproductive period i.e., from puberty to menopause because:

- (1) Level of HDL is high due to oestrogen production
- (2) Level of HDL remains lower during this period
- (3) Level of LDL and HDL remain in balance
- (4) Level of LDL is high due to oestrogen production

196. Which of the following forms the basis of DNA finger printing ?

- (1) The relative proportions of purines and pyrimidines in DNA
- (2) Satellite DNA occurring as highly repeated short DNA segments
- (3) The relative difference in the DNA occurrence in blood, skin and saliva
- (4) The relative amount of DNA in the ridges and grooves of the fingerprints

197. Match column – I (function) with column – II (types of enzymes) and select the correct option.

Column-I (Function)		Column-II (Types of enzymes)	
A.	Enzyme catalyses breakdown without addition of water	I.	Isomerases
B.	Enzyme catalyses the conversion of an aldose sugar to a ketose sugar	III.	Oxidoreductase
C.	Enzyme catalyses transfer of electrons from one molecule to another.	III.	Ligases
D.	Enzyme catalyses bonding of two components with the help of ATP.	IV.	Lyases

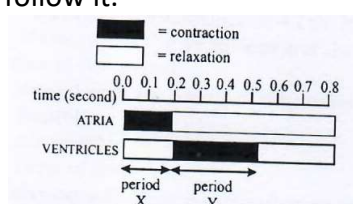
(1) A-I; B-IV; C-III; D-II

(2) A-I; B-IV; C-II; D-III

(3) A-IV; B-I; C-II; D-III

(4) A-IV; B-I; C-III; D-II

198. Diagram represents one cardiac cycle lasting 0.8 s and to the possible answers that follow it.



Which answer describes the events that occur during period X?

- (1) atrial diastole and ventricular systole
- (2) atrial systole and ventricular diastole
- (3) atrial systole and ventricular systole
- (4) atrial systole and ventricular diastole

199. Diabetes insipidus is a condition in which a person is unable to produce sufficient levels of the hormone ADH. The hormone increases the permeability to water of the second (distal) convoluted tubule and collecting duct in the kidney nephrons.

What is produced as a result?

- (1) large volumes of concentrated urine
- (2) large volumes of dilute urine
- (3) small volumes of concentrated urine
- (4) small volumes of dilute urine

200. Simple epithelium is a tissue in which the cells are

- (1) hardened and provide support to the organs
- (2) cemented directly to one another to form a single layer
- (3) continuously dividing to provide form to an organ
- (4) loosely connected to one another to form an irregular organ

