PACE-IIT & MEDICAL

MUMBAI / DELHI-NCR / PUNE / PATNA / AKOLA / GOA / JALGOAN / BHOPAL / BOKARO / AMARAVATI / DUBAI

ReNEET AITS - 1 (For 2026 NEET Aspirants)

Day and Date: 19th May 2026, Tuesday — Duration: 3 Hours
Time: 02.00 p.m. to 5.00 p.m. — Total Marks: 720 (+4,–1)

Instructions to Candidates

1. Immediately fill in the particulars on the OMR with *only Blue/Black Ball Point Pen*.
2. **Write correct TEST ID mentioned above on the OMR Answer sheet.**
3. The test is of **3** hours duration and The Test Booklet consists of **180** questions. The maximum marks are 720.
4. There are *four* parts in the question paper consisting of **Physics, Chemistry, Botany** and Zoology subjects.
5. Each question is allotted **4 (four)** marks for correct response. **¼ (one-fourth) marks of** the total marks (i.e. 1 mark) will be deducted for indicating incorrect response of **each question.** No deduction from the total score will be made if no response is indicated for an item in the answer sheet.
6. There is only one correct response for each question. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted accordingly as per instruction 6 above.
7. No candidate is allowed to carry any textual material, printed or written, bits of papers, pager, mobile phone, any electronic device, etc. inside the examination room/hall.
8. Rough work is to be done on the space provided for this purpose in the Test Booklet only. This space is given at the bottom of each page of the booklet.
9. Do not fold or make any stray mark on the Answer Sheet.

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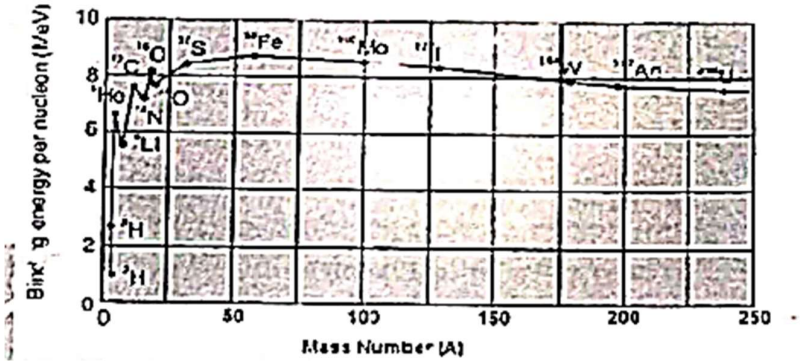
SYLLABUS FOR Medical

Physics – FULL SYLLABUS
Chemistry – FULL SYLLABUS
Botany – FULL SYLLABUS
Zoology – FULL SYLLABUS

PHYSICS

1. Diode is used as a/an
(1) rectifier (2) oscillator (3) amplifier (4) modulator

2. Among the following statement choose the incorrect one regarding the following plot



(1) For nuclei of middle mass number (30 < A < 170) the binding energy per nucleon is almost constant
(2) For both light nuclei (A < 30) and heavy nuclei (A > 170) binding energy per nucleon is lower
(3) There will be a loss in overall binding energy when we move from a heavy nuclei region to the middle region of the plot
(4) All of these

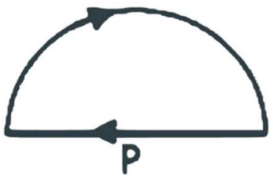
3. 120 volt AC supply. If primary and secondary circuit resistance are 1.5 kΩ and 1 Ω respectively then find out power output
(1) 5.76 W (2) 11.4 W (3) 2.89 W (4) 7.56 W

4. Modern treatment method P.E T is based on
(1) proton emission (2) position emission (3) β -emission (4) particle emission

5. A gun applies a force F on bullet which is given by F= $(100 - 0.5 \times 10^5 t)$N. The bullet emerges out with speed 400 m/s. Then find out the impulse exerted till force on bullet becomes zero
(1) 0.2 N-s (2) 0.3 N-s (3) 0.1 N-s (4) 0.4 N-s

6. A charge of 10^{-6}C is describing a circular path of radius 1 cm making 5 revolution per second. The magnetic induction field at the centre of the circle is
(1) $\pi\times10^{-10}T$ (2) $\pi\times10^{-9}T$ (3) $\frac{\pi}{2}\times10^{-10}T$ (4) $\frac{\pi}{2}\times10^{-9}T$

7. A semi circular arc of radius r and a straight wire along the diameter, both are carrying same current i. Find out magnetic force per unit length on the small element P (small part of same straight wire), which is at the centre of curvature.



(1) $\left(\frac{\mu_0 i^2}{4r}\right)$ (2) $\left(\frac{\mu_0 i^2}{2r}\right)$ (3) $\left(\frac{\mu_0 i^2}{r}\right)$ (4) $\left(\frac{2\mu_0 i^2}{r}\right)$

8. The centre of mass of a non-uniform rod of length L whose mass per unit length $\lambda = \frac{Kx^2}{L}$, where K is a constant and x is the distance from end $x = 0$ is :

(1) $\frac{3L}{4}$ (2) $\frac{L}{8}$ (3) $\frac{K}{L}$ (4) $\frac{3K}{L}$

9. A wave of wavelength 400 nm super imposes with another wave (coherent with first) of same wavelength. If the path difference between the waves is 300 nm, then the resultant intensity due to superposition will be

(1) Maximum (2) minimum
(3) Between minimum and maximum (4) Half of maximum wavelength

10. If frequency of an EMW is 5×10^{14}Hz, then the number of waves in 1mm length in a medium of refractive index 1.5 will be

(1) 2.5 (2) 25 (3) 250 (4) 2500

11. If potential energy is given by $U = \frac{a}{r^2} - \frac{b}{r}$ Then find out maximum force (Given a= 2, b= 4)

(1) $-\frac{16}{27}$N (2) $-\frac{32}{27}$N (3) $+\frac{32}{27}$N (4) $+\frac{16}{27}$N

12. The de-Broglie wavelength of electron in 3rd orbit of He^{+1} ion is approximately

(1) 2 Å (2) 3 Å (3) 4 Å (4) 5 Å

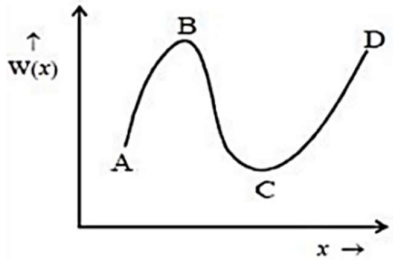
13. A bread gives a boy of mass 40 kg an energy of 21 kJ. If the efficiency is 28 % then the height that can be climbed by him using this energy is close to

(1) 22.5 m (2) 15 m (3) 10 m (4) 5 m

14. Two springs of spring constant 1500 N/m and 3000 N/m respectively are stretched with the same force. They will have the potential energies in the ratio of

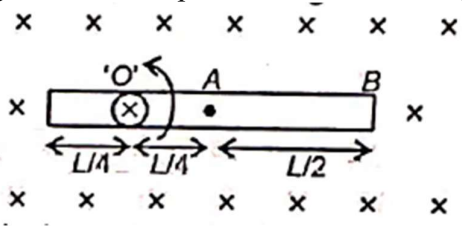
(1) 1:2 (2) 1:4 (3) 4:1 (4) 2:1

15. The potential energy of a particle varies with distance x as shown in the graph. The force acting on the particle is zero at



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

16. A conducting rod is rotating about a fixed point as shown in the figure with angular velocity ω



If the whole setup is in perpendicular uniform magnetic field B0 , then the potential difference between point 'A' and 'B' (VA – VB) is

(1) $-\frac{B_0\omega L^2}{2}$ (2) $-\frac{B_0\omega L^2}{4}$ (3) $\frac{B_0\omega L^2}{2}$ (4) $\frac{B_0\omega L^2}{4}$

17. A cylindrical resonance tube open at both ends has fundamental frequency f in air. If half of the length is dipped vertically in water, the fundamental frequency of the air column will be
(1) 3f/2 (2) 2f (3) f (4) f/2

18. When the amount of work done by gas is 300 J and change in internal energy is 100 J, then the heat supplied is
(1) 400 J (2) 350 J (3) 200 J (4) 150 J

19. Two charges 4q and 1q are placed 30 cm apart. At what point the value of electric field will be zero
(1) 10 cm away from q and between the charges
(2) 20 cm away from q between the charge
(3) 10 cm away from q and outside the line joining the charge
(4) 10 cm away from 4q and out side the line joining them

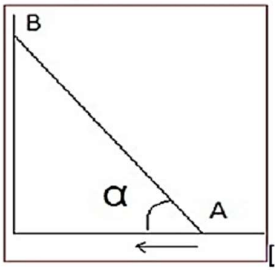
20. Electric field due to conducting parallel plates at any point near to a plate is E then what is the electric potential difference on moving a distance x parallel to the plates
(1) zero (2) 2 Ex (3) Ex/2 (4) Ex

21. The charge on the capacitor in LC circuit is given by equation $\frac{d^2Q}{dt^2}+16Q=0$. Find the frequency of LC oscillation?
(1) 2 /π Hz (2) 2 π Hz (3) 4 Hz (4) 4/π Hz

22. The radius of curvature of thin plano-convex lens is 10 cm and the refractive index is 1.5. If the plane surface is silvered, then it behaves like a concave mirror of focal length
(1) 10 cm (2) 15 cm (3) 20 cm (4) 5 cm

23. The dimension of gravitational constant G is
(1) $[ML^{-2}T^{-3}]$ (2) $[ML^{-2}]$ (3) $[ML^{-2}T^{2}]$ (4) $[M^{-1}L^{3}T^{2}]$

24. Two particle A and B are connected by a rigid rod AB. The rod slides along perpendicular rails as shown here. The velocity of A to the left is 10 m/s. What is the velocity of B when angle α= 60°

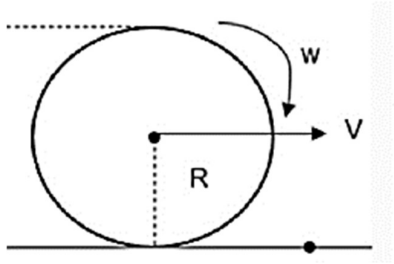


(1) 5.8 m/s (2) 9.8 m/s (3) 10 m/s (4) 17.3 m/s

25. A magnet is taken towards a conducting ring in such a way that a constant current of 10 mA is induced in it. The total resistance of the ring is 0.5 Ω. In 5s, the magnetic flux through the ring changes by :
(1) 0.25 m Wb (2) 25 m Wb (3) 50 m Wb (4) 15 m Wb

26. For a given surface the Gauss's law is stated as $\int \vec{E}.\vec{ds} = 0$. From this we can conclude that
(1) E is necessarily zero on the surface
(2) E is perpendicular to the surface at every point
(3) The total flux through the surface is zero
(4) The flux is only going out of the surface

27. The sphere is rolling without slipping. For this rolling body shown in diagram in one complete round



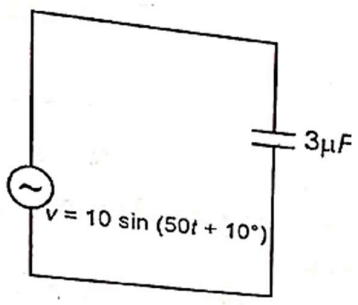
(1) Displacement of all particle will be different
(2) Displacement of all particle will be same
(3) Distance travelled by all particles will be same
(4) None

28. A standard tuning fork of frequency f is used to find the velocity of sound in air by resonance column apparatus. The difference between two resonating length is 1.0 m. Then the velocity of sound in air is
(1) f m/s (2) 2f m/s (3) f/2 ms/s (4) 3f m/s

29. The voltage of an ac supply varies with time (t) as V = 120 sin(100 πt) cos(100πt). The maximum voltage and frequency respectively are
(1) 120 volts, 100 Hz (2) $\frac{120}{\sqrt{2}}$ volts, 100 Hz (3) 60 volts, 200 Hz (4) 60 volts, 100 Hz

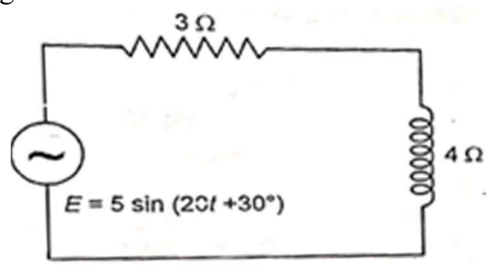
30. A rectangular loop of sides *a* and *b* is placed in *x*-*y* plane. A uniform but time varying magnetic field of strength $\vec{B} = 20t\hat{i} + 10t^2\hat{j} + 50\hat{k}$ is present in the region. The magnitude of induced EMF in the loop at time *t* is :
(1) $20 + 20t$ (2) 20 (3) $20t$ (4) Zero

31. For the circuit shown in the figure. The expression of instantaneous current is



(1) 15×10^{-4} sin (50t –80°)
(2) 15×10^{-4} sin (50t –100°)
(3) 1.5×10^{-4} sin (50t –100°)
(4) 1.5×10^{-4} sin (50t –80°)

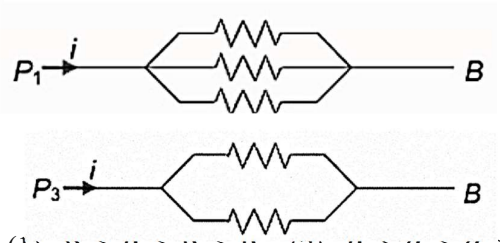
32. The net impedance of the given circuit is

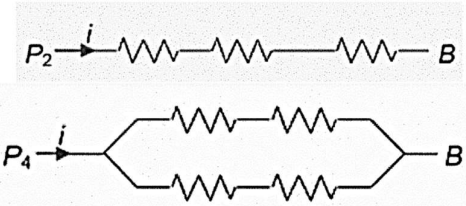


(1) 3 Ω (2) 4 Ω (3) 5 Ω (4) 7 Ω

33. In an electro magnetic wave E = (1 V/m) sin (wt– kx). The average energy density of magnetic field, in SI unit will be
(1) 1.1×10^{-11} (2) 2.2×10^{-12} (3) 3.3×10^{-13} (4) 4.4×10^{-14}

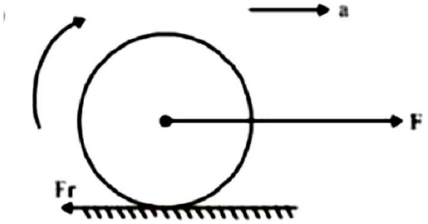
34. Arrange the order of power dissipated in the given circuits, if the same current is passing through all the circuits . The resistance of each resistor is r.





(1) $P_1 > P_2 > P_3 > P_4$ (2) $P_2 > P_4 > P_3 > P_1$ (3) $P_4 > P_3 > P_2 > P_1$ (4) $P_1 = P_2 = P_3 = P_4$

35. A homogeneous solid cylindrical roller of radius R and mass M is pulled on a cricket pitch by a horizontal force F. Assuming rolling without slipping, angular acceleration of the cylindrical roller is



(1) $\frac{3F}{2mR}$ (2) $\frac{F}{3mR}$ (3) $\frac{F}{2mR}$ (4) $\frac{2F}{3mR}$

36. A ball of mass m approaches a wall of mass M (>> m) with speed 4 m/s along the normal to the wall. The speed of wall is 1 m/s towards the ball. The speed of the ball after an elastic collision with the wall is:
(1) 5 m/s away from the wall (2) 9 m/s away from the wall
(3) 3 m/s away from the wall (4) 6 m/s away from the wall

37. In a plane EM wave, the electric field oscillates sinusoidally at frequency of 5×10^{10} Hz and an amplitude of 50 Vm^{-1}. The total average energy density of the electromagnetic field of the wave is [Use $\varepsilon_0 = 8.55 \times 10^{-12}$ C2/Nm^2]
(1) 1.106×10^{-8} Jm^{-3} (2) 4.425×10^{-8} Jm^{-3} (3) 2.212×10^{-8} Jm^{-1} (4) 2.212×10^{-10} Jm^{-3}

38. Microwave oven acts on the principle of:
(1) giving rotational energy to water molecules
(2) giving translation energy to water molecules
(3) giving vibrational energy to water molecules
(4) transferring electrons from lower to higher levels in water molecule

39. The charge on a parallel- plate capacitor varies as $q= q_o \cos(2\pi vt)$. The plates are very large and close together (area A, separation = d) . Neglecting the edge effects, find the displacement current through the capacitor
(1) $-\sin 2\pi vt\,(2\pi v)$ (2) $q_0 \cos 2\pi vt$ (3) $2\pi q_0 \sin(2\pi vt)$ (4) $-2\pi q_0 v \sin(2\pi vt)$

40. Assertion: The angular momentum of system always remain constant
Reason : For a system, $T_{ext} = \frac{dL}{dt} = 0$ (Text = External , L = Angular momentum)
(1) Both Assertion and Reason are correct, Reason is the correct explanation of Assertion
(2) Both Assertion and Reason are correct but Reason is not the correct explanation of Assertion
(3) Assertion is correct and Reason is incorrect
(4) Assertion is incorrect and Reason is correct

41. A planet is revolving around the sun in a circular orbit with a radius r. The time period is T. If the force between the planet and star is proportional to $r^{-3/2}$, then the square of time period is proportional to
(1) $r^{3/2}$ (2) r^2 (3) r (4) $r^{5/2}$

42. A ball raises to surface at constant velocity in liquid whose density is 4 times greater than that of the material of the ball. The ratio of the force of friction acting on the rising ball and its weight is
(1) 3 :1 (2) 4:1 (3) 1:3 (4) 1:4

43. A concave mirror of focal length 'f ' produces as image which is 'n' times magnified .If the image is real, then the distance of the object from the mirror is
(1) (n-1) f (2) $\left(\frac{n-1}{n}\right)f$ (3) $\left(\frac{n+1}{n}\right)f$ (4) (n+1)f

44. The stopping potential for a photoelectric emission process is 10 V. The maximum kinetic energy of the electron ejected in the process is [charge on electron $e = 1.6 \times 10^{-19}$ C]
(1) 3.2×10^{-19} C (2) 1.6×10^{-19} J (3) 1.6×10^{-18} J (4) 0 J

45. An aircraft is moving with uniform velocity 150 m/s in the space. If all the forces acting on it are balanced, then it will
(1) keep moving with same velocity (2) remain floating at its place
(3) escape in space (4) fall down on earth

CHEMISTRY

46. The incorrect postulates of the Dalton's atomic theory are:
(A) Atoms of different elements differ in mass.
(B) Matter consists of divisible atoms.
(C) Compounds are formed when atoms of different element combine in a fixed ratio.
(D) All the atoms of given element have different properties including mass.
(E) Chemical reactions involve reorganisation of atoms.
Choose the correct answer from the options given below:
(1) (B), (D), (E) only (2) (A), (B), (D) only (3) (C), (D), (E) only (4) (B), (D) only

47 A commercially sold conc. HCl is 35% HCl by mass. If the density of this commercial acid is 1.46 g/mL, the molarity of this solution is: (Atomic mass: Cl=35.5 amu, H = 1 amu)
(1) 10.2 M (2) 12.5 M (3) 14.0M (4) 18.2 M

48. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:
Assertion A: In the photoelectric effect, the electrons are ejected from the metal surface as soon as the beam of light of frequency greater than threshold frequency strikes the surface.
Reason R: When the photon of any energy strikes an electron in the atom, transfer of energy from the photon to the electron takes place.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both A and R are correct but R is NOT the correct explanation of A.
(2) A is correct but R is not correct.
(3) Both A and R are correct and R is the correct explanation of A.
(4) A is not correct but R is correct.

49. For emission line of atomic hydrogen from $n_i = 8$ to $n_f = n$, the plot of wave number ($\bar{\nu}$) against $\left(\frac{1}{n^2}\right)$ will be (The Rydberg constant, R_H is in wave number unit)
(1) Linear with intercept – R_H
(2) Non linear
(3) Linear with slope R_H
(4) Linear with slope - R_H

50. Similarity in chemical properties of the atoms of elements in a group of the periodic table is most closely related to:
(1) atomic numbers
(2) atomic masses
(3) number of principal energy levels
(4) number of valence electrons

51. Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A): There is a considerable increase in covalent radius from N to P. However from As to Bi only a small increase in covalent radius is observed.
Reason (R): Covalent and ionic radii in a particular oxidation state increases down the group.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) (A) is false but (R) is true.
(2) Both (A) and (R) are true but (R) is not the correct explanation of (A).
(3) (A) is true but (R) is false.
(4) Both (A) and (R) are true and (R) is the correct explanation of (A).

52. Arrange the bonds in order of increasing ionic character in the molecules. LiF, K_2O, N_2, SO_2 and CIF_3:
(1) $CIF_3 < N_2 < SO_2 < K_2O < LIF$
(2) $LiF < K_2O < CIF_3 < SO_2 < N_2$
(3) $N_2 < SO_2 < CIF_3 < K_2O < LIF$
(4) $N_2 < CIF_3 < SO_2 < K_2O < LiF$

53. Given below are two statements:
Statement (I): The oxidation state of an element in a particular compound is the charge acquired by its atom on the basis of electron gain enthalpy consideration from other atoms in the molecule.
Statement (II): p π -p π bond formation is more prevalent in second period elements over other periods.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both Statement I and Statement II are incorrect
(2) Statement I is correct but Statement II is incorrect
(3) Both Statement I and Statement II are correct
(4) Statement I is incorrect but Statement II is correct

54. After understanding the assertion and reason, choose the correct option.
Assertion: In the bonding molecular orbital (MO) of H_2, electron density is increased between the nuclei.
Reason: The bonding MO is $\Psi_A + \Psi_B$, which shows destructive interference of the combining electron waves.

(1) Assertion is incorrect, reason is correct.
(2) Assertion is correct, reason is incorrect.
(3) Assertion and reason are correct and reason is the correct explanation for the assertion.
(4) Assertion and reason are correct, but reason is not the correct explanation for the assertion.

55. The exothermic process/es from the following is _____
(1) $I_2(g) \rightarrow 2I(g)$ (2) $HCl(g) \rightarrow H(g) + Cl(g)$
(3) $H_2O(l) \rightarrow H_2O(g)$ (4) $C(s) + O_2(g) \rightarrow CO_2(g)$

56. Given
(A) $2CO(g) + O_2(g) \rightarrow 2CO_2(g)\ \Delta H_1^0 = -x$ kJ mol^{-1}
(B) C(graphite) + $O_2(g) \rightarrow CO_2(g)$ A $H_2^0 = -y$ kJ mol^{-1}
The ΔH^o for the reaction
C(graphite) + $\frac{1}{2}$ $O_2(g) \rightarrow CO(g)$ is
(1) $\frac{x-2y}{2}$ (2) $\frac{x+2y}{2}$ (3) $\frac{2x-y}{2}$ (4) $2y - x$

57. For the reaction $SO_2(g) + \frac{1}{2}O_2(g) \rightleftharpoons SO_3(g)$, if $K_p = K_c(RT)^x$ where the symbols have usual meaning then the value of x is (assuming ideality):
(1) – 1 (2) $-\frac{1}{2}$ (3) $\frac{1}{2}$ (4) 1

58. Arrange the following solutions in the decreasing order of pOH:
(A) 0.01 M HCI (B) 0.01 M NaOH (C) 0.01 M CH,COONa (D) 0.01 M NaCl
(1) (A)>(C)>(D)>(B) (2) (A)>(D)>(C)>(B) (3) (B)>(C)>(D)>(A) (4) (B)>(D)>(C)>(A)

59. For a sparingly soluble salt AB_2, the equilibrium concentrations of A^{2+} ions and B^- ions are 1.2×10^{-4} M and 0.24×10^{-3} M, respectively. The solubility product of AB_2 is:
(1) 0.069×10^{-12} (2) 6.91×10^{-12} (3) 0.276×10^{-12} (4) 27.65×10^{-12}

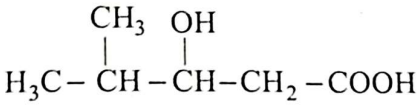
60. In acidic medium, $K_2Cr_2O_7$ shows oxidising action as represented in the half reaction:
$$Cr_2O_7^{2-} + XH^+ + Ye^{\Theta} \rightarrow 2A + ZH_2O$$
X, Y, Z and A are respectively are:
(1) 8, 6, 4 and Cr_2O_3 (2) 14, 7, 6 and Cr^{3+} (3) 8, 4, 6 and Cr_2O_3 (4) 14, 6, 7 and Cr^{3+}

61. Which of the following options are correct for the reaction
$2[Au(CN)_2]^-(aq) + Zn(s) \rightarrow 2Au(s) + [Zn(CN)_4]^{-2}(aq)$
A. Redox reaction B. Displacement reaction
C. Decomposition reaction D. Combination reaction
Choose the correct answer from the options given below:
(1) A and B only (2) A only (3) C and D only (4) A and D only

62. The correct statements from the following are:
(A) The decreasing order of atomic radii of group 13 elements is TI > In > Ga > Al > B.
(B) Down the group 13 electronegativity decreases from top to bottom.
(C) Al dissolves in dil. HCl and liberate H_2 but conc. HNO_3 renders Al passive by forming a protective oxide layer on the surface.
(D) All elements of group 13 exhibits highly stable +1 oxidation state.
(E) Hybridisation of Al in $[Al(H_2O)_6]^{3+}$ ion is sp^3d^2. Choose the correct answer from the options given below:
(1) (C) and (E) only (2) (A), (C) and (E) only
(3) (A), (B), (C) and (E) only (4) (A) and (C) only

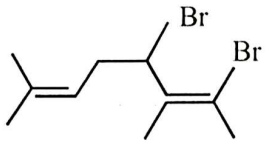
63. **Assertion:** Among the carbon allotropes, diamond is an insulator, whereas, graphite is a good conductor of electricity.
Reason: Hybridization of carbon in diamond and graphite are sp^3 and sp^2, respectively.
(1) Both assertion and reason are correct, but the reason is not the correct explanation for the assertion
(2) Both assertion and reason are correct, and the reason is the correct explanation for the assertion
(3) Both assertion and reason are incorrect
(4) Assertion is incorrect statement, but the reason is correct.

64. The IUPAC name of the following compound is :



(1) 4,4-Dimethyl-3-hydroxybutanoic acid
(2) 2-Methyl-3-hydroxypentan-5-oic acid
(3) 3-Hydroxy-4-methylpentanoic acid
(4) 4-Methyl-3-hydroxypentanoic acid

65. Total number of stereo isomers possible for the given structure



(1) 8 (2) 2 (3) 4 (4) 3

66. Which among the following is incorrect statement?
(1) Electromeric effect dominates over inductive effect
(2) The electromeric effect is, temporary effect
(3) The organic compound shows electromeric effect in the presence of the reagent only
(4) Hydrogen ion (H^+) shows negative electromeric effect

67. The correct match between items I and II is:

Item-I (Mixture)	Item-II (Separation method)
(A) H_2O: Sugar	(P) Sublimation
(B) H_2O: Aniline	(Q) Recrystallization
(C) H_2O: Toluene	(R) Steam distillation
	(S) Differential extraction

(1) (A) → (S); (B) → (R); (C) → (P)
(2) (A) → (Q); (B) → (R); (C) → (S)
(3) (A) → (R); (B)→ (P); (C)→ (S)
(4) (A) → (Q); (B) → (R); (C)→ (P)

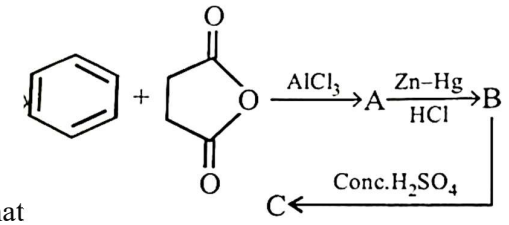
68. Match List-I with List-II

List-I (Mixture)	List-II (Purification Process)
(A) Chloroform and Aniline	(I) Steam distillation
(B) Benzoic acid and Naphthalene	(II) Sublimation
(C) Water and Aniline	(III) Distillation
(D) Naphthalene and Sodium chloride	(IV) Crystallisation

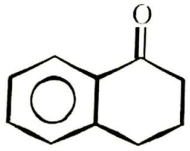
(1) (A)-(IV), (B)-(III), (C)-(1), (D)-(II)
(2) (A)-(III), (B)-(1), (C)-(IV), (D)-(II)
(3) (A)-(III), (B)-(IV), (C)-(II), (D)-(1)
(4) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

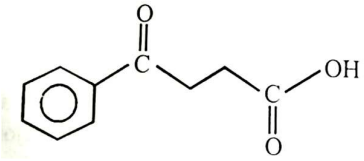
69. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A): Cis form of alkene is found to be more polar than the trans form
Reason (R): Dipole moment of trans isomer of 2-butene is zero.

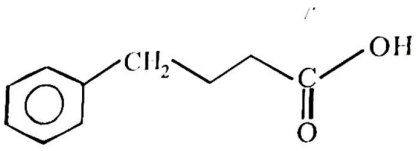
In the light of the above statements, choose the correct answer from the options given below:
(1) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
(2) (A) is true but (R) is false
(3) Both (A) and (R) are true and (R) is the correct explanation of (A)
(4) (A) is false but (R) is true

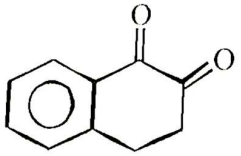
70. 

What

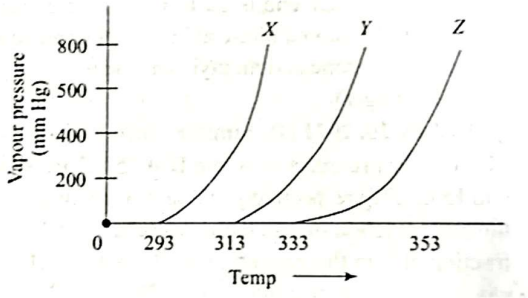
(1) 

(2) 

(3) 

(4) 

71. A graph of vapour pressure and temperature for three different liquids X, Y, and Z is shown below:



The following inferences are made to
(A) X has higher intermolecular interactions compared to Y.
(B) X has lower intermolecular interactions compared to Y.
(C) Z has lower intermolecular interactions compared to Y.
The correct inference(s) is/are:
(1) (A) and (C) (2) (A) (3) (B) (4) (C)

72. What happens to freezing point of benzene when small quantity of napthalene is added to benzene?
(1) Increases (2) Remains unchanged
(3) First decreases and then increases (4) Decreases

73. For a strong electrolyte, a plot of molar conductivity against $(\text{concentration})^{1/2}$ is a straight line, with a negative slope, the correct unit for the slope is
(1) $S\ cm^2\ mol^{-3/2}\ L^{1/2}$ (2) $S\ cm^2\ mol^{-1}\ L^{1/2}$
(3) $S\ cm^2\ mol^{-3/2}\ L$ (4) $S\ cm^2\ mol^{-3/2}\ L^{-1/2}$

74. A solution of $Ni(NO_3)_2$ is electrolysed between platinum electrodes using 0.1 Faraday electricity. How many mole of Ni will be deposited at the cathode?
(1) 0.05 (2) 0.20 (3) 0.15 (4) 0.10

75. The standard electrode potential (M^{3+}/M^{2+}) for V, Cr, Mn & Co are – 0.26V, – 0.41 V,+1.57 V and +1.97 V, respectively.
The metal ions which can liberate H, from a dilute acid are
(1) V^{2+} and Mn^{2+} (2) Cr^{2+} and CO^{2+} (3) V^{2+} and Cr^{2+} (4) Mn^{2+} and Co^{2+}

76. For the reaction
$2H_2(g) + 2NO(g) \rightarrow N_2(g) + 2H_2O(g)$ the observed rate expression is, rate = $k_f[NO]^2\ [H_2]$. The rate expression for the reverse reaction is:
(1) $k_b[N_2][H_2O]^2$ (2) $k_b[N_2][H_2O]^2/[NO]$ (3) $k_b[N_2][H_2O]$ (4) $k_b[N_2][H_2O]^2/[H_2]$

77. A→B
The rate constants of the above reaction at 200 K and 300K are 0.03 min^{-1} and 0.05 min^{-1} respectively. The activation energy for the reaction is _____ J (Nearest integer)
(Given: In 10 = 2.3
R-8.3 $JK^{-1}\ mol^{-1}$
log5= 0.70 log3= 0.48 log2= 0.30
(1) 306 J (2) 3060 J (3) 2520 J (4) 252 J

78. The strongest reducing agent among the following is:
(1) SbH_3 (2) NH_3 (3) BiH_3 (4) PH_3

79. The bond dissociation energy is highest for
(1) Cl_2 (2) I_2 (3) Br_2 (4) F_2

80. Given below are two statements:
Statement I: The higher oxidation states are more stable down the group among transition elements unlike p-block elements.
Statement II: Copper can not liberate hydrogen from weak acids.
In the light of the above statements, choose the correct answer from the options given below:
(1) Both Statement I and Statement II are false (2) Statement I is false but Statement II is true
(3) Both Statement I and Statement II are true (4) Statement I is true but Statement II is false

81. Which of the following compounds show colour due to d-d transition?
(1) $K_2Cr_2O_7$ (2) $CuSO_4.5H_2O$ (3) $KMnO_4$ (4) K_2CrO_4

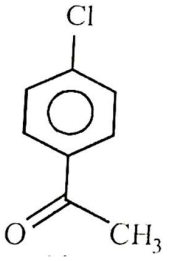
82. Which of the following are the example of double salt?
(A) $FesO_4.\ (NH_4)_2SO_4.\ 6H_2O$ (B) $CuSO_4.\ 4NH_3.\ H_2O$
(C) $K_2SO_4.\ Al_2(SO_4)_3.24H_2O$ (D) $Fe(CN)_2.4KCN$
Choose the correct answer
(1) A, B and D only (2) A and B only (3) B and D only (4) A and C only

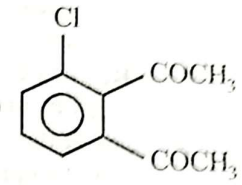
83. Match List I with List II

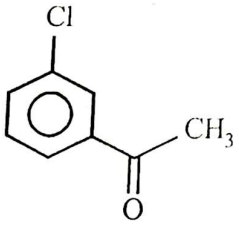
LIST-I (Complexion)	LIST – II (Electronic Configuration)
A. $[Cr(H_2O)_6]^{3+}$	I. $t_{2g}^2e_g^0$
B. $[Fe(H_2O)_6]^{3+}$	II. $t_{2g}^3e_g^0$
C. $[Ni(H_2O)_6]^{2+}$	III. $t_2g^3e_{g2}^2$
D. $[V(H_2O)_6]^{3+}$	IV. $t_{2g}^6e_g^2$

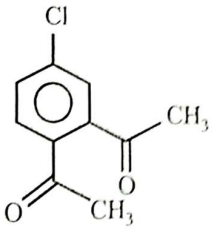
Choose the correct answer from the option given below
(1) A- III, B – II, C- IV, D – I (2) A- IV, B – I, C- II, D – III
(3) A- IV, B – III, C- I, D – II (4) A- II, B – III, C- IV, D – I

84. Given below are two statements:
Statement (I): S_N2 reactions are 'stereospecific', indicating that they result in the formation only one stereo-isomers as the product.
Statement (II): S_N1 reactions generally result in formation of product as racemic mixtures. In the light of the above statements, choose the correct answer from the options given below:
(1) Statement I is true but Statement II is false (2) Statement 1 is false but Statement II is true
(3) Both Statement I and Statement II is true (4) Both Statement I and Statement II is false

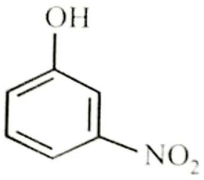
85. The major product formed in the Friedel-Craft acylation of chlorobenzene is:
(1) 

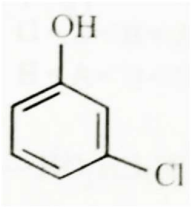
(2) 

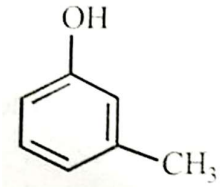
(3) 

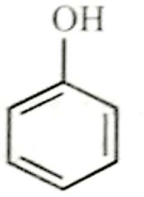
(4) 

86. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:
Assertion A: Alcohols react both as nucleophiles and electrophiles.
Reason R: Alcohols react with active metals such as sodium, potassium and aluminum to yield corresponding alkoxides and liberate hydrogen.
In the light of the above statements, choose the correct answer from the options given below:
(1) Both A and R are true but R is NOT the correct explanation of A
(2) A is true but R is false
(3) Both A and R are true and R is the correct explanation of A
(4) A is false but R is true

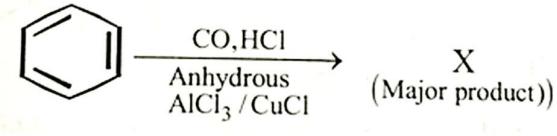
87. The strongest acid from the following is
(1) 

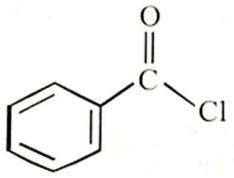
(2) 

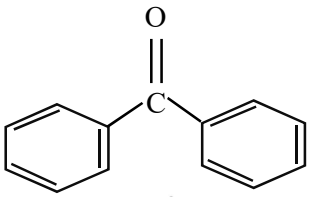
(3) 

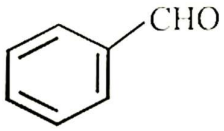
(4) 

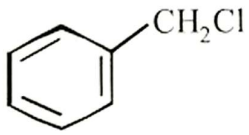
88. Identify major product "X" formed in the following reaction:



(1) 

(2) 

(3) 

(4) 

89. Coordination compounds $[Pt(NH_3)_3(NCS)]$ and $[Pt(NH_3)_3(SCN)]$ are examples of _____ isomerism.
(1) Coordination (2) Linkage (3) Ionisation (4) Optical

90. In the precipitation of the iron group (III) in qualitative analysis, ammonium chloride is added before adding ammonium hydroxide to
(1) prevent interference by phosphate ions
(2) decrease concentration of ^{-}OH ions
(3) increase concentration of Cl^{-} ions
(4) increase concentration of NH_4^+ ions

BOTANY

91. Match the Column-I with Column-II and select the CORRECT option:

Column-I	**Column-II**
(I) Tracheids	(a) Central lumen obliterated
(II) Vessels	(b) Elongated tube like cells
(III) Xylem fibres	(c) Presence of perforation on common wall
(IV) Ray parenchym	(d) Radial conduction of water cells

(1) (I)-(b), (II)-(a), (III)-(c), (IV)-(d)
(2) (I)-(b), (II)-(c), (III)-(a), (IV)-(d)
(3) (I)-(a), (II)-(b), (III)-(c), (IV)-(d)
(4) (I)-(b), (II)-(c), (III)-(d), (IV)-(a)

92. Consider the following statements and select an incorrect statement.
(1) Axillary bud is derived from shoot apical meristem.
(2) In sunflower stem, sclerenchymatous pericycle is located just above phloem bundle in semi-lunar patches.
(3) In conjoint vascular bundle, phloem is usually located on the inner side of xylem.
(4) Phloem parenchyma is usually not present in monocot stem.

93. Which hormone plays important role in seed development, maturation, dormancy and helps seeds to withstand desiccation?
(1) Auxin (2) GA (3) Ethylene (4) ABA

94. Match Column-I and Column-II and select the CORRECT options.

Column-I	Column-II
A. Adenine derivative	I. ABA
B. Gaseous nature	II. Cytokinin
C. Terpenes	III. Auxin
D. Indole compounds	IV. Gibberellin
E. Carotenoid derivative	V. Ethylene

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

95. Read the following statements carefully and identify two incorrect statements.
(A) The spores of slime mould have true cell wall and usually are dispersed by water.
(B) In *Agaricus* karyogamy and meiosis take place in the basidium producing four basidiospores.
(C) The viruses are non-cellular organisms and are obligate saprophytes.
(D) *Neurospora*, "a member of Ascomycetes", is used extensively in biochemical and genetic work.
(1) B and D (2) A and C (3) A and B (4) A and D

96. In which of the following male gamete is small and motile while female gamete is large and static?
(1) *Laminaria* (2) *Spirogyra* (3) *Porphyra* (4) *Ulothrix*

97. 1. The embryo sac of most angiosperms is monosporic and 8-nucleate.
2. Synergids possess filiform apparatus that guides the pollen tube.
3. Triple fusion involves one male gamete and two polar nuclei.
4. Endosperm development occurs before fertilization in angiosperms.
Choose the correct option:
(1) Statements 1, 2 and 3 are correct (2) Statements 2 and 4 are correct
(3) Statements 1 and 4 are correct (4) Statements 3 and 4 are correct

98. Which of the following kingdom have unicellular organism with well defined nucleus and other membrane bound cell organelles according to five kingdom system of classification?
(1) Monera (2) Plantae (3) Animalia (4) Protista

99. Housefly is classified in_____.
(1) Order-DIPTERA (2) Class-MUSCIDAE
(3) Phylum-non CHORDATA (4) Genus- Home

100. *Indigofera* and lupin belong to which family _____.
(1) Solanaceae (2) Liliaceae (3) Brassicaceae (4) Fabaceae

101. Parthenocarpic fruit develops from _____.
(1) fertilized ovary (2) fertilized ovule (3) unfertilized ovule (4) unfertilized ovary

102. Consider the following statements regarding DNA replication and transcription:
1. DNA polymerase can initiate DNA synthesis without a primer.
2. Okazaki fragments are formed on the lagging strand during DNA replication.
3. In transcription, only one strand of DNA acts as a template.
4. RNA polymerase requires a primer to begin transcription.
Choose the correct option:
(1) Statements 1 and 2 are correct (2) Statements 2 and 3 are correct
(C) Statements 1 and 4 are correct (4) Statements 3 and 4 are correct

103. When the electrons pass from one carrier to another via complex I to IV in the electron transport chain they are coupled to ____ for the production of ATP from ADP and inorganic phosphate. Blank 'A' represents :-
(1) Complex I (NADH dehydrogenase) (2) Complex II (Succinate dehydrogenase)
(3) Complex V (ATP synthase) (4) Complex IV (Cytochrome oxidase)

104. Read the statements and select the CORRECT options
Statement I: There are three major ways in which different cells handle pyruvic acid produced by glycolysis.
Statement II: The reducing agent is NAD^+ which is oxidized to NADH + H in both alcoholic fermentation and lactic acid fermentation.
(1) Both Statement I and Statement II are correct.
(2) Both Statement I and Statement II are incorrect
(3) Statement I is incorrect while Statement II is correct
(4) Statement I is correct while Statement II is incorrect.

105. If in a pond there were 40 lotus plants last year and through reproduction 16 new plants are added then the birth rate in the population is_____ offspring per lotus per year.
(1) 2.5 (2) 0.4 (3) 1.0 (4) 0.1

106. Between which, among the following, the relationship is an example of mutualism?
(1) *Cuscuta* and hedge plant (2) Fig and wasp
(3) Sea anemone and clown fish (4) Whale and barnacles

107. Read the statements and select the CORRECT options
Assertion (A): Plants have evolved an astonishing variety of morphological and chemical defences against herbivores.
Reason (R):The problem of predation is particularly severe for plants as unlike animals, they cannot run away from their predators.
(1) Both A and R are true but R is NOT the correct explanation of A
(2) Both A and R are true and R is the correct explanation of A
(3) A is true but R is false
(4) A is false but R is true

108. Read the statements and select the CORRECT options
Assertion (A):- Photorespiration may take place in C_3 plants during day time.
Reason (R):- Photolysis of water and activity of RuBisCO both take place in chloroplast of mesophyll cells in C_3 plants.
(1) Both (A) and (R) are correct but (R) is not the correct explanation of (A).
(2) (A) is correct but (R) is not correct.
(3) (A) is incorrect but (R) is correct.
(4) Both (A) and (R) are correct and (R) is the correct explanation of (A).

109. Match the following with respect to early experiments of photosynthesis and select the CORRECT options

Column-A	Column-B
(A) Jan Ingenhousz	(I) Prepared first action spectrum of photosynthesis
(B) Julius Von Sachs	(II) Inferred that O_2 evolved by green plants come from H_2O.
(C) Cornelius Van Niel	(III) Provided evidence for production of glucose when plants grow
(D) Engelmann	(IV) Green parts of the plant could release oxygen

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

110. Read the following four statements A, B, C and D and select the right option having both correct statements.
Statements:
(A) Cyclic photophosphorylation takes place probably to meet the difference in number of ATP and $NADPH+H^+$ used in the dark reaction.
(B) Plastoquinone removes many protons from the stroma while transporting an electron.
(C) Photophosphorylation takes place in chloroplast only during light reaction.
(D) Stroma lamellae have PS-I only and lack NADP reductase.
(1) C and D (2) A and B (3) B and C (4) A and D

111. Read the following statements and choose correct set of statements:
(a) RNA was the first genetic material
(b) RNA polymerase binds to start codon and initiates translation.
(c) The cellular factory responsible for synthesising proteins is the ribosome
(d) In *lac* operon polycistronic structural gene is regulated by a common promoter and regulatory genes
Choose the correct answer from the options given below:
(1) (a) and (c) only (2) (a), (b), (c) and (d) all
(3) (a), (c) and (d) only (4) (a) and (d) only

112. Match List-I with List-II and select the CORRECT options

	List-I	**List-II**
(a)	Release factor	(i) Splicing
(b)	SnRNA	(ii) Translation
(c)	Probe	(iii) Transcription
(d)	Rho factor	(iv) DNA fingerprinting

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

113. The z gene codes for beta-galactosidase (β -gal), which is primarily responsible for the hydrolysis of the disaccharide into _____.
(1) glucose and glycogen (2) galactose and glucose
(3) glucose and fructose (4) glucose and lactose

114. Which of the following is a NOT a correct statement with respect to polymorphism?
(1) Polymorphism arises due to mutations.
(2) Polymorphisms ranges from single nucleotide change to very large scale changes.
(3) For evolution and speciation, polymorphisms play very important role.
(4) The probability of polymorphism to be observed in coding DNA sequence would be higher.

115. How many plants among the given list show free central placentation?
Argemone, Pea, China-rose, Mustard, Dianthus, Tomato, Primrose, Lemon, Sunflower, Marigold.
(1) One (2) Two (3) Three (4) Four

116. Read the statements and select the CORRECT options
Assertion(A): Genetic make-up of an organism or an individual lies in the DNA sequences.
Reason(R): More than 98 percent of the human genome codes for proteins.
(1) Both (A) and (R) are correct and (R) is the correct explanation of (A).
(2) Both (A) and (R) are correct and (R) is not the correct explanation of (A).
(3) (A) is correct but (R) is not correct.
(4) (A) is not correct but (R) is correct.

117. Bacillus thuringiensis is used for _____.
(1) fermentation of beer (2) biopesticide (3) antibiotics (4) for making curd

118. The correct match pairs from the following are _____
(a) Hilum : Junction between ovule and funicle
(b) Chalaza : Basal part of the ovule
(c) *Lupinus articus* : 1000 years of seed dormancy
(d) *Phoenix dactylifera* : 200 years of seed dormancy
(1) (c) and (d) (2) (a) and (b) (3) (b), (c) and (d) only (4) (a), (b), (c) and (d)

119. Sacred groves is one of the important means of biodiversity conservation. In respect of this, find out the odd one :-
(1) Khasi and Jaintia – Meghalaya (2) Aravalli hills - Rajasthan
(3) Sarguja, Chanda and Bastar – Mizorum (4) Western Ghat Maharashtra

120. Read the statements and select the CORRECT options
Statement-I :- The unidirectional flow of energy in ecosystems begins with consumers and ends with producers.
Statement-II :- The detritus food chain/web in ecosystems is initiated by photosynthesis.
(1) Statement I is correct and Statement II is incorrect.
(2) Statement I is incorrect and statement II is correct.
(3) Both Statements I and II are incorrect.
(4) Both Statements I and II are correct.

121. Which one of the following reasons is proposed for the greater species diversity in tropical environments compared to temperate ones?
(1) Less solar energy in tropics (2) More frequent glaciations in tropics
(3) Relatively constant environments in tropics (4) Shorter evolutionary time in tropics

122. Read the statements and select the CORRECT options
Statement-1: Competition occurs when two closely related species compete for the same resources that are limited.
Statement-2: If two species compete for the same resources, they could avoid competition by resource partitioning.
(1) Statement-1 and Statement-2 are true but Statement-2 is not the correct explanation of Statement-1.
(2) Statement-1 is false and Statement-2 is true.
(3) Statement-1 is true and Statement-2 is false.
(4) Statement-1 and Statement-2 are true and Statement-2 is the correct explanation of Statement-1.

123. A plant having the genotype AABbCC will produce_____ kinds of gametes.
(1) 5 (2) 4 (3) 3 (4) 2

124. Match column I with Colum II.

Column I	Column II
(A) Thomas Hunt Morgan	(i) Law of segregation
(B) Gregor Mendel	(ii) Chromosomal theory of inheritance
(C) Sutton and Boveri	(iii) Linkage and recombination
(D) Test cross	(iv) Crossing with homozygous recessive parent

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

125. Statin, which reduces blood cholesterol levels, is made by a/an _____.
(1) bacteria (2) viruses (3) algae (4) yeast

126. Sporophyte in pteridophytes and gymnosperms is differentiated in _____ .
(1) archegonium and antheridium (2) foot, seta and capsule
(3) holdfast, stipe and frond (4) root, stem and leaf

127. When the respiratory substrate is protein then it will enters into Kreb's cycle in the form of :-
(1) PGAL (2) acetyl Co-A (3) pyruvic acid (4) both (2) and (3)

128. In which of the following interactions, none of the partners get benefited?
(1) Predation (2) Parasitism (3) Competition (4) Commensalism

129. Match List-I with List-II and select the CORRECT option.

List-I	List-II
and	
(A) Exponential growth	(I) A plot of N in relation to time (t) results in a sigmoid curve
(B) Emigration	(II)Additive effect on population density (N)
(C) Logistic growth	(III) A plot of N in relation to time (t) results in a J-shaped curve
(D) Immigration	(IV)Subtractive effect on population density (N)

Choose the correct answer from the options given below:
(1) A-III, B-II, C-IV, D-I (2) A-IV, B-I, C-III, D-II
(3) A-III, B-IV, C-I, D-II (4) A-1, B-IV, C-III, D-II

130. Read the statements and select the CORRECT options
Statement-I:- If both strands of DNA act as a template, they would code for RNA molecule with same sequences.
Statement-II :- DNA has evolved from RNA with chemical modifications that make it more stable.
(1) Both Statement I and Statement II are incorrect.
(2) Statement I is correct but Statement II is incorrect.
(3) Statement I is incorrect but Statement II is correct.
(4) Both Statement I and Statement II are correct.

131. Read the following statements and find out how many statement are NOT FALSE and select the CORRECT option.
(P) Large holes in swiss cheese are due to production of CO_2.
(Q) Bacteria is used for commercial production of ethanol.
(R) Streptokinase produced by the yeast Streptococcus.
(S) Statin produced by yeast.
(1) 1 (2) 3 (3) 2 (4) 4

132. Given below are two statements: one is labelled as Assertion (A) and other is labelled as Reason (R)
Assertion (A) : Endosperm development precedes embryo development.
Reason (R): The cells of endosperm are filled with reserve food materials and are used for the nutrition of the developing embryo.
(1) Both Assertion and Reason are true but Reason is not correct explanation of the Assertion.
(2) Both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(3) Assertion is true but the Reason is false.
(4) Both Assertion and Reason are false.

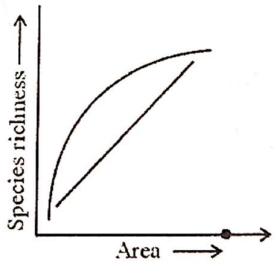
133. Match Column I with Column II

Column – I	Column – II
(A) DNA helicase	(i) Joins Okazaki fragments
(B) DNA ligase	(ii) Unwinds the DNA double helix
(C) RAN polymerase	(iii) Synthesize RNA from DNA temples
(D) Restriction endonuclease	(iv) Cuts DNA at specific recognition sites

Options:

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

134.



The graph shows that relation between species richness and area for a wide variety of taxa turns out to be a rectangular hyperbola. On a logarithmic scale, the relationship is shown by straight line. In which area slope of line to be much steeper?

(1) Grass land (2) Temperate region (3) Tropical rain forest (4) Tundra

135. If a genetic disease in transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is:

(1) autosomal dominant
(2) sex linked Recessive
(3) autosomal recessive
(4) sex linked dominant

ZOOLOGY

136. Which one of the following phyla is CORRECTLY matched with its two general characteristics?

(1) Chordata: Notochord at some stage and separate anal and urinary openings to the outside
(2) Mollusca: Normally oviparous and development is mostly direct
(3) Echinodermata: Pentamerous radial symmetry and mostly internal fertilization
(4) Arthropoda: Body divided into head, thorax and abdomen and chitinous exoskeleton.

137 Observe the following diagram and select the CORRECT option.

(1) *Labeo*-Cartilaginous fish
(2) *Betta*- Flying fish
(3) *Catla*- Bony fish
(4) *Clarias*-Fighting fish

138. Assertion: In mammals and birds, it is necessary to separate oxygenated and deoxygenated blood.
Reason: As mammals and birds require to keep their body warm, they require a higher supply of oxygen.

(1) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(2) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(3) If Assertion is true but Reason is false.
(4) If both Assertion and Reason are false.

139. Match the following columns.

	Column I		**Column II**
A.	Louis Pasteur	I.	Malay Archipelago
B.	Oparin	II.	Chemical evolution
C.	Charles Darwin	III.	Life comes from pre-existing cells
D.	Alfred Wallace	IV.	HMS Beagle

Choose the CORRECT answer from the options given below.

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

140. Identify the INCORRECT statement .
(1) Tendons connect skeletal muscle with bones
(2) Ligaments connect bones with bones
(3) Adipose tissue stores fats
(4) Matrix of cartilage is solid and non-pliable

141. Vital capacity of lungs of an average human is:
(1) 3000-4500 ml (2) 500-1000 ml (3) 2000-2500 ml (4) 1500-1800 ml

142. Read the statements A to D.
A. Chitin is found in exoskeleton of arthropods.
B. Starch can hold iodine in its helical loops but cellulose being non-helical cannot hold iodine.
C. Ribose is a hexose sugar.
D. Deoxyribose sugar is found in RNA.
Which of the statements given above are INCORRECT?
(1) A and B (2) C and A (3) B and C (4) C and D

143. **Statement I:** Increased permeability of Na+ ions due to application of stimulus is short lived.
Statement II: The resting membrane potential of membrane at the site of excitation is restored by Na^+ and Cl^- ions.
(1) Both Statement I and Statement II are incorrect
(2) Statement I is correct but Statement II is incorrect
(3) Statement I is incorrect but Statement II is correct
(4) Both Statement I and Statement II are correct

144. Match the following columns and select the correct option.

	Column I		**Column II**
A.	Pneumotaxic Centre	(i)	Alveoli
B.	O_2 Dissociation curve	(ii)	Pons region of brain
C.	Carries both CO_2 and O_2	(iii)	Haemoglobin
D.	Primary site of exchange of gases	(iv)	R.B.C

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

145. Which is correct set of air passage from outside into lungs in human beings and other mammals?
(1) Nasal cavity → Larynx →Pharynx →Trachea →Bronchiole→ Alveoli
(2) Nasal cavity → Larynx → Pharynx →Trachea → Alveoli → Bronchi
(3) Nasal cavity → Pharynx → Larynx→ Trachea → Bronchiole →Bronchi→ Alveoli
(4) Nasal cavity → Pharynx → Larynx→ Trachea → Bronchi →Bronchiole→ Alveoli

146. In menstrual cycle, the secretory phase is also known as
(1) follicular phase and lasts for 13 days (2) luteal phase and lasts for 6 days.
(3) follicular phase and lasts for 6 days (4) luteal phase and lasts for 13 days.

147. Match the biomolecules given in column I with their examples given in column II and choose the correct answer.

	Column – I (Biomolecules)		Column – II (Examples)
A.	Polysaccharide	I.	Collagen
B.	Protein	II.	Cholesterol
C.	Nucleotide	III.	Inulin
D.	Lipid	IV.	Adenylic acid

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

148. Given below are two statements.
Statement I: Cyclic menstruation is an indicator of normal reproductive phase and extends between menarche and menopause.
Statement II: The corpus luteum secretes small amounts of progesterone which is essential for maintenance of the perimetrium.
Choose the correct answer from the option given below:
(1) Both Statement I and Statement II are incorrect
(2) Statement I is correct but Statement II is incorrect
(3) Statement I is incorrect but Statement II is correct
(4) Both Statement I and Statement II are correct

149. Which of the following is FALSE about sterilization method of contraception?
(1) These techniques are highly effective but their reversibility is very poor.
(2) This procedure in the female is called 'tubectomy'.
(3) This procedure in the male is called 'vasectomy'.
(4) Preferred by couple who don't have children.

150 Which of the following are the reasons for population explosion?
i. Increased health facilities. ii. Rapid increase in MMR.
iii. Rapid increase in IMR. iv. Rapid decrease in MMR.
v. Decrease in number of people reaching reproductive age.
(1) (iii) and (v) (2) (i) and (iv) (3) (ii) and (iii) (4) (i) and (v)

151. Fill in the blanks:
About 15 mya, primates called (i). _____and (ii)_____ were existing and were hairy and walked like gorilla and chimpanzee. Two mya (iii)_____ probably lived in East African grasslands. This creature was called the first human-like being the hominid and was called (iv)_____ and their brain capacities were between 650 to 800cc.
(1) (i) *Dryopithecus*, (ii) *Ramapithecus,* (iii) *Australopithecus* (iv) *Homo habilis*
(2) (i) *Homo habilis*, (ii) *Australopithecus*, (iii*) Dryopithecus* (iv) *Ramapithecus*
(3) (i) *Homo habilis*, (ii) *Ramapithecus*, (iii) *Australopithecus* (iv) *Dryopithecus*
(4) (i) *Australopithecus*, (ii) *Homo habilis*, (iii) *Dryopithecus* (iv) *Ramapithecus*

152. **Assertion:** Urinary bladder and ureters are lined by smooth muscles.
Reason: Ureters and bladder gets stretched down while carrying and storing the urine respectively.
(1) If both the assertion and the reason are true and the reason is a correct explanation of the assertion
(2) If both the assertion and reason are true but reason is not a correct explanation of the assertion
(3) If the assertion is true but the reason is false.
(4) If both the assertion and reason are false.

153 Vasa recta is minute vessel of peritubular capillaries network, which is
(1) site of maximum reabsroption.
(2) running parallel to loop of Henle.
(3) maintaining the GFR
(4) also known as juxta-glomerular apparatus.

154. Human urine is usually acidic because:
(1) Excreted plasma proteins are acidic .
(2) The sodium transporter exchanges one hydrogen ion for each sodium ion, in peritubular capillaries.
(3) Hydrogen ions are actively secreted into the filtrate.
(4) Potassium and sodium exchange generates acidity.

155. Glomerulus is a tuft of capillaries formed by (A) a fine branch of renal artery. Blood from the glomerulus is carried away by (B).
Select the correct option for (A) and (B).
(1) afferent arteriole, efferent arteriole
(2) vasa recta, efferent arteriole
(3) Bowman's capsule, afferent arteriole
(4) vasa recta, afferent arteriole

156. Match the column – I with column – II and choose the correct option.

Column I (Types of Leucocytes/WBCs)	**Column II (Their % of total WBC)**
A. Neutrophils	I. 2-3
B. Basophils	II. 6-8
C. Monocytes	III. 0.5-1
D. Eosinophils	IV. 60-65

(1) (A) – (I), (B) – (II), (C) – (IV), (D) – (III)
(2) (A) – (I), (B) – (II), (C) – (III), (D) – (IV)
(3) (A) – (IV), (B) – (III), (C) – (II), (D) – (I)
(4) (A) – (II), (B) – (IV), (C) – (I), (D) – (III)

157. Relaxation of the muscle takes place due to
i. Pumping back of Ca^{2+} ions in sarcoplasmic reticulum.
ii. Absence of nerve impulse.
iii. Conformational changes in troponin and masking the actin filament.
(1) (ii) and (iii) (2) (i), (ii), and (iii) (3) (i) and (ii) d) (i) and (iii)

158. Which of the following is INCORRECT statement about frog?
(1) Body is divisible into head and trunk
(2) The skin is moist without scales
(3) A tympanum represents the ear
(4) Both fore limbs and hind limbs have four digits with webs

159. Choose the CORRECT pair

	Disease	**Causative organism**	**Mode of infection**
(1)	Elephantiasis	*Wuchereria*	Infected H_2O & food
(2)	Malaria	*Plasmodium*	Bite of male *Anopheles*
(3)	Typhoid	*Salmonella*	Inhaled contaminated air
(4)	Pneumonia	*Streptococcus pneumonia*	Droplet infection

160. Which of the following structures are NOT included in external genitalia of female?
(a) Mons pubis (b) Labia majora (c) Hymen (d) Clitoris
(e) Cervix (f) Fallopian tube
(1) c, e, f (2) Only e, f (3) Only d, f (4) a, d, e, f

161. Match the Column I with Column II and select the correct option.

Column I	Column II
(A) Axon hillock	(i) Myelinated nerve fibre.
(B) Afferent neurons	(ii) Conduct impulses from CNS to the effectors.
(C) Schwann cells	(iii) Most sensitive part of neuron.
(D) Efferent neurons	(iv) Conduct impulses from receptors to CNS.

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

162. Identify the hormone with its CORRECT matching of source and function:
A. Progesterone-corpus-luteum, stimulation of growth and activities of female secondary sex organs
B. Atrial natriuretic factor –secreted by ventricular wall, increases the blood pressure
C. Oxytocin-posterior pituitary, growth and maintenance of mammary glands
D. Melatonin - Pituitary gland, regulates the normal rhythm of the sleep-wake cycle
(1) Only D (2) Only C (3) Only B (4) Only A

163. A person entering an empty room suddenly finds a snake right in front of the door. Which one of the following is likely to happen in his neuro-hormonal control system?
(1) Sympathetic nervous system is activated releasing epinephrine and norepinephrine from adrenal cortex.
(2) Sympathetic nervous system is activated releasing epinephrine and norepinephrine from adrenal medulla.
(3) Neurotransmitters diffuse rapidly across the cleft and transmit a nerve impulse.
(4) Hypothalamus activates the parasympathetic division of brain.

164. Identify the WRONG statement with reference to immunity
(1) Active immunity is quick & gives full response
(2) Foetus receives some antibodies from mother ,it is an example for passive immunity .
(3) When exposed to antigen (living or dead) antibodies are produced in the host's body, it is called active immunity .
(4) When ready made antibodies are directly given, it is called passive immunity

165. The CORRECT sequence of events leading to heart attack are
1. Blood clot breaks loose and passes along blood vessel
2. Region of heart muscle suffers a myocardial infarction
3. Narrow branch of coronary artery becomes blocked by thrombus
4. Thrombus (blood clot) forms on inner surface of coronary artery
(1) 1, 4, 2, 3 (2) 1, 4, 3, 2 (3) 4, 1, 2, 3 (4) 4, 1, 3, 2

166. Mark the CORRECT statement for human blood?
(1) All the WBCs are nucleated in blood vessels
(2) All the RBCs are enucleated in blood vessels
(3) Rh-antigen is present on the surface of every RBC
(4) Antibodies are present in the blood plasma
(1) 1, 2, 3, 4 (2) 2, 4 only (3) 1, 2, 4 (4) 1, 2 only

167. In rDNA technology, some enzymes are used. Arrange them in chronology of their use.
(1) Restriction endonuclease, DNA ligase, DNA polymerase
(2) DNA ligase, DNA polymerase, Restriction endonuclease
(3) DNA polymerase, DNA ligase, Restriction endonuclease
(4) DNA polymerase , Restriction endonuclease, DNA ligase

168. The term recombinant DNA refers to DNA
(1) with more than one recognition sites.
(2) of the host cell.
(3) with a piece of foreign DNA.
(4) with selectable marker.

169. In 1983. Eli lily, an American company prepared two DNA sequences corresponding to A and B chains of human insulin and introduced them in plasmids of __a__ to produce insulin chains. Chains A and B were produced separately, extracted and combined by creating __b__ to from human insulin. Choose the option which CORRECTLY fills the blanks marked as a and b in given paragraph.

	a	**b**
(1)	*E. coli*	Hydrogen bond
(2)	*E. coli*	Phosphodiester bonds
(3)	Ti plasmid	Disulphide bonds
(4)	*E. coli*	Disulphide bonds

170. Match List I with List II.

List I	**List II**
(A) *Taenia*	(I) Nephridia
(B) *Paramoecium*	(II) Contractile vacuole
(C) *Locusta*	(III) Flame cells
(D) *Pheretima*	(IV) Malpighian tubules

Choose the correct answer from the options given below:
(1) (A) – (I), (B) – (II), (C) – (IV), (D) – (III)
(2) (A) – (III), (B) – (II), (C) – (IV), (D) – (I)
(3) (A) – (II), (B) – (I), (C) – (IV), (D) – (III)
(4) (A) – (I), (B) – (II), (C) – (III), (D) – (IV)

171. Read the following statements.
a. Metagenesis is observed in Helminths.
b. Echinoderms are triploblastic and coelomate animals.
c. Roundworms have an organ-system level of body organization.
d. Comb plates present in ctenophores help in digestion.
e. The Water vascular system is characteristic of Echinoderms.
Choose the correct answer from the options given below.
(1) (b), (c) and (e) are correct.
(2) (a), (b) and (c) are correct
(3) (c), (d) and (e) are correct
(4) (a), (d) and (c) are correct

172. How many are the CORRECT match ?
(a) Emergency contraceptives – IUDs
(b) Barrier – Female condoms
(c) Barrier – Cervical cap
(d) ART – ZIFT, IUT
(1) a, b only (2) a, b,c and d (3) b, c only (4) a, b and c

173. Which one of the following statements is CORRECT with reference to the circulation of blood in a mammal?
(1) Left auricle receives oxygenated blood from the lungs
(2) Pulmonary artery returns oxygenated blood from the lungs to the left auricle
(3) Pulmonary vein carries venous blood from right auricle to lungs
(4) Venous blood is returned to the left auricle

174. Statement I: All nitrogenous waste are metabolic waste .
Statement II: All metabolic wastes are nitrogenous waste
(1) Both Statement I and Statement II are incorrect
(2) Statement I is correct but Statement II is incorrect
(3) Statement I is incorrect but Statement II is correct
(4) Both Statement I and Statement II are correct

175. Column I list the parts of the human brain and Column II lists the functions. Match the two columns and identify the correct choice from those given.

	Column I	**Column II**
A.	Cerebrum	i. Controls the pituitary
B.	Cerebellum	ii. Controls vision and hearing
C.	Hypothalamus	iii. Controls the rate of heartbeat
D.	Midbrain	iv. Seat of intelligence
		v. Maintains body posture

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

176. In which of the following techniques, the embryos are transferred to assist those females who cannot conceive?
(1) GIFT and ICSI (2) ZIFT and IUT (3) GIFT and ZIFT (4) ICSI and ZIFT

177. The source of dsRNA for RNAi in eukaryotes is/are
(1) Prior infection by a bacteria
(2) Transposons that replicate via RNA intermediate
(3) Transposons that replicate via DNA intermediate
(4) Both (1) and (2)

178. Read the statements given below. Select the CORRECT statements wrt loop of Henle.
i. Reabsorption in this region is maximum.
ii. This region plays a significant role in the maintenance of high osmolarity of intestinal fluid.
iii. Its descending limb is permeable to salts, but almost impermeable to water.
iv. Its ascending limb is impermeable to water but allows transport of electrolyte actively or passively.
v. In descending limb filtrate is hypertonic, while in ascending limb filtrate is hypotonic.
The above characteristics are associated with:
(1) (i), (iii),&(iv) (2)(ii),(iv) &(v) (3) (ii) & (iv) (4) All of these

179. Role of pacemaker is
(1) To initiate and maintain the rhythmic contractile activity of the heart
(2) To initiate and maintain the arrhythmic contractile activity of the heart
(3) To initiate and maintain the rhythmic contractile activity of blood vessels
(4) To initiate and maintain the arrhythmic contractile activity of blood vessels

180. Select the CORRECT statement.
(1) Inheritance of acquired characters is one of the key concepts of Darwinian theory
(2) According to Darwin, fitness refers to have physical dominance over others
(3) As per Darwin's theory, variation is slow and occur in any direction
(4) Placental wolf and Tasmanian wolf are examples of convergent evolution