

TEST BOOKLET NO.10

TEST BOOKLET CODE

ROLL NUMBER

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Test Series - NEET

TEST -10

NEET(UG)-2026

T-10

Do not open this Test Booklet until you are asked to do so.

Syllabus

Physics: Electrostatics, Capacitor & Current, Moving Charge, Magnetism, EMI & AC, EM Wave, Optics, Modern Physics.

Chemistry : Solution, Electrochemistry, Chemical Kinetics, Optical Isomerism, Alkyl and Arylhalides, Alcohol, Ether & Phenol Aldehyde & Ketones, Acid & Derivatives, Nitrogen Containing Compounds, p-block Elements (complete), d & f block elements, Coordination Chemistry.

Biology : Sexual Reproduction in Flowering Plants, Principles of Inheritance & Variation, Molecular Basis of Inheritance, Microbes in Human Welfare, Organisms and Population, Ecosystem, Biodiversity & Conservation.
Human Reproduction, Reproductive Health, Evolution, Human Health and Disease, Biotechnology: Principles and Processes, Biotechnology and its Applications

Important Instructions :

1. This test is of **3 Hours** duration.
2. The Test Booklet contains **180** multiple-choice questions [four options (1), (2), (3) & (4) with a single correct answer] from **Physics (45 Questions), Chemistry (45 Questions) & Biology (90 Questions)**.

All questions are compulsory.

3. Each question carries **4** marks. For each correct response, the candidate will get **4** marks. For each incorrect response, **1** mark will be deducted from the total score. No mark will be deducted for the questions which have not been answered. The maximum marks is **720**.

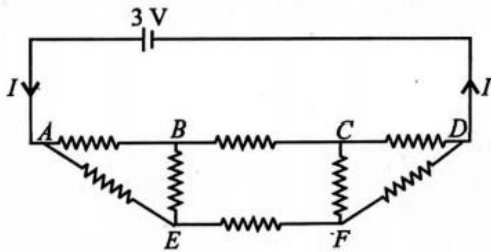
4. Use **Blue/Black Ball Point Pen only** for writing particulars on this page/special Answer Sheet (OMR).
5. Do not encode or darken more than one circle for answering a particular question for it will be treated as a wrong answer.
6. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
7. Calculators, Slide Rules, Log Tables, Geometry Box, Electronic Digital Watches with facilities of calculators, cellular phones, pagers or any other electronic gadget are not allowed inside the Examination Hall.

Name of the Candidate (in Capital) : _____

Centre Name (in Capital) : _____ Date : _____

Candidate's Signature : _____ Invigilator's Signature : _____

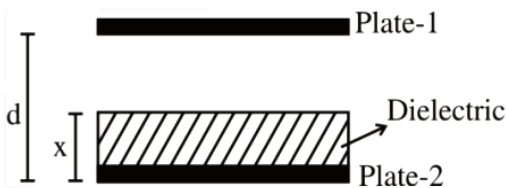
1. Figure shows a network of eight resistors, each equal to 2Ω , connected to a $3V$ battery of negligible internal resistance. The current I in the circuit is [NCERT Page 83]



- (1) 0.25 A (2) 0.504
 (3) 0.75 A (4) 1.0 A
2. A light source of wavelength λ illuminates a metal surface and electrons are ejected with maximum kinetic energy of 2 eV . If the same surface is illuminated by a light source of wavelength $\lambda/2$, then the maximum kinetic energy of ejected electrons will be (The work function of metal is 1 eV)

[NCERT Page 281, 282]

- (1) 2 eV (2) 6 eV
 (3) 5 eV (4) 3 eV
3. A parallel plate capacitor with plate area A and plate separation d is filled with a dielectric material of dielectric constant $K = 4$. The thickness of the dielectric material is x , where $x < d$.



Let C_1 and C_2 be the capacitance of the system for $x = \frac{1}{3}d$ and $x = \frac{2}{3}d$ respectively. If $C_1 = 2\mu\text{F}$ the value of C_2 is

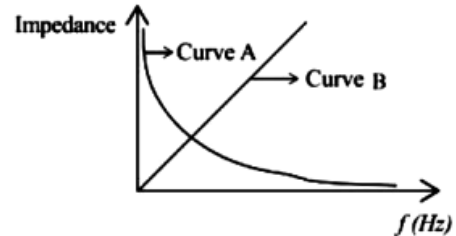
[NCERT Page 70]

- (1) $3\ \mu\text{F}$ (2) $5\ \mu\text{F}$
 (3) $7\ \mu\text{F}$ (4) $9\ \mu\text{F}$
4. The magnetic moment of a bar magnet is 0.5 Am^2 . It is suspended in a uniform magnetic field of $8 \times 10^{-2}\text{ T}$. The work done in rotating it

from its most stable to most unstable position is [NCERT Page 139]

- (1) $16 \times 10^{-2}\text{ J}$ (2) $8 \times 10^{-2}\text{ J}$
 (3) $4 \times 10^{-2}\text{ J}$ (4) Zero

5. As per the given graph choose the correct representation for curve A and curve B.

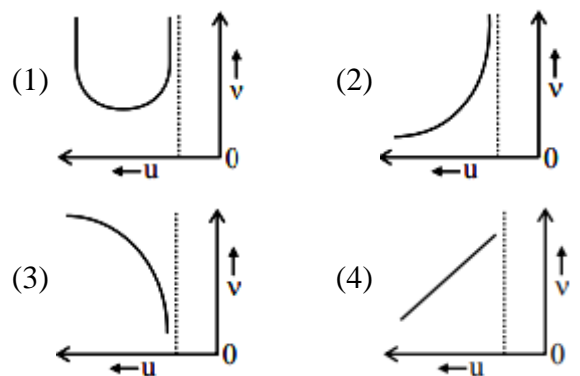


{Where X_C = reactance of pure capacitive circuit connected with A.C. source
 X_L = reactance of pure inductive circuit connected with A.C. source ; R = impedance of pure resistive circuit connected with A.C. source ; Z = Impedance of the LCR series circuit} [NCERT Page 187]

- (1) $A = X_L, B = R$ (2) $A = X_L, B = Z$
 (3) $A = X_C, B = X_L$ (4) $A = X_L, B = R$

6. Let u and v be the distances of the object and the image from a lens of focal length f . The correct graphical representation of u and v for a convex lens when $|u| > f$, is

[NCERT Page 235]

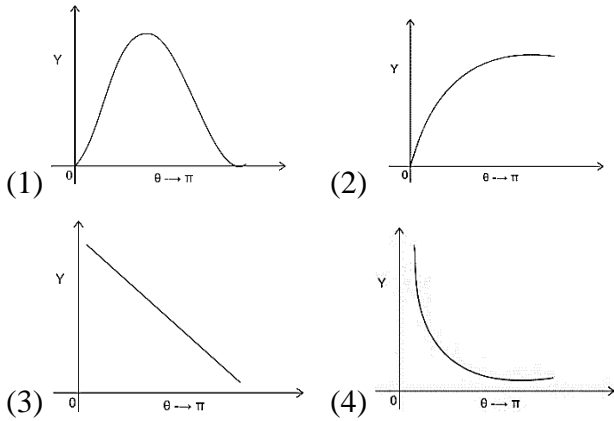


7. The graph which depicts the results of Rutherford gold foil experiment with α -particles is [NCERT Page 293]

θ : Scattering angle

Y: Number of scattered α -particles detected

(Plots are schematic and not to scale)



8. If 200 MeV energy is released in the fission of a single U^{235} nucleus, the number of fissions required per second to produce 1 kilowatt power shall be (Given $1 \text{ eV} = 1.6 \times 10^{-19} \text{ J}$)

[NCERT Page 315]

- (1) 3.125×10^{13} (2) 3.125×10^{14}
 (3) 3.125×10^{15} (4) 3.125×10^{16}

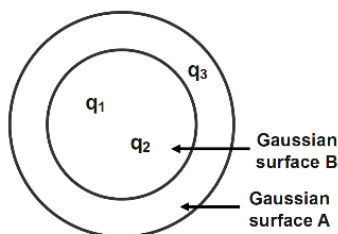
9. Suppose a uniformly charged wall provides a uniform electric field of $2 \times 10^4 \text{ N / C}$ normally. A charged particle of mass 2g being suspended through a silk thread of length 20 cm and remain stayed at a distance of 10 cm from the wall the charge on the particle will be $\frac{1}{\sqrt{x}} \mu\text{C}$ where x is [use $g = 10 \text{ m/s}^2$]

[NCERT Page 14]

- (1) 3 (2) 5
 (3) 7 (4) 9

10. The electric flux for Gaussian surface A that enclose the charged particles in free space is (give $q_1 = -14 \text{ nC}$ $q_2 = 78.85 \text{ nC}$ $q_3 = -56 \text{ nC}$)

[NCERT Page 30]



- (1) $10^3 \text{ Nm}^2 \text{ C}^{-1}$
 (2) $10^3 \text{ CN}^{-1} \text{ m}^{-2}$
 (3) $6.23 \times 10^3 \text{ Nm}^2 \text{ C}^{-1}$
 (4) $6.23 \times 10^3 \text{ CN}^{-1} \text{ m}^{-2}$

11. A galvanometer having a coil of resistance 30Ω need 20 mA of current for full-scale deflection. If a maximum current of 3 A is to be measured using this galvanometer, the resistance of the shunt to be added to the galvanometer should be $30/X \Omega$, where X is X

[NCERT Page 130, 131]

- (1) 447 (2) 298
 (3) 149 (4) 596

12. A plane EM wave is propagating along x direction. It has a wavelength of 4 mm. If electric field is in y-direction with the maximum magnitude of 60 Vm^{-1} , the equation for magnetic field is

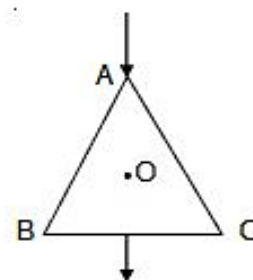
[NCERT Page 206, 207]

- (1) $B_z = 60 \sin \left[\frac{\pi}{2} (x - 3 \times 10^8 t) \right] \hat{k} \text{ T}$
 (2) $B_z = 2 \times 10^{-7} \sin \left[\frac{\pi}{2} \times 10^3 (x - 3 \times 10^8 t) \right] \hat{k} \text{ T}$
 (3) $B_x = 60 \sin \left[\frac{\pi}{2} (x - 3 \times 10^8 t) \right] \hat{i} \text{ T}$
 (4) $B_z = 2 \times 10^{-7} \sin \left[\frac{\pi}{2} \times 10^3 (x - 3 \times 10^8 t) \right] \hat{k} \text{ T}$

13. Two coherent sources of light interfere. The intensity ratio of two sources is 1 : 4. For this interference pattern if the value of $\frac{I_{\text{max}} + I_{\text{min}}}{I_{\text{max}} - I_{\text{min}}}$ is equal to $\frac{2\alpha + 1}{\beta + 3}$ then $\frac{\alpha}{\beta}$ will be

- (1) 1.5 (2) 2
 (3) 0.5 (4) 1

14. An equilateral triangle is made by uniform wires AB, BC, CA. A current I enters at A and leaves from the mid point of BC. If the lengths of each side of the triangle is L, the magnetic field B at the centroid O of the triangle is



[NCERT Page 118]

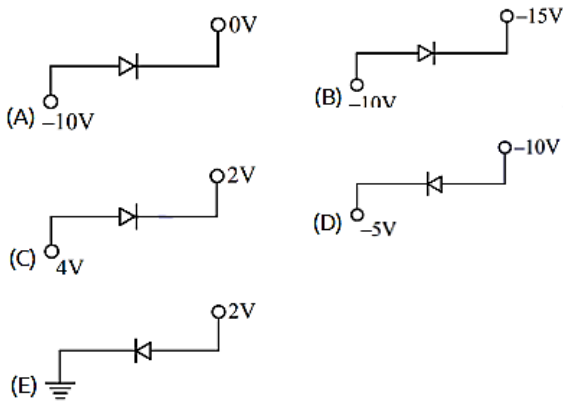
- (1) $\frac{\mu_0}{4\pi} \left(\frac{4I}{L}\right)$ (2) $\frac{\mu_0}{2\pi} \left(\frac{4I}{L}\right)$
 (3) $\frac{\mu_0}{3\pi} \left(\frac{2I}{L}\right)$ (4) zero

15. A long straight wire of radius a carries a steady current I . The current is uniformly distributed across its cross section. The ratio of the magnetic field at $a/2$ and $2a$ from axis of the wire is
 [NCERT Page 119, 120]

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

16. Which of the following circuits is represents a forward biased diode?

[NCERT Page 335, 336]



Choose the correct answer from the options given below:

- (1) (B), (D) and (E) only
 (2) (A) and (D) only
 (3) (B), (C) and (E) only
 (4) (C) and (E) only

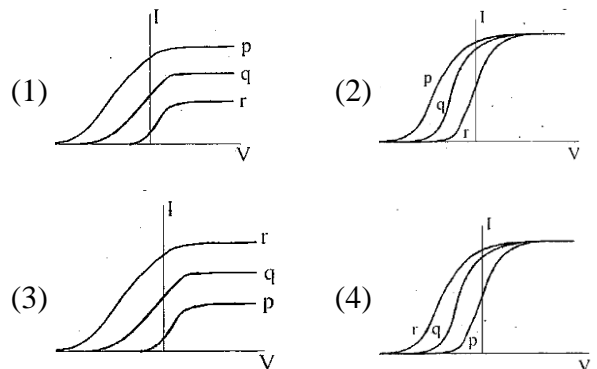
17. A hydrogen atom is in an excited state of principal quantum number (n), it emits a photon of wavelength (λ), when it returns to the ground state, the value of n is

- (1) $\sqrt{\frac{\lambda R^2}{\lambda R - 1}}$ (2) $\sqrt{\frac{(\lambda R - 1)}{\lambda R}}$
 (3) $\sqrt{(\lambda R - 1)}$ (4) $\sqrt{\frac{\lambda R}{\lambda R - 1}}$

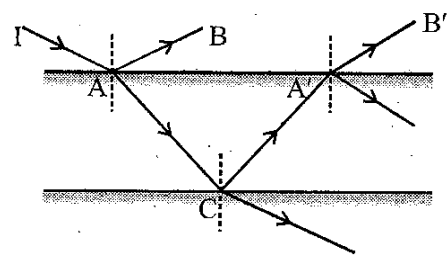
18. Photoelectric effect experiments are performed using three different metal plates p , q and r having work functions $\phi_p = 2\text{eV}$, $\phi_q = 2.5\text{eV}$ and $\phi_r = 3\text{eV}$ respectively. A light beam

containing wavelengths of 550 nm, 450 nm and 350 nm with equal intensities illuminates each of the plates. The correct I-V graph for the experiment is [Take $hc = 1240 \text{ eV nm}$]

[NCERT Page 278, 279, 282]



19. A ray of light of intensity I is incident on a parallel glass-slab at a point A as shown in fig. it undergoes partial reflection and refraction. At each reflection 25% of incident energy is reflected. The rays AB and $A'B'$ undergo interference. The ratio $I_{\text{max}} / I_{\text{min}}$ is



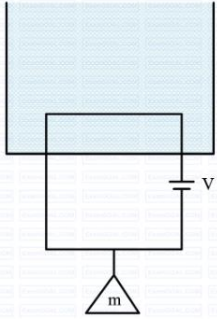
[NCERT Page 264]

- (1) 4 : 1 (2) 8 : 1
 (3) 7 : 1 (4) 49 : 1

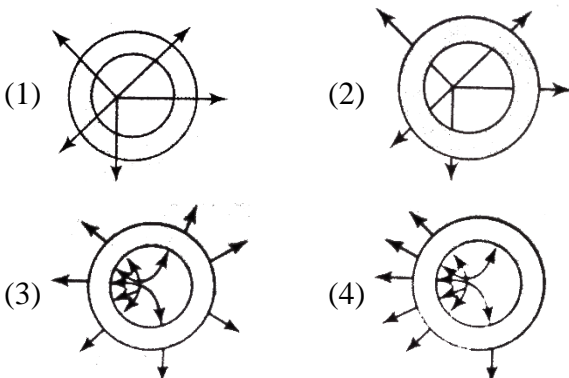
20. An EM wave from air enters a medium. The electric fields are $\vec{E}_1 = E_{01} \hat{x} \cos \left[2\pi \nu \left(\frac{z}{c} - t \right) \right]$ in air and $\vec{E}_2 = E_{02} \hat{x} \cos [k(2z - ct)]$ in medium, where the wave number k and frequency ν refer to their values in air. The medium is non-magnetic. If ϵ_{r1} and ϵ_{r2} refer to relative permittivity's of air and medium respectively, which of the following options is correct?
 [NCERT page 207]

- (1) $\frac{\epsilon_{r1}}{\epsilon_{r2}} = 4$ (2) $\frac{\epsilon_{r1}}{\epsilon_{r2}} = 2$
 (3) $\frac{\epsilon_{r1}}{\epsilon_{r2}} = \frac{1}{4}$ (4) $\frac{\epsilon_{r1}}{\epsilon_{r2}} = \frac{1}{2}$

21. A massless square loop, of wire of resistance $10\ \Omega$ supporting a mass of $1\ \text{g}$ hangs vertically with one of its sides in a uniform magnetic field of $10^3\ \text{G}$, directed outwards in the shaded region. A dc voltage V is applied to the loop. For what value of V the magnetic force will exactly balance the weight of the supporting mass of $1\ \text{g}$? (If sides of the loop = $10\ \text{cm}$, $g = 10\ \text{ms}^{-2}$) [NCERT Page 110]



- (1) $1/10\ \text{V}$ (2) $100\ \text{V}$
 (3) $1\ \text{V}$ (4) $10\ \text{V}$
22. A resistance 'R' draws power 'p' when connected to an AC source. If an inductance is now placed in series with the resistance, such that the impedance of the circuit becomes Z . the power drawn will be [NCERT Page 191]
- (1) $P\sqrt{\frac{R}{Z}}$ (2) $P\left(\frac{R}{Z}\right)$
 (3) P (4) $P\left(\frac{R}{Z}\right)^2$
23. A metallic shell has a point charge 'q' kept inside its cavity. Which one of the following diagrams correctly represents the electric lines of forces [NCERT Page 21]



24. A point dipole $\vec{P} = P_0\hat{x}$ kept at origin. The potential and electric field due to this dipole on the y-axis at a distance d are, respectively : (Take $V = 0$ at infinity)

[NCERT Page 24, 51]

- (1) $\frac{|\vec{p}|}{4\pi\epsilon_0 d^2}, \frac{\vec{p}}{4\pi\epsilon_0 d^3}$ (2) $0, \frac{-\vec{p}}{4\pi\epsilon_0 d^3}$
 (3) $0, \frac{|\vec{p}|}{4\pi\epsilon_0 d^3}$ (4) $\frac{|\vec{p}|}{4\pi\epsilon_0 d^2}, \frac{-\vec{p}}{4\pi\epsilon_0 d^3}$

25. The electric field at a plane electromagnetic wave propagating along the x direction in vacuum is $\vec{E} = E_0\hat{j}\cos(\omega t - kx)$. The magnetic field \vec{B} , at the moment $t = 0$ is

- (1) $\vec{B} = \frac{E_0}{\sqrt{\mu_0\epsilon_0}}\cos(kx)\hat{k}$
 (2) $\vec{B} = E_0\sqrt{\mu_0\epsilon_0}\cos(kx)\hat{j}$
 (3) $\vec{B} = E_0\sqrt{\mu_0\epsilon_0}\cos(kx)\hat{k}$
 (4) $\vec{B} = \frac{E_0}{\sqrt{\mu_0\epsilon_0}}\cos(kx)\hat{j}$

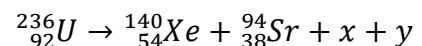
26. In a Young's double slit experiment with light of wavelength λ , fringe pattern on the screen has fringe width β . When two thin transparent glass (refractive index μ) plates of thickness t_1 and t_2 ($t_1 > t_2$) are placed in the path of the two beams respectively, the fringe pattern will shift by a distance [NCERT Page 265, 266]

- (1) $\frac{\beta(\mu-1)}{\lambda}\left(\frac{t_1}{t_2}\right)$ (2) $\frac{\mu\beta}{\lambda}\frac{t_1}{t_2}$
 (3) $\frac{\beta(\mu-1)}{\lambda}(t_1 - t_2)$ (4) $(\mu - 1)\frac{\lambda}{\beta}(t_1 + t_2)$

27. In a hydrogen atom the electron makes a transition from $(n + 1)^{\text{th}}$ level to the n^{th} level. If $n \gg 1$, the frequency of radiation emitted is proportional to: [NCERT Page 299, 301]

- (1) $1/n$ (2) $1/n^3$
 (3) $1/n^2$ (4) $1/n^4$

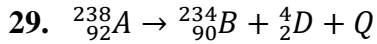
28. A fission reaction is given by



where x and y are two particles. Considering ${}_{92}^{236}\text{U}$ to be at rest, the kinetic energies of the products are denoted by K_{Xe} , K_{Sr} , K_x ($2\ \text{MeV}$) and K_y ($2\ \text{MeV}$), respectively. Let the binding energies per nucleon of ${}_{92}^{236}\text{U}$, ${}_{54}^{140}\text{Xe}$ and ${}_{38}^{94}\text{Sr}$ be $7.5\ \text{MeV}$, $8.5\ \text{MeV}$ and $8.5\ \text{MeV}$, respectively. Considering different conservation laws, the correct option is

[NCERT Page 3141, 315]

- (1) $x = n, y = n, K_{Sr} = 129 \text{ MeV}, K_{Xe} = 86 \text{ MeV}$
 (2) $x = p, y = e^-, K_{Sr} = 129 \text{ MeV}, K_{Xe} = 85 \text{ MeV}$
 (3) $x = p, y = n, K_{Sr} = 129 \text{ MeV}, K_{Xe} = 86 \text{ MeV}$
 (4) $x = n, y = n, K_{Sr} = 86 \text{ MeV}, K_{Xe} = 129 \text{ MeV}$

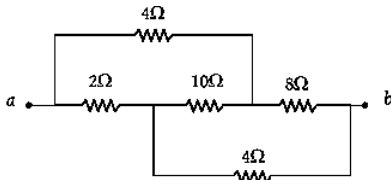


In the given nuclear reaction, the approximate amount of energy released will be : [Given, mass of ${}_{92}^{238}\text{A} = 238.05078 \times 931.5 \text{ MeV}/c^2$, mass of ${}_{90}^{234}\text{B} = 234.04363 \times 931.5 \text{ MeV}/c^2$, mass of ${}_2^4\text{D} = 4.00260 \times 931.5 \text{ MeV}/c^2$]

[NCERT Page 315]

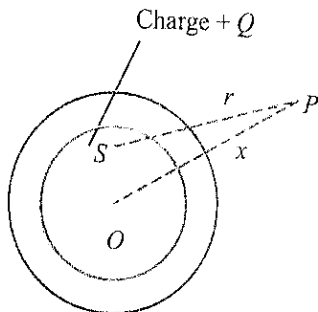
- (1) 3.82 MeV (2) 5.9 MeV
 (3) 2.12 MeV (4) 4.25 MeV

30. Find the equivalent resistance between the points a and b [NCERT Page 100, 101]



- (1) 2Ω (2) 4Ω
 (3) 8Ω (4) 16Ω

31. The adjacent diagram shows a charge $+Q$ held on an insulating support S and enclosed by a hollow spherical conductor. O represents the centre of the spherical conductor and P is a point such that $OP = x$ and $SP = r$. The electric field at point P will be



[NCERT Page 35, 36]

- (1) $\frac{Q}{4\pi\epsilon_0 x^2}$ (2) $\frac{Q}{4\pi\epsilon_0 r^2}$
 (3) 0 (4) None of these

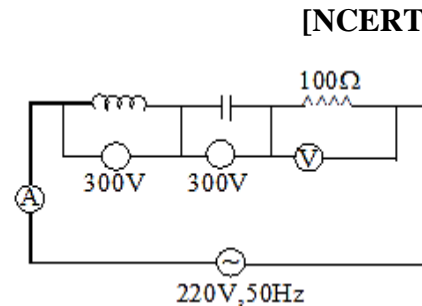
32. A current through a wire depends on time as $i = \alpha_0 t + \beta t^2$ where $\alpha_0 = 20 \text{ A/s}$ and $\beta = 8 \text{ As}^{-2}$. Find the charge crossed through a section of the wire in 15 s. [NCERT Page 82]

- (1) 2250 C (2) 11250 C
 (3) 2100 C (4) 260 C

33. In a long glass tube, mixture of two liquids A and B with refractive indices 1.3 and 1.4 respectively, forms a convex refractive meniscus towards A. If an object placed at 13 cm from the vertex of the meniscus in A forms an image with a magnification of '-2' then the radius of curvature of meniscus is [NCERT Page 233]

- (1) 1 cm (2) $1/3 \text{ cm}$
 (3) $2/3 \text{ cm}$ (4) $4/3 \text{ cm}$

34. In the circuit shown below, what will be the readings of the voltmeter and ammeter? [NCERT Page 187]



- (1) 800 V, 2A (2) 300 V, 2A
 (3) 220 V, 2.2 A (4) 100V, 2A

35. An object is placed beyond the centre of curvature C of the given concave mirror. If the distance of the object is d_1 from C and the distance of the image formed is d_2 from C , the radius of curvature of this mirror is: [NCERT Page 225, 226]

- (1) $\frac{2d_1 d_2}{d_1 - d_2}$ (2) $\frac{2d_1 d_2}{d_1 + d_2}$
 (3) $\frac{d_1 d_2}{d_1 + d_2}$ (4) $\frac{d_1 d_2}{d_1 - d_2}$

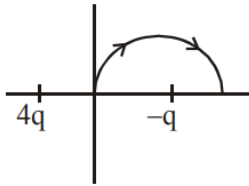
36. A square loop of side $2a$ and carrying current I is kept in xz plane with its centre at origin. A long wire carrying the same current I is placed parallel to z -axis and passing through point $(0, b, 0)$, ($b \gg a$). The magnitude of torque on the loop about z -axis will be : [NCERT Page 116, 126]

[NCERT Page 116, 126]

- (1) $\frac{2\mu_0 I^2 a^2}{\pi b}$ (2) $\frac{2\mu_0 I^2 a^2 b}{\pi(a^2+b^2)}$
 (3) $\frac{\mu_0 I^2 a^2 b}{2\pi(a^2+b^2)}$ (4) $\frac{\mu_0 I^2 a^2}{2\pi b}$

37. Two-point charges $4q$ and $-q$ are fixed on the x -axis at $x = -d/2$ and $x = d/2$, respectively. If a third point charge ' q ' is taken from the origin to $x = d$ along the semicircle as shown in the figure, the energy of the charge will

[NCERT Page 56]



- (1) Increase by $\frac{3q^2}{4\pi\epsilon_0 d}$ (2) increase by $\frac{2q^2}{3\pi\epsilon_0 d}$
 (3) decrease by $\frac{q^2}{4\pi\epsilon_0 d}$ (4) decrease by $\frac{4q^2}{3\pi\epsilon_0 d}$

38. The magnetic field of a plane electromagnetic wave given by

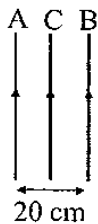
$$\vec{B} = B_0 \hat{i} [\cos(kz - \omega t)] + B_1 \hat{j} \cos(kz + \omega t)$$

Where, $B_0 = 3 \times 10^{-5}$ T and $B_1 = 2 \times 10^6$ T.

The rms value of the force experienced by a stationary charge $Q = 10^{-4}$ C at $z = 0$ is closest to
 [NCERT Page 207]

- (1) 0.6 N (2) 0.1 N
 (3) 0.9 N (4) 3×10^{-2} N

39. In the adjoining figure, two very long, parallel wires A and B carry currents of 10 ampere and 20 ampere respectively, and are at a distance 20 cm apart. If a third wire C (length 15 cm) having a current of 10 ampere is placed between them, then how much force will act on C. The direction of current in all the three wires is same.
 [NCERT Page 123]



- (1) 3×10^{-5} N (left) (2) 3×10^{-5} N (right)
 (3) 6×10^{-5} N (left) (4) 6×10^{-5} N (right)

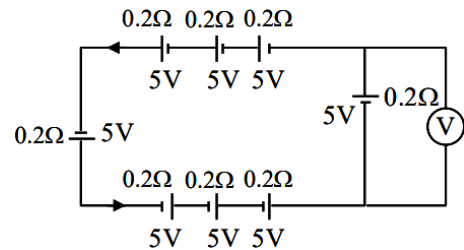
40. A series L R circuit connected with an ac source $E = (25 \sin 1000 t)V$ has a power factor of $\frac{1}{\sqrt{2}}$. If the source of emf is changed to $E = (20 \sin 2000 t) V$, the new power factor of the circuit will be

- (1) $\frac{1}{\sqrt{2}}$ (2) $\frac{1}{\sqrt{3}}$
 (3) $\frac{1}{\sqrt{5}}$ (4) $\frac{1}{\sqrt{7}}$

41. Current passing through a wire as function of time is given as $I(t) = 0.02t + 0.01$ A. The charge that will flow through the wire from $t = 1$ s to $t = 2$ s is
 [NCERT Page 82]

- (1) 0.06 C (2) 0.02 C
 (3) 0.07 C (4) 0.04 C

42. The reading in the ideal voltmeter (V) shown in the given circuit diagram is



- (1) 5 V (2) 10 V
 (3) 0 V (4) 3 V

43. A long solenoid of radius R carries a time (t) - dependent current $I(t) = I_0 = t(1 - t)$. A ring of radius $2R$ is placed coaxially near its middle. During the time interval $0 \leq t \leq 1$ the induced current (I_R) and the induced EMF (V_R) in the ring change as:
 [NCERT Page 158]

- (1) Direction of I_R remains unchanged and V_R is maximum at $t = 0.5$
 (2) At $t = 0.25$ direction of I_R reverses and V_R is maximum
 (3) Direction of I_R remains unchanged and V_R is zero at $t = 0.25$
 (4) At $t = 0.5$ direction of I_R reverses and V_R is zero

44. Capacitance of an isolated conducting sphere of radius R_1 becomes n times when it is enclosed by a concentric conducting sphere of radius R_2 connected to earth. The ratio of their radii is: (R_2/R_1)
 [NCERT Page 671]

$$(1) \frac{n}{n-1}$$

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

$$(3) \frac{n+1}{n}$$

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

45. A 2 meter long scale with least count of 0.2 cm is used to measure the locations of objects on an optical bench. While measuring the focal length of a convex lens, the object pin and the convex lens are placed at 80 cm mark and 1 m mark, respectively. The image of the object pin on the other side of lens coincides with image pin that is kept at 180 cm mark. The % error in

the estimation of focal length is:

[NCERT Page 235/Practical]

- (1) 1.02
(2) 0.85
(3) 1.70
(4) 0.51

CHEMISTRY

46. Given below are two statements.

Statement I: Di-isopropyl ether can be prepared by Williamson synthesis.

Statement II: Williamson synthesis involves S_N2 attack of an alkoxide ion on primary alkyl halide.

In the light of above statements, choose the correct answer. [NCERT, Page 215]

- (1) Both statement I and statement II are correct
(2) Statement I is incorrect but statement II is correct
(3) Statement I is correct but statement II is incorrect
(4) Both statement I and statement II are incorrect
47. Read the following statements

[NCERT, Page 264, 271]

- (A) Hoffmann bromamide degradation reaction is used for preparation of primary amines.
(B) Aromatic primary amines can be prepared by Gabriel phthalimide synthesis.
(C) Hinsberg's reagent is used for the distinction of primary, secondary and tertiary amines.
(D) Benzenesulphonyl chloride is known as Lucas reagent.

Choose the correct answer from the options given below.

- (1) A and B only. (2) A and C only
(3) B and D only (4) A and D only

48. Which of the following has the highest π - ρ bonding tendency ?

[Old NCERT, Page 172]

- (1) N (2) P
(3) As (4) Sb

49. **Statement I:** The compounds containing methyl ketone responds to iodoform-test.

Statement II: Ethyl alcohol also responds iodoform test. [NCERT, Page 240]

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

50. Match Column-I with Column-II.

[NCERT, Page 125]

	Column-I (Complex)		Column-II (Isomerism)
A.	[Pt(NH ₃) ₂ Cl ₂]	p.	Optical
B.	[Co(NH ₃) ₃ (NO ₂) ₃]	q.	Coordination
C.	[Co(en) ₃] ³⁺	r.	C is and trans
D.	[Co(NH ₃) ₆][Cr(CN) ₆]	s.	Facial and meridional

Choose the correct answer from the options given below:

- (1) A - (r) B - (s) C - (p) D - (q)
 (2) A - (r) B - (p) C - (s) D - (q)
 (3) A - (s) B - (r) C - (q) D - (p)
 (4) A - (q) B - (p) C - (r) D - (s)

51. **Statement I:** Fructose is a ketopentose.

Statement II: Glucose is an aldohexose.

[NCERT, Page 294]

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

52. Consider the following statements

- (A) Methylamine is a stronger base than trimethylamine in aqueous medium.
 (B) Direct nitration of aniline using nitrating mixture (HNO_3 , H_2SO_4) at 288 K gives *p*-nitroaniline as major product.
 (C) Anilinium hydrogensulphate on heating at 453-473K gives sulphanilic acid.

The correct statements are

[NCERT, Page 268, 272]

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

53. The complex ion $[\text{Pt}(\text{NO}_2)(\text{Py})(\text{NH}_3)(\text{NH}_2\text{OH})]^+$ will give [NCERT, Page 125]

- (1) 2 isomers (Geometrical)
 (2) 3 isomers (Geometrical)
 (3) 6 isomers (Geometrical)
 (4) 4 isomers (Geometrical)

54. Arrange the following ions in the order of their magnetic moment [NCERT, Page 102]

- (A) V^{4+} (B) Mn^{4+}
 (C) Fe^{3+} (D) Ni^{2+}

(Atomic no. of V = 23, Mn = 25, Fe = 26, Ni = 28)

- (1) $\text{B} > \text{C} > \text{A} > \text{D}$ (2) $\text{C} > \text{D} > \text{B} > \text{A}$
 (3) $\text{C} > \text{B} > \text{D} > \text{A}$ (4) $\text{A} > \text{D} > \text{C} > \text{B}$

55. The coordination number and the oxidation state of the element 'M' in the complex $[\text{M}(\text{en})_2(\text{C}_2\text{O}_4)]\text{NO}_2$ (where, en is ethane-1,2-diamine) are respectively

[NCERT, Page 121]

- (1) 6 and 2 (2) 4 and 2
 (3) 6 and 3 (4) 4 and 3

56. Match the following:

[NCERT, Page 208, 271]

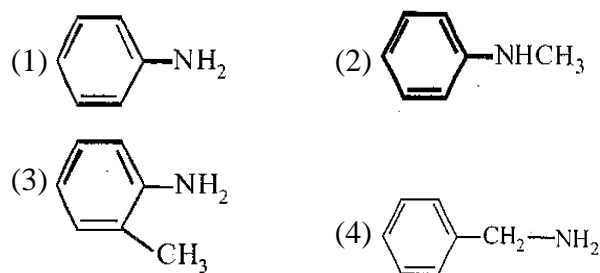
	Column-I (Test/Method)		Column-II (Reagent)
A.	Lucas Test	p.	$\text{C}_6\text{H}_5\text{SO}_2\text{Cl}/\text{aq.KOH}$
B.	Dumas method	q.	H_2SO_4
C.	Kjeldahl's method	r.	CuO/CO_2
D.	Hinsberg test	s.	Conc. HCl and ZnCl_2

Choose the correct answer from the options given below:

- (1) A-(s), B-(r), C-(p), D-(q)
 (2) A-(r), B-(p), C-(s), D-(q)
 (3) A-(s), B-(r), C-(q), D-(p)
 (4) A-(q), B-(p), C-(r), D-(s)

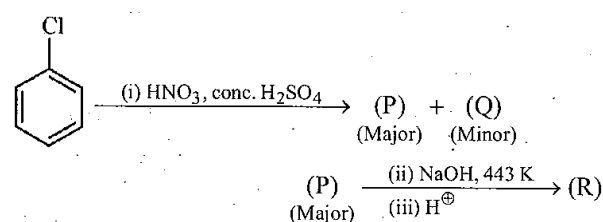
57. Which of the following is the strongest base?

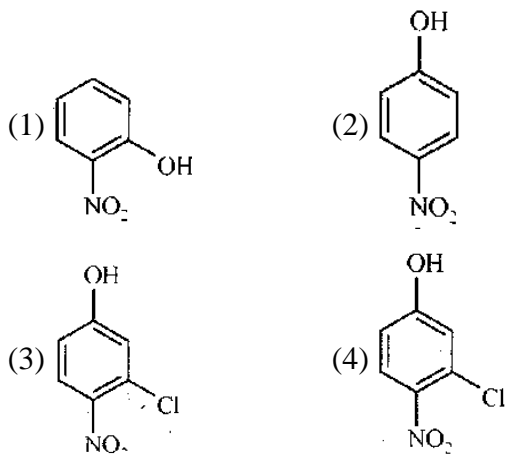
[NCERT, Page 269]



58. The product (R) in the following reaction is

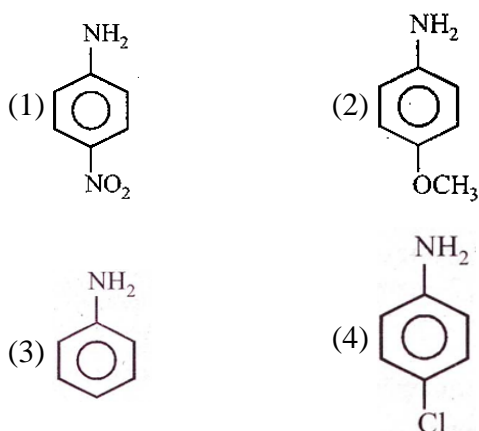
[NCERT, Page 182]



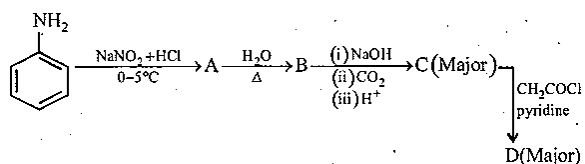


59. Which of the following amines undergoes diazotization most easily?

[NCERT, Page 274]

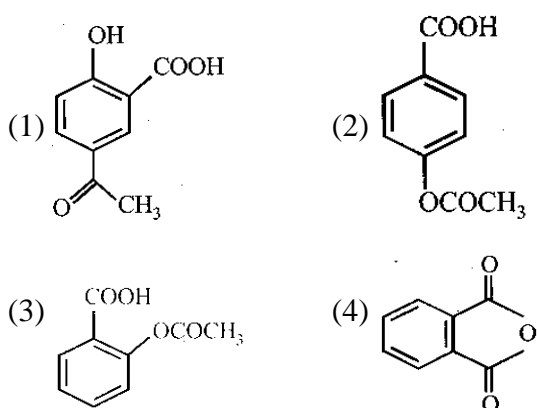


60. Consider the following reaction sequence



Product (D) is

[NCERT, Page 274]



61. For a first order reaction, the graph between $\log a/(a-x)$ (on y-axis) and time (in min, on x-

axis) gave a straight line passing through origin. The slope is $2 \times 10^{-3} \text{ min}^{-1}$. What is the rate constant (in min^{-1})? [NCERT, Page 71]

- (1) 2×10^{-3} (2) $2 \times 10^{-3}/2.303$
 (3) 4.606×10^{-3} (4) 0.5×10^{-5}

62. Consider the following statements is/are incorrect [Practical]

- (A) Group 1 radicals are soluble in cold dilute HCl.
 (B) Fe^{3+} , As^{3+} and Cr^{3+} belong to group 3.
 (C) Mercurous nitrate reacts with ammonia to give a black precipitate
 (D) HgS and SnS are both soluble in ammonia sulphide.

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

63. Which of the following statements regarding the $\text{S}_{\text{N}}1$ reaction shown by alkyl halide is not correct?

[NCERT, Page 173]

- (1) The added nucleophile plays no kinetic role in $\text{S}_{\text{N}}1$ reaction.
 (2) The $\text{S}_{\text{N}}1$ reaction involves the inversion of configuration of the optically active substrate.
 (3) The $\text{S}_{\text{N}}1$ reaction on the chiral starting material ends up with racemization of the product.
 (4) The more stable the carbocation intermediate the faster the $\text{S}_{\text{N}}1$ reaction.

64. Statement I: Most of the indicators are the dyes.

Statement II: Indicators give one colour in acidic medium and another colour in basic medium. [Practical]

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

65. Which of the following statements are correct about phenol?

- (A) It gives positive Victor Meyer's test.
 (B) It forms a violet coloured water soluble complex with ferric chloride.
 (C) With concentrated nitric acid, phenol is converted to 2, 4, 6-trinitrophenol.
 (D) It turns blue litmus to red.

[NCERT, Page 211]

- (1) A, B and C only (2) A, B, C and D
 (3) B, C and D only (4) A, B and D only

66. Among $\text{Ni}(\text{CO})_4$, $[\text{NiCl}_4]^{2-}$ and $\text{Ni}(\text{CN})_4^{2-}$

[NCERT, Page 129]

- (1) $\text{Ni}(\text{CO})_4$ and $\text{Ni}(\text{Cl})_4^{2-}$ are diamagnetic and $\text{Ni}(\text{CN})_4^{2-}$ is paramagnetic
 (2) $\text{Ni}(\text{CO})_4$ and $\text{Ni}(\text{Cl})_4^{2-}$ are diamagnetic and $\text{Ni}(\text{CO})_4$ is paramagnetic
 (3) $\text{Ni}(\text{CO})_4$ and $\text{Ni}(\text{CN})_4^{2-}$ are diamagnetic and $\text{Ni}(\text{Cl})_4^{2-}$ is paramagnetic
 (4) $\text{Ni}(\text{CO})_4$ is diamagnetic and $\text{Ni}(\text{Cl})_4^{2-}$ and $\text{Ni}(\text{CN})_4^{2-}$ are paramagnetic

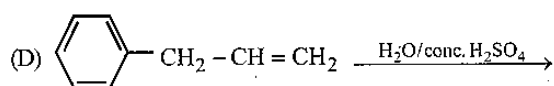
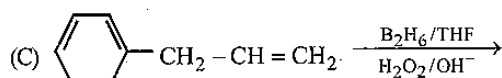
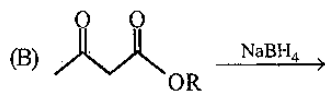
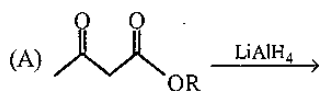
67. An organic compound 'X' on treatment with pyridiniumchloro chromate in dichloromethane gives compound 'Y'. Compound 'Y', reacts with I₂ and alkali to form triiodomethane. The compound 'X' is [NCERT, Page 240]

- (1) $\text{C}_2\text{H}_5\text{OH}$ (2) CH_3CHO
 (3) CH_3COCH_3 (4) CH_3COOH

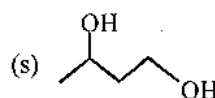
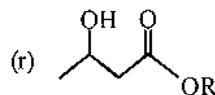
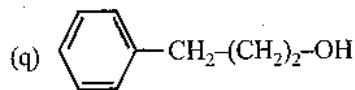
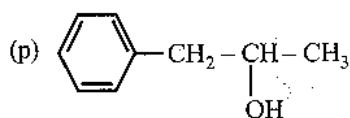
68. Match List-I with List-II

[NCERT, Page 200]

List-I



List-II



Choose the correct answer from the options given below

- (1) A-(r), B-(s), C-(q), D-(p)
 (2) A-(r), B-(s), C-(p), D-(q)
 (3) A-(q), B-(r), C-(p), D-(s)
 (4) A-(s), B-(r), C-(q), D-(p)

69. Match the following:

[NCERT, Page 298]

	Column-I (Molecule)		Column-II (Linkage)
A.	Protein (2° structure)	p.	Glycosidic linkage
B.	RNA	q.	Amide linkage
C.	Protein (1° structure)	r.	Phosphodiester linkage
D.	Carbohydrate	s.	Hydrogen bonding

Choose the correct answer from the options given below:

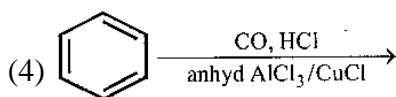
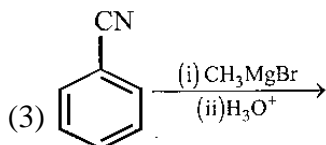
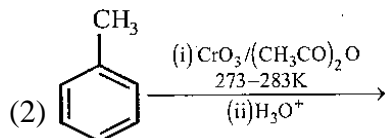
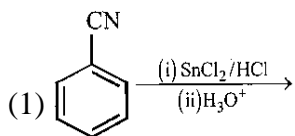
- (1) A-(q), B-(r), C-(p), D-(s)
 (2) A-(r), B-(q), C-(p), D-(s)
 (3) A-(r), B-(p), C-(q), D-(s)
 (4) A-(s), B-(r), C-(q), D-(p)

70. In nucleoside, the base is attached to which position of sugar molecule?

[NCERT, Page 298]

- (1) C-1 (2) C-2
 (3) C-3 (4) C-5

71. The reaction by which benzaldehyde cannot be prepared is [NCERT, Page 232, 233]



72. What among the following is coloured?

- (1) CuCl (2) ScCl₃
(3) CuCl₂ (4) TiCl₄

73. The rate of a first order reaction doubles when the temperature changes from 300 K to 310 K. The activation energy of the reaction (in kJ mol⁻¹) is (R = 8.3 JK⁻¹ mol⁻¹, log 2 = 0.3)

[NCERT, Page 80]

- (1) 43.33 (2) 53.33
(3) 63.33 (4) 73.33

74. Liquids A and B form an ideal solution. The vapour pressure of A and B are 50 and 32 mm Hg respectively at 300K. One mole of liquid A is mixed with 1 mole of liquid B. What is the approximate mole fraction of A in vapour phase? [NCERT, Page 10]

- (1) 0.39 (2) 0.50
(3) 0.25 (4) 0.61

75. The rise in the boiling point of a solution containing 1.8 g of glucose in 100 g of solvent is 0.1°C. The molal elevation constant of the liquid is [NCERT, Page 17]

- (1) 0.01K/m (2) 0.1K/m
(3) 1K/m (4) 10K/m

76. Consider the following statements:

- (A) Formula for pentaamminenitro-N-Cobalt (III) Chloride is [Co(NO₂)(NH₃)₅]Cl₂
(B) NH₃ is a monodentate ligand
(C) NO₂ is named as 'nitro'
(D) [Co(NO₂)(NH₃)₅]Cl₂ is an anionic complex.

The correct statement(s) is/are:

[NCERT, Page 124]

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

77. Match the following: [NCERT, Page 298]

	Column-I		Column-II
A.	Benzene sulphonyl chloride	p.	Zwitter ion
B.	Sulphanilic acid	q.	Hinsberg reagent
C.	Alkyl diazonium salts	r.	Dyes
D.	Aryl diazonium salts	s.	Conversion to alcohols

Choose the **correct** answer from the options given below:

- (1) A - (s) B - (q) C - (r) D - (p)
(2) A - (q) B - (p) C - (s) D - (r)
(3) A - (r) B - (s) C - (p) D - (q)
(4) A - (s) B - (p) C - (r) D - (q)

78. For zero order reaction, a plot of t_{1/2} versus [A]₀ will be [NCERT, Page 76]

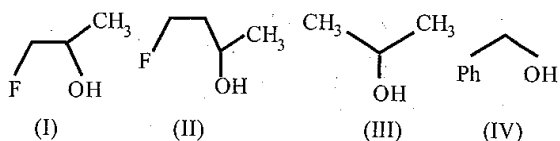
- (1) a straight line passing through the origin and slope = k
(2) a horizontal line (parallel to x-axis)
(3) a straight line with slope = k
(4) a straight line passing through origin and slope = 1/(2k)

79. If the degree of dissociation of formic acid is 11.0%, the molar conductivity of 0.02 M solution of it is (Given, λ^o(H⁺) = 349.6 S cm² mol⁻¹, λ^o(HCOO⁻) = 54.6 S cm² mol⁻¹)

[NCERT, Page 50]

- (1) $44.46 \text{ S m}^2 \text{ mol}^{-1}$ (2) $44.46 \text{ S cm}^2 \text{ mol}^{-1}$
 (3) $22.23 \text{ S m}^2 \text{ mol}^{-1}$ (4) $22.23 \text{ S cm}^2 \text{ mol}^{-1}$

80. The order of reactivity of the following alcohols [NCERT, Page 208]



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

81. **Assertion:** Trichloroacetic acid is stronger acid than acetic acid.

Reason: Electron withdrawing substituents decrease the acidic nature.

[NCERT, Page 251]

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

82. Which of the following will form an ideal solution? [NCERT, Page 13]

- (1) $\text{C}_2\text{H}_5\text{OH}$ and H_2O
 (2) HNO_3 and H_2O
 (3) CHCl_3 and CH_3COCH_3
 (4) C_6H_6 and CH_3CH_3

83. At 300 K, the conductivity of 0.01 mol dm^{-3} aqueous solution of acetic acid is $19.5 \times 10^{-5} \text{ mho cm}^{-1}$ and limiting molar conductivity of acetic acid at the same temperature is $390 \text{ mho cm}^2 \text{ mol}^{-1}$. The degree dissociation of acetic acid is [NCERT, Page 50]

- (1) 5×10^{-5} (2) 5×10^{-2}
 (3) 2.5×10^{-5} (4) 7.5×10^{-2}

84. Which one of the following noble gases is not found in the atmosphere

[Old NCERT, Page 208]

- (1) Rn (2) Kr
 (3) Ne (4) Ar

85. When a current of 10 A is passed through molten AlCl_3 for 1.608 minutes. The mass of Al deposited will be [Atomic mass of Al = 27 g] [NCERT, Page 52]

- (1) 0.09 g (2) 0.81 g
 (3) 1.35 g (4) 0.27 g

86. Match the following: [Practical]

	Column-I (Test)		Column-II (Ion/element/functional group confirmed)
A.	Layer test	p.	-CHO
B.	Silver mirror test	q.	$>\text{C}=\text{C}<$
C.	Brown ring test	r.	Br
D.	Bromine water test	s.	NO_3^-

Choose the **correct** answer from the options given below:

- (1) A - (r) B - (p) C - (s) D - (q)
 (2) A - (p) B - (s) C - (q) D - (r)
 (3) A - (s) B - (p) C - (r) D - (q)
 (4) A - (q) B - (r) C - (p) D - (s)

87. Which one of the following compounds is not a vitamin? [NCERT, Page 296]

- (1) Ascorbic acid (2) Thiamine
 (3) Testosterone (4) Riboflavin

88. Lanthanide for which +II and III oxidation states are common is [NCERT, Page 109]

- (1) Pr (2) Nd
 (3) Ce (4) Eu

89. Identify the incorrect statement.

- (1) $\text{Cr}^{2+} (\text{d}^4)$ is a stronger reducing agent than $\text{Fe}^{2+} (\text{d}^6)$ in water
 (2) The transition metals and their compounds are known for their catalytic activity due to their ability to adopt multiple oxidation states and to form complexes.

(3) Interstitial compounds are those that are formed when small atoms like H, C or N are trapped inside the crystal lattices of metals.

(4) The oxidation states of chromium in CrO_4^{2-} and $\text{Cr}_2\text{O}_7^{2-}$ are not the same.

[NCERT, Page 98, 104]

90. When the temperature of reaction is increased from 27°C to 37°C the rate constant becomes doubled. The energy of activation for the reaction is. [NCERT, Page 80]

- (1) $300 R \ln 2$ (2) $310 R \ln 2$
 (3) $410 R \ln 2$ (4) $9300 R \ln 2$

BOTANY

91. The progeny has blood types O, AB and B, which among the following represents their parents. [NCERT Page 61]

- (1) $I^A I^B$ and $i i$ (2) $I^A i$ and $I^B i$
 (3) $I^A I^A$ and $I^B i$ (4) $I^B I^B$ and $I^A I^A$

92. *E. coli* has only 4.6×10^6 base pairs and completes the process of replication within 18 minutes, then the average rate of polymerization is approximately

[NCERT Page 90]

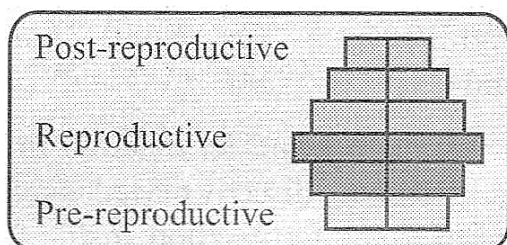
- (1) 2000 bp/s (2) 3000 bp/s
 (3) 4000 bp/s (4) 1000 bp/s

93. Which of the following is a commercial blood cholesterol lowering agent?

[NCERT Page 153]

- (1) Cyclosporin A (2) Statin
 (3) Streptokinase (4) Lipases

94. What type of human population is represented by the given age pyramid?



[NCERT Page 192]

- (1) Expanding population
 (2) Vanishing population
 (3) Stable population
 (4) Declining population

95. G.N. Ramachandran is best known for his contribution to [NCERT Page 86]

- (1) Genetic coding theory
 (2) Enzyme kinetics
 (3) Protein structure
 (4) Photosynthesis pathway research

96. An orchid growing as an epiphyte on a mango branch is example of [NCERT Page 201]

- (1) Mutualism (2) Predation
 (3) Commensalism (4) Competition

97. Match List-I with List-II.

[NCERT Page 81, 82, 84]

	List-I		List-II
A.	DNA as an acidic substance	I.	Maurice Wilkins & Rosalind Franklin
B.	X-ray diffraction produced	II.	Francis
C.	Central dogma proposed	III.	Friedrich Miescher
D.	Given transforming principle	IV.	Griffith

Choose the **correct** answer from the options given below:

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

98. Given below are two statements:

Statement I: Punnett square was developed by a British geneticist, Reginald C. Punnett.

Statement II: Mendel gave the laws of inheritance. [NCERT Page 57]

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 correct.
- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

99. Double fertilization is fusion of

[NCERT Page 18]

- (1) two eggs
- (2) two eggs and polar nuclei with pollen nuclei
- (3) one male gamete with egg and other with synergid
- (4) one male gamete with egg and other with secondary. nucleus.

100. Evidence indicating that DNA replication was semiconservative came from

[NCERT Page 88]

- (1) DNA staining techniques
- (2) DNA sequencing
- (3) Density gradient studies using "heavy" nucleotides
- (4) Studies on transformation in *Streptococcus pneumoniae*.

101. Select the correct statements with respect to biodiversity [NCERT Page 221, 222]

- A. Diversity increases from lower to higher latitude.
- B. The most important cause of "The Evil Quartet" is habitat loss.
- C. The IUCN Red list documents the extinction of 87 plants species.
- D. Indigenous plants of aquatic habitat are eliminated by exotic species *Clarias*.
- E. More than 90 percent of all the species recorded are animals.

Choose the **correct** answer from the options given below:

- (1) B and C only
- (2) A and B only
- (3) A and E only
- (4) C and D only

102. Point mutation may occur due to

[NCERT Page 72]

- (1) alteration in DNA sequence
- (2) change in a single base pair of DNA
- (3) deletion of a segment of DNA
- (4) gain of a segment in DNA

103. Match List-I with List-II.

[NCERT Page 13, 17]

	List-I		List-II
A.	Synergid	I.	Filiform Apparatus
B.	Water	II.	Rose, Jasmine
C.	Insect	III.	Artificial Hybridization
D.	Emasculation	IV.	Vallisneria, Hydrilla

Choose the correct answer from the options given below:

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

104. Which of the following is **true** about hotspots?

[NCERT Page 224, 225]

- (1) Initially 20 biodiversity hotspots were identified.
- (2) One-third of all species on Earth occupy less than 2% of Earth's land area.
- (3) Total number of biodiversity hotspots in the world is 30.
- (4) Strict protection of the hotspots could reduce the ongoing mass extinctions by almost 10 percent.

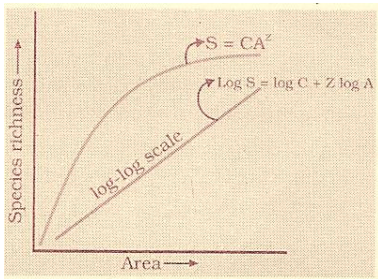
105. Identify the statement that is NOT correct.

[NCERT Page 90]

- (1) Ori is a definite region in DNA where replication starts.

- (2) In eukaryotes, the replication of DNA takes place at S-phase of cell cycle.
- (3) Both leading and lagging strands are synthesized in 3' → 5' direction.
- (4) Replication of DNA is responsible for continuity of life on earth.

106. What does Z' represents in the given diagram?



[NCERT Page 220]

- (1) Species Richness
- (2) Y-Intercept
- (3) X-intercept
- (4) Regression coefficient

107. Given below are two statements:

Statement I: *Saccharomyces cerevisiae* produces acetic acid.

Statement II: *Trichoderma polysporum* produces blood cholesterol lowering agent.

[NCERT Page 152, 153]

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 correct.
- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

108. Which of the following statements are true?

[NCERT Page 197, 200]

- A. One is benefitted and other unaffected in mutualism.
- B. Both partners are benefitted in

commensalism.

- C. One kills and feeds on another in predation.
- D. Both partners are harmed in competition.
- E. Brood parasitism is an example of parasitism.

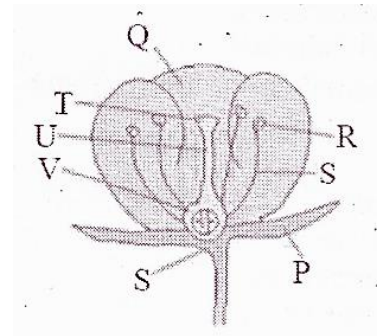
Choose the **correct** answer from the options given below:

- (1) A and B only (2) A and C only
- (3) B and Conly (4) C, D and E only

109. A couple wants to avoid fertilization in the laboratory. Eggs and sperms are directly placed together in the fallo-pian tube to allow fertilization inside the body. Which method is being used? [NCERT Page 48]

- (1) ZIFT (2) IUT
- (3) GIFT (4) IVF

110. Identify P - V in the given figure and select the correct option. [NCERT Page 4/Practical]



- (1) P-Petal, Q-Sepal, R-Filament, S-Anther, T-Style, U-Stigma, V-Ovary
- (2) P-Petal, Q-Sepal, R-Anther, S-Filament, T-Stigma, U-Style, V-Ovary
- (3) P-Sepal, Q-Petal, R-Anther, S-Filament, T-Stigma, U-Style, V-Ovary
- (4) P-Ovary, Q-Petal, R-Anther, S-Filament, T-Stigma U-Style, V-Sepal

111. Which is the basis of genetic mapping of human genome as well as DNA fingerprinting?

[NCERT Page 105]

- (1) Polymorphism in DNA sequence
- (2) Single nucleotide polymorphism
- (3) Polymorphism in hnRNA sequence

- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

119. Match List-I with List-II.

	List-I		List-II
A.	Rivet popper hypothesis	I.	Mango
B.	Genetic diversity	II.	Paul Ehrlich
C.	Species diversity	III.	Wetlands
D.	Ecological diversity	IV.	Western Ghats

Choose the **correct** answer from the options given below:

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

120. Identify the statement that is NOT correct.

[NCERT Page 13]

- (1) Emergent flowers above the level of water are pollinated by insects or winds.
- (2) Pollination can take place inside or on water surface.
- (3) All aquatic plants are pollinated by water.
- (4) Pollen grains often possess mucilaginous sheath.

121. Which of the following statement is true about Mendel's law? [NCERT Page 54]

- (1) Mendel's laws are less accurate than Punnett square results
- (2) Mendel's laws are useful only in unusual situations
- (3) Mendel's laws always correctly determine how genes are not inherited
- (4) Mendel's laws always correctly predict the phenotype of organism

122. Identify the statement that is NOT correct.

- (1) This is fairly a self-sustainable unit.

- (2) All the four basic components of an ecosystem are well exhibited.
- (3) The abiotic component is the water with all the dissolved organic and inorganic substances and the rich soil deposit at the bottom of the pond.
- (4) This ecosystem performs all the functions of any ecosystem except the unidirectional flow of energy.

123. Which scientist experimentally proved that DNA is the sole genetic material in bacteriophage? [NCERT Page 86]

- (1) Beadle and Tatum
- (2) Meselson and Stahl
- (3) Hershey and Chase
- (4) Jacob and Monod

124. Microbes are used in

[NCERT Page 154, 155]

- A. primary treatment of sewage
- B. secondary treatment of sewage
- C. anaerobic sludge digester
- D. production of bioactive molecules
- E. production of biogas

Choose the correct answer from the options given below:

- (1) A, C, and D only
- (2) A, B, C and D only
- (3) B, C, D and E only
- (4) C and D only

125. Match List-I with List-II.

[NCERT Page 217]

	List-I		List-II
A.	Turner's syndrome	I.	Trisomy
B.	Linkage	II.	44 + XO
C.	Y-chromosome	III.	Morgan
D.	Down's syndrome	IV.	Testis determining factor

Choose the **correct** answer from the options given below:

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

126. In the polynucleotide chain of DNA, a nitrogenous base is linked to the –OH of

[NCERT Page 80]

- (1) 2' C pentose sugar (2) 3' C pentose sugar
- (3) 5' C pentose sugar (4) 1' C pentose sugar

127. Which part of the flower is responsible for producing pollen grains? [NCERT Page 5]

- (1) Ovary (2) Anther
- (3) Style (4) Stigma

128. Match List-I with List-II.

[NCERT Page 80-82]

	List-I		List-II
A.	Unique property to the polynucleotide chains	I.	H-bonds
B.	Stability of the helical structure	II.	Sugar-phosphate chain
C.	Backbone of DNA	III.	Central dogma
D.	Flow of information from DNA → RNA protein	IV.	Base pairing

Choose the **correct** answer from the options given below:

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

129. What will be the sequence of mRNA produced by the following stretch of DNA?

3'ATCGATGCATGCATC5' Template strand
5'TAGCTACGTACGTAG3' Coding strand

- (1) 3'AUGCAUGCAUGCAUG 5'
- (2) 5' UAGCUACGUACGUAG 3'
- (3) 3'UACGUACGUACGUAC 5'
- (4) 5'AUGCAUGCAUGCAUG 3'

130. Identify the type of interaction is shown in the given figure. [NCERT Page 202]



- (1) Predation (2) Parasitism
- (3) Mutualism (4) Competition

131. Match List-I with List-II.

[NCERT Page 83, 84]

	List-I		List-II
A.	Euchromatin	I.	Transcriptionally active
B.	Heterochromatin	II.	Transcriptionally inactive
C.	Nucleosome	III.	Unit of eight molecules
D.	Histone octamer	IV.	Negatively charged DNA wrapped around positively charged histone octamer

Choose the **correct** answer from the options given below:

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

132. Which is true about the law of independent assortment? [NCERT Page 64]

- (1) Applicable to all the dominant alleles only
- (2) Applicable to all genes on the same chromosome
- (3) Applicable to all recessive alleles
- (4) When two pairs of traits are combined in a hybrid, segregation of one pair of characters is independent of the other pair of characters.

133. The National Committee for Environmental Planning and Co ordination (1972), initiated

due to Misra's efforts, eventually led to the formation of which ministry?

[NCERT Page 190]

- (1) Ministry of Science and Technology
- (2) Ministry of Environment and Forests
- (3) Ministry of Agriculture
- (4) Ministry of Water Resources

134. Match List-I with List-II.

[NCERT Page 54, 71, 76]

	List-I		List-II
A.	Normal woman	I.	14
B.	Klinefelter's syndrome	II.	45
C.	Turner's syndrome	III.	46
D.	Pisum sativum	IV.	47

Choose the **correct** answer from the options given below:

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

135. Which of the following statement is correct?
[NCERT Page 208]

- (1) Decomposition is largely a non-oxygen requiring process.
- (2) The rate of decomposition is controlled by chemical composition of detritus and climatic factors.
- (3) In particular climatic condition, decomposition rate is faster if detritus is rich in lignin and chitin and decomposition is slower if detritus is rich in nitrogen and water-soluble substances like sugars.
- (4) Temperature and soil moisture are the least important climatic factors that regulate, decomposition through their effect on the activities of soil microbes.

136. Identify the statement that is NOT correct.

[NCERT Page 138]

- (1) HIV virus is a retrovirus.
- (2) HIV can form DNA by transcription.
- (3) HIV is a RNA virus.
- (4) HIV forms DNA by reverse transcription.

137. How many second polar bodies has produced by a 45 years virgin female in her life?

[NCERT Page 33]

- (1) 480
- (2) 45
- (3) 0
- (4) 90

138. RCH stands for

[NCERT Page 42]

- (1) Routine Check-up of Health
- (2) Reproduction Cum Hygiene
- (3) Reversible Contraceptive Hazards
- (4) Reproductive and Child Health Care

139. The infectious stage of *Plasmodium* that enters the human body is

[NCERT Page 131]

- (1) sporozoites
- (2) female gametocytes
- (3) male gametocytes
- (4) gametocytes

140. Which of the following statements about human evolution is true?

[NCERT Page 124]

- (1) Ramapithecus was more ape-like while *Dryopithecus* was more man-like
- (2) About 2 mya *Australopithecus* probably lived in East african grasslands
- (3) Australopithecus hunted with fire weapons but essentially ate fruit
- (4) The brain capacity of *Homo habilis* were between 900 cc.

141. Which of the following enzymes is used to join DNA fragments?

[NCERT Page 165]

- (1) Restriction endonuclease
- (2) DNA ligase
- (3) DNA polymerase
- (4) Exonuclease

142. Match List-I with List-II.

[NCERT Page 27, 32, 33, 38]

List-I

List-II

- | | |
|----------------------|-----------------|
| A. Acrosome | I. Ovulation |
| B. Graafian follicle | II. Child birth |
| C. Leydig's cells | III. Sperm head |
| D. Parturition | IV. Androgen |

Choose the correct answer from the options given below:

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

143. Which of the following diseases are caused by due to bacterial infection?

- | | |
|------------|------------------|
| A. Typhoid | B. Elephantiasis |
| C. Plague | D. Dysentery |
| E Ringworm | |

Choose the correct answer from the options given below:

- (1) A and B only
- (2) B and C only
- (3) A, C and D only
- (4) A, B, C and E only

144. Strategy used to prevent nematode infection of tobacco roots is

[NCERT Page 180]

- (1) Use of agrochemicals
- (2) Bt toxin gene
- (3) Gene mutation
- (4) RNA interference

145. What is true about "Saheli"?

[NCERT Page 42, 45]

- A. Developed at the CDRI, Lucknow
- B. Contains a steroidal preparation
- C. "Once-a-week" pill
- D. Many side effects
- E High contraceptive value

Choose the correct answer from the options given below:

- (1) A, B, C and E only
- (2) A, C and E only
- (3) A, B, C, D and E
- (4) A, C, D and E only

146. Match List-I with List-II.

[NCERT Page 168, 169, 172, 173]

	List-I		List-II
A.	Recombinant protein	I.	Gene cloning
B.	Polymerase chain reaction	II.	Heterologous host
C.	Transformation	III.	Entry of rDNA into the host cell
D.	Gel Electrophoresis	IV.	Separation and isolation of DNA fragments.

Choose the correct answer from the options given below:

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

147. The idea of inheritance of acquired characters was given by:

[NCERT Page 119]

- (1) Darwin
- (2) Wallace
- (3) Lamarck
- (4) Haeckel

148. Golden rice is a genetically modified crop rich in:

[NCERT Page 179]

- (1) Iron
- (2) Vitamin B12
- (3) Vitamin A
- (4) Vitamin C

149. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R):

Assertion (A): During pregnancy the level of thyroxine is increased in the maternal blood.

Reason (R): Pregnancy is characterized by metabolic changes in the mother.

In the light of the above statements, choose the correct answer from the options given below:

- (1) Both A and R are true and R is the correct explanation of A.
- (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) A is false but R is true.

150. Match List-I with List-II.

[NCERT Page 180, 182, 185]

	List-I		List-II
A.	Biopatent	I.	RNA interference
B.	Human insulin	II.	Gene therapy
C.	Pest resistant tobacco plants	III.	Genetic engineering approved committee
D.	ADA deficiency	IV.	Transgenic animals

Choose the correct answer from the options given below:

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

151. Which of the following is an example of divergent evolution?

[NCERT Page 115]

- (1) Wings of bat and wings of bird
- (2) Flippers of penguin and fins of fish

(3) Forelimbs of man and wings of bat

(4) Eyes of octopus and mammals

152. Which of the following reasons is mainly responsible for graft rejection in transplantation of organs? [NCERT Page 136]

- (1) Cell-mediated response
- (2) Inability of recipient to differentiate between 'self' and 'non-self' tissues/cells
- (3) Humoral immune response only
- (4) Auto-immune response

153. Match List-I with List-II.

[NCERT Page 180, 182, 185]

	List-I		List-II
A.	Typhoid	I.	<i>Trichophyton</i>
B.	Malaria	II.	<i>Wuchereria malayi</i>
C.	Elephantiasis	III.	<i>Plasmodium</i>
D.	Ringworm	IV.	<i>Salmonella typhi</i>

Choose the correct answer from the options given below:

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

154. Which of the following statements is true about the origin and evolution of man?

[NCERT Page 124, 125]

- (1) Neanderthal men lived in Asia between 1,00,000 and 40,000 years back.
- (2) Agriculture came around 50, 000 years back.
- (3) The *Dryopithecus* and *Ramapithecus* primates existing 15 million years ago, walked like man.
- (4) *Homo habilis* probably ate meat.

155. Which of the following diseases is caused by a protozoan? [NCERT Page 131]

- | | |
|---------------|------------------|
| (1) Typhoid | (2) Malaria |
| (3) Influenza | (4) Tuberculosis |

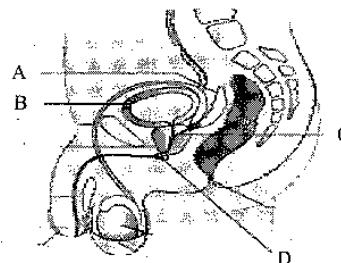
156. Match List-I with List-II.

[NCERT Page 168, 171]

	List-I		List-II
A.	Lysozyme	I.	Electrophoresis
B.	Chitinase	II.	Bacteria
C.	Chilled Ethanol	III.	Fungus
D.	Agarose gel	IV.	Precipitation of DNA

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

157. The given figure shows the male reproductive system. Some structures are marked as A, B, C, and D. Identify A, B, C and D.



[NCERT Page 27]

- (1) A-seminal vesicles, B-urinary bladder, C-bulbourethral gland D-ejaculatory duct.
- (2) A-urinary bladder, B-ejaculatory duct, C-bulbourethral gland D-seminal vesicles
- (3) A-bulbourethral gland, B-urinary bladder, C-ejaculatory duct D-seminal vesicles.
- (4) A-seminal vesicles, B-urinary bladder, C-ejaculatory duct D-bulbourethral gland.

158. Identify the statement that is NOT correct.

[NCERT Page 171]

- (1) The presence of chromogenic substrate gives blue colour colonies, if the plasmid in the bacteria does not have an insert.
- (2) DNA is a negatively charged molecule.
- (3) In microinjection, cells are bombarded with high velocity microparticles of gold or tungsten coated with DNA.
- (4) Since DNA is a hydrophilic molecule it cannot pass through cell membranes.

159. Identify the statement that is NOT correct.

[NCERT Page 183, 184]

- (1) For the effective treatment of a disease, early diagnosis and understanding its pathophysiology is very important.
- (2) Over 95 per cent of all existing transgenic animals are mice.
- (3) Transgenic mice are being used to test the safety of the polio vaccine.
- (4) Transgenic animals are produced without the use of recombinant DNA technology.

160. Given below are two statements: one is labelled as

Assertion (A) and the other is labelled as **Reason (R):**

Assertion (A): Opium is derived from latex of unripe fruits of *Papaver somniferum*.

Reason (R): Heroin is a depressant and slows down body functions. [NCERT Page 142]

In the light of the above statements, choose the correct answer from the options given below:

- (1) Both A and R are true and R is the correct explanation of A.
- (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) A is false but R is true.

161. What will happen if more than one recognition sites are present within the vector?

[NCERT Page 169]

- (1) Complicate the gene cloning
- (2) Fasten the gene cloning
- (3) Generate few fragments
- (4) Ligase foreign DNA quickly

162. Match List-I with List-II.

[NCERT Page 165, 166, 169]

	List-I		List-II
A.	Bacterial enzymes used to cut DNA at defined sequences	I.	Endonuclease

B.	Sequences cut by restriction enzymes	II.	DNA restriction enzymes
C.	Cleave the phosphodiester bond present within a polynucleotide chain	III.	Plasmid
D.	Circular pieces of DNA found in bacteria	IV.	Palindromic sequence

Choose the **correct** answer from the options given below:

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

163. Which structure forms the fetal part of the placenta? [NCERT Page 137]

- (1) Amnion
- (2) Uterine wall
- (3) Chorion
- (4) Allantois

164. Match List-I with List-II.

[NCERT Page 182-184]

	List-I		List-II
A.	ELISA	I.	Emphysema
B.	Insulin	II.	Eli Lilly
C.	α -1 antitrypsin	III.	AIDS
D.	α -lactalbumin	IV.	Cow milk

Choose the **correct** answer from the options given below:

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

165. Given below are two statements:

Statement I: The primitive atmosphere was reducing one i.e., without oxygen.

Statement II: In the primitive atmosphere, oxygen was involved in the formation of ozone layer. [NCERT Page 111]

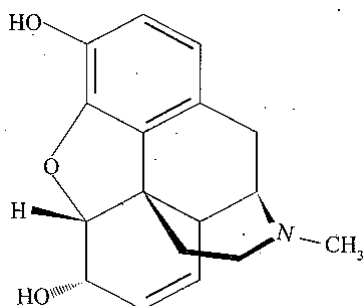
In the light of the above statements, choose the most appropriate answer from the options given

below:

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

166. Identify the drug shown in the given diagram.

[NCERT Page 142]



- (1) Cocaine
- (2) Heroin
- (3) Cannabinoid
- (4) Morphine

167. Match List-I with List-II.

[NCERT Page 30]

	List-I		List-II
A.	Mons pubis	I.	Fleshy folds of tissue
B.	Labia majora	II.	Cushion of fatty tissue covered by skin and pubic hair
C.	Labia minora	III.	Membrane partially covering the opening of vagina
D.	Hymen	IV.	Paired folds of tissue under the labia majora

Choose the **correct** answer from the options given below:

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

168. The hormone responsible for milk ejection from mammary glands is [NCERT Page 38]

- (1) Prolactin
- (2) Estrogen
- (3) Oxytocin
- (4) Relaxin

169. Match List-I with List-II.

[NCERT Page 131, 133]

	List-I		List-II
A.	<i>Epidermophyton</i>	I.	Bacteria
B.	<i>Wuchereria</i>	II.	Worm
C.	<i>Entamoeba</i>	III.	Fungi
D.	<i>Salmonella</i>	IV.	Protozoa

Choose the **correct** answer from the options given below:

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

170. Given below are two statements:

Statement I: Genetically engineered insulin was produced first by American based Eli Lilly company.

Statement II: Molecular diagnosis helps in early detection of a disease. PCR, rDNA technology and ELISA are commonly used techniques.

[NCERT Page 182, 183]

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 correct.
- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

171. Given below are two statements:

Statement I: Restriction enzymes cut the strand of DNA to produce sticky ends.

Statement II: Stickiness of the ends facilitates the action of the enzyme DNA polymerase:

[NCERT Page 165]

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 correct.
- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

172. Match List-I with List-II.

	List-I		List-II
A.	<i>Bt</i> toxin	I.	Silencing of mRNA
B.	RNA interference	II.	ADA
C.	ELISA	III.	<i>Cry</i> gene
D.	Gene Therapy interaction	IV.	Antigen-antibody

Choose the **correct** answer from the options given below:

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

173. What is correct for IUDs? [NCERT Page 44]

- A. They are self-inserted
- B. They are inserted by expert nurses.
- C. They may be non-medicated IUDs, copper releasing IUDs or hormone releasing IUDs.
- D. They are the one of the most widely accepted contraceptives in India.
- E. They are inter-uterine devices.

Choose the correct answer from the options given below:

- (1) A, C and D only (2) B, C and D only
- (3) A, B and C only (4) A, B, C and E only

174. From his experiments, SL Miller produced amino acids by mixing the following in a closed flask.

[NCERT Page 111]

- (1) CH₃, H₂, NH₄, and water vapour at 800°C
- (2) CH₄, H₂, NH₃, and water vapour at 600°C
- (3) CH₃, H₂, NH₃, and water vapour at 600°C
- (4) CH₄, H₂, NH₃, and water vapour at 800°C

175. Given below are two statements:

Statement I: The term humor in humoral immunity implies tear and saliva.

Statement II: People administered with preformed antibodies get active immunity.

[NCERT Page 135, 136]

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 correct.
- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

176. Given below are two statements:

Statement I: Zona pellucida prevents polyspermy.

Statement II: As a sperm comes in contact with zona pellucida it induces change in membrane to block the entry of additional sperms.

[NCERT Page 35]

In the light of the above statements, choose the most appropriate answer from the options given below:

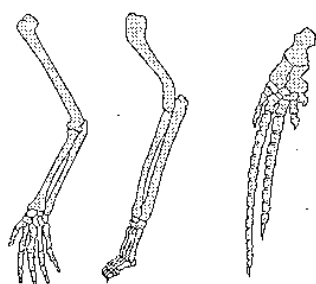
- (1) Both statement I and statement II are correct.
- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

177. From the statements given below choose the correct option:

[NCERT Page 182, 184]

- (1) Insulin produced by Biotechnology is effective, less expensive, can be mass-produced, and allergic.
- (2) Transgenic mice are being used to test the safety of the spread of typhoid.
- (3) Transgenic agricultural plants have been engineered to resist herbicides and pests. They are commercially available.
- (4) In 1990, the first transgenic cow, Rosie, produced milk.

178. The given figure shows bones in the forelimbs of three mammals. [NCERT Page 115]



For these mammals, the number, position, and shape of the bones must likely indicate that they may have

- (1) developed in a common environment.
- (2) developed from the same earlier species.
- (3) identical genetic makeup.



(4) identical methods of obtaining food.

179. Match **List-I** with **List-II**.

[NCERT Page 35, 38]

	List-I		List-II
A.	Parturition	I.	Attachment of zygote to endometrium
B.	Gestation	II.	Release of egg from Graafian follicle
C.	Ovulation	III.	Delivery of baby from uterus
D.	Implantation	IV.	Duration between pregnancy and birth

Choose the **correct** answer from the options given below:

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

180. Which of the following is used as a selectable marker in recombinant DNA technology?

[NCERT Page 169]

- (1) Antibiotic resistance gene
- (2) Plasmid
- (3) Vector
- (4) Host cell