MedicNEET

NEET 2022 — Previous Year Question Paper

174 in-syllabus PYQs from NEET 2022, reproduced by MedicNEET for practice.

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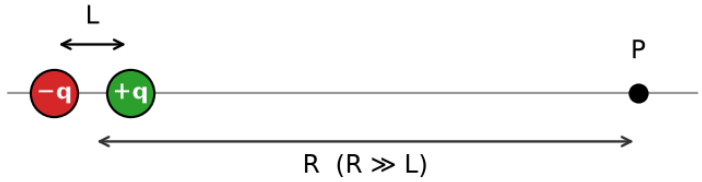
Physics · 49 Qs

1. Two point charges –q and +q are placed at a distance L apart, as shown in the figure. The magnitude of the electric field intensity at a distance R (R >> L) varies as



(1) $1/R^2$ **(2)** $1/R^3$

(3) $1/R^4$ **(4)** $1/R^6$

2. Plane angle and solid angle have:

(1) Units but no dimensions **(2)** Dimensions but no units

(3) No units and no dimensions **(4)** Both units and dimensions

3. The area of a rectangular field (in m^2) of length 55.3 m and breadth 25 m, after rounding off the value for correct significant digits, is:

(1) 138×10^1 **(2)** 1382

(3) 1382.5 **(4)** 14×10^2

4. The dimensions $[MLT^{-2}A^{-2}]$ belong to the:

(1) Magnetic flux

(2) Self inductance

(3) Magnetic permeability

(4) Electric permittivity

5. Match List-I with List-II:

List-I
(a) Gravitational constant (G)
(b) Gravitational potential energy
(c) Gravitational potential
(d) Gravitational intensity

List-II
(i) $[L^2T^{-2}]$
(ii) $[M^{-1}L^3T^{-2}]$
(iii) $[LT^{-2}]$
(iv) $[ML^2T^{-2}]$

Choose the correct match:

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

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

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

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

6. Two hollow conducting spheres of radii R1 and R2 (R1 >> R2) have equal charges. The potential would be:

(1) More on bigger sphere

(2) More on smaller sphere

(3) Equal on both the sphere

(4) Dependent on the material property of the sphere

7. The angle between the electric lines of force and the equipotential surface is:

(1) 0°

(2) 45°

(3) 90°

(4) 180°

8. A capacitor of capacitance C = 900 pF is charged fully by 100 V battery B. Then B is disconnected and connected to another uncharged capacitor of capacitance C = 900 pF. The electrostatic energy stored by the system (b) is:

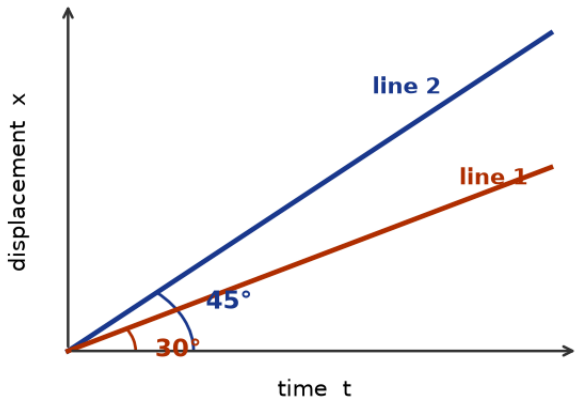
(1) 4.5×10^{-6} J

(2) 3.25×10^{-6} J

(3) 2.25×10^{-6} J

(4) 1.5×10^{-6} J

9. The displacement-time (x-t) graphs of two moving particles make angles of 30° and 45° with the time axis as shown. The ratio of their respective velocities $v_1 : v_2$ is:



(1) 1 : 2

(2) 1 : 3

(3) $\sqrt{3} : 1$

(4) $1 : \sqrt{3}$

10. The ratio of the distances travelled by a freely falling body in the 1st, 2nd, 3rd and 4th second of its motion is:

(1) 1 : 2 : 3 : 4

(2) 1 : 4 : 9 : 16

(3) 1 : 3 : 5 : 7

(4) 1 : 1 : 1 : 1

11. A ball is projected with a velocity $10\ \mathrm{m/s}$ at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be:

(1) Zero

(2) $5\sqrt{3}\ \mathrm{m/s}$

(3) $5\ \mathrm{m/s}$

(4) $10\ \mathrm{m/s}$

12. A shell of mass m is initially at rest. It explodes into three fragments having masses in the ratio 2 : 2 : 1. The two equal fragments fly off along mutually perpendicular directions, each with speed v. The speed of the third (lighter) fragment is:

(1) v

(2) √2 v

(3) 2√2 v

(4) 3√2 v

13. Given below are two statements.
Statement I: Biot-Savart's law gives an expression for the magnetic field strength of an infinitesimal current element (Idl) of a current carrying conductor only.
Statement II: Biot-Savart's law is analogous to Coulomb's inverse square law of charge q, with the former being related to the field produced by a scalar source, Idl, while the latter being produced by a vector source, q.
In 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 and Statement II is incorrect

(4) Statement I is incorrect and Statement II is correct

14. A long solenoid of radius 1 mm has 100 turns per mm. If 1 A current flows in the solenoid, the magnetic field strength at the centre of the solenoid is:

(1) 6.28×10^{-2} T

(2) 12.56×10^{-2} T

(3) 12.26×10^{-4} T

(4) 6.28×10^{-4} T

15. From Ampère's circuital law for a long straight wire of circular cross-section carrying a steady current, the variation of magnetic field in the inside and outside region of the wire is:

(1) Uniform and remains constant for both the regions

(2) A linearly increasing function of distance up to the boundary of the wire and then linearly decreasing for the outside region

(3) A linearly increasing function of distance r up to the boundary of the wire and then decreasing one with 1/r dependence for the outside region

(4) A linearly decreasing function of distance up to the boundary of the wire and then a linearly increasing one for the outside region

16. An electric lift with a maximum load of 2000 kg (lift + passengers) is moving up with a constant speed of 1.5 m/s. The frictional force opposing the motion is 3000 N. The minimum power delivered by the motor to the lift (in watts) is (g=10 m/s^2)

(1) 23000

(2) 20000

(3) 34500

(4) 23500

17. A square loop of side 1 m and resistance 1 Ω is placed in a magnetic field of 0.5 T. If the plane of loop is perpendicular to the direction of magnetic field, the magnetic flux through the loop is

(1) 2 weber

(2) 0.5 weber

(3) 1 weber

(4) Zero weber

18. A big circular coil of 1000 turns and average radius 10 m is rotating about its horizontal diameter at 2 rad s^{-1}. If the vertical component of earth's magnetic field at that place is 2×10^{-5} T and electrical resistance of the coil is 12.56 Ω, then the maximum induced current in the coil will be:

(1) 0.25 A

(2) 1.5 A

(3) 1 A

(4) 2 A

19. The ratio of the radius of gyration of a thin uniform disc about an axis through its centre and normal to its plane to that about its diameter is:

(1) 2 : 1

(2) $\sqrt{2}$: 1

(3) 4 : 1

(4) 1 : $\sqrt{2}$

20. A flywheel's angular speed changes uniformly from 1200 rpm to 3120 rpm in 16 s. Its angular acceleration (rad/s^2) is:

(1) 2 π

(2) 4 π

(3) 12 π

(4) 104 π

21. Two objects of mass 10 kg and 20 kg are connected to the ends of a rigid massless rod of length 10 m. The distance of the centre of mass from the 10 kg mass is:

(1) 10/3 m

(2) 20/3 m

(3) 10 m

(4) 5 m

22. A series LCR circuit with inductance 10 H, capacitance 10 μF, resistance 50 Ω is connected to an ac source of voltage, V = 200 sin(100 t) volt. If the resonant frequency of the LCR circuit is v_0 and the frequency of the ac source is v, then:

(1) $v = v_0 = 50$ Hz

(2) $v = v_0 = 50/\pi$ Hz

(3) $v = 50/\pi$ Hz, $v_0 = 50$ Hz

(4) $v_0 = 100/\pi$ Hz; v = 100 Hz

23. The peak voltage of the ac source is equal to :

(1) the value of voltage supplied to the circuit

(2) the rms value of the ac source

(3) $\sqrt{2}$ times the rms value of the ac source

(4) $1/\sqrt{2}$ times the rms value of the ac source

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24. A body of mass 60 g experiences a gravitational force of 3.0 N at a point. The magnitude of the gravitational field intensity at that point is:

(1) 0.05 N/kg

(2) 50 N/kg

(3) 20 N/kg

(4) 180 N/kg

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25. Match List-I with List-II:

List-I
(a) Gravitational constant (G)
(b) Gravitational potential energy
(c) Gravitational potential
(d) Gravitational intensity

List-II
(i) $[L^2T^{-2}]$
(ii) $[M^{-1}L^3T^{-2}]$
(iii) $[LT^{-2}]$
(iv) $[ML^2T^{-2}]$

Choose the correct answer:

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

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

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

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

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26. When light propagates through a material medium of relative permittivity ε_r and relative permeability μ_r, the velocity of light v is given by (c = velocity of light in vacuum)

(1) $v = c$

(2) $v = c \times \sqrt{(\mu_r \varepsilon_r)}$

(3) $v = \sqrt{(\varepsilon_r / \mu_r)}$

(4) $v = c / \sqrt{(\mu_r \varepsilon_r)}$

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27. Match List I (Electromagnetic waves) with List II (Wavelength) and choose the correct match.

List I
(a) AM radio waves
(b) Microwaves
(c) Infrared waves
(d) X-rays

List II
(i) 10^{-10} m
(ii) 10^{2} m
(iii) 10^{-2} m
(iv) 10^{-4} m

Choose the correct match:

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

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

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

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

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28. Given below are two statements:

Statement I: The stretching of a coil spring is determined by the shear modulus of the material of the spring.

Statement II: A coil spring of copper has more tensile strength than a steel spring of same dimensions.

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 and Statement II is incorrect

(4) Statement II is correct and Statement I is incorrect

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29. A copper wire of length 10 m and radius $(10^{-2}/\sqrt{\pi})$ m has resistance 10 Ω. The current density for an electric field strength of 10 V/m is:

(1) 10^{4} A/m^2

(2) 10^{6} A/m^2

(3) 10^{-5} A/m^2

(4) 10^{5} A/m^2

---

30. Two resistors 100 Ω and 200 Ω are connected in parallel. The ratio of thermal energy developed in 100 Ω to that in 200 Ω in a given time is:

(1) 1 : 2

(2) 2 : 1

(3) 1 : 4

(4) 4 : 1

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31. As the temperature increases, the electrical resistance:

(1) increases for both conductors and semiconductors

(2) decreases for both

(3) increases for conductors but decreases for semiconductors

(4) decreases for conductors but increases for semiconductors

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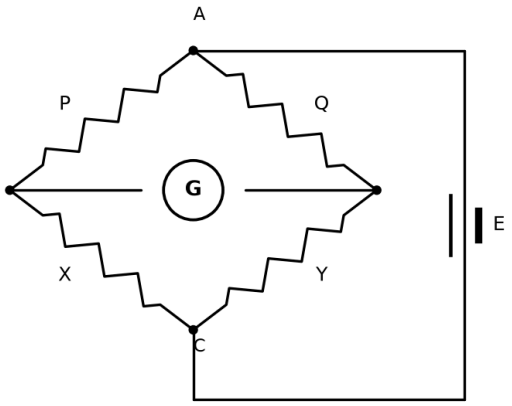
32. A Wheatstone bridge is used to determine an unknown resistance X by adjusting the variable resistance Y. For the most precise measurement of X, the resistances P and Q:



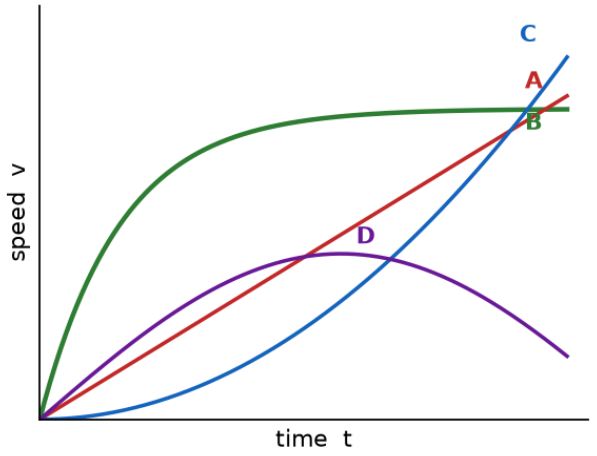
(1) Should be approximately equal to 2X

(2) Should be approximately equal and small

(3) Should be very large and unequal

(4) Do not play any significant role

33. A spherical ball is dropped in a long column of a highly viscous liquid. Which curve in the graph shown represents the speed of the ball (v) as a function of time (t)?



(1) A

(2) B

(3) C

(4) D

34. If a soap bubble expands, the pressure inside the bubble:

(1) decreases

(2) increases

(3) remains the same

(4) is equal to the atmospheric pressure

35. Two transparent media A and B are separated by a plane boundary. The speed of light in those media are 1.5×10^8 m/s and 2.0×10^8 m/s respectively. The critical angle for a ray of light for these two media is:

(1) $\sin^{-1}(0.5000)$

(2) $\sin^{-1}(0.750)$

(3) $\tan^{-1}(0.500)$

(4) $\tan^{-1}(0.750)$

36. A biconvex lens has radii of curvature 20 cm each. If the refractive index of the material of the lens is 1.5, the power of the lens is:

(1) +2 D

(2) +20 D

(3) +5 D

(4) Infinity

37. A light ray falls on a glass surface of refractive index $\sqrt{3}$ at an angle of 60°. The angle between the refracted and reflected rays would be:

(1) 30°

(2) 60°

(3) 90°

(4) 120°

38. In a Young's double slit experiment, a student observes 8 fringes in a certain segment of screen when a monochromatic light of 600 nm wavelength is used. If the wavelength of light is changed to 400 nm, then the number of fringes he would observe in the same region of the screen is

(1) 6

(2) 8

(3) 9

(4) 12

39. When two monochromatic lights of frequency v and v/2 are incident on a photoelectric metal, their stopping potentials become V_s/2 and V_s respectively. The threshold frequency for this metal is:

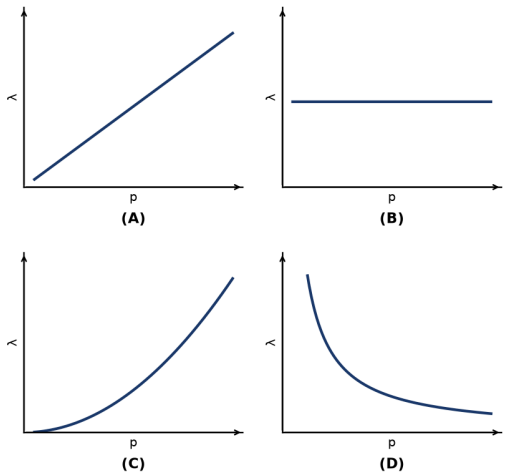
(1) 2v

(2) 3v

(3) (2/3)v

(4) (3/2)v

40. The graph which shows the variation of the de Broglie wavelength (λ) of a particle and its associated momentum (p) is:



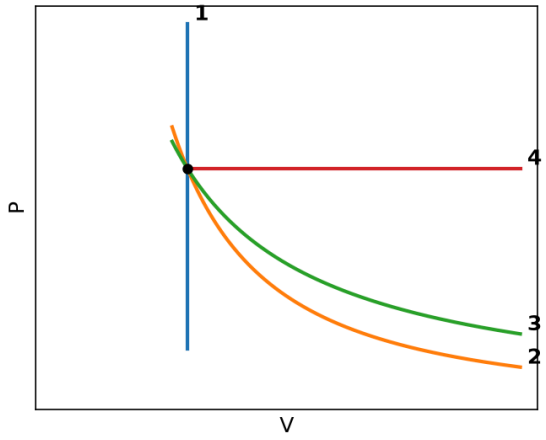
(1) (see figure)

(2) (see figure)

(3) (see figure)

(4) (see figure)

41. An ideal gas undergoes four different processes from the same initial state (see figure). The processes are adiabatic, isothermal, isobaric and isochoric. The curve which represents the adiabatic process among $1, 2, 3, 4$ is



(1) 1 **(2)** 2

(3) 3 **(4)** 4

42. Let T_1 and T_2 be the energy of an electron in the first and second excited states of hydrogen atom, respectively. According to Bohr's model of an atom, the ratio $T_1 : T_2$ is:

(1) 1 : 4 **(2)** 4 : 1

(3) 4 : 9 **(4)** 9 : 4

43. The volume occupied by the molecules contained in 4.5 kg of water at STP, if the intermolecular forces vanish away, is:

(1) 5.6×10^6 m^3 **(2)** 5.6×10^3 m^3

(3) 5.6×10^{-3} m^3 **(4)** 5.6 m^3

44. In the given nuclear reaction, the element X is:

$^{22}_{11}Na \rightarrow X + e^+ + v$ (Out of syllabus)

(1) $^{23}_{11}Na$ **(2)** $^{22}_{10}Ne$

(3) $^{22}_{10}Ne$ **(4)** $^{24}_{12}Mg$

45. A nucleus of mass number 189 splits into two nuclei having mass numbers 125 and 64. The ratio of the radii of the two daughter nuclei respectively is:

(1) 1 : 1 **(2)** 4 : 5

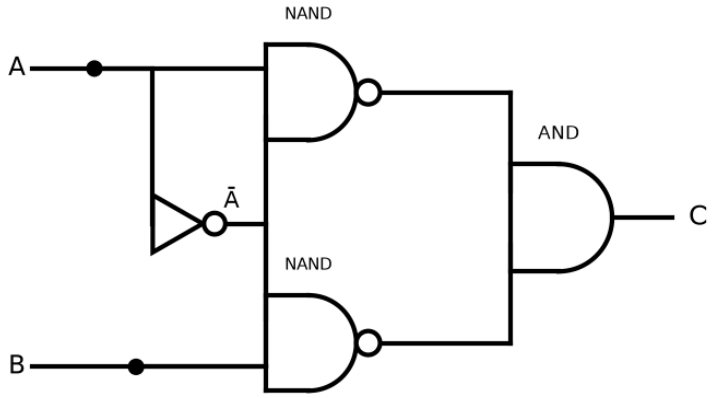
(3) 5 : 4 **(4)** 25 : 16

46. Two pendulums of lengths 121 cm and 100 cm start swinging in phase, both at their mean position in the same phase. The minimum number of vibrations of the shorter pendulum after which the two are again in phase at the mean position is

(1) 11 **(2)** 9

(3) 10 **(4)** 8

47. The truth table for the given logic circuit is:



(1) A B C
0 0 0
0 1 1
1 0 1
1 1 0

(2) A B C
0 0 1
0 1 0
1 0 0
1 1 1

(3) A B C
0 0 1
0 1 0
1 0 1
1 1 0

(4) A B C
0 0 0
0 1 1
1 0 0
1 1 1

48. In half wave rectification, if the input frequency is 60 Hz, then the output frequency would be:

(1) Zero

(2) 30 Hz

(3) 60 Hz

(4) 120 Hz

49. If the tension in a stretched string is doubled, the ratio of the initial speed to the final speed of a transverse wave along the string is:

(1) 1 : 1

(2) $\sqrt{2}$: 1

(3) 1 : $\sqrt{2}$

(4) 1 : 2

Chemistry · 37 Qs

50. In a one molal solution that contains 0.5 mole of a solute, there is:

(1) 500 mL of solvent

(2) 500 g of solvent

(3) 100 mL of solvent

(4) 1000 g of solvent

51. What mass of 95\% pure $\mathrm{CaCO_3}$ is required to neutralise 50 mL of 0.5 M HCl according to the reaction below? (answer to second decimal place)

$$\mathrm{CaCO_3\,(s) + 2\,HCl\,(aq) \longrightarrow CaCl_2\,(aq) + CO_2\,(g) + 2\,H_2O\,(l)}$$

(1) 1.25 g

(2) 1.32 g

(3) 3.65 g

(4) 9.50 g

52. Given below are the half-cell reactions:

$\mathrm{MnO_4^- + 8\,H^+ + 5\,e^- \longrightarrow Mn^{2+} + 4\,H_2O}$, E^\circ_{\ce{MnO4^-/Mn^2+}} = -1.510\ \text{V}

$\frac{1}{2}\,\mathrm{O_2 + 2\,H^+ + 2\,e^- \longrightarrow H_2O}$, E^\circ_{\ce{O2/H2O}} = +1.223\ \text{V}

Will the permanganate ion, $\mathrm{MnO_4^-}$, liberate $\mathrm{O_2}$ from water in the presence of an acid?

(1) Yes, because $E^\circ_{cell} = +0.287\ \mathrm{V}$

(2) No, because $E^\circ_{cell} = -0.287\ \mathrm{V}$

(3) Yes, because $E^\circ_{cell} = +2.733\ \mathrm{V}$

(4) No, because $E^\circ_{cell} = -2.733\ \mathrm{V}$

53. At 298 K, the standard electrode potentials of $\mathrm{Cu^{2+}/Cu}$, $\mathrm{Zn^{2+}/Zn}$, $\mathrm{Fe^{2+}/Fe}$ and $\mathrm{Ag^+/Ag}$ are $0.34\ \mathrm{V}$, $-0.76\ \mathrm{V}$, $-0.44\ \mathrm{V}$ and $0.80\ \mathrm{V}$, respectively. On the basis of standard electrode potential, predict which of the following reactions cannot occur?

(1) $\mathrm{CuSO_4\,(aq) + Zn\,(s) \longrightarrow ZnSO_4\,(aq) + Cu\,(s)}$

(2) $\mathrm{CuSO_4\,(aq) + Fe\,(s) \longrightarrow FeSO_4\,(aq) + Cu\,(s)}$

(3) $\mathrm{FeSO_4\,(aq) + Zn\,(s) \longrightarrow ZnSO_4\,(aq) + Fe\,(s)}$

(4) $\mathrm{2\,CuSO_4\,(aq) + 2\,Ag\,(s) \longrightarrow 2\,Cu\,(s) + Ag_2SO_4\,(aq)}$

54. Find the emf of the cell reaction

$\mathrm{Ni\,(s) + 2\,Ag^+(0.001\,M) \longrightarrow Ni^{2+}(0.001\,M) + 2\,Ag\,(s)}$

(Given $E^\circ_{cell} = 1.05\ \mathrm{V}$, $\frac{2.303RT}{F} = 0.059$ at $298\ \mathrm{K}$)

(1) $1.0385\ \mathrm{V}$

(2) $1.385\ \mathrm{V}$

(3) $0.9615\ \mathrm{V}$

(4) $1.05\ \mathrm{V}$

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

(1) ununennium

(2) unnilennium

(3) unununnium

(4) ununoctium

56. If the radius of the second Bohr orbit of the $\mathrm{He^+}$ ion is 105.8 pm, what is the radius of the third Bohr orbit of the $\mathrm{Li^{2+}}$ ion?

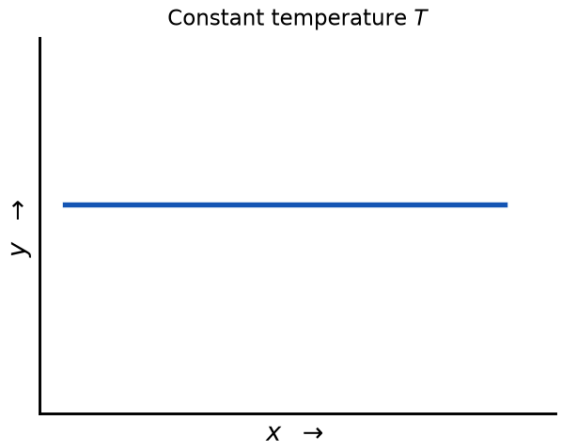
(1) 158.7 pm

(2) 15.87 pm

(3) 1.587 pm

(4) 158.7 Å

57. The given graph (drawn at constant temperature T) is a representation of the kinetics of a reaction. The plot of y versus x is a horizontal straight line parallel to the x-axis, i.e. y is constant and independent of x. The y and x axes for zero order and first order reactions, respectively, are:



(1) zero order ($y =$ concentration, $x =$ time); first order ($y = t_{1/2}$, $x =$ concentration)

(2) zero order ($y =$ concentration, $x =$ time); first order ($y =$ rate constant, $x =$ concentration)

(3) zero order ($y =$ rate, $x =$ concentration); first order ($y = t_{1/2}$, $x =$ concentration)

(4) zero order ($y =$ rate, $x =$ concentration); first order ($y =$ rate, $x = t_{1/2}$)

58. For a first order reaction $\mathrm{A} \longrightarrow \mathrm{Products}$, initial concentration of A is $0.1\ \mathrm{M}$, which becomes $0.001\ \mathrm{M}$ after 5 minutes. Rate constant for the reaction in min^{-1} is:

(1) 1.3818

(2) 0.9212

(3) 0.4606

(4) 0.2303

59. Identify the incorrect statement from the following:

(1) The largest and the smallest species among Mg, Mg^{2+}, Al and Al^{3+} are Al and Mg^{2+} respectively.

(2) The IUPAC name of the element with atomic number 107 is Unnilseptium.

(3) The similarity in behaviour of Li with Mg is referred to as the 'diagonal relationship'.

(4) The oxidation state and covalency of Al in $[\mathrm{AlCl}(\mathrm{H_2O})_5]^{2+}$ are 3 and 6, respectively.

60. Identify the incorrect statement related to $\mathrm{PCl_5}$ from the following:

(1) Three equatorial P–Cl bonds make an angle of 120° with each other

(2) Two axial P–Cl bonds make an angle of 180° with each other

(3) Axial P–Cl bonds are longer than equatorial P–Cl bonds

(4) $\mathrm{PCl_5}$ molecule is non-reactive

61. Choose the correct statement:

(1) Diamond and graphite have a two-dimensional network.

(2) Diamond is covalent and graphite is ionic.

(3) Diamond is sp^3 hybridised and graphite is sp^2 hybridised.

(4) Both diamond and graphite are used as dry lubricants.

62. Which amongst the following is an incorrect statement?

(1) The bond orders of O_2^+, O_2, O_2^- and O_2^{2-} are 2.5, 2, 1.5 and 1, respectively.

(2) C_2 molecule has four electrons in its two degenerate π molecular orbitals.

(3) H_2^+ ion has one electron.

(4) O_2^+ ion is diamagnetic.

63. Amongst the following, which one will have maximum 'lone pair–lone pair' electron repulsion?

(1) ClF_3

(2) IF_5

(3) SF_4

(4) XeF_2

64. Gadolinium has a low value of third ionisation enthalpy because of

(1) small size.

(2) high exchange enthalpy.

(3) high electronegativity.

(4) high basic character.

65. Given below are half cell reactions:

$MnO_4^- + 8\,H^+ + 5\,e^- \longrightarrow Mn^{2+} + 4\,H_2O$, E^\circ_{\ce{MnO4^-}/\ce{Mn^2+}} = +1.510 V

$\frac{1}{2}\,O_2 + 2\,H^+ + 2\,e^- \longrightarrow H_2O$, E^\circ_{\ce{O2}/\ce{H2O}} = +1.223 V

Will the permanganate ion, MnO_4^-, liberate O_2 from water in the presence of an acid?

(1) Yes, because $E^\circ_{cell} = +0.287$ V

(2) No, because $E^\circ_{cell} = -0.287$ V

(3) Yes, because $E^\circ_{cell} = +2.733$ V

(4) No, because $E^\circ_{cell} = -2.733$ V

66. In the neutral or faintly alkaline medium, $KMnO_4$ oxidises iodide into iodate. The change in oxidation state of manganese in this reaction is from

(1) $+7$ to $+4$

(2) $+6$ to $+4$

(3) $+7$ to $+3$

(4) $+6$ to $+5$

67. The IUPAC name of the complex $[Ag(H_2O)_2][Ag(CN)_2]$ is:

(1) dicyanidosilver(II) diaquaargentate(II)

(2) diaquasilver(II) dicyanidoargentate(II)

(3) dicyanidosilver(I) diaquaargentate(I)

(4) diaquasilver(I) dicyanidoargentate(I)

68. The order of energy absorbed which is responsible for the colour of complexes:

(A) $[Ni(H_2O)_2(en)_2]^{2+}$
(B) $[Ni(H_2O)_4\,(en)]^{2+}$
(C) $[Ni(en)_3]^{2+}$

(1) A > B > C

(2) C > B > A

(3) C > A > B

(4) B > A > C

69. In the reaction \ce{RMgX + CO2 ->[\text{dry ether}] Y ->[H3O+] RCOOH}, the intermediate Y is:

(1) $R-COO^-\ Mg^+\ X$

(2) $R_3C-O^-\ Mg^+\ X$

(3) $R-COO^-\ X^+$

(4) $(RCOO)_2Mg$

70. Which of the following sequence of reagents is suitable to synthesize chlorobenzene from the starting material shown?

(1) Benzene, Cl_2, anhydrous $FeCl_3$

(2) Phenol, $NaNO_2$, HCl, $CuCl$

(3) Aniline $(C_6H_5NH_2)$, HCl

(4) Aniline $(C_6H_5NH_2)$, HCl, heating

---

71. The incorrect statement regarding chirality is:

(1) An S_N1 reaction yields a 1 : 1 mixture of both enantiomers.

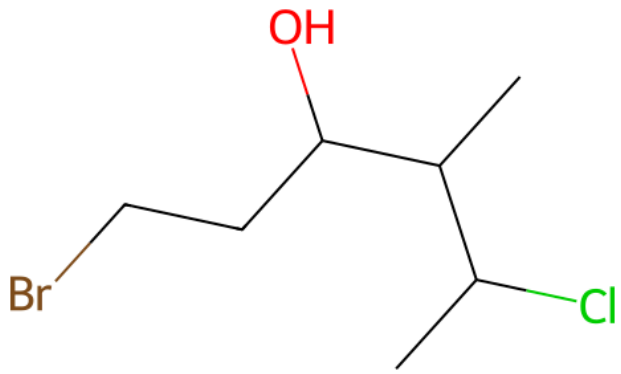
(2) The product obtained by S_N2 reaction of a haloalkane having chirality at the reactive site shows inversion of configuration.

(3) Enantiomers are superimposable mirror images of each other.

(4) A racemic mixture shows zero optical rotation.

---

72. The correct IUPAC name of the compound shown (a six-carbon chain bearing Br at C1, OH at C3, a CH_3 branch at C4, and Cl at C5) is:



(1) 1-bromo-5-chloro-4-methylhexan-3-ol

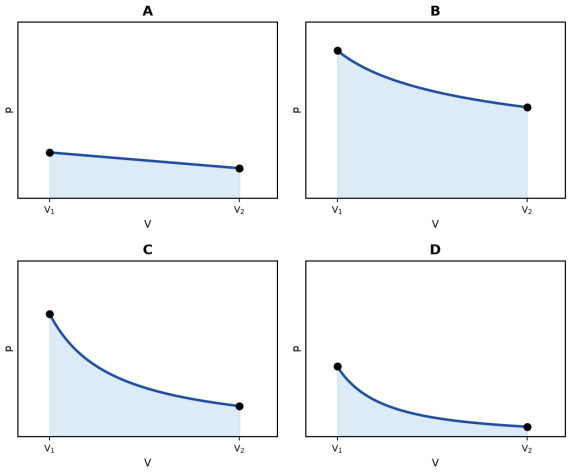
(2) 6-bromo-2-chloro-4-methylhexan-4-ol

(3) 1-bromo-4-chloro-5-chlorohexan-3-ol

(4) 6-bromo-4-chloro-4-chlorohexan-4-ol

---

73. Which of the following p–V curves represents the maximum work done?



(1) p–V curve as shown in option A

(2) p–V curve as shown in option B

(3) p–V curve as shown in option C

(4) p–V curve as shown in option D

74. Statement I: The acidic strength of monosubstituted nitrophenol is higher than phenol because of the electron withdrawing nitro group.
Statement II: o-nitrophenol, m-nitrophenol and p-nitrophenol will have the same acidic strength as they have one nitro group attached to the phenolic ring.
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.

75. Given below are two statements:
Statement I: In the Lucas test, primary, secondary and tertiary alcohols are distinguished on the basis of their reactivity with conc. $HCl + ZnCl_2$, known as Lucas reagent.
Statement II: Primary alcohols are most reactive and immediately produce turbidity at room temperature on reaction with Lucas reagent.
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

76. Statement I: The boiling points of aldehydes and ketones are higher than hydrocarbons of comparable molecular masses because of weak molecular association due to dipole-dipole interactions.
Statement II: The boiling points of aldehydes and ketones are lower than the alcohols of similar molecular masses due to the absence of H-bonding.
In the light of the above statements, choose the most appropriate answer:

(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.

77. Match List-I with List-II.
List-I (Products formed):
(a) Cyanohydrin
(b) Acetal
(c) Schiff's base
(d) Oxime
List-II (Reaction of carbonyl compound with):
(i) NH_2OH
(ii) RNH_2
(iii) alcohol
(iv) HCN
Choose the correct answer from the options given below:

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

78. Which one of the following is \textbf{not} formed when acetone (CH_3COCH_3) reacts with 2-pentanone ($CH_3COCH_2CH_2CH_3$) in the presence of dilute $NaOH$ followed by heating?

(1) $CH_3-CO-CH=C(CH_3)_2$
(2) $CH_3-CO-C(CH_3)=CH-CH_3$
(3) $CH_3-CO-CH=CH-CH_2-CH_2-CH_3$
(4) $CH_3-CH_2-CH_2-CO-CH=C(CH_3)_2$

79. Statement I: Primary aliphatic amines react with HNO_2 to give unstable diazonium salts.
Statement II: Primary aromatic amines react with HNO_2 to form diazonium salts which are stable even above 300 K.
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.

80. The incorrect statement regarding enzymes is:

(1) Enzymes are biocatalysts.

(2) Like chemical catalysts, enzymes reduce the activation energy of biological processes.

(3) Enzymes are polysaccharides.

(4) Enzymes are very specific for a particular reaction and substrate.

81. Statement I: The acidic strength of monosubstituted nitrophenol is higher than phenol because of the electron-withdrawing nitro group.
Statement II: o-nitrophenol, m-nitrophenol and p-nitrophenol will have the same acidic strength as they have one nitro group attached to the phenolic ring.
Choose the most appropriate answer.

(1) Both Statement I and Statement II are correct

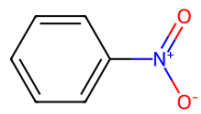
(2) Both Statement I and Statement II are incorrect

(3) Statement I is correct but Statement II is incorrect

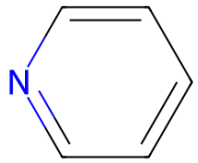
(4) Statement I is incorrect but Statement II is correct

82. The Kjeldahl's method for the estimation of nitrogen can be used to estimate the amount of nitrogen in which one of the following compounds?

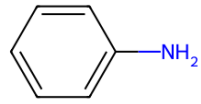
(A)



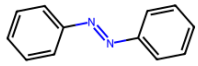
(B)



(C)



(D)



(1) Nitrobenzene ($C_6H_5-NO_2$)

(2) Pyridine (nitrogen in the aromatic ring)

(3) Aniline ($C_6H_5-NH_2$)

(4) Azobenzene ($C_6H_5-N=N-C_6H_5$)

83. The correct IUPAC name of the following compound is:
$CH_3-CH(Cl)-CH(CH_3)-CH(OH)-CH_2-CH_2-Br$

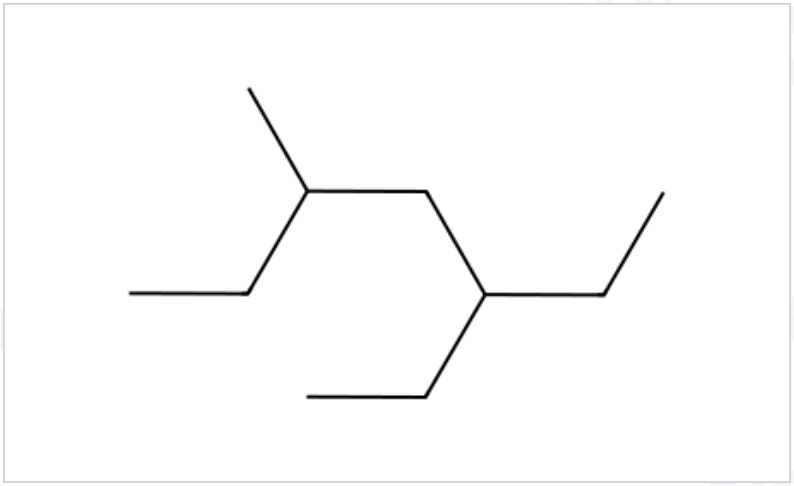
(1) 1-bromo-5-chloro-4-methylhexan-3-ol

(2) 6-bromo-2-chloro-4-methylhexan-4-ol

(3) 1-bromo-4-chloro-5-chlorohexan-3-ol

(4) 6-bromo-4-chloro-4-chlorohexan-4-ol

84. The correct IUPAC name of the following compound is:



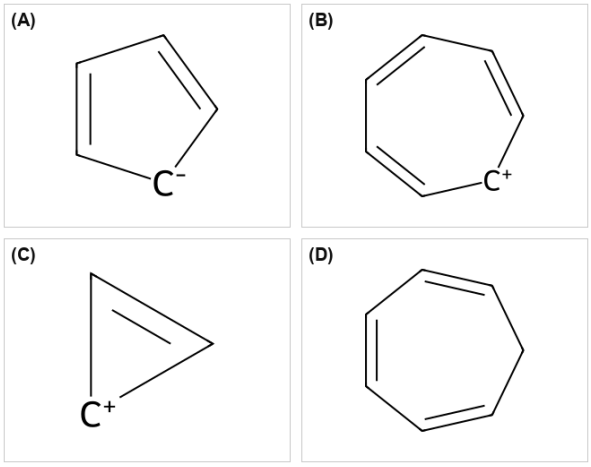
(1) 3-ethyl-5-methylheptane

(2) 2,4-diethylhexane

(3) 5-ethyl-3-methylheptane

(4) 3,5-diethylhexane

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



(1) (A)

(2) (B)

(3) (C)

(4) (D)

86. Compound X on reaction with O_3 followed by Zn/H_2O gives formaldehyde and 2-methylpropanal as products. The compound X is:

(1) 3-Methylbut-1-ene

(2) 2-Methylbut-1-ene

(3) 2-Methylbut-2-ene

(4) Pent-2-ene

87. [NEET 2022 · NEET 2023 Phase 1 · NEET 2023 Phase 2 · NEET 2024 · NEET 2025] Given below are two statements:

Assertion (A): Cells of the tapetum possess dense cytoplasm and generally have more than one nucleus.

Reason (R): Presence of more than one nucleus in the tapetum increases the efficiency of nourishing the developing microspore mother cells.

In the light of the above statements, choose the correct answer:

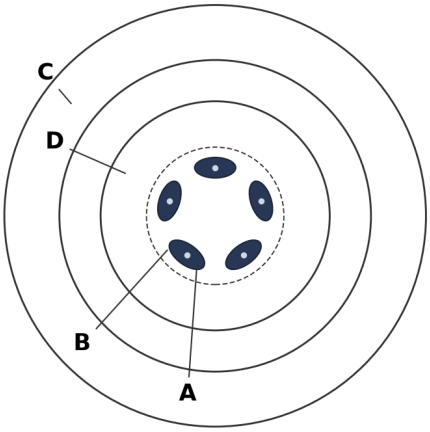
(1) A is true but R is false

(2) A is false but R is true

(3) Both A and R are true and R is the correct explanation of A

(4) Both A and R are true but R is NOT the correct explanation of A

88. Which part of the fruit, labelled in the given figure makes it a false fruit?



(1) A - Mesocarp

(2) B - Endocarp

(3) C - Thalamus

(4) D - Seed

89. Identify the incorrect statement related to Pollination:

(1) Pollination by water is quite rare in flowering plants

(2) Pollination by wind is more common amongst abiotic pollination

(3) Flowers produce foul odours to attract flies and beetles to get pollinated

(4) Moths and butterflies are the most dominant pollinating agents among insects

90. Given below are two statements:
Statement I : Cleistogamous flowers are invariably autogamous
Statement II : Cleistogamy is disadvantageous as there is no chance for cross pollination
In the light of the above statements, choose the correct 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

91. In the taxonomic categories, which hierarchical arrangement (as listed below) is correct in the case of animals?

(1) Kingdom, Phylum, Class, Order, Family, Genus, Species

(2) Kingdom, Class, Phylum, Family, Order, Genus, Species

(3) Kingdom, Order, Class, Phylum, Family, Genus, Species

(4) Kingdom, Order, Phylum, Class, Family, Genus, Species

---

92. Which of the following is a correct statement?

(1) Cyanobacteria are a group of autotrophic organisms classified under Kingdom Monera.

(2) Bacteria are exclusively heterotrophic organisms

(3) Slime moulds are saprophytic organisms classified under Kingdom Monera.

(4) Mycoplasma have DNA, Ribosome and cell wall

---

93. Given below are two statements:

Statement I: Mycoplasma can pass through less than 1 micron filter size.
Statement II: Mycoplasma are bacteria with a cell wall.

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

---

94. Identify the asexual reproductive structure associated with Penicillium:

(1) Zoospores

(2) Conidia

(3) Gemmules

(4) Buds

---

95. Which of the following statements are true for spermatogenesis but do not hold true for Oogenesis?
(a) It results in the formation of haploid gametes
(b) Differentiation of gamete occurs after the completion of meiosis
(c) Meiosis occurs continuously in a mitotically dividing stem cell population
(d) It is controlled by the Luteinizing hormone (LH) and Follicle Stimulating Hormone (FSH) secreted by the anterior pituitary
(e) It is initiated at puberty
Choose the most appropriate answer from the options given below:

(1) and (e) only

(2) and (c) only

(3) (b), (d) and (e) only

(4) (b), (c) and (e) only

---

96. Given below are two statements:
Statement I: The release of sperms into the seminiferous tubules is called spermiation.
Statement II: Spermiogenesis is the process of formation of sperms from spermatogonia.
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

---

97. At which stage of life the oogenesis process is initiated?

(1) Puberty

(2) Embryonic development stage

(3) Birth

(4) Adult

98. Hydrocolloid carrageen is obtained from

(1) Chlorophyceae and Phaeophyceae

(2) Phaeophyceae and Rhodophyceae

(3) Rhodophyceae only

(4) Phaeophyceae only

99. Match the plant with the kind of life cycle it exhibits. Choose the correct answer from the options given below:

List - I

(a) Spirogyra

(b) Fern

(c) Funaria

(d) Cycas

List - II

(i) Dominant diploid sporophyte vascular plant, with highly reduced male or female gametophyte

(ii) Dominant haploid free-living gametophyte

(iii) Dominant diploid sporophyte alternating with reduced gametophyte called prothallus

(iv) Dominant haploid leafy gametophyte alternating with partially dependent multicellular sporophyte

(1) (a)-(iv); (b)-(i); (c)-(ii); (d)-(iii)

(2) (a)-(ii); (b)-(iii); (c)-(iv); (d)-(i)

(3) (a)-(iii); (b)-(iv); (c)-(i); (d)-(ii)

(4) (a)-(ii); (b)-(iv); (c)-(i); (d)-(iii)

100. Lippes loop is a type of contraceptive used as:

(1) Cervical barrier

(2) Vault barrier

(3) Non-Medicated IUD

(4) Copper releasing IUD

101. Match list I with list II with respect to methods of contraception and their respective actions.

List I

(a) Diaphragms

(b) Contraception Pills

(c) Intrauterine Devices

(d) Lactational Amenorrhea

List II

(i) Inhibit ovulation and Implantation

(ii) Increase phagocytosis of sperm within Uterus

(iii) Absences of Menstrual cycle and ovulation following partition

(iv) They cover the cervix blocking the entry of sperms

Choose the correct answer from the options given below:

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

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

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

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

102. In which of the following animals, does the digestive tract have additional chambers like crop and gizzard?

(1) Corvus, Columba, Chameleon

(2) Bufo, Balaenoptera, Bangarus

(3) Catla, Columbia, Crocodilus

(4) Pavo, Psittacula, Corvus

103. Exoskeleton of arthropods is composed of:

(1) Cutin

(2) Cellulose

(3) Chitin

(4) Glucosamine

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

Assertion (A): All vertebrates are chordates but all chordates are not vertebrates.

Reason (R): Notochord is replaced by the vertebral column in the adult vertebrates.

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

(1) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(2) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(3) is correct but (R) is not correct

(4) is not correct but (R) is correct

---

105. The appearance of recombination nodules on homologous chromosomes during meiosis characterizes:

(1) Synaptonemal complex

(2) Bivalent

(3) Sites at which crossing over occurs

(4) Terminalization

---

106. If a colour blind female marries a man whose mother was also colour blind, what are the chances of her progeny having colour blindness?

(1) 25%

(2) 50%

(3) 75%

(4) 100%

---

107. XO type of sex determination can be found in

(1) Drosophila

(2) Birds

(3) Grasshoppers

(4) Monkeys

---

108. The recombination frequency between the genes a & c is 5%, b & c is 15%, b & d is 9%, a & b is 20%, c & d is 24% and a & d is 29%. What will be the sequence of these genes on a linear chromosome?

(1) a, d, b, c

(2) d, b, a, c

(3) a, b, c, d

(4) a, c, b, d

---

109. Given below are two statements:
Statement I : Mendel studied seven pairs of contrasting traits in pea plants and proposed the Laws of Inheritance.
Statement II : Seven characters examined by Mendel in his experiment on pea plants were seed shape and colour, flower colour, pod shape and colour, flower position and stem height.
In the light of the above statements, choose the correct 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

---

110. Which of the following occurs due to the presence of an autosome linked dominant trait?

(1) Sickle cell anaemia

(2) Myotonic dystrophy

(3) Haemophilia

(4) Thalassemia

111. Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A): Mendel's law of Independent assortment does not hold goods for the genes that are located closely on the same chromosome.
Reason (R): Closely located genes assort independently.
Answer from the options given below:

(1) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(2) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(3) is correct but (R) is not correct

(4) is not correct but (R) is correct

112. The process of translation of mRNA to proteins begins as soon as:

(1) The small subunit of ribosome encounters mRNA

(2) The larger subunit of ribosome encounters mRNA

(3) Both the subunits join together to bind with mRNA

(4) The tRNA is activated and the larger subunit of ribosome encounters mRNA

113. Ten E. coli cells with 15N- dsDNA are incubated in a medium containing 14N nucleotides.
After 60 minutes, how many E. coli cells will have DNA totally free from 15N?

(1) 20 cells

(2) 40 cells

(3) 60 cells

(4) 80 cells

114. If the length of a DNA molecule is 1.1 metres, what will be the approximate number of base pairs?

(1) 3×10^9 bp

(2) 6.6×10^9 bp

(3) 3×10^6 bp

(4) 6.6×10^6 bp

115. DNA polymorphism forms the basis of:

(1) Genetic mapping

(2) DNA fingerprinting

(3) Both genetic mapping and DNA fingerprinting

(4) Translation

116. If a geneticist uses the blind approach for sequencing the whole genome of an organism, followed by assignment of functions to different segment, the methodology adopted by him is called as:

(1) Sequence annotation

(2) Gene mapping

(3) Expressed sequence tags

(4) Bioinformatics

117. In an E. coli strain the i gene gets mutated and its product can not bind the inducer molecule. If the growth medium is provided with lactose, what will be the outcome?

(1) Only z gene will get transcribed

(2) z, y, a genes will be transcribed

(3) z, y, a genes will not be translated

(4) RNA polymerase will bind the promoter region

118. The flowers are Zygomorphic in: (a) Mustard (b) Gulmohar (c) Cassia (d) Datura (e) Chilli.

Choose the correct answer from the options given below:

(1) (a), (b), (c) only

(2) (b), (c) only

(3) (d), (e) only

(4) (c), (d), (e) only

119. Which one of the following plants shows vexillary aestivation and diadelphous stamens?

(1) Colchicum autumnale

(2) Pisum sativum

(3) Allium cepa

(4) Solanum nigrum

---

120. Identify the correct set of statements: (a) The leaflets are modified into pointed hard thorns in Citrus and Bougainvillea (b) Axillary buds form slender and spirally coiled tendrils in cucumber and pumpkin (c) Stem is flattened and fleshy on Opuntia and modified to perform the function of leaves (d) Rhizophora shows vertically upward growing roots that help to get oxygen for respiration (e) Subaerially growing stems in grasses and strawberry help in vegetative propagation.

Choose the correct answer from the options given below:

(1) and (c) only

(2) and (d) only

(3) (b), (c), (d) and (e) only

(4) (a), (b), (d) and (e) only

---

121. Which of the following is an incorrect statement?

(1) The perinuclear space forms a barrier between the materials present inside the nucleus and that of the cytoplasm

(2) Nuclear pores act as passages for proteins and RNA molecules in both directions between nucleus and cytoplasm

(3) Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles

(4) Microbodies are present both in plant and animal cells

---

122. (Out of syllabus but asked in last 3 years) In old trees the greater part of secondary xylem is dark brown and resistant to insect attack due to:

Statements:
(a) Secretion of secondary metabolites and their deposition in the lumen of vessels.
(b) Deposition of organic compounds like tannins and resins in the central layers of the stem.
(c) Deposition of suberin and aromatic substances in the outer layer of the stem.
(d) Deposition of tannins, gum, resin and aromatic substances in the peripheral layers of the stem.
(e) Presence of parenchyma cells, functionally active xylem elements and essential oils.

Choose the correct answer:

(1) and (b) only

(2) and (d) only

(3) and (e) only

(4) and (d) only

---

123. Read the following statements about the vascular bundles:

Statements:
(a) In roots, xylem and phloem in a vascular bundle are arranged in an alternate manner along the different radii.
(b) Conjoint closed vascular bundles do not possess cambium.
(c) In open vascular bundles, cambium is present in between xylem and phloem.
(d) The vascular bundles of dicotyledonous stem possess endarch protoxylem.
(e) In monocotyledonous root, usually there are more than six xylem bundles present.

Choose the correct answer:

(1) (a), (b) and (d) only

(2) (b), (c), (d) and (e) only

(3) (a), (b), (c) and (d) only

(4) (a), (c), (d) and (e) only

(5) All the options are correct.

124. (Out of syllabus but asked in last 3 years) The anatomy of springwood shows some peculiar features. Identify the correct set of statements about springwood.

Statements:
(a) It is also called early wood.
(b) In the spring season cambium produces xylem elements with narrow vessels.
(c) It is lighter in colour.
(d) The springwood along with autumnwood shows alternate concentric rings forming annual rings.
(e) It has lower density.

Choose the correct answer:

(1) (a), (b), (d) and (e) only
(2) (a), (c), (d) and (e) only
(3) (a), (b), and (d) only
(4) (c), (d) and (e) only

125. Natural selection where more individuals acquire a specific character value other than the mean character value, leads to:

(1) Stabilising change
(2) Directional change
(3) Disruptive change
(4) Random change

126. Given below are two statements:
Statement I: Autoimmune disorder is a condition where the body defense mechanism recognizes its own cells as foreign bodies.
Statement II: Rheumatoid arthritis is a condition where the body does not attack self cells.
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

127. Select the incorrect statement with respect to acquired immunity:

(1) Primary response is produced when our body encounters a pathogen for the first time.
(2) Anamnestic response is elicited on subsequent encounters with the same pathogen
(3) Anamnestic response is due to memory of first encounter
(4) Acquired immunity is non-specific type of defense present at the time of birth

128. Which of the following is not a connective tissue?

(1) Blood
(2) Adipose tissue
(3) Cartilage
(4) Neuroglia

129. Match List I with List II.

List I
(a) Bronchioles
(b) Goblet Cell
(c) Tendons
(d) Adipose Tissue

List II
(i) Dense Regular Connective Tissue
(ii) Loose Connective Tissue
(iii) Glandular Tissue
(iv) Ciliated Epithelium

Choose the correct answer from the options given below:

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

130. Tegmina in cockroach arises from

(Out of syllabus but asked in last 3 years)

(1) Prothorax
(2) Mesothorax
(3) Metathorax
(4) Prothorax and Mesothorax

131. Which of the following statements with respect to Endoplasmic Reticulum is incorrect?

(1) RER has ribosomes attached to ER
(2) SER is devoid of ribosomes
(3) In prokaryotes only RER are present
(4) SER are the sites for lipid synthesis

132. Identify the microorganism which is responsible for the production of an immunosuppressive molecule cyclosporin A:

(1) Trichoderma polysporum
(2) Clostridium butylicum
(3) Aspergillus niger
(4) Streptococcus cerevisiae

133. Read the following statements on lipids and find out correct set of statements:
(a) Lecithin found in the plasma membrane is a glycolipid
(b) Saturated fatty acids possess one or more C=C bonds
(c) Gingely oil has lower melting point, hence remains as oil in winter
(d) Lipids are generally insoluble in water but soluble in some organic solvents
(e) When fatty acid is esterified with glycerol, monoglycerides are formed.
Choose the correct answer from the options given below

(1) (a), (b) and (c) only
(2) (a), (d) and (e) only
(3) (c), (d) and (e) only
(4) (a), (b) and (d) only

134. A dehydration reaction links two glucose molecules to produce maltose. If the formula for glucose is C6H12O6 then what is the formula for maltose?

(1) C12H20O10
(2) C12H24O12
(3) C12H22O11
(4) C12H24O11

135. Match List I with List II. Choose the correct answer from the options given below:
List I: (a) Glycogen (b) Globulin (c) Steroids (d) Thrombin
List II: (i) Hormone (ii) Biocatalyst (iii) Antibody (iv) Storage product

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

136. Which of the following is not a desirable feature of a cloning vector ?

(1) Presence of origin of replication
(2) Presence of a marker gene
(3) Presence of single restriction enzyme site
(4) Presence of two or more recognition sites

137. Given below are two statements:
Statement I: Restriction endonucleases recognise specific sequences to cut DNA known as palindromic nucleotide sequences.
Statement II: Restriction endonucleases cut the DNA strand a little away from the centre of the palindromic site.
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

138. Which one of the following statements is not true regarding gel electrophoresis technique?

(1) The process of extraction of separated DNA strands from gel is called elution
(2) The separated DNA fragments are stained by using ethidium bromide
(3) The presence of chromogenic substrate gives blue coloured DNA bands on the gel
(4) Bright orange coloured bands of DNA can be observed in the gel when exposed to UV light

139. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A): Polymerase chain reaction is used in DNA amplification.
Reason (R): The ampicillin resistant gene is used as a selectable marker to check transformation.
In the light of the above statements, choose the correct answer from the options given below:

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

140. In the following palindromic base sequence of DNA, which one can be cut easily by a particular restriction enzyme?

(1) 5’ GATACT 3’ ; 3’ CTATGA 5’
(2) 5’ GAATTC 3’ ; 3’ CTTAAG 5’
(3) 5’ CTCAGT 3’ ; 3’ GAGTCA 5’
(4) 5’ GTATTC 3’ ; 3’ CATAAG 5’

141. Statements related to human insulin are given below: Which statement(s) is/are correct about genetically engineered Insulin?

(a) Pro-hormone insulin contain extra stretch of C-peptide

(b) A peptide and B-peptide chains of insulin were produced separately in E. coli, extracted and combined by creating a disulphide bond between them.

(c) Insulin used for treating Diabetes was extracted from Cattles and Pigs.

(d) Pro-hormone insulin needs to be processed for converting into a mature and functional hormone.

(e) Some patients develop allergic reactions to the foreign insulin.

Choose the most appropriate answer from the options given below:

(1) (a), (b) and (d) only

(2) only

(3) and (d) only

(4) (c), (d) and (e) only

142. In gene therapy of Adenosine Deaminase (ADA) deficiency, the patient requires periodic infusion of genetically engineered lymphocytes because:

(1) Retroviral vector is introduced into these lymphocytes

(2) Gene isolated from marrow cells producing ADA is introduced into cells at embryonic stages

(3) Lymphocytes from patient's blood are grown in culture, outside the body

(4) Genetically engineered lymphocytes are not immortal cells.

143. Which one of the following never occurs during mitotic cell division?

(1) Spindle fibres attach to kinetochores of chromosomes

(2) Movement of centrioles towards opposite poles

(3) Pairing of homologous chromosomes

(4) Coiling and condensation of the chromatids

144. Regarding Meiosis, which of the statement(s) is incorrect?

(1) There are two stages in Meiosis, Meiosis-I and II

(2) DNA replication occurs in S phase of Meiosis-II

(3) Pairing of homologous chromosomes and recombination occurs in Meiosis-I

(4) Four haploid cells are formed at the end of Meiosis-II

145. Select the incorrect statement with reference to mitosis:

(1) All the chromosomes lie at the equator at metaphase

(2) Spindle fibres attach to centromere of chromosomes

(3) Chromosomes decondense at the telophase stage

(4) Splitting of centromere occurs at anaphase

146. Match List-I with List-II:

List-I
(a) Metacentric chromosome
(b) Acrocentric chromosome
(c) Sub-metacentric chromosome
(d) Telocentric chromosome

List-II
(i) Centromere situated close to the end forming one extremely short and one long arm
(ii) Centromere in the middle forming two equal arms
(iii) Centromere at terminal end
(iv) Centromere slightly away from the middle forming one shorter and one longer arm

Choose the correct answer from the options given below:

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

147. Which one of the following statements cannot be connected to Predation?

(1) It helps in maintaining species diversity in a community
(2) It might lead to extinction of a species
(3) Both the interacting species are negatively impacted
(4) It is necessitated by nature to maintain the ecological balance

148. While explaining interspecific interaction of population, (+) sign is assigned for beneficial interaction, (-) sign is assigned for detrimental interaction and (0) for neutral interaction. Which of the following interactions can be assigned (+) for one species and (-) for another species involved in the interaction?

(1) Predation
(2) Amensalism
(3) Commensalism
(4) Competition

149. If '8' Drosophila in a laboratory population of '80' died during a week, the death rate in the population is __ individuals per Drosophila per week.

(1) 0.1
(2) 10
(3) 1.0
(4) Zero

150. Which one of the following is not true regarding the release of energy during ATP synthesis through chemiosmosis? It involves:

(1) Breakdown of proton gradient
(2) Breakdown of electron gradient
(3) Movement of protons across the membrane to the stroma
(4) Reduction of NADP to NADPH2 on the stroma side of the membrane

151. Given below are two statements:
Statement I : The primary CO_2 acceptor in C4 plants is phosphoenolpyruvate and is found in the mesophyll cells.
Statement II : Mesophyll cells of C4 plants lack RuBisCo enzyme.
In the light of the above statements, choose the correct 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

152. What is the role of large bundle sheath cells found around the vascular bundles in C4 plants?

(1) To provide the site of photorespiratory pathway

(2) To increase the number of chloroplast for the operation of Calvin cycle

(3) To enable the plant to tolerate high temperature

(4) To protect the vascular tissue from high light intensity

153. Detritivores breakdown detritus into smaller particles. This process is called:

(1) Catabolism

(2) Fragmentation

(3) Humification

(4) Decomposition

154. (Out of current syllabus — rationalised out of NCERT; included as it was asked in earlier NEET papers)

Which one of the following will accelerate phosphorus cycle?

(1) Burning of fossil fuels

(2) Volcanic activity

(3) Weathering of rocks

(4) Rainfall and storms

155. Given below are two statements:
Statement I : Decomposition is a process in which the detritus is degraded into simpler substances by microbes.
Statement II: Decomposition is faster if the detritus is rich in lignin and chitin
In the light of the above statements, choose the correct 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

156. What amount of energy is released from glucose during lactic acid fermentation?

(1) Approximately 15%

(2) More than 18%

(3) About 10%

(4) Less than 7%

157. What is the net gain of ATP when each molecule of glucose is converted to two molecules of pyruvic acid?

(1) Four

(2) Six

(3) Two

(4) Eight

158. Habitat loss and fragmentation, over exploitation, alien species invasion and co-extinction are causes for:

(1) Population explosion

(2) Competition

(3) Biodiversity loss

(4) Natality

159. Which one of the following is an example of ex-situ conservation?

(1) Zoos and botanical gardens

(2) Protected areas

(3) National Park

(4) Wildlife Sanctuary

160. Which of the following is not a method of ex situ conservation?

(1) In vitro fertilization

(2) National Parks

(3) Micropropagation

(4) Cryopreservation

161. In situ conservation refers to:

(1) Protect and conserve the whole ecosystem

(2) Conserve only high risk species

(3) Conserve only endangered species

(4) Conserve only extinct species

162. The gaseous plant growth regulator is used in plants to:

(1) Speed up the malting process

(2) Promote root growth and root hair formation to increase the absorption surface

(3) Help overcome apical dominance

(4) Kill dicotyledonous weeds in the fields

163. Which one of the following plants does not show plasticity?

(1) Cotton

(2) Coriander

(3) Buttercup

(4) Maize

164. Production of Cucumber has increased manifold in recent years. Application of which of the following phytohormones has resulted in this increased yield as the hormone is known to produce female flowers in the plants?

(1) ABA

(2) Gibberellin

(3) Ethylene

(4) Cytokinin

165. Which of the following is not the function of the conducting part of the respiratory system?

(1) It clears inhaled air from foreign particles

(2) Inhaled air is humidified

(3) Temperature of inhaled air is brought to body temperature

(4) Provides surface for diffusion of O_2 and CO_2

166. Under normal physical conditions in human beings every 100 ml oxygenated blood can deliver____ml of O_2 to the tissues.

(1) 2 ml

(2) 5 ml

(3) 4 ml

(4) 10 ml

167. Which one of the following statements is correct ?

(1) The atrioventricular node (AVN) generates an action potential to stimulate atrial contraction

(2) The tricuspid and the bicuspid valves open due to the pressure exerted by the simultaneous contraction of the atria

(3) Blood moves freely from atrium to the ventricle during joint diastole

(4) Increased ventricular pressure causes closing of the semilunar valves

168. Given below are two statements:
Statement I: The coagulum is formed of a network of threads called thrombins.
Statement II: Spleen is the graveyard of erythrocytes.
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

169. Nitrogenous waste is excreted in the form of pellet or paste by:

(1) Ornithorhynchus

(2) Salamandra

(3) Hippocampus

(4) Pavo

170. Which of the following is present between the adjacent bones of the vertebral column?

(1) Intercalated discs

(2) Cartilage

(3) Areolar tissue

(4) Smooth muscle

171. Which of the following is a correct match for disease and its symptoms?

(1) Arthritis - Inflamed joints

(2) Tetany - high Ca^{2+} level causing rapid spasms

(3) Myasthenia gravis - Genetic disorder resulting in weakening and paralysis of skeletal muscle

(4) Muscular dystrophy - An autoimmune disorder causing progressive degeneration of skeletal muscle

172. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A): Osteoporosis is characterised by decreased bone mass and increased chances of fracture.
Reason (R): Common cause of osteoporosis is increased levels of oestrogen.

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

(1) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(2) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(3) is correct but (R) is not correct

(4) is not correct but (R) is correct

173. Select the incorrect statement regarding synapses :

(1) The membranes of presynaptic and postsynaptic neurons are in close proximity in an electrical synapse.

(2) Electrical current can flow directly from one neuron into the other across the electrical synapse.

(3) Chemical synapse use neurotransmitters

(4) Impulse transmission across a chemical synapse is always faster than that across an electrical synapse

174. Which of the following are not the effects of Parathyroid hormone? a. Stimulates the process of bone resorption, b. Decreases Ca2+ level in blood, c. Reabsorption of Ca2+ by renal tubules, d. Decreases the absorption of Ca2+ from digested food, e. Increases metabolism of carbohydrates. Choose the most appropriate answer from the options given below:

(1) and (c) only

(2) , (d) and (e) only

(3) and (e) only

(4) and (c) only

Answer Key

1.B	**2**.A	**3**.D	**4**.C	**5**.B	**6**.B	**7**.C	**8**.C	**9**.D	**10**.C	**11**.C
12.C	**13**.C	**14**.B	**15**.C	**16**.C	**17**.B	**18**.C	**19**.B	**20**.B	**21**.B	**22**.B
23.C	**24**.B	**25**.B	**26**.D	**27**.D	**28**.C	**29**.D	**30**.B	**31**.C	**32**.B	**33**.B
34.A	**35**.B	**36**.C	**37**.C	**38**.D	**39**.C	**40**.D	**41**.B	**42**.D	**43**.D	**44**.C
45.C	**46**.A	**47**.C	**48**.C	**49**.C	**50**.B	**51**.B	**52**.A	**53**.D	**54**.C	**55**.A
56.A	**57**.C	**58**.B	**59**.A	**60**.D	**61**.C	**62**.D	**63**.D	**64**.B	**65**.A	**66**.A
67.D	**68**.C	**69**.A	**70**.A	**71**.C	**72**.A	**73**.B	**74**.C	**75**.C	**76**.A	**77**.D
78.B	**79**.C	**80**.C	**81**.C	**82**.C	**83**.A	**84**.A	**85**.D	**86**.A	**87**.C	**88**.C
89.D	**90**.A	**91**.A	**92**.A	**93**.C	**94**.B	**95**.A	**96**.B	**97**.B	**98**.C	**99**.B
100.C	**101**.B	**102**.D	**103**.C	**104**.A	**105**.C	**106**.D	**107**.C	**108**.D	**109**.A	**110**.B
111.C	**112**.A	**113**.C	**114**.A	**115**.B	**116**.A	**117**.C	**118**.B	**119**.B	**120**.C	**121**.C
122.A	**123**.E	**124**.B	**125**.B	**126**.C	**127**.D	**128**.D	**129**.A	**130**.B	**131**.C	**132**.A
133.C	**134**.C	**135**.D	**136**.D	**137**.A	**138**.C	**139**.B	**140**.B	**141**.B	**142**.D	**143**.C

144.B	**145**.B	**146**.A	**147**.C	**148**.A	**149**.A	**150**.B	**151**.A	**152**.B	**153**.B	**154**.C
155.C	**156**.D	**157**.C	**158**.C	**159**.A	**160**.B	**161**.A	**162**.B	**163**.D	**164**.C	**165**.D
166.B	**167**.C	**168**.D	**169**.D	**170**.B	**171**.A	**172**.C	**173**.D	**174**.B		