MedicNEET

NEET 2023 Phase 2 — Previous Year Question Paper

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Physics · 49 Qs

1. According to Gauss's law of electrostatics, the electric flux through a closed surface depends on:

(1) the shape of the surface
(2) the volume enclosed by the surface
(3) the area of the surface
(4) the quantity of charge enclosed by the surface

2. A charge Q μC is placed at the centre of a cube. The flux coming out from any one of its faces will be (in SI unit):

(1) $(Q \times 10^{-3}) / (6\varepsilon_0)$
(2) $(Q \times 10^{-6}) / (6\varepsilon_0)$
(3) $(Q \times 10^{-6}) / \varepsilon_0$
(4) $(3Q \times 10^{-3}) / (2\varepsilon_0)$

3. If a conducting sphere of radius R is charged, then the electric field at a distance r (r > R) from the centre of the sphere would be (V = potential on the surface of the sphere):

(1) RV / r^2
(2) V / r
(3) rV / R^2
(4) R^2V / r^3

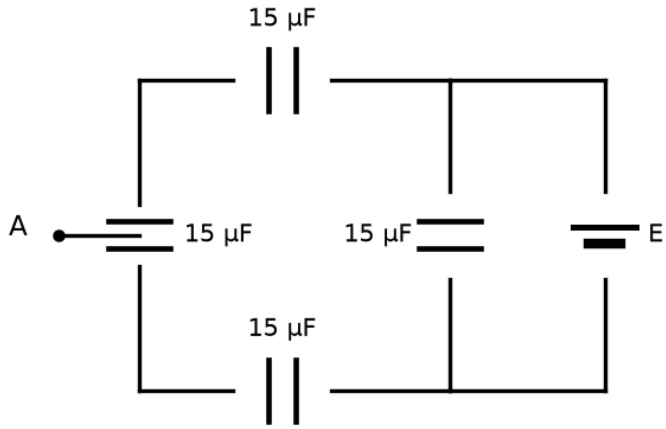
4. The diameter of a spherical bob, measured with vernier callipers, yielded the values: 3.33 cm, 3.32 cm, 3.34 cm, 3.33 cm and 3.32 cm. The mean diameter to appropriate significant figures is:

(1) 3.33 cm
(2) 3.32 cm
(3) 3.328 cm
(4) 3.3 cm

5. The mechanical quantity, which has dimensions of the reciprocal of mass (M^{-1}) is:

(1) Torque
(2) Gravitational constant
(3) Angular momentum
(4) Coefficient of thermal conductivity

6. The equivalent capacitance of the arrangement shown in figure is

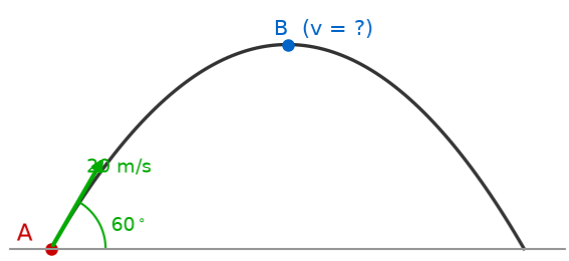


(1) 25 μF
(2) 20 μF
(3) 30 μF
(4) 15 μF

7. The position of a particle is given by $\vec{r}(t) = 4t\,\hat{i} + 2t^2\,\hat{j} + 5\hat{k}$, where t is in seconds and $\vec{r}$ in metres. Find the magnitude and direction (with respect to the x-axis) of the velocity $\vec{v}(t)$ at $t = 1$ s.

(1) $3\sqrt{2}\ \mathrm{m/s},\ 30^\circ$
(2) $3\sqrt{2}\ \mathrm{m/s},\ 45^\circ$
(3) $4\sqrt{2}\ \mathrm{m/s},\ 45^\circ$
(4) $4\sqrt{2}\ \mathrm{m/s},\ 60^\circ$

8. A ball is projected from point A with a velocity 20 m/s at an angle 60° to the horizontal direction. At the highest point B of the path, the speed v (in m/s) of the ball will be:



(1) Zero
(2) 10
(3) 20
(4) $10\sqrt{3}$

9. A particle moves with a velocity $(5\hat{i} - 3\hat{j} + 6\hat{k})$ m/s under the action of a constant force $(10\hat{i} + 10\hat{j} + 20\hat{k})$ N. The instantaneous power supplied to the particle is:

(1) 100 W
(2) 140 W
(3) 200 W
(4) Zero

10. A particle is executing uniform circular motion with velocity $\vec{v}$ and acceleration $\vec{a}$. Which of the following is true?

(1) $\vec{v}$ is a constant; $\vec{a}$ is a constant

(2) $\vec{v}$ is not a constant; $\vec{a}$ is a constant

(3) $\vec{v}$ is a constant; $\vec{a}$ is not a constant

(4) $\vec{v}$ is not a constant; $\vec{a}$ is not a constant

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11. A 1 kg object strikes a wall with a velocity of 1 m/s at an angle of 60° with the wall and reflects at the same angle. If it remains in contact with the wall for 0.1 s, the force exerted on the wall is:

(1) $10\sqrt{3}$ N

(2) $20\sqrt{3}$ N

(3) $30\sqrt{3}$ N

(4) Zero

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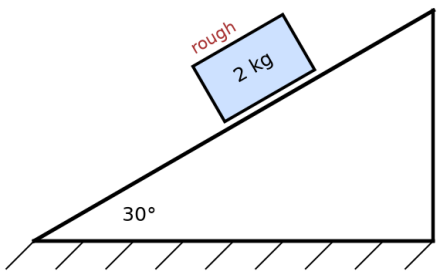
12. A block of mass 2 kg is placed on a rough inclined surface AC (as shown) of coefficient of friction μ. It remains at rest. Taking g = 10 m/s², the net force on the block is:



(1) 10 N

(2) 20 N

(3) $10\sqrt{3}$ N

(4) Zero

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13. A long straight wire of length 2 m and mass 250 g is suspended horizontally in a uniform horizontal magnetic field of 0.7 T. The amount of current flowing through the wire will be ($g = 9.8\ m\ s^{-2}$)

(1) 2.75 A

(2) 1.75 A

(3) 2.45 A

(4) 2.25 A

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14. A uniform electric field and a uniform magnetic field are acting along the same direction in a certain region. If an electron is projected in the region such that its velocity is pointed along the direction of fields, then the electron

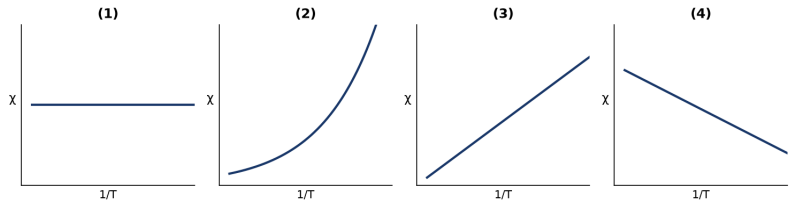
(1) Speed will decrease

(2) Speed will increase

(3) Will turn towards right of direction of motion

(4) Will turn towards left of direction of motion

15. The variation of susceptibility (χ) with absolute temperature (T) for a paramagnetic material is represented as: [the four options plot χ against 1/T]



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

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

16. A particle moves with a velocity (6î-4ĵ+3k̂) m/s under the action of a constant force F=(10î+10ĵ+20k̂) N. The instantaneous power applied to the particle is

(1) 200 W **(2)** 40 W

(3) 140 W **(4)** 100 W

17. A bullet of mass m hits a block of mass M elastically. The transfer of energy is maximum when

(1) Mll m **(2)** Mgg m

(3) M=m **(4)** M=2m

18. The potential energy of a spring when stretched by 2 cm is U. If the spring is stretched by 8 cm, the potential energy stored in it will be

(1) 2U **(2)** 4U

(3) 8U **(4)** 16U

19. An emf is generated by an ac generator having 100 turn coil, of loop area 1 m^2. The coil rotates at a speed of one revolution per second and placed in a uniform magnetic field of 0.05 T perpendicular to the axis of rotation of the coil. The maximum value of emf is:

(1) 62.8 V **(2)** 6.28 V

(3) 3.14 V **(4)** 31.4 V

20. Two particles A and B, initially at rest, move towards each other under their mutual attraction. When A's speed is v and B's speed is 3v, the speed of the centre of mass of the system is:

(1) v **(2)** 4v

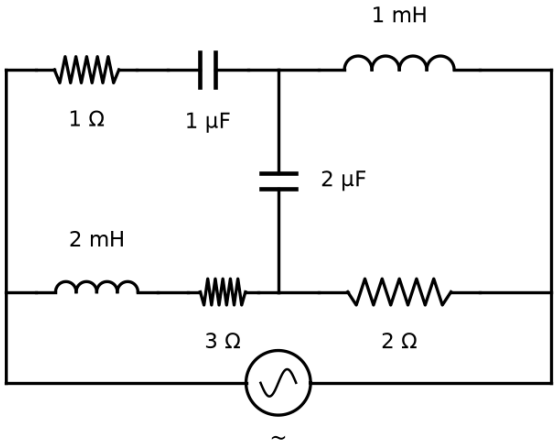
(3) 2v **(4)** zero

21. A constant torque of 100 N·m turns a wheel of moment of inertia 300 kg·m^2 about an axis through its centre. Starting from rest, its angular velocity after 3 s is:

(1) 10 rad/s **(2)** 15 rad/s

(3) 1 rad/s **(4)** 5 rad/s

22. For very high frequencies, the effective impedance of the circuit (shown in the figure) will be



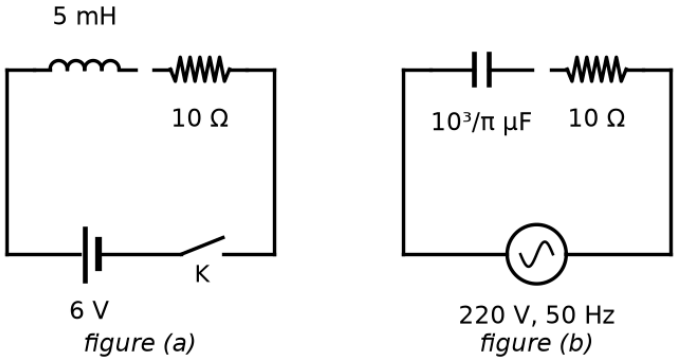
(1) 1 Ω

(2) 3 Ω

(3) 4 Ω

(4) 6 Ω

23. If Z_1 and Z_2 are the impedances of the given circuits (a) and (b) as shown in figures, then choose the correct option.



(1) $Z_1 = Z_2$

(2) $Z_1 > Z_2$

(3) $Z_1 < Z_2$

(4) $Z_1 + Z_2 = 20\ \Omega$

24. The maximum power is dissipated for an ac in a/an

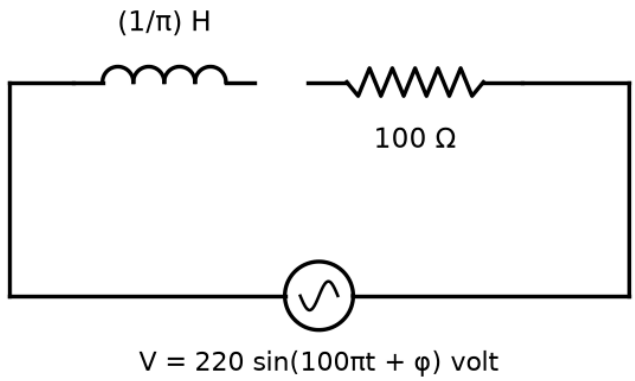
(1) Inductive circuit

(2) Capacitive circuit

(3) Resistive circuit

(4) LC circuit

25. An ac source is connected in the given circuit. The value of ϕ will be: $V = 220 \sin(100\pi t + \phi)$ volt



(1) 30°
(2) 45°
(3) 60°
(4) 90°

26. If R is the radius of the earth and g the acceleration due to gravity on its surface, the mean density of the earth is:

(1) $3g/(4\pi RG)$
(2) $4\pi gR/(3G)$
(3) $12\pi g/(RG)$
(4) $4\pi gG/(3R)$

27. The escape velocity of a body from the earth's surface is 11.2 km/s. If the same body is projected upward with velocity 22.4 km/s, its velocity at infinite distance from the centre of the earth will be:

(1) 11.2 km/s
(2) $11.2\sqrt{3}$ km/s
(3) $11.2\sqrt{2}$ km/s
(4) Zero

28. ε_0 and μ_0 are the electric permittivity and magnetic permeability of free space respectively. If the corresponding quantities of a medium are $2\varepsilon_0$ and $1.5\mu_0$ respectively, the refractive index of the medium will nearly be

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

29. To produce an instantaneous displacement current of 2 mA in the space between the parallel plates of a capacitor of capacitance 4 μF, the rate of change of applied variable potential difference (dV/dt) must be

(1) 200 V/s
(2) 400 V/s
(3) 800 V/s
(4) 500 V/s

30. A wire is suspended from the ceiling and stretched by a weight W attached at its free end. The longitudinal stress at any point of cross-sectional area A of the wire is:

(1) 2W/A
(2) W/A
(3) W/2A
(4) Zero

31. The amount of elastic potential energy per unit volume (in SI unit) of a steel wire of length 100 cm stretched by 1 mm is (Young's modulus of the wire = 2.0×10^{11} N m^{-2})

(1) 10^7
(2) 10^5
(3) 10^{11}
(4) 10^{17}

32. On the basis of electrical conductivity, which one of the following materials has the smallest resistivity?

(1) Glass
(2) Silicon
(3) Germanium
(4) Silver

33. The viscous drag acting on a metal sphere of diameter 1 mm, falling through a fluid of viscosity 0.8 Pa·s with a velocity of 2 m s^{-1}, is equal to:

(1) 1.5×10^{-3} N
(2) 20×10^{-3} N
(3) 15×10^{-3} N
(4) 30×10^{-3} N

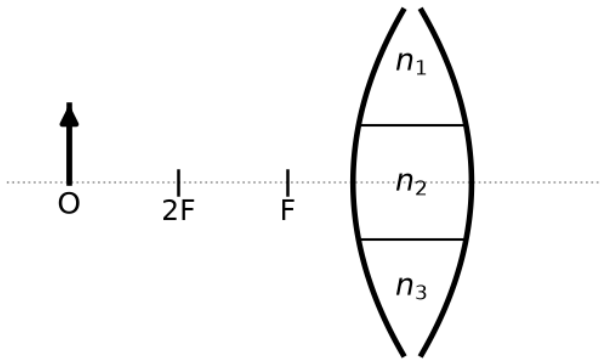
34. A simple pendulum oscillating in air has a period of $\sqrt{3}$ s. If it is completely immersed in a non-viscous liquid having density 1/4 th of the material of the bob, the new period will be:

(1) 2 s
(2) $(\sqrt{3})/2$ s
(3) $2\sqrt{3}$ s
(4) $2/\sqrt{3}$ s

35. An object is mounted on a wall. Its image of equal size is to be obtained on a parallel wall with the help of a convex lens placed between these walls. The lens is kept at a distance x in front of the second wall. The required focal length of the lens will be:

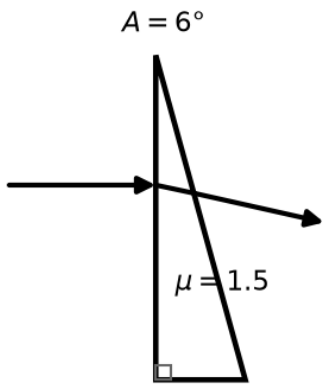
(1) x/2
(2) x/4
(3) Less than x/4
(4) More than x/4 but less than x/2

36. A lens is made up of 3 different transparent media as shown in the figure. A point object O is placed on its axis beyond 2f. How many real images will be obtained on the other side?



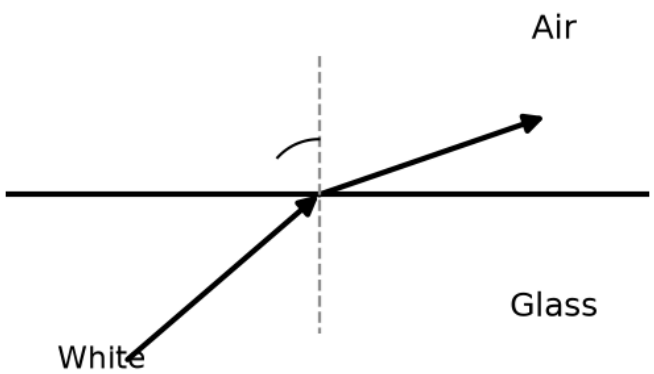
(1) No image will be formed
(2) 3
(3) 2
(4) 1

37. A horizontal ray of light is incident on the right-angled prism with prism angle 6°. If the refractive index of the material of the prism is 1.5, then the angle of emergence will be:



(1) 4°
(2) 6°
(3) 9°
(4) 10°

38. Which set of colours will come out in air for the situation shown in the figure?



(1) Orange, Red and Violet
(2) Blue, Green and Yellow
(3) Yellow, Orange and Red
(4) All

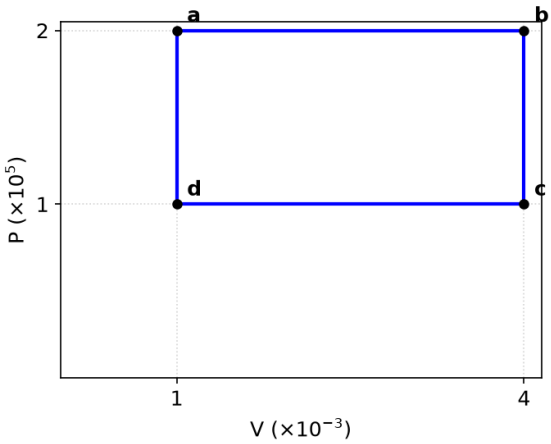
39. The maximum kinetic energy of the emitted photoelectrons in the photoelectric effect is independent of:

(1) Frequency of incident radiation
(2) Wavelength of incident radiation
(3) Work function of material
(4) Intensity of incident radiation

40. The de Broglie wavelength associated with an electron, accelerated by a potential difference of 81 V, is given by:

(1) 1.36 nm
(2) 0.136 nm
(3) 13.6 nm
(4) 136 nm

41. For the given cycle, the work done during the isobaric process is



(1) 400 J
(2) 600 J
(3) 200 J
(4) Zero

42. The wavelength of Lyman series of hydrogen atom appears in:

(1) Ultraviolet region
(2) Infrared region
(3) Visible region
(4) Far infrared region

43. The angular momentum of an electron moving in an orbit of hydrogen atom is 1.5(h/π). The energy in the same orbit is nearly:

(1) –1.3 eV
(2) –1.4 eV
(3) –1.5 eV
(4) –1.6 eV

44. The ground state energy of hydrogen atom is –13.6 eV. The energy needed to ionize hydrogen atom from its second excited state will be:

(1) 1.51 eV
(2) 3.4 eV
(3) 13.6 eV
(4) 6.8 eV

45. A container of volume 200 cm^3 contains 0.2 mole of hydrogen gas and 0.3 mole of argon gas. The pressure of the system at temperature 200 K (R = 8.3 J K^{-1} mol^{-1}) will be:

(1) 4.15×10^5 Pa
(2) 4.15×10^6 Pa
(3) 6.15×10^5 Pa
(4) 6.15×10^4 Pa

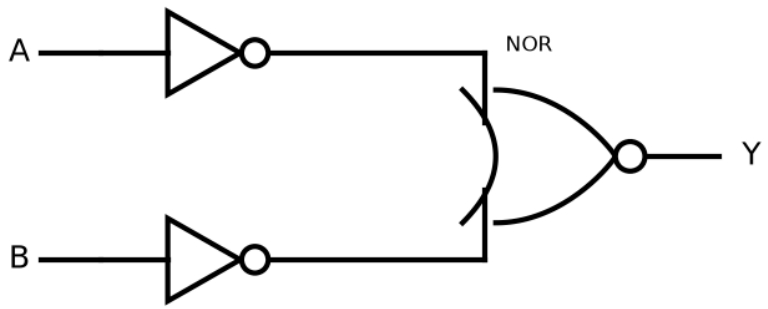
46. A simple pendulum oscillating in air has a period of √3 s. If it is completely immersed in a non-viscous liquid whose density is one-fourth that of the material of the bob, the new period is

(1) 2 s
(2) √3/2 s
(3) 2√3 s
(4) 2/√3 s

47. A p-type extrinsic semiconductor is obtained when Germanium is doped with:

(1) Arsenic
(2) Boron
(3) Antimony
(4) Phosphorous

48. The given circuit is equivalent to a single:



(1) OR gate
(2) AND gate
(3) NOR gate
(4) NAND gate

49. The 4th overtone of a closed organ pipe has the same frequency as the 3rd overtone of an open pipe. The ratio of the length of the closed pipe to the length of the open pipe is:

(1) 9 : 8
(2) 7 : 9
(3) 8 : 9
(4) 9 : 7

Chemistry · 41 Qs

50. The density of a 1 M solution of a compound 'X' is $1.25\ \mathrm{g\ mL^{-1}}$. The correct option for the molality of the solution is (Molar mass of compound X $= 85\ \mathrm{g}$):

(1) 1.165 m
(2) 0.858 m
(3) 0.705 m
(4) 1.208 m

51. Which amongst the following aqueous solutions of electrolytes will have minimum elevation in boiling point? Choose the correct option.

(1) 0.1 M $\mathrm{MgSO_4}$
(2) 1 M NaCl
(3) 0.05 M NaCl
(4) 0.1 M KCl

52. The density of a 1 M solution of a compound X is 1.25 g mL^{-1}. The molality of the solution is (molar mass of X = 85 g mol^{-1})

(1) 1.165 m
(2) 0.858 m
(3) 0.705 m
(4) 1.208 m

53. Molar conductance of an electrolyte increases with dilution according to the equation: $\Lambda_m = \Lambda_m^\circ - A\sqrt{c}$. Which of the following statements are true?

(A) This equation applies to both strong and weak electrolytes.

(B) Value of the constant A depends upon the nature of the solvent.

(C) Value of constant A is same for both $\mathrm{BaCl_2}$ and $\mathrm{MgSO_4}$.

(D) Value of constant A is same for both $\mathrm{BaCl_2}$ and $\mathrm{Mg(OH)_2}$.

(1) (B) and (C) only

(2) (B) and (D) only

(3) (A) and (B) only

(4) (A), (B) and (C) only

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54. The correct value of cell potential (in volt) for the reaction that occurs when the following two half cells are connected is:

$$\mathrm{Fe^{2+}(aq) + 2\,e^- \longrightarrow Fe(s)},\ E^\circ = -0.44\ \mathrm{V}$$

$$\mathrm{Cr_2O_7^{2-} + 14\,H^+ + 6\,e^- \longrightarrow 2\,Cr^{3+} + 7\,H_2O},\ E^\circ = +1.33\ \mathrm{V}$$

(1) $+0.01\ \mathrm{V}$

(2) $+0.89\ \mathrm{V}$

(3) $+1.77\ \mathrm{V}$

(4) $+2.65\ \mathrm{V}$

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55. The E° values are given as: E^\circ_{\ce{Al+/Al}} = +0.55\ \text{V} and E^\circ_{\ce{Tl+/Tl}} = -0.34\ \text{V}; E^\circ_{\ce{Al^3+/Al}} = -1.66\ \text{V} and E^\circ_{\ce{Tl^3+/Tl}} = +1.26\ \text{V}. Identify the incorrect statement.

(1) $\mathrm{Al^+}$ is unstable in solution.

(2) Tl can be more easily oxidised to $\mathrm{Tl^+}$ than to $\mathrm{Tl^{3+}}$.

(3) Al is more electropositive than Tl.

(4) $\mathrm{Tl^{3+}}$ is a better reducing agent than $\mathrm{Tl^+}$.

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56. The correct option for a redox couple is

(1) Both the reduced and oxidized forms involve the same element

(2) Cathode and anode together

(3) Both are oxidised forms involving the same element

(4) Both are reduced forms involving the same element

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57. Which one of the following represents all isoelectronic species?

(1) $\mathrm{Na^+, Mg^{2+}, O^-, F^-}$

(2) $\mathrm{Ca^{2+}, Ar, K^+, Cl^-}$

(3) $\mathrm{Na^+, Cl^-, O^-, NO^+}$

(4) $\mathrm{N_2O, N_2O_4, NO^+, NO}$

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58. Given below are two statements:

Statement I: The value of the wave function ψ depends upon the coordinates of the electron in the atom.

Statement II: The probability of finding an electron at a point within an atom is proportional to the orbital wave function ψ.

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

(1) Both Statement I and Statement II are true

(2) Both Statement I and Statement II are false

(3) Statement I is true but Statement II is false

(4) Statement I is false but Statement II is true

59. The incorrect set of quantum numbers from the following is:

(1) $n = 4, l = 2, m_l = -2, -1, 0, +1, +2, m_s = -\frac{1}{2}$

(2) $n = 5, l = 3, m_l = -3, -2, -1, 0, +1, +2, +3, m_s = +\frac{1}{2}$

(3) $n = 4, l = 3, m_l = -3, -2, -1, 0, +1, +2, +3, m_s = -\frac{1}{2}$

(4) $n = 5, l = 2, m_l = -2, -1, +1, +2, m_s = +\frac{1}{2}$

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60. The correct option for the rate law that corresponds to an overall first order reaction is

(1) $\text{Rate} = k[A]^{1/2}[B]^2$

(2) $\text{Rate} = k[A]^{-1/2}[B]^{3/2}$

(3) $\text{Rate} = k[A]^0[B]^2$

(4) $\text{Rate} = k[A][B]$

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61. For a reaction $3\,\mathrm{A} \longrightarrow 2\,\mathrm{B}$, the average rate of appearance of B is given by \frac{\Delta[\ce{B}]}{\Delta t}. The correct relation between the average rate of appearance of B and the average rate of disappearance of A is:

(1) -\frac{2}{3}\frac{\Delta[\ce{A}]}{\Delta t}

(2) \frac{\Delta[\ce{A}]}{\Delta t}

(3) -\frac{\Delta[\ce{A}]}{\Delta t}

(4) -\frac{3}{2}\frac{\Delta[\ce{A}]}{\Delta t}

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62. Which of the following is correctly matched?

(1) Acidic oxides $-$ $\mathrm{Mn_2O_7}$, $\mathrm{SO_2}$, $\mathrm{TeO_3}$

(2) Amphoteric oxides $-$ BeO, $\mathrm{Ga_2O_3}$, GeO

(3) Basic oxides $-$ $\mathrm{In_2O_3}$, $\mathrm{K_2O}$, $\mathrm{SnO_2}$

(4) Neutral oxides $-$ CO, $\mathrm{NO_2}$, $\mathrm{N_2O}$

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63. Assertion (A): Lithium and beryllium, unlike their other respective group members, form compounds with pronounced ionic character.
Reason (R): Lithium and magnesium have similar properties due to the diagonal relationship.

(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.

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64. The correct sequence given below, containing a neutral, an acidic, a basic and an amphoteric oxide respectively, is:

(1) NO, $\mathrm{CO_2}$, ZnO, CaO

(2) NO, $\mathrm{CO_2}$, CaO, ZnO

(3) NO, ZnO, $\mathrm{CO_2}$, CaO

(4) ZnO, NO, CaO, $\mathrm{CO_2}$

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65. [NEET 2016 Phase 1 · NEET 2017 · NEET 2019 · NEET 2019 Odisha · NEET 2020 · NEET 2021 · NEET 2023 Phase 2]
Which of the following statements is not correct about diborane?

(1) There are two 3-centre-2-electron bonds.

(2) The four terminal B–H bonds are two-centre two-electron bonds.

(3) The four terminal hydrogen atoms and the two boron atoms lie in one plane.

(4) Both the boron atoms are sp^2 hybridised.

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66. The correct order of dipole moments for molecules $\mathrm{NH_3}$, $\mathrm{H_2S}$, $\mathrm{CH_4}$ and HF, is

(1) $\mathrm{NH_3} > \mathrm{HF} > \mathrm{CH_4} > \mathrm{H_2S}$

(2) $\mathrm{HF} > \mathrm{NH_3} > \mathrm{H_2S} > \mathrm{CH_4}$

(3) $\mathrm{CH_4} > \mathrm{H_2S} > \mathrm{NH_3} > \mathrm{HF}$

(4) $\mathrm{H_2S} > \mathrm{NH_3} > \mathrm{HF} > \mathrm{CH_4}$

67. Which one of the following statements is incorrect related to Molecular Orbital Theory?

(1) Molecular orbitals obtained from $2p_x$ and $2p_x$ orbitals are symmetrical around the bond axis.

(2) A π-bonding molecular orbital has larger electron density above and below the internuclear axis.

(3) The π^* antibonding molecular orbital has a node between the nuclei.

(4) In the formation of a bonding molecular orbital, the two electron waves of the bonding atoms reinforce each other.

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

Assertion (A): Ionisation enthalpy increases along each series of the transition elements from left to right. However, small variations occur.

Reason (R): There is a corresponding increase in nuclear charge which accompanies the filling of electrons in the inner d-orbitals.

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) (A) is correct but (R) is not correct

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

---

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

Assertion (A): Ionisation enthalpies of early actinoids are lower than for early lanthanoids.

Reason (R): Electrons are entering 5f orbitals in actinoids which experience greater shielding from nuclear charge.

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.

---

70. Which of the following reactions of alkyl halides produces an isocyanide (isonitrile) as the major product?

(P) $\mathrm{R-X + HCN \longrightarrow}$

(Q) $\mathrm{R-X + AgCN \longrightarrow}$

(R) $\mathrm{R-X + KCN \longrightarrow}$

(S) $\mathrm{R-X + NaCN \xrightarrow{H_2O/C_2H_5OH}}$

Choose the most appropriate answer.

(1) (Q) only

(2) (P) and (Q) only

(3) (S) only

(4) (R) and (S) only

---

71. The correct order for the rate of α, β-dehydrohalogenation of the following compounds is:

(i) $\mathrm{CH_3CH_2CH_2CH_2I}$ (1-iodobutane, 1°)

(ii) $\mathrm{CH_3CH_2CHI-CH_3}$ (2-iodobutane, 2°)

(iii) $\mathrm{(CH_3)_3C-I}$ (2-iodo-2-methylpropane, 3°)

(1) (iii) < (ii) < (i)

(2) (ii) < (iii) < (i)

(3) (i) < (ii) < (iii)

(4) (ii) < (i) < (iii)

72. Choose the correct sequence of reagents for the conversion of 4-nitrotoluene to 2-bromotoluene.

(1) Br_2; Sn/HCl; $NaNO_2/HCl$; H_2O/H_3PO_2

(2) Sn/HCl; Br_2; $NaNO_2/HCl$; H_2O/H_3PO_2

(3) $NaNO_2/HCl$; Sn/HCl; Br_2; H_2O/H_3PO_2

(4) Sn/HCl; $NaNO_2/HCl$; Br_2; H_2O/H_3PO_2

---

73. Identify X in the following reaction.

$$\text{p-Br-C}_6\text{H}_4\text{-Cl (1.0 mol)} \xrightarrow[\text{dry ether}]{\text{Mg (1.0 mol)}} \text{Intermediate} \xrightarrow{D_2O} X$$

(1) $\text{p-D-C}_6\text{H}_4\text{-D}$

(2) $\text{p-D-C}_6\text{H}_4\text{-Br}$

(3) $\text{p-Cl-C}_6\text{H}_4\text{-D}$

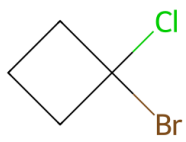
(4) $\text{p-DO-C}_6\text{H}_4\text{-OD}$

---

74. Identify the product in the following reaction.

$$\text{Chlorocyclobutane} \xrightarrow{\text{(i) KCN}} \xrightarrow{\text{(ii) H2O/HCl, }\Delta} \xrightarrow{\text{(iii) Br2/red P}} \xrightarrow{\text{(iv) H2O}} \text{Product}$$

(A)



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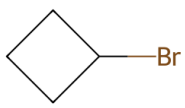

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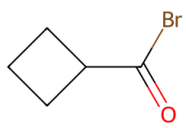

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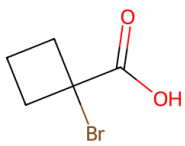


(1) (A)

(2) (B)

(3) (C)

(4) (D)

---

75. The major product formed in the following conversion is:

Substrate: 2-(2-oxopropyl)cyclopentan-1-one (a cyclopentanone ring bearing a $-CH_2-CO-CH_3$ side chain at C-2).

Reagents: (i) $NaBH_4$; (ii) H_2SO_4, Δ.

(1) a cyclopentanone ring (ketone retained) bearing a $-CH{=}CH-CH_3$ side chain

(2) a cyclopent-3-ene ring (isolated, non-conjugated ring double bond) bearing a $-CH{=}CH-CH_3$ side chain

(3) a cyclopent-1-ene ring (ring double bond at the substituted position) carrying a conjugated $-CH{=}CH-CH_3$ (1-propenyl) side chain

(4) a cyclopent-1-ene ring bearing a $-CH_2-CH{=}CH_2$ (terminal allyl) side chain

---

76. Reagents which can be used to convert alcohols to carboxylic acids are:

(A) $CrO_3 - H_2SO_4$

(B) $K_2Cr_2O_7 + H_2SO_4$

(C) $KMnO_4 + KOH/H_3O^+$

(D) $Cu,\ 573\,K$

(E) $CrO_3,\ (CH_3CO)_2O$

Choose the most appropriate answer from the options given below.

(1) (A), (B) and (C) only

(2) (A), (B) and (E) only

(3) (B), (C) and (D) only

(4) (B), (D) and (E) only

77. Identify 'X' in the following reactions:

\ce{R-COOH ->[\text{(i) X}][\text{(ii) } H2O/HCl] R-CH2OH}

\ce{R-CH=CH2 ->[\text{(i) X}][\text{(ii) } H2O,\ NaOH,\ H2O2] R-CH2-CH2-OH}

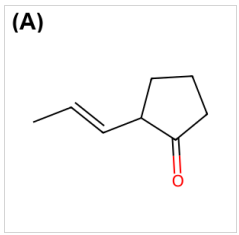
(1) $NaBH_4$ **(2)** H_2/Pd

(3) B_2H_6 **(4)** $LiAlH_4$

---

78. The major product formed in the following conversion is:
A cyclopentanone bearing a $-CH_2COCH_3$ (2-oxopropyl) side chain treated with (i) $NaBH_4$, then (ii) H_2SO_4, heat.

(A)



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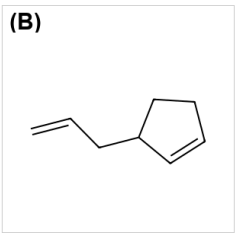

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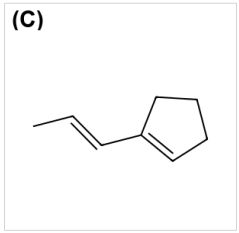

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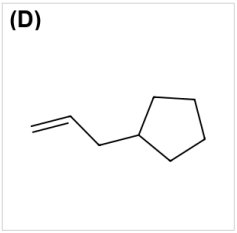


(1) (A) **(2)** (B)

(3) (C) **(4)** (D)

---

79. Consider the reaction:

$$CH_3COCH_3 \xrightarrow{\text{dil} \cdot Ba(OH)_2} X$$

The functional groups present in compound X are

(1) alcohol and aldehyde **(2)** alcohol and ketone

(3) ketone and double bond **(4)** double bond and aldehyde

---

80. Reagents which can be used to convert alcohols to carboxylic acids are:
(A) $CrO_3 - H_2SO_4$
(B) $K_2Cr_2O_7 + H_2SO_4$
(C) $KMnO_4 + KOH/H_3O^+$
(D) Cu, 573 K
(E) CrO_3, $(CH_3CO)_2O$
Choose the most appropriate answer:

(1) (A), (B) and (C) only **(2)** (A), (B) and (E) only

(3) (B), (C) and (D) only **(4)** (B), (D) and (E) only

81. Identify X in the following reactions:
\ce{R-COOH ->[{(i) X}][{(ii) H2O/HCl}] R-CH2OH}
\ce{R-CH=CH2 ->[{(i) X}][{(ii) H2O, NaOH, H2O2}] R-CH2-CH2-OH}

(1) $NaBH_4$
(2) H_2/Pd
(3) B_2H_6
(4) $LiAlH_4$

---

82. The following conversion is known as:

$$C_6H_5-COCl \xrightarrow[Pd-BaSO_4]{H_2} C_6H_5-CHO$$

(1) Etard reaction
(2) Rosenmund reaction
(3) Stephen reaction
(4) Gattermann-Koch reaction

---

83. Identify the product in the following reaction: cyclobutyl chloride \ce{->[{(i) KCN}][{(ii) H2O/HCl, \Delta}] ->[{(iii) Br2/red P}][{(iv) H2O}]} Product.

(1) Cyclobutane bearing $-Cl$ and $-Br$
(2) Cyclobutane bearing two $-Br$
(3) Cyclobutane bearing $-COBr$
(4) Cyclobutane bearing $-COOH$ and an alpha $-Br$ (alpha-bromocyclobutanecarboxylic acid)

---

84. The E° values are: $Al^+/Al = +0.55$ V, $Tl^+/Tl = -0.34$ V, $Al^{3+}/Al = -1.66$ V and $Tl^{3+}/Tl = +1.26$ V. Identify the incorrect statement.

(1) Al^+ is unstable in solution.
(2) Tl can be more easily oxidised to Tl^+ than to Tl^{3+}.
(3) Al is more electropositive than Tl.
(4) Tl^{3+} is a better reducing agent than Tl^+.

---

85. Choose the correct sequence of reagents in the conversion of 4-nitrotoluene to 2-bromotoluene.

(1) Br_2; Sn/HCl; $NaNO_2/HCl$; H_2O/H_3PO_2
(2) Sn/HCl; Br_2; $NaNO_2/HCl$; H_2O/H_3PO_2
(3) $NaNO_2/HCl$; Sn/HCl; Br_2; H_2O/H_3PO_2
(4) Sn/HCl; $NaNO_2/HCl$; Br_2; H_2O/H_3PO_2

---

86. [NEET 2016 Phase 1 · NEET 2017 · NEET 2019 · NEET 2019 Odisha · NEET 2020 · NEET 2021 · NEET 2023 Phase 2] Which of the following statements is not correct?

(1) Insulin maintains sugar level in the blood of a human body
(2) Ovalbumin is a simple food reserve in egg-white
(3) Blood proteins thrombin and fibrinogen are involved in blood clotting
(4) Denaturation makes the proteins more active

---

87. Cheilosis occurs due to deficiency of _____.

(1) Pyridoxamine
(2) Riboflavin
(3) Thiamine
(4) Nicotinamide

---

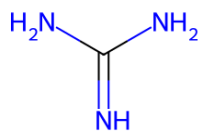
88. Which amongst the following compounds will show geometrical isomerism?

(1) 2-Methylprop-1-ene
(2) 3,4-Dimethylhex-3-ene
(3) Pent-1-ene
(4) 2,3-Dimethylbut-2-ene

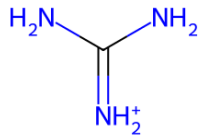
---

89. Which amongst the following compounds/species is least basic?

(A)



(B)



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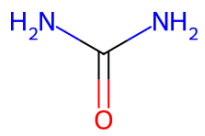
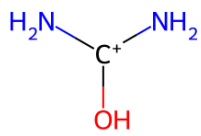


(D)



(1) $(H_2N)_2C{=}NH$ (guanidine)

(2) $(H_2N)_2C{=}NH_2{}^+$ (guanidinium ion)

(3) $(H_2N)_2C{=}O$ (urea)

(4) $(H_2N)_2C^+{-}OH$ (conjugate-acid cation of urea)

90. Given below are two statements:
Statement I: In an organic compound, when inductive and electromeric effects operate in opposite directions, the inductive effect predominates.
Statement II: Hyperconjugation is observed in o-xylene.
In the light of the above statements, choose the correct answer from the options given below.

(1) Both Statement I and Statement II are true.

(2) Both Statement I and Statement II are false.

(3) Statement I is true but Statement II is false.

(4) Statement I is false but Statement II is true.

Biology · 85 Qs

91. In angiosperms the correct sequence of events in formation of female gametophyte in the ovule is
(A) 3 successive free nuclear divisions in functional megaspores.
(B) Degeneration of 3 megaspores.
(C) Meiotic division in megaspore mother cell.
(D) Migration of 3 nuclei towards each pole.
(E) Formation of wall resulting in seven celled embryo sac.
Choose the correct answer from the options given below.

(1) (B), (C), (A), (D), (E)

(2) (C), (B), (A), (D), (E)

(3) (A), (B), (C), (D), (E)

(4) (C), (E), (A), (D), (B)

92. [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

---

93. Transfer of pollen grains from anther to stigma of another flower of same plant is known as:

(1) Autogamy
(2) Cleistogamy
(3) Geitonogamy
(4) Xenogamy

---

94. In which of the following sets of families, the pollen grains are viable for months?

(1) Rosaceae, Liliaceae and Poaceae
(2) Leguminosae, Solanaceae and Rosaceae
(3) Solanaceae, Poaceae and Liliaceae
(4) Brassicaceae, Liliaceae and Poaceae

---

95. 'X' and 'Y' are the components of Binomial nomenclature. This naming system was proposed by 'Z':

(1) X – Specific epithet, Y – Generic name, Z – Carolus Linnaeus
(2) X – Generic name, Y – Specific epithet, Z – R.H. Whittaker
(3) X – Generic name, Y – Specific epithet, Z – Carolus Linnaeus
(4) X – Specific epithet, Y – Generic name, Z – R.H. Whittaker

---

96. Given below are two statements regarding oogenesis.
Statement I : The primary follicles get surrounded by more layers of granulosa cells, a theca and shows fluid filled cavity antrum. Now it is called secondary follicle.
Statement II : Graafian follicle ruptures to release the secondary oocyte from the ovary by the process called ovulation.
In the light of the above statements, choose the correct answer from the options given below:

(1) Both Statement I and Statement II are true
(2) Both Statement I and Statement II are false
(3) Statement I is correct but Statement II is false
(4) Statement I is incorrect but Statement II is true

---

97. Which of the following is incorrectly matched?

(1) Ectocarpus - Fucoxanthin
(2) Ulothrix - Mannitol
(3) Porphyra - Floridian Starch
(4) Volvox - Starch

---

98. Which classes of algae possess pigment fucoxanthin and pigment phycoerythrin, respectively?

(1) Chlorophyceae and Rhodophyceae
(2) Rhodophyceae and Phaeophyceae
(3) Phaeophyceae and Chlorophyceae
(4) Phaeophyceae and Rhodophyceae

---

99. [NEET 2016 Phase 1 · NEET 2017 · NEET 2019 · NEET 2019 Odisha · NEET 2020 · NEET 2021 · NEET 2023 Phase 2] Which of the following statements is true?

(1) Most algal genera are diplontic
(2) Most bryophytes do not have haplo-diplontic life cycle
(3) All pteridophytes exhibit haplo-diplontic pattern
(4) Seed bearing plants follow haplontic pattern

100. Match List-I with List-II.

List-I
(A) Pteropsida
(B) Lycopsida
(C) Psilopsida
(D) Sphenopsida

List-II
(I) Psilotum
(II) Equisetum
(III) Adiantum
(IV) Selaginella

Choose the correct answer from the options given below:

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

---

101. Which of the following statements are correct?

(A) Reproductive health refers to total well-being in all aspects of reproduction.
(B) Amniocentesis is legally banned for sex determination in India.
(C) "Saheli" - a new oral contraceptive for females was developed in collaboration with ICMR (New Delhi).
(D) Amniocentesis is used to determine genetic disorders and survivability of foetus.

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

---

102. Which of the following sexually transmitted infections are completely curable?

(1) Hepatitis-B and Genital herpes
(2) Genital herpes and Genital warts
(3) HIV infection and Trichomoniasis
(4) Syphilis and Trichomoniasis

---

103. Given below are two statements:

Statement I: Intra Cytoplasmic Sperm Injection (ICSI) is another specialised procedure of in-vivo fertilisation.
Statement II: Infertility cases due to inability of the male partner to inseminate female can be corrected by artificial insemination (AI).

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

(1) Both Statement I and Statement II are true
(2) Both Statement I and Statement II are false
(3) Statement I is correct but Statement II is false
(4) Statement I is incorrect but Statement II is true

---

104. Match List-I with List-II:

List-I
(A) Non-medicated IUDs
(B) Copper releasing IUDs
(C) Hormone releasing IUDs
(D) Vaults

List-II
(i) Multiload 375
(ii) Rubber barrier
(iii) Lippes loop
(iv) LNG-20

Choose the correct answer from the options given below:

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

---

105. Select the correct statements:

A. Platyhelminthes are triploblastic pseudocoelomate and bilaterally symmetrical organisms.
B. Ctenophores reproduce only sexually and fertilization is external.
C. In tapeworm, fertilization is internal but sexes are not separate.
D. Ctenophores are exclusively marine, diploblastic and bioluminescent organisms.
E. In sponges, fertilization is external and development is direct.

Choose the correct answer from the options given below:

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

---

106. Match List-I with List-II.

List-I
(A) Contractile vacuole
(B) Water vascular system
(C) Canal system
(D) Flame cells

List-II
(I) Asterias
(II) Amoeba
(III) Spongilla
(IV) Taenia

Choose the correct answer from the options given below:

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

107. A certain plant homozygous for yellow seeds and red flowers was crossed with a plant homozygous for green seeds and white flowers. The F1 plants had yellow seeds and pink flowers. The F1 plants were selfed to get F2 progeny. Assuming independent assortment of the two characters, how many phenotypic categories are expected for these characters in the F2 generation?

(1) 4 **(2)** 6

(3) 9 **(4)** 16

108. Select the correct statement/s with respect to mechanism of sex determination in Grasshopper.

A. It is an example of female heterogamety.
B. Male produces two different types of gametes either with or without X chromosome.
C. Total number of chromosomes (autosomes and sex chromosomes) is same in both males and females.
D. All eggs bear an additional X chromosome besides the autosomes.

Choose the correct answer from the options given below:

(1) only **(2)** and (C) only

(3) and (D) only **(4)** (A), (C) and (D) only

109. In which disorder change of single base pair in the gene for beta globin chain results in change of glutamic acid to valine?

(1) Haemophilia **(2)** Phenylketonuria

(3) Thalassemia **(4)** Sickle cell anaemia

110. A heterozygous pea plant with violet flowers was crossed with a homozygous pea plant with white flowers. Violet is dominant over white. Which one of the following represents the expected combinations among 40 progenies formed?

(1) All 40 produced violet flowers **(2)** All 40 produced white flowers

(3) 30 produced violet and 10 produced white flowers **(4)** 20 produced violet and 20 produced white flowers

111. Select the correct statements about sickle cell anaemia.

A. There is a change in gene for beta globin.
B. In the beta globin, there is valine in the place of Lysine.
C. It is an example of point mutation.
D. In the normal gene U is replaced by A.

Choose the correct answer from the options given below:

(1) (A), (B) and (D) only **(2)** and (C) only

(3) (B), (C) and (D) only **(4)** and (D) only

112. Match List-I with List-II.

List-I (Type of cross):
A. Monohybrid Cross
B. Dihybrid Cross
C. Incomplete dominance
D. Test Cross

List-II (Phenotypic ratio):
I. 1 : 1
II. 1 : 2 : 1
III. 3 : 1
IV. 9 : 3 : 3 : 1

Choose the correct answer from the options given below:

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

---

113. The last chromosome sequenced in Human Genome Project was :

(1) Chromosome 22
(2) Chromosome 14
(3) Chromosome 6
(4) Chromosome 1

---

114. Name the component that binds to the operator region of an operon and prevents RNA polymerase from transcribing the operon.

(1) Repressor protein
(2) Inducer
(3) Promotor
(4) Regulator protein

---

115. Which scientist conducted an experiment with 32P and 35S labelled phages for demonstrating that DNA is the genetic material?

(1) F. Griffith
(2) O.T. Avery, C.M. MacLeod and M. McCarty
(3) James D. Watson and F.H.C. Crick
(4) Hershey and M.J. Chase

---

116. Given below are two statements :
Statement I : The process of copying genetic information from one strand of the DNA into RNA is termed as transcription.
Statement II : A transcription unit in DNA is defined primarily by the three regions in the DNA, i.e., a promotor, the structural gene and a terminator.
In the light of the above statements, choose the correct answer from the options given below :

(1) Both Statement I and Statement II are true
(2) Both Statement I and Statement II are false
(3) Statement I is true but Statement II is false
(4) Statement I is false but Statement II is true

---

117. Given below are two statements:
Statement I: RNA being unstable, mutate at a faster rate.
Statement II: RNA can directly code for synthesis of proteins, hence can easily express the characters.
In the light of the above statements, choose the correct answer from the options given below:

(1) Both Statement I and Statement II are true
(2) Both Statement I and Statement II are false
(3) Statement I is correct but Statement II is false
(4) Statement I is incorrect but Statement II is true

118. The salient features of genetic code are :
(A) The code is palindromic
(B) UGA act as initiator codon
(C) The code is unambiguous and specific
(D) The code is nearly universal
Choose the most appropriate answer from the options given below :

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

119. In a pea flower, five petals are arranged in a specialized manner with one posterior, two lateral and two anterior. These are named as _____. _____ and _____ respectively. (NEET 2023 (Phase 2))

(1) Keel, Standard and Carina
(2) Standard, Wings and Keel
(3) Keel, Wings and Standard
(4) Vexillum, Keel and Standard

120. Match the following :
Type of flower -- Example
(A) Zygomorphic -- (I) Mustard
(B) Hypogynous -- (II) Plum
(C) Perigynous -- (III) Cassia
(D) Epigynous -- (IV) Cucumber
Select the correct option : (NEET 2023 (Phase 2))

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

121. In Calotropis, aestivation is : (NEET 2023 (Phase 2))

(1) Imbricate
(2) Twisted
(3) Valvate
(4) Vexillary

122. (Out of syllabus but asked in last 3 years) Consider the following tissues in the stelar region of a stem showing secondary growth. Arrange these in the correct sequence of their position from pith towards cortex.

Statements:
(A) Primary xylem
(B) Secondary xylem
(C) Primary phloem
(D) Secondary phloem

Choose the correct answer:

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

123. The transverse section of a plant part showed polyarch, radial and exarch xylem, with endodermis and pericycle. The plant part is identified as :

(1) Dicot stem
(2) Monocot stem
(3) Monocot root
(4) Dicot root

124. Consider the following plant tissues. Identify the lateral meristems among the above.

Statements:
(A) Axillary buds
(B) Fascicular vascular cambium
(C) Interfascicular cambium
(D) Cork cambium
(E) Intercalary meristem

Choose the correct answer:

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

---

125. Identify the fossil of man who showed the following characteristics.
(A) Brain capacity of 1400 cc
(B) Used hides to protect their body
(C) Buried their dead bodies
In the light of above statements, choose the correct answer from the options given below:

(1) Homo habilis
(2) Australopithecus
(3) Homo erectus
(4) Neanderthal man

---

126. [NEET 2016 Phase 1 · NEET 2017 · NEET 2019 · NEET 2019 Odisha · NEET 2020 · NEET 2021 · NEET 2023 Phase 2]
Which of the following statements is not true ?

(1) Analogous structures are a result of convergent evolution
(2) Sweet potato and potato is an example of analogy
(3) Homology indicates common ancestry
(4) Flippers of penguins and dolphins are a pair of homologous organs

---

127. Diacetyl morphine is also called as:

(1) Crack
(2) Smack
(3) Amphetamine
(4) Barbiturate

---

128. Match List - I with List - II.
List - I (A) Typhoid (B) Elephantiasis (C) Ringworm (D) Malaria
List - II (I) Protozoan (II) Salmonella (III) Aschelminthes (IV) Microsporum
Choose the correct answer from the options given below :

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

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129. Match List-I with List-II.
List-I (A) Cytokine barriers (B) Cellular barriers (C) Physiological barriers (D) Physical barriers
List-II (I) Mucus coating of respiratory tract (II) Interferons (III) Neutrophils and Macrophages (IV) Tears and Saliva
Choose the correct answer from the options given below :

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

130. Given below are two statements:

Statement I: Goblet cells are unicellular glands.

Statement II: Earwax is the secretion of exocrine gland.

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

(1) Both Statement I and Statement II are true
(2) Both Statement I and Statement II are false
(3) Statement I is true but Statement II is false
(4) Statement I is false but Statement II is true

---

131. The Cockroach is:

(Out of syllabus but asked in last 3 years)

(1) Ureotelic only
(2) Ureotelic and Uricotelic
(3) Ammonotelic only
(4) Uricotelic only

---

132. Match List-I with List-II.

List-I
(A) Columnar epithelium
(B) Ciliated epithelium
(C) Squamous epithelium
(D) Cuboidal epithelium

List-II
(I) Ducts of glands
(II) Inner lining of stomach and intestine
(III) Inner lining of bronchioles
(IV) Endothelium

Choose the correct answer from the options given below:

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

---

133. Given below are two statements:

Statement I: In cockroach, the forewings are transparent and prothoracic in origin.
Statement II: In cockroach, the hind wings are opaque, leathery and mesothoracic in origin.

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

(Out of syllabus but asked in last 3 years)

(1) Both Statement I and Statement II are true
(2) Both Statement I and Statement II are false
(3) Statement I is correct but Statement II is false
(4) Statement I is incorrect but Statement II is true

---

134. Which of the following statements are correct with respect to Golgi apparatus?
(A) It is the important site of formation of glycoprotein and glycolipids.
(B) It produces cellular energy in the form of ATP.
(C) It modifies the protein synthesized by ribosomes on ER.
(D) It facilitates the transport of ions.
(E) It provides mechanical support.
Choose the most appropriate answer from the options given below :

(1) and (D) only
(2) and (E) only
(3) and (C) only
(4) and (C) only

135. [NEET 2016 Phase 1 · NEET 2017 · NEET 2019 · NEET 2019 Odisha · NEET 2020 · NEET 2021 · NEET 2023 Phase 2]
Which of the following statements is not correct?

(1) Lysosomes have numerous hydrolytic enzymes
(2) The hydrolytic enzymes of lysosomes are active under acidic pH
(3) Lysosomes are membrane bound structures
(4) Lysosomes are formed by the process of packaging in the endoplasmic reticulum

136. Given below are two statements:
Statement I : In bacteria, the mesosomes are formed by the extensions of plasma membrane.
Statement II : The mesosomes, in bacteria, help in DNA replication and cell wall formation.
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

137. Match List-I with List-II.
List-I: (A) Terpenoides (B) Lectins (C) Alkaloids (D) Toxins
List-II: (I) Codeine (II) Diterpenes (III) Ricin (IV) Concanavalin A
Choose the correct answer from the options given below:

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

138. Which of the following is not a secondary metabolite?

(1) Anthocyanin
(2) Lecithin
(3) Curcumin
(4) Morphine

139. Match List-I with List-II.
List-I: (A) Protein (B) Unsaturated fatty acid (C) Nucleic acid (D) Polysaccharide
List-II: (I) C = C double bonds (II) Phosphodiester bond (III) Glycosidic bonds (IV) Peptide bonds
Choose the correct answer from the options given below:

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

140. Inulin is a polymer of:

(1) Amino acids
(2) Glucose
(3) Fructose
(4) Galactose

141. Given below are two statements:
Statement I: RuBisCO is the most abundant enzyme in the world.
Statement II: Photorespiration does not occur in C4 plants.
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

---

142. Match List-I with List-II.

List-I	List-II
(A) Kanamycin	(I) Delivers genes into animal cells
(B) ClaI	(II) Selectable marker
(C) Disarmed retroviruses	(III) Restriction site
(D) Kanamycin R gene	(IV) Antibiotic resistance

Choose the correct answer from the options given below.

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

---

143. Which of the following can act as molecular scissors?

(1) RNA polymerase
(2) DNA polymerase
(3) Restriction enzymes
(4) DNA ligase

---

144. Which of the following statement is incorrect about Agrobacterium tumifaciens?

(1) It transforms normal plant cells into tumorous cells.
(2) It delivers 'T-DNA' into plant cell.
(3) It is used to deliver gene of interest in both prokaryotic as well as eukaryotic host cells.
(4) 'Ti' plasmid from Agrobacterium tumifaciens used for gene transfer is not pathogenic to plant cells.

---

145. Thermostable DNA polymerase used in PCR was isolated from :

(1) Agrobacterium tumifaciens
(2) Bacillus thuringiensis
(3) Thermus aquaticus
(4) Escherichia coli

---

146. Select incorrect statement, regarding chemical structure of insulin. (NEET 2023 (Phase 2))

(1) C-peptide is not present in mature insulin molecule.
(2) Polypeptide chains A and B are linked by disulphide bridges.
(3) Mature insulin molecule consists of three polypeptide chains - A, B and C.
(4) Insulin is synthesized as prohormone which contains extra stretch of C-peptide.

147. Match List - I with List - II.

List - I

(A) Gene therapy

(B) RNA interference

(C) ELISA

(D) Gel Electrophoresis

List - II

(I) Separation of DNA fragments

(II) Diagnostic test for AIDS

(III) Cellular defence

(IV) Allows correction of a gene defect

Choose the correct answer from the options given below : (NEET 2023 (Phase 2))

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

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

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

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

---

148. The dissolution of synaptonemal complex occurs during

(1) Diakinesis

(2) Leptotene

(3) Pachytene

(4) Diplotene

---

149. Doubling of the number of chromosomes can be achieved by disrupting mitotic cell division soon after

(1) Prophase

(2) Metaphase

(3) Anaphase

(4) Telophase

---

150. During which stages of mitosis and meiosis, respectively does the centromere of each chromosome split?

(1) Telophase, Anaphase I

(2) Anaphase, Anaphase II

(3) Metaphase, Metaphase II

(4) Prophase, Telophase I

---

151. Which one of the following is the quiescent stage of cell cycle ?

(1) G1

(2) G0

(3) M

(4) G2

---

152. Select correct sequence of substages of Prophase-I of meiotic division:

(A) Zygotene

(B) Pachytene

(C) Diakinesis

(D) Leptotene

(E) Diplotene

(1) (D), (A), (B), (E), (C)

(2) (A), (D), (B), (C), (E)

(3) (D), (B), (A), (E), (C)

(4) (A), (B), (D), (E), (C)

---

153. Dissolution of the synaptonemal complex occurs during:

(1) Diplotene

(2) Leptotene

(3) Pachytene

(4) Zygotene

---

154. Plants offer rewards to animals in the form of pollen and nectar and the animals facilitate the pollination process. This is an example of : (NEET 2023 (Phase 2))

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

---

155. For chemical defence against herbivores, Calotropis has (NEET 2023 (Phase 2))

(1) toxic ricin
(2) distasteful quinine
(3) cardiac glycosides
(4) strychnine

---

156. If there are 250 snails in a pond, and within a year their number increases to 2500 by reproduction. What should be their birth rate per snail per year? (NEET 2023 (Phase 2))

(1) 25
(2) 15
(3) 10
(4) 9

---

157. (Out of NEET 2026 syllabus — rationalised 'adaptations' topic)

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

Assertion (A): A person goes to high altitude and experiences "Altitude Sickness" with symptoms like breathing difficulty and heart palpitations.
Reason (R): Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen.

In the light of the above statements, choose the correct answer from the options given below: (NEET 2023 (Phase 2))

(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) is true but (R) is false
(4) is false but (R) is true

---

158. Match List I with List II and choose the correct answer:

List I
A. Chlorophyll a
B. Chlorophyll b
C. Xanthophyll
D. Carotenoid

List II
I. Yellow to yellow orange
II. Yellow green
III. Blue green
IV. Yellow

Choose the correct answer from the options given below:

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

159. The amount of nutrients such as carbon, nitrogen, potassium and calcium present in the soil at any given time is referred to as :

(1) Humus
(2) Detritus
(3) Standing state
(4) Standing crop

---

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

Match List-I with List-II:

List-I
(A) Hydrarch succession
(B) Xerarch succession
(C) Ecological succession
(D) Secondary succession

List-II
(I) Gradual change in the species composition
(II) Faster and climax reached quickly
(III) Lichens to mesic conditions
(IV) Phytoplankton to mesic conditions

Choose the correct answer from the options given below:

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

---

161. In 'rivet popper hypothesis', Paul Ehrlich compared the rivets in an airplane to

(1) Ecosystem
(2) Genera within a family
(3) Species within a genus
(4) Genetic diversity

---

162. Which of the following is correctly matched?

(1) Aerenchyma – Opuntia
(2) Age pyramid – Biome
(3) Parthenium hysterophorus – Threat to Biodiversity
(4) Stratification – Population

---

163. Which of the following is/are cause(s) of biodiversity losses?

(1) Over-exploitation only
(2) Habitat loss and fragmentation only
(3) Over-exploitation, habitat loss and fragmentation
(4) Climate change only

---

164. Select the sequence of steps in Respiration.

A. Diffusion of gases (O_2 and CO_2) across alveolar membrane.
B. Diffusion of O_2 and CO_2 between blood and tissues.
C. Transport of gases by the blood.
D. Pulmonary ventilation by which atmospheric air is drawn in and CO_2 rich alveolar air is released out.
E. Utilisation of O_2 by the cells for catabolic reactions and resultant release of CO_2.

Choose the correct answer from the options given below:

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

---

165. Given below are two statements:

Assertion (A): A person goes to high altitude and experiences “Altitude Sickness” with symptoms like breathing difficulty and heart palpitations.

Reason (R): Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen.

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) is true but (R) is false
(4) is false but (R) is true

---

166. Assertion (A): A person goes to high altitude and experiences 'altitude sickness' with symptoms like breathing difficulty and heart palpitations.

Reason (R): Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen.

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

(1) is true but (R) is false
(2) 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)

---

167. Match List-I with List-II
List-I (ECG)
(A) P-wave
(B) QRS complex
(C) T wave
(D) End of T wave
List-II (Electrical activity of heart)
(I) Depolarisation of ventricles
(II) End of systole
(III) Depolarisation of atria
(IV) Repolarisation of ventricles
Choose the correct answer from the options given below :

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

168. Match List - I with List - II.

List - I
(A) Eosinophils
(B) Lymphocytes
(C) Neutrophils
(D) Monocytes
List - II
(I) 6 - 8%
(II) 2 - 3%
(III) 20 - 25%
(IV) 60 - 65%
Choose the correct answer from the options given below :

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

169. Arrange the events of Renin – Angiotensin mechanism in correct sequence.

(A) Activation of JG cell and release of renin.
(B) Angiotensin II activates release of aldosterone.
(C) Fall in glomerular blood pressure.
(D) Reabsorption of Na+ and water from distal convoluted tubule.
(E) Angiotensinogen is converted to Angiotensin I and then to Angiotensin II.

Choose the correct answer from the options given below :

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

170. Match List-I with List-II.

List-I:
(A) Palm bones
(B) Wrist bones
(C) Ankle bones
(D) Digit bones

List-II:
(I) Phalanges
(II) Metacarpals
(III) Carpals
(IV) Tarsals

Choose the correct answer from the options given below:

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

171. Brainstem of human brain consists of:

(1) Thalamus, Hypothalamus and Corpora quadrigemina
(2) Amygdala, Hippocampus and Corpus Callosum
(3) Mid-brain, Pons and Medulla Oblongata
(4) Forebrain, Cerebellum and Pons

172. Which of the following statements are correct with respect to the hormone and its function?
(A) Thyrocalcitonin (TCT) regulates the blood calcium level.
(B) In males, FSH and androgens regulate spermatogenesis.
(C) Hyperthyroidism can lead to goitre.
(D) Glucocorticoids are secreted in Adrenal Medulla.
(E) Parathyroid hormone is regulated by circulating levels of sodium ions.
Choose the most appropriate answer from the options given below :

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

173. Given below are two statements:
Statement I : Parathyroid hormone acts on bones and stimulates the process of bone resorption.
Statements II : Parathyroid hormone along with Thyrocalcitonin plays a significant role in carbohydrate metabolism.
In the light of the above statements, choose the correct answer from the options given below :

(1) Both Statement I and Statement II are true
(2) Both Statement I and Statement II are false
(3) Statement I is correct but Statement II is false
(4) Statement I is incorrect but Statement II is true

174. Select incorrect statement, regarding chemical structure of insulin.

(1) C-peptide is not present in mature insulin molecule.
(2) Polypeptide chains A and B are linked by disulphide bridges.
(3) Mature insulin molecule consists of three polypeptide chains - A, B and C.
(4) Insulin is synthesized as prohormone which contains extra stretch of C-peptide.

175. Arrange the sequence of different hormones for their role during gametogenesis.
(A) Gonadotropin LH stimulates synthesis and secretion of Androgen
(B) Gonadotropin releasing hormone from hypothalamus
(C) Androgen stimulates spermatogenesis
(D) Gonadotropin FSH helps in the process of spermiogenesis
(E) Gonadotropins from anterior pituitary gland
Choose the correct answer from the options given below:

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

Answer Key

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

133.B	**134**.D	**135**.D	**136**.A	**137**.B	**138**.B	**139**.A	**140**.C	**141**.A	**142**.C	**143**.C
144.C	**145**.C	**146**.C	**147**.A	**148**.D	**149**.B	**150**.B	**151**.B	**152**.A	**153**.A	**154**.B
155.C	**156**.D	**157**.A	**158**.C	**159**.C	**160**.B	**161**.C	**162**.C	**163**.C	**164**.C	**165**.A
166.C	**167**.B	**168**.A	**169**.C	**170**.B	**171**.C	**172**.D	**173**.C	**174**.C	**175**.A	

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