

NEET 2019 Odisha – Previous Year Question Paper

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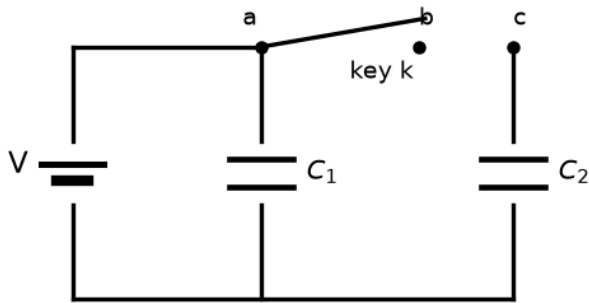
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Physics · 36 Qs

- Two metal spheres, one of radius R and the other of radius $2R$, have the same surface charge density σ . They are brought in contact and then separated. What will be the new surface charge densities on them?
(1) $\sigma_1 = 5\sigma/6, \sigma_2 = 5\sigma/2$ (2) $\sigma_1 = 5\sigma/2, \sigma_2 = 5\sigma/6$
(3) $\sigma_1 = 5\sigma/2, \sigma_2 = 5\sigma/3$ (4) $\sigma_1 = 5\sigma/3, \sigma_2 = 5\sigma/6$
- A sphere encloses an electric dipole with charges $\pm 3 \times 10^{-6}$ C. What is the total electric flux across the sphere?
(1) -3×10^{-6} N m²/C (2) zero
(3) 3×10^{-6} N m²/C (4) 6×10^{-6} N m²/C
- The main scale of a vernier calliper has n divisions/cm. n divisions of the vernier scale coincide with $(n-1)$ divisions of the main scale. The least count of the vernier calliper is:
(1) $1/[n(n+1)]$ cm (2) $1/n$ cm
(3) $1/n^2$ cm (4) $1/[n(n-1)]$ cm
- Two metal spheres, one of radius R and the other of radius $2R$ respectively have the same surface charge density σ . They are brought in contact and separated. What will be the new surface charge densities on them?
(1) $\sigma_1 = 5\sigma/6, \sigma_2 = 5\sigma/2$ (2) $\sigma_1 = 5\sigma/2, \sigma_2 = 5\sigma/6$
(3) $\sigma_1 = 5\sigma/2, \sigma_2 = 5\sigma/3$ (4) $\sigma_1 = 5\sigma/3, \sigma_2 = 5\sigma/6$

5. Two identical capacitors C_1 and C_2 of equal capacitance are connected as shown. Terminals a and b of key k are connected to charge capacitor C_1 using a battery of emf V . Now disconnecting a and b, the terminals b and c are connected. Due to this, what will be the percentage loss of energy?

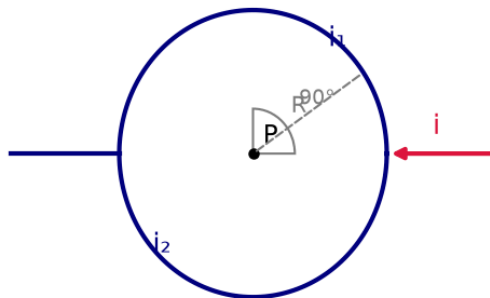


- (1) 75% (2) 0%
 (3) 50% (4) 25%

6. A particle of mass $5m$ at rest suddenly breaks on its own into three fragments. Two fragments, of mass m each, move along mutually perpendicular directions with speed v each. The energy released during the process is:

- (1) $(5/3)mv^2$ (2) $(3/5)mv^2$
 (3) $(2/3)mv^2$ (4) $(4/3)mv^2$

7. A straight conductor carrying current i splits into two parts as shown in the figure. The radius of the circular loop is R . The total magnetic field at the centre P of the loop is:

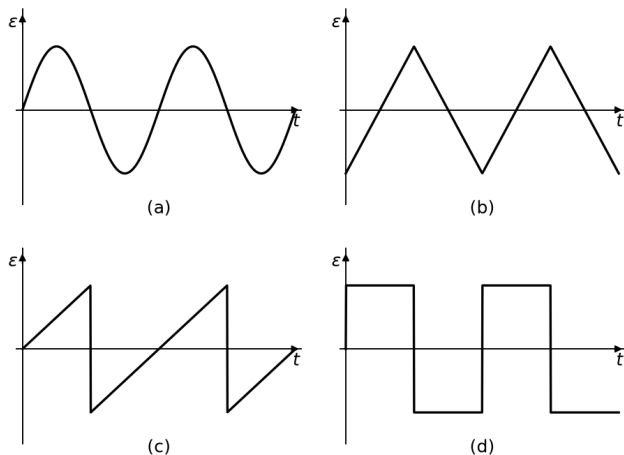


- (1) Zero (2) $3\mu_0 i / 32R$, outward
 (3) $3\mu_0 i / 32R$, inward (4) $\mu_0 i / 2R$, inward

8. A cycle wheel of radius 0.5 m is rotated with constant angular velocity of 10 rad/s in a region of magnetic field of 0.1 T which is perpendicular to the plane of the wheel. The EMF generated between its centre and the rim is,

- (1) 0.25 V (2) 0.125 V
 (3) 0.5 V (4) zero

9. The variation of EMF with time for four types of generators are shown in the figures. Which amongst them can be called AC?



(1) and (d)

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

(3) and (b)

(4) only (a)

10. A particle starts from rest and moves in a circle of radius r , attaining speed V_0 in the n -th round. Its angular acceleration is:

(1) V_0/n

(2) $V_0^2/(2 \pi n r^2)$

(3) $V_0^2/(4 \pi n r^2)$

(4) $V_0^2/(4 \pi n r)$

11. Taking gravitational potential energy at infinity to be zero, the change in PE (final – initial) of a mass m raised to height h above the earth's surface (radius R) is:

(1) $GMm/(R+h)$

(2) $GMmh/(R(R+h))$

(3) mgh

(4) $-GMm/(R+h)$

12. A satellite has period 24 h at height $6R_E$ from the earth's surface. The period of another satellite at height $2.5 R_E$ from the surface is:

(1) $6\sqrt{2}$ h

(2) $12\sqrt{2}$ h

(3) $24/\sqrt{2.5}$ h

(4) $12/\sqrt{2.5}$ h

13. A mass falls from height h and its fall-time t is measured in units of the period T of a simple pendulum. On earth $t = 2T$. The setup is taken to another planet of half the earth's mass and the same radius, giving times t' and T' . Then:

(1) $t' = 2T'$

(2) $t' > 2T'$

(3) $t' < 2T'$

(4) cannot be determined

14. For a transparent medium the relative permeability and permittivity μ_r and ϵ_r are 1.0 and 1.44 respectively. The velocity of light in this medium would be

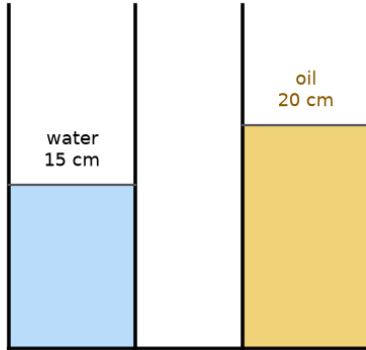
(1) 2.5×10^8 m/s

(2) 3×10^8 m/s

(3) 2.08×10^8 m/s

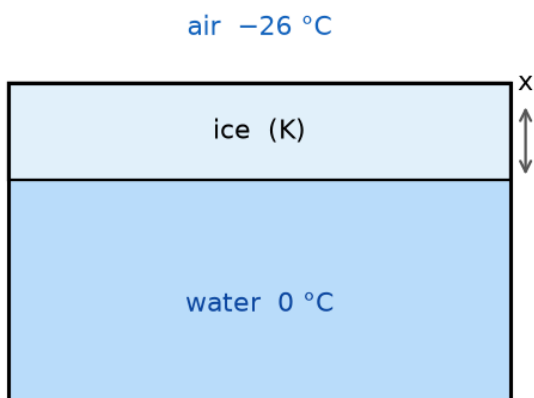
(4) 4.32×10^8 m/s

18. In a U-tube, water and oil are in the left and right arms respectively. The heights of the water and oil columns (measured from the bottom) are 15 cm and 20 cm respectively. The density of the oil is: (take $\rho_{\text{water}} = 1000 \text{ kg m}^{-3}$)



- (1) 1200 kg m^{-3} (2) 750 kg m^{-3}
(3) 1000 kg m^{-3} (4) 1333 kg m^{-3}
-
19. An equiconvex lens has power P . It is cut into two symmetrical halves by a plane containing the principal axis. The power of one part will be:
- (1) 0 (2) $P/2$
(3) $P/4$ (4) P
-
20. A double convex lens has focal length 25 cm. The radius of curvature of one of the surfaces is double that of the other. Find the radii if the refractive index of the material of the lens is 1.5:
- (1) 100 cm, 50 cm (2) 25 cm, 50 cm
(3) 18.75 cm, 37.5 cm (4) 50 cm, 100 cm
-
21. An object kept in a large room (air temperature 25°C) takes 12 minutes to cool from 80°C to 70°C . The time taken by the same object to cool from 70°C to 60°C would be nearly:
- (1) 10 min (2) 12 min
(3) 20 min (4) 15 min

22. A deep pond is covered by a frozen ice layer of thickness x while the outside air is at a steady $-26\text{ }^\circ\text{C}$ (water below is at $0\text{ }^\circ\text{C}$). The ice has thermal conductivity K , density ρ and specific latent heat of fusion L . The rate of increase of the thickness of the ice layer at this instant is:



- (1) $26K / \rho(L - 4s)$ (2) $26K / (x^2 - L)$
 (3) $26K / (x\rho L)$ (4) $26K / \rho(L + 4s)$
-
23. The angular width of the central maximum in the Fraunhofer diffraction for $\lambda = 6000\text{ \AA}$ is θ_0 . When the same slit is illuminated by another monochromatic light, the angular width decreases by 30%. The wavelength of this light is
- (1) 1800 \AA (2) 4200 \AA
 (3) 6000 \AA (4) 420 \AA
-
24. In a Young's double slit experiment, if there is no initial phase difference between the light from the two slits, a point on the screen corresponding to the fifth minimum has path difference
- (1) $5\lambda/2$ (2) $10\lambda/2$
 (3) $9\lambda/2$ (4) $11\lambda/2$
-
25. A proton and an α -particle are accelerated from rest to the same energy. The de Broglie wavelengths λ_p and λ_α are in the ratio:
- (1) $\sqrt{2} : 1$ (2) $1 : 1$
 (3) $2 : 1$ (4) $4 : 1$
-
26. The work function of a photosensitive material is 4.0 eV . The longest wavelength of light that can cause photoemission from the substance is (approximately):
- (1) 3100 nm (2) 966 nm
 (3) 31 nm (4) 310 nm
-
27. An ideal gas expands isothermally from 10^{-3} m^3 to 10^{-2} m^3 at 300 K against a constant external pressure of 10^5 N/m^2 . The work done ON the gas is
- (1) $+270\text{ kJ}$ (2) -900 J
 (3) $+900\text{ kJ}$ (4) -900 kJ

28. The radius of the first permitted Bohr orbit for the electron in a hydrogen atom is 0.51 \AA and its ground state energy is -13.6 eV . If the electron in hydrogen is replaced by a muon (μ) [charge same as electron, mass $207 m_e$], the first Bohr radius and ground state energy will be:

- (1) $0.53 \times 10^{-13} \text{ m}$, -3.6 eV (2) $25.6 \times 10^{-13} \text{ m}$, -2.8 eV
(3) $2.56 \times 10^{-13} \text{ m}$, -2.8 keV (4) $2.56 \times 10^{-13} \text{ m}$, -13.6 eV

29. In hydrogen atom, the de Broglie wavelength of an electron in the second Bohr orbit is: [Given Bohr radius $a_0 = 52.9 \text{ pm}$]

- (1) 211.6 pm (2) $211.6\pi \text{ pm}$
(3) $52.9\pi \text{ pm}$ (4) 105.8 pm

30. An ideal gas expands isothermally from 10^{-3} m^3 to 10^{-2} m^3 at 300 K against a constant external pressure of 10^5 N m^{-2} . The work done on the gas is:

- (1) $+270 \text{ kJ}$ (2) -900 J
(3) $+900 \text{ kJ}$ (4) -900 kJ

31. The rate of radioactive disintegration at an instant for a radioactive sample of half-life $2.2 \times 10^9 \text{ s}$ is 10^{10} s^{-1} . The number of radioactive atoms in that sample at that instant is: (Out of syllabus)

- (1) 3.17×10^{20} (2) 3.17×10^{17}
(3) 3.17×10^{18} (4) 3.17×10^{19}

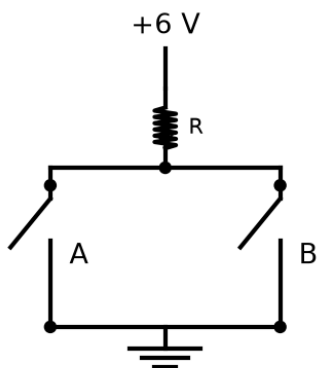
32. The distance covered by a particle undergoing SHM in one time period is (amplitude = A)

- (1) Zero (2) A
(3) $2A$ (4) $4A$

33. A mass falls from a height h and its time of fall t is recorded in terms of the time period T of a simple pendulum. On the surface of the earth it is found that $t = 2T$. The entire set-up is taken to another planet whose mass is half that of the earth and whose radius is the same. The experiment is repeated and the corresponding times are t' and T' . Then

- (1) $t' = 2T'$ (2) $t' > 2T'$
(3) $t' < 2T'$ (4) $t' = T'$

34. The circuit diagram shown here corresponds to the logic gate:



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

35. An LED is constructed from a p-n junction diode using GaAsP. The energy gap is 1.9 eV. The wavelength of the light emitted will be equal to:

- (1) 10.4×10^{-26} m (2) 654 nm
(3) 654 Å (4) 654×10^{-11} m

36. A tuning fork of frequency 800 Hz produces resonance in a resonance-column tube (upper end open, lower end closed by the water surface). Successive resonances occur at lengths 9.75 cm, 31.25 cm and 52.75 cm. The speed of sound in air is:

- (1) 500 ms^{-1} (2) 156 ms^{-1}
(3) 344 ms^{-1} (4) 172 ms^{-1}

Chemistry · 30 Qs

37. Which of the following statements is correct regarding a solution of two compounds A and B exhibiting positive deviation from ideal behaviour?

- (1) Intermolecular attractive forces between A-A and B-B are stronger than those between A-B. (2) $\Delta_{mix}H = 0$ at constant T and P
(3) $\Delta_{mix}V = 0$ at constant T and P (4) Intermolecular attractive forces between A-A and B-B are equal to those between A-B.

38. In water-saturated air the mole fraction of water vapour is 0.02. If the total pressure of the saturated air is 1.2 atm, the partial pressure of dry air is:

- (1) 1.18 atm (2) 1.76 atm
(3) 1.176 atm (4) 0.98 atm

39. The density of a 2 M aqueous solution of NaOH is 1.28 g/cm^3 . The molality of the solution is [Given that molar mass of NaOH = 40 g mol^{-1}]:
- (1) 1.20 m (2) 1.56 m
(3) 1.67 m (4) 1.32 m
-
40. The density of a 2 M aqueous solution of NaOH is 1.28 g cm^{-3} . The molality of the solution is (molar mass of NaOH = 40 g mol^{-1})
- (1) 1.20 m (2) 1.56 m
(3) 1.67 m (4) 1.32 m
-
41. Following limiting molar conductivities are given as
 $\Lambda_m^\circ(\text{H}_2\text{SO}_4) = x \text{ S cm}^2 \text{ mol}^{-1}$
 $\Lambda_m^\circ(\text{K}_2\text{SO}_4) = y \text{ S cm}^2 \text{ mol}^{-1}$
 $\Lambda_m^\circ(\text{CH}_3\text{COOK}) = z \text{ S cm}^2 \text{ mol}^{-1}$
 Λ_m° (in $\text{S cm}^2 \text{ mol}^{-1}$) for CH_3COOH will be :
- (1) $x - y + 2z$ (2) $x + y - z$
(3) $x - y + z$ (4) $\frac{x - y}{2} + z$
-
42. The standard electrode potential (E°) values of Al^{3+}/Al , Ag^+/Ag , K^+/K and Cr^{3+}/Cr are -1.66 V , 0.80 V , -2.93 V and -0.74 V , respectively. The correct decreasing order of the reducing power of the metals is:
- (1) $\text{Ag} > \text{Cr} > \text{Al} > \text{K}$ (2) $\text{K} > \text{Al} > \text{Cr} > \text{Ag}$
(3) $\text{K} > \text{Al} > \text{Ag} > \text{Cr}$ (4) $\text{Al} > \text{K} > \text{Ag} > \text{Cr}$
-
43. An orbital having 3 angular nodes and 3 total nodes is:
- (1) $5p$ (2) $3d$
(3) $4f$ (4) $6d$
-
44. In a hydrogen atom, the de Broglie wavelength of an electron in the second Bohr orbit is: [Given that Bohr radius $a_0 = 52.9 \text{ pm}$]
- (1) 211.6 pm (2) $211.6\pi \text{ pm}$
(3) $52.9\pi \text{ pm}$ (4) 105.8 pm
-
45. A first order reaction has a rate constant of $2.303 \times 10^{-3} \text{ s}^{-1}$. The time required for 40 g of this reactant to reduce to 10 g will be (Given $\log_{10} 2 = 0.3010$):
- (1) 230.3 s (2) 301 s
(3) 2000 s (4) 602 s
-
46. For a reaction, the activation energy $E_a = 0$ and the rate constant at 200 K is $1.6 \times 10^6 \text{ s}^{-1}$. The rate constant at 400 K will be (Given $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$):
- (1) $3.2 \times 10^4 \text{ s}^{-1}$ (2) $1.6 \times 10^6 \text{ s}^{-1}$
(3) $1.6 \times 10^3 \text{ s}^{-1}$ (4) $3.2 \times 10^6 \text{ s}^{-1}$

47. Match the oxide given in Column-A with its property given in Column-B:

Column-A:

(i) Na_2O

(ii) Al_2O_3

(iii) N_2O

(iv) Cl_2O_7

Column-B:

(a) Neutral

(b) Basic

(c) Acidic

(d) Amphoteric

Which of the following options has all correct pairs?

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

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

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

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

48. 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.

49. [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.

50. Which of the following is paramagnetic?

(1) N_2

(2) H_2

(3) Li_2

(4) O_2

51. Which of the following is the correct order of dipole moment?

(1) $\text{NH}_3 < \text{BF}_3 < \text{NF}_3 < \text{H}_2\text{O}$

(2) $\text{BF}_3 < \text{NF}_3 < \text{NH}_3 < \text{H}_2\text{O}$

(3) $\text{BF}_3 < \text{NH}_3 < \text{NF}_3 < \text{H}_2\text{O}$

(4) $\text{H}_2\text{O} < \text{NF}_3 < \text{NH}_3 < \text{BF}_3$

52. The number of hydrogen bonded water molecule(s) associated with $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ is:

(1) 3

(2) 1

(3) 2

(4) 5

53. Identify the incorrect statement.

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

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

(3) Cr^{2+} (d^4) is a stronger reducing agent than Fe^{2+} (d^6) in water.

(4) The transition metals and their compounds are known for their catalytic activity due to their ability to adopt multiple oxidation states and to form complexes.

54. The hydrolysis reaction (with aq. NaOH) that takes place at the slowest rate, among the following, is :

- (1) chloro-dimethylbenzene (aryl chloride) $\xrightarrow{\text{aq. NaOH}}$ phenol derivative
- (2) $\text{CH}_3\text{CH}_2\text{Cl} \xrightarrow{\text{aq. NaOH}} \text{CH}_3\text{CH}_2\text{OH}$ (ethyl chloride)
- (3) $\text{CH}_2=\text{CH}-\text{CH}_2\text{Cl} \xrightarrow{\text{aq. NaOH}} \text{CH}_2=\text{CH}-\text{CH}_2\text{OH}$ (allyl chloride)
- (4) $\text{C}_6\text{H}_5-\text{CH}_2\text{Cl} \xrightarrow{\text{aq. NaOH}} \text{C}_6\text{H}_5-\text{CH}_2\text{OH}$ (benzyl chloride)

55. The reaction that does not give benzoic acid as the major product is:

- (1) $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$ with $\text{K}_2\text{Cr}_2\text{O}_7$
- (2) $\text{C}_6\text{H}_5\text{COCH}_3$ with (i) NaOCl; (ii) H_3O^+
- (3) $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$ with PCC (pyridinium chlorochromate)
- (4) $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$ with KMnO_4/H^+

56. When the vapours of a secondary alcohol are passed over heated copper at 573 K, the product formed is:

- (1) a carboxylic acid
- (2) an aldehyde
- (3) a ketone
- (4) an alkene

57. The major products C and D formed in the following reaction respectively are:



- (1) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{I}$ and $\text{I}-\text{C}(\text{CH}_3)_3$
- (2) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{OH}$ and $\text{I}-\text{C}(\text{CH}_3)_3$
- (3) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{I}$ and $\text{HO}-\text{C}(\text{CH}_3)_3$
- (4) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{OH}$ and $\text{HO}-\text{C}(\text{CH}_3)_3$

58. The reaction that does not give benzoic acid as the major product is:

- (1) $\text{C}_6\text{H}_5-\text{CH}_2\text{OH} \xrightarrow{\text{K}_2\text{Cr}_2\text{O}_7}$
- (2) $\text{C}_6\text{H}_5-\text{COCH}_3 \xrightarrow[\text{(2) } \text{H}_3\text{O}^+]{\text{(1) NaOCl}}$
- (3) $\text{C}_6\text{H}_5-\text{CH}_2\text{OH} \xrightarrow{\text{PCC}}$
- (4) $\text{C}_6\text{H}_5-\text{CH}_2\text{OH} \xrightarrow[\text{H}^+]{\text{KMnO}_4}$

59. Which of the following oxoacids of phosphorus has the strongest reducing property?

- (1) $\text{H}_4\text{P}_2\text{O}_7$
- (2) H_3PO_3
- (3) H_3PO_2
- (4) H_3PO_4

60. The standard electrode potential (E°) values of Al^{3+}/Al , Ag^+/Ag , K^+/K and Cr^{3+}/Cr are -1.66 V, 0.80 V, -2.93 V and -0.74 V, respectively. The correct decreasing order of reducing power of the metals is

- (1) $\text{Ag} > \text{Cr} > \text{Al} > \text{K}$
- (2) $\text{K} > \text{Al} > \text{Cr} > \text{Ag}$
- (3) $\text{K} > \text{Al} > \text{Ag} > \text{Cr}$
- (4) $\text{Al} > \text{K} > \text{Ag} > \text{Cr}$

61. The amine that reacts with Hinsberg's reagent to give an alkali-insoluble product is:

- (1) $(\text{CH}_3)_2\text{CH}-\text{NH}-\text{CH}(\text{CH}_3)_2$ (a secondary amine, diisopropylamine)
- (2) $(\text{C}_2\text{H}_5)_3\text{N}$ (a tertiary amine, triethylamine)
- (3) $\text{CH}_3-\text{C}(\text{NH}_2)(\text{CH}_3)-\text{CH}_2\text{CH}_2\text{CH}_3$ (a primary amine)
- (4) $(\text{CH}_3)_2\text{C}(\text{H})-\dots-\text{CH}(\text{NH}_2)\text{CH}_3$ primary amine
 $(\text{CH}_3)_3\text{C}-\text{CH}(\text{NH}_2)\text{CH}_3$

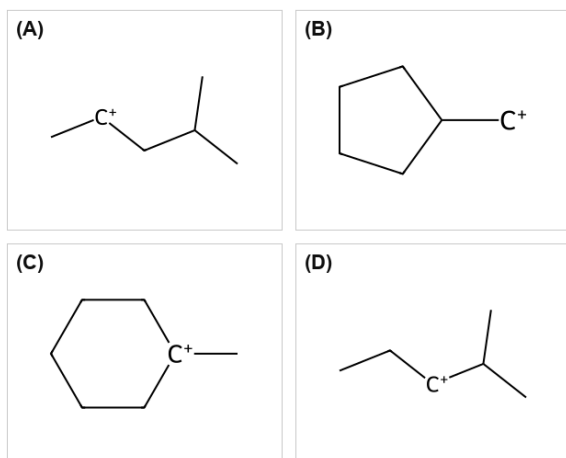
62. [NEET 2016 Phase 1 · NEET 2017 · NEET 2019 · NEET 2019 Odisha · NEET 2020 · NEET 2021 · NEET 2023 Phase 2]
Which of the following statements is not correct?

- (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

63. Which structure(s) of proteins remain(s) intact during the denaturation process?

- (1) Both secondary and tertiary structures
(2) Primary structure only
(3) Secondary structure only
(4) Tertiary structure only

64. The most stable carbocation among the following is:



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

65. The alkane that gives only one mono-chloro product on chlorination with Cl_2 in presence of diffused sunlight is:

- (1) 2,2-dimethylbutane (2) neopentane
(3) n-pentane (4) isopentane

66. In the following reaction, $\text{H}_3\text{C}-\text{C}\equiv\text{CH}$ is passed through a red hot iron tube at 873 K to give product A. The number of sigma (σ) bonds present in the product A is:

- (1) 21 (2) 9
(3) 24 (4) 18

Biology · 67 Qs

67. What type of pollination takes place in Vallisneria?

- (1) Pollination occurs in submerged condition by water
(2) Flowers emerge above surface of water, and pollination occurs by insects.
(3) Flowers emerge above water surface, and pollen is carried by wind.
(4) Male flowers are carried by water currents to female flowers at surface of water

68. In which one of the following, both autogamy and geitonogamy are prevented?

- (1) Wheat (2) Papaya
(3) Castor (4) Maize

69. Which is the most common type of embryo sac in angiosperms ?

- (1) Tetrasporic with one mitotic stage of divisions (2) Monosporic with three sequential mitotic divisions
(3) Monosporic with two sequential mitotic divisions (4) Bisporic with two sequential mitotic divisions

70. Which of the following is against the rules of ICBN?

- (1) Hand written scientific names should be underlined. (2) Every species should have a generic name and a specific epithet.
(3) Scientific names are in Latin and should be italicised. (4) Generic and specific names should be written starting with small letters.

71. The contrasting characteristics generally in a pair, used for identification of animals in a Taxonomic Key, are referred to as: (Out of syllabus, but asked in NEET earlier)

- (1) Lead (2) Couplet
(3) Doublet (4) Alternate

72. 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

73. Match the organisms in Column I with their habitats in Column II:

Column I

- (a) Halophiles
(b) Thermoacidophiles
(c) Methanogens
(d) Cyanobacteria

Column II

- (i) Hot springs
(ii) Aquatic environment
(iii) Guts of ruminants
(iv) Salty area

Select the correct answer from the options given below:

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

74. Which of the following statements about methanogens is not correct?

- (1) They can be used to produce biogas. (2) They are found in the rumen of cattle and their excreta
(3) They grow aerobically and breakdown cellulose- rich food. (4) They produce methane gas.
-

75. [NEET 2019 · NEET 2019 Odisha · NEET 2021 · ReNEET 2026] Which of the following statements is incorrect?

- (1) Morels and truffles are edible delicacies. (2) Claviceps is a source of many alkaloids and LSD.
(3) Conidia are produced exogenously and ascospores endogenously. (4) Yeasts have filamentous bodies with long thread-like hyphae.
-

76. [NEET 2017 · NEET 2018 · NEET 2019 · NEET 2019 Odisha · NEET 2020 · NEET 2021 · NEET 2023 Phase 1] Which of the following statements is correct

- (1) Lichens do not grow in polluted areas. (2) Algal component of lichens is called mycobiont.
(3) Fungal component of lichens is called phycobiont (4) Lichens are not good pollution indicators.
-

77. Mad cow disease in cattle is caused by an organism which has :-

- (1) inert crystalline structure (2) abnormally folded protein
(3) free RNA without protein coat (4) free DNA without protein coat
-

78. Which of the following hormones is responsible for both the milk ejection reflex and the foetal ejection reflex ?

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

79. No new follicles develop in the luteal phase of the menstrual cycle because

- (1) Follicles do not remain in the ovary after ovulation (2) FSH levels are high in the luteal phase
(3) LH levels are high in the luteal phase (4) Both FSH and LH levels are low in the luteal phase
-

80. [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
-

81. [NEET 2016 Phase 1 · NEET 2018 · NEET 2019 Odisha · NEET 2020] Select the correct statement:

- (1) Gymnosperms are both homosporous and heterosporous (2) Salvinia, ginkgo and pinus all are gymnosperms
(3) Sequoia is one of the tallest trees (4) The leaves of gymnosperms are not well adapted to extremes of climate
-

82. Which of the following sexually transmitted diseases do not specifically affect reproductive organs?

- (1) Genital warts and Hepatitis-B (2) Syphilis and Genital herpes
(3) AIDS and Hepatitis B (4) Chlamydia and AIDS
-

83. Which of the following animals are true coelomates with bilateral symmetry?

- (1) Adult Echinoderms (2) Aschelminthes
(3) Platyhelminthes (4) Annelids
-

84. Match the following genera with their respective phylum:

Column-I

- (a) Ophiura
(b) Physalia
(c) Pinctada
(d) Planaria

Column-II

- (i) Mollusca
(ii) Platyhelminthes
(iii) Echinodermata
(iv) Coelenterata

Select the correct option:

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

85. The production of gametes by the parents, the formation of zygotes, the F1 and F2 plants, can be understood using

- (1) Pie diagram (2) A pyramid diagram
(3) Punnet square (4) Wenn diagram
-

86. In a marriage between male with blood group A and female with blood group B, the progeny had either blood group AB or B. What could be the possible genotype of parents?

- (1) IAi (Male) : IBIB (Female) (2) IAIA (Male) : IBIB (Female)
(3) IAIA (Male) : IBi (Female) (4) IAi (Male) : IBi (Female)
-

87. In which genetic condition, each cell in the affected person, has three sex chromosomes XXY?

- (1) Thalassemia (2) Klinefelter's Syndrome
(3) Phenylketonuria (4) Turner's Syndrome
-

88. The production of gametes by the parents, formation of zygotes, the F1 and F2 plants can be understood from a diagram called

- (1) Punnett square (2) Net square
(3) Bullet square (4) Punch square
-

89. Crossing over takes place between which chromatids and in which stage of the cell cycle?

- (1) Non-sister chromatids of non-homologous chromosomes at Zygotene stage of prophase I. (2) Non-sister chromatids of homologous chromosomes at Pachytene stage of prophase I.
(3) Non-sister chromatids of homologous chromosomes at Zygotene stage of prophase I. (4) Non-sister chromatids of non-homologous chromosomes at Pachytene stage of prophase I.
-

90. Match the items of column I with column II:

Column I:

- (a) XX-XO method of sex determination
- (b) XX-XY method of sex determination
- (c) Karyotype-45
- (d) ZW-ZZ method of sex determination

Column II:

- (i) Turner's syndrome
- (ii) Female heterogametic
- (iii) Grasshopper
- (iv) Female homogametic

Select the correct option from the following:

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

91. Match the following RNA polymerase with their transcribed products :

Column I

- (a) RNA polymerase I
- (b) RNA polymerase II
- (c) RNA polymerase III

Column II

- (i) tRNA
- (ii) rRNA
- (iii) hnRNA

Select the correct option from the following

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

92. [NEET 2016 Phase 1 · NEET 2019 Odisha · ReNEET 2026] Which of the following statements about the lac-operon is correct?

- | | |
|--|---|
| (1) Gene <i>i</i> is constitutively expressed | (2) Lactose activates the repressor to bind to the operator |
| (3) Genes <i>i</i> , <i>z</i> , <i>y</i> and <i>a</i> share a single common promoter | (4) Galactose can act as an inducer of the lac operon |

93. From the following, identify the correct combination of salient features of Genetic Code

- | | |
|---|--|
| (1) Universal, Non-ambiguous, Overlapping | (2) Degenerate, Overlapping, Commaless |
| (3) Universal, Ambiguous, Degenerate | (4) Degenerate, Non-overlapping, Non-ambiguous |

94. Which scientist experimentally proved that DNA is the sole genetic material in bacteriophage ?

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

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

3'ATGCATGCATGCATG5' TEMPLATE STRAND

5'TACGTACGTACGTAC3' CODING STRAND

- | | |
|---------------------------|---------------------------|
| (1) 3'AUGCAUGCAUGCAUG5' | (2) 5'UACGUACGUACGUAC 3' |
| (3) 3' UACGUACGUACGUAC 5' | (4) 5' AUGCAUGCAUGCAUG 3' |

96. Which of the following nucleic acids is present in an organism having 70S ribosomes only ?

- (1) Single stranded DNA with protein coat (2) Double stranded circular naked DNA
(3) Double stranded DNA enclosed in nuclear membrane (4) Double stranded circular DNA with histone proteins
-

97. What initiation and termination factors are involved in transcription in Eukaryotes ?

- (1) σ and ρ , respectively (2) α and β , respectively
(3) β and γ , respectively (4) α and σ , respectively
-

98. In the process of transcription in Eukaryotes, the RNA polymerase I transcribes :-

- (1) mRNA with additional processing, capping and tailing (2) tRNA, 5 SrRNA and snRNAs
(3) rRNAs.28 S, 18 S and 5.8 S (4) Precursor of mRNA, hnRNA
-

99. Which of the following shows whorled phyllotaxy ? (NEET 2023 (Odisha))

- (1) Mustard (2) China rose
(3) Alstonia (4) Calotropis
-

100. Match the placental types (column-I) with their examples (column-II).

Column-I:

- (a) Basal,
(b) Axile,
(c) Parietal,
(d) Free central.

Column-II: (i) Mustard, (ii) China rose, (iii) Dianthus, (iv) Sunflower. (NEET 2023 (Odisha))

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

101. Bicarpeal ovary with obliquely placed septum is seen in :- (NEET 2023 (Odisha))

- (1) Brassica (2) Aloe
(3) Solanum (4) Sesbania
-

102. 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
-

103. In the dicot root the vascular cambium originates from :-

- (1) Tissue located below the phloem bundles and a portion of pericycle tissue above protoxylem. (2) Cortical region.
(3) Parenchyma between endodermis and pericycle. (4) Intrafascicular and interfascicular tissue in a ring.
-

104. Regeneration of damaged growing grass following grazing is largely due to :-

- | | |
|--------------------------|------------------------|
| (1) Lateral meristem | (2) Apical meristem |
| (3) Intercalary meristem | (4) Secondary meristem |

105. [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 |

106. In Australia, marsupials and placental mammals have evolved to share many similar characteristics. This type of evolution may be referred to as

- | | |
|------------------------|--------------------------|
| (1) Adaptive Radiation | (2) Divergent Evolution |
| (3) Cyclical Evolution | (4) Convergent Evolution |

107. A population of a species invades a new area. Which of the following condition will lead to Adaptive Radiation ?

- | | |
|--|---|
| (1) Area with large number of habitats having very low food supply | (2) Area with a single type of vacant habitat |
| (3) Area with many types of vacant habitats | (4) Area with many habitats occupied by a large number of species |

108. Which of the following statements is correct about the origin and evolution of men ?

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

109. Humans have acquired immune system that produces antibodies to neutralize pathogens. Still innate immune system is present at the time of birth because it

- | | |
|--|---|
| (1) is very specific and uses different macrophages. | (2) produces memory cells for mounting fast secondary response. |
| (3) has natural killer cells which can phagocytose and destroy microbes. | (4) provides passive immunity. |

110. Which of the following diseases is an autoimmune disorder?

- | | |
|-----------------------|---------------|
| (1) Myasthenia gravis | (2) Arthritis |
| (3) Osteoporosis | (4) Gout |

111. Coca alkaloid or cocaine is obtained from:

- | | |
|------------------------|-----------------------|
| (1) Papaver somniferum | (2) Atropa belladonna |
| (3) Erythroxylum coca | (4) Datura |

112. Match the following cell structure with its characteristic feature:

List I

- (a) Tight junctions
- (b) Adhering junctions
- (c) Gap junctions
- (d) Synaptic junctions

List II

- (i) Cement neighbouring cells together to form a sheet
- (ii) Transmit information through chemicals to another cell
- (iii) Establish a barrier to prevent leakage of fluid across epithelial cells
- (iv) Cytoplasmic channels to facilitate communication between adjacent cells

Select the correct option from the following:

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

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

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

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

113. Which of the following statements is INCORRECT?

(Out of syllabus but asked in last 3 years)

(1) Cockroaches exhibit mosaic vision with less sensitivity and more resolution.

(2) A mushroom-shaped gland is present in the 6th-7th abdominal segments of male cockroach.

(3) A pair of spermatheca is present in the 6th segment of female cockroach.

(4) Female cockroach possesses sixteen ovarioles in the ovaries.

114. The main difference between active and passive transport across cell membrane is :

(1) Passive transport is non-selective whereas active transport is selective

(2) Passive transport requires a concentration gradient across a biological membrane whereas active transport requires energy to move solutes

(3) Passive transport is confined to anionic carrier proteins whereas active transport is confined to cationic channel proteins

(4) Active transport occurs more rapidly than passive transport

115. Non-membranous nucleoplasmic structures in nucleus are the site for active synthesis of

(1) Protein synthesis

(2) mRNA

(3) rRNA

(4) tRNA

116. Which of the following cell organelles is present in the highest number in secretory cells ?

(1) Mitochondria

(2) Golgi complex

(3) Endoplasmic reticulum

(4) Lysosomes

117. [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

118. Match Column-I with Column-II:

Column I

- (a) Golgi apparatus
(b) Lysosomes
(c) Vacuoles
(d) Ribosomes

Column II

- (i) Synthesis of protein
(ii) Trap waste and excretory products
(iii) Formation of glycoproteins and glycolipids
(iv) Digesting biomolecules

Choose the right match from the options given below:

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

119. Prosthetic groups differ from co-enzymes in that :-

- (1) they require metal ions for their activity. (2) they (prosthetic groups) are tightly bound to apoenzymes.
- (3) their association with apoenzymes is transient. (4) they can serve as co-factors in a number of enzyme-catalyzed reactions.

120. "Ramachandran plot" is used to confirm the structure of :-

- (1) RNA (2) Proteins
- (3) Triacylglycerides (4) DNA

121. Given below are four statements pertaining to separation of DNA fragments using gel electrophoresis. Identify the incorrect statements.

- (a) DNA is negatively charged molecule and so it is loaded on gel towards the Anode terminal
(b) DNA fragments travel along the surface of the gel whose concentration does not affect movement of DNA.
(c) Smaller the size of DNA fragment larger is the distance it travels through it.
(d) Pure DNA can be visualized directly by exposing UV radiation.

Choose correct answer from the options given below

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

122. Match the following enzymes with their functions :

- (a) Restriction endonuclease (i) Joins the DNA fragments
- (b) Restriction exonuclease (ii) Extends primers on genomic DNA template
- (c) DNA ligase (iii) Cuts DNA at specific position
- (d) Taq polymerase (iv) Removes nucleotides from the ends of DNA

Select the correct option from the following

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

123. An enzyme catalysing the removal of nucleotides from ends of DNA is:

- | | |
|-----------------|------------------|
| (1) DNA ligase | (2) Endonuclease |
| (3) Exonuclease | (4) Protease |

124. The two antibiotic resistance genes on vector pBR322 are for

- | | |
|--------------------------------------|------------------------------------|
| (1) Ampicillin and Tetracycline | (2) Ampicillin and Chloramphenicol |
| (3) Chloramphenicol and Tetracycline | (4) Tetracycline and Kanamycin |

125. [NEET 2019 · NEET 2019 Odisha · NEET 2021 · ReNEET 2026] Which or the following statements is incorrect?

- | | |
|--|---|
| (1) Most commonly used bio-reactors are of stirring type. | (2) Bio-reactors are used to produce small scale bacterial cultures. |
| (3) Bio-reactors have an agitator system, an oxygen delivery system and foam control system. | (4) A bio-reactor provides optimal growth conditions for achieving the desired product. |

126. A selectable marker is used to:

- | | |
|---|--|
| (1) help in eliminating the non-transformants, so that the transformants can be regenerated | (2) identify the gene for a desired trait in an alien organism |
| (3) select a suitable vector for transformation in a specific crop | (4) mark a gene on a chromosome for isolation using restriction enzyme |

127. In RNAi, the genes are silenced using: (NEET 2019 (Odisha))

- | | |
|------------|------------|
| (1) ds-RNA | (2) ss-DNA |
| (3) ss-RNA | (4) ds-DNA |

128. After meiosis I, the resultant daughter cells have

- | | |
|---|--|
| (1) Same amount of DNA as in the parent cell in S phase | (2) Twice the amount of DNA in comparison to haploid gamete. |
| (3) Same amount of DNA in comparison to haploid gamete | (4) Four times the amount of DNA in comparison to haploid gamete |

129. [NEET 2019 · NEET 2019 Odisha · NEET 2021 · ReNEET 2026] Which out of the following statements is incorrect?

- | | |
|---|--|
| (1) Both ATP and NADPH + H ⁺ are synthesised during non-cyclic photophosphorylation. | (2) Stroma lamellae lack PS II and NADP reductase |
| (3) Grana lamellae have both PS I and PS II | (4) Cyclic photophosphorylation involves both PS I and PS II |

130. In Hatch and Slack pathway, the primary CO₂ acceptor is -

- (1) Oxaloacetic acid (2) Phosphoglyceric acid
(3) Phosphoenol pyruvate (4) Rubisco

131. One scientist cultured Cladophora in a suspension of Azotobacter and illuminated the culture by splitting light through a prism. He observed that bacteria accumulated mainly in the region of:

- (1) Violet and green light (2) Indigo and green light
(3) Orange and yellow light (4) Blue and red light

132. Exploration of molecular, genetic and species level diversity for novel products of economic importance is known as:

- (1) Biopiracy (2) Bioenergetics
(3) Bioremediation (4) Bioprospecting

133. Decline in the population of indian native fishes due to introduction of Clarias gariepinus in river Yamuna can be categorised as

- (1) Co-extinction (2) Habitat fragmentation
(3) Over exploitation (4) Alien species invasion

Answer Key

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