MedicNEET

NEET 2017 — Previous Year Question Paper

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Physics · 42 Qs

1. Suppose the charges of a proton and an electron differ slightly. One of them is −e, the other is (e + Δe). If the net of the electrostatic force and the gravitational force between two hydrogen atoms placed at a distance d (much greater than atomic size) apart is zero, then Δe is of the order of [Given: mass of hydrogen $m_h = 1.67 \times 10^{-27}$ kg]

(1) 10^{-20} C

(2) 10^{-23} C

(3) 10^{-37} C

(4) 10^{-47} C

2. A physical quantity of the dimensions of length that can be formed out of c, G and $e^2/(4\pi\varepsilon_0)$ is [c is velocity of light, G is universal constant of gravitation and e is charge]:

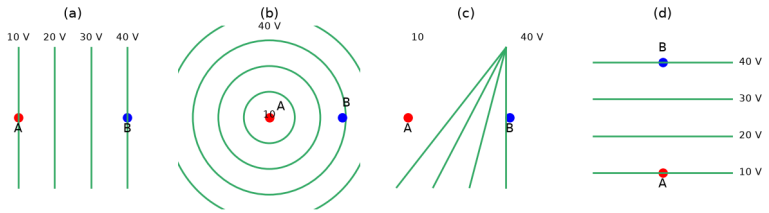
(1) $(1/c^2)[e^2/(4\pi\varepsilon_0 G)]^{(1/2)}$

(2) $(1/c^2)[e^2 G/(4\pi\varepsilon_0)]^{(1/2)}$

(3) $(1/c^2)[Ge^2/(4\pi\varepsilon_0)]^{(1/2)}$

(4) $Ge^2/(4\pi\varepsilon_0 c^2)$

3. The diagrams (a), (b), (c), (d) below show regions of equipotentials (with values 10 V, 20 V, 30 V, 40 V arranged differently). A positive charge is moved from A to B in each diagram. Which statement is correct?



(1) Maximum work is required to move q in figure (c).

(2) In all the four cases the work done is the same.

(3) Minimum work is required to move q in figure (a).

(4) Maximum work is required to move q in figure (b).

4. A capacitor is charged by a battery. The battery is removed and another identical uncharged capacitor is connected in parallel. The total electrostatic energy of resulting system

(1) Increases by a factor of 4

(2) Decreases by a factor of 2

(3) Remains the same

(4) Increases by a factor of 2

5. Preeti reached the metro station and found that the escalator was not working. She walked up the stationary escalator in time t_1. On other days, if she remains stationary on the moving escalator, then the escalator takes her up in time t_2. The time taken by her to walk up on the moving escalator will be:

(1) $\frac{t_1 t_2}{t_2 + t_1}$

(2) $\frac{t_1 t_2}{t_2 - t_1}$

(3) $\frac{t_1 + t_2}{2}$

(4) $t_1 - t_2$

6. The x and y coordinates of a particle at any time t are $x = 5t - 2t^2$ and $y = 10t$ respectively, where x and y are in metres and t in seconds. The acceleration of the particle at $t = 2$ s is:

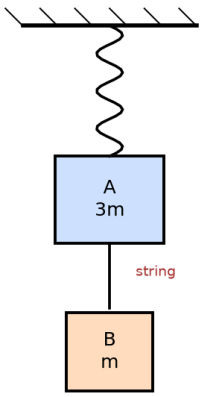
(1) 0

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

(3) $-4\ \mathrm{m/s^2}$

(4) $-8\ \mathrm{m/s^2}$

7. Two blocks A and B of masses 3m and m respectively are connected by a massless inextensible string. The whole system is suspended from a massless spring as shown. The magnitudes of the accelerations of A and B immediately after the string is cut are, respectively:



(1) g, g/3

(2) g/3, g

(3) g, g

(4) g/3, g/3

8. One end of a string of length l is connected to a particle of mass m and the other end to a small peg on a smooth horizontal table. If the particle moves in a circle with speed v, the net force on the particle (directed towards the centre) is (T = tension in the string):

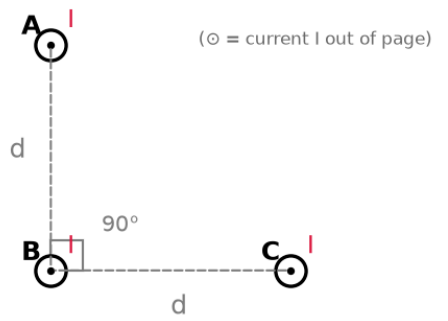
(1) T

(2) T – mv²/l

(3) T + mv²/l

(4) Zero

9. An arrangement of three parallel straight wires placed perpendicular to the plane of paper carrying the same current 'I' along the same direction is shown in the figure. The magnitude of the force per unit length on the middle wire 'B' is given by:



(1) $\mu_0 I^2/2\pi d$

(2) $\sqrt{2}\,\mu_0 I^2/\pi d$

(3) $\sqrt{3}\,\mu_0 I^2/2\pi d$

(4) $\sqrt{2}\,\mu_0 I^2/2\pi d$

10. A 250-turn rectangular coil of length 2.1 cm and width 1.25 cm carries a current of 85 A and is subjected to a magnetic field of strength 0.85 T. The work done for rotating the coil by 180° against the torque is:

(1) 9.1 J

(2) 4.55 J

(3) 2.3 J

(4) 1.15 J

11. A 250-turn rectangular coil of length 2.1 cm and width 1.25 cm carries a current of 85 A and is in a magnetic field of strength 0.85 T. The work done in rotating the coil by 180° against the torque is:

(1) 9.1 J

(2) 4.55 J

(3) 2.3 J

(4) 1.15 J

12. Consider a drop of rain water having mass 1 g falling from a height of 1 km. It hits the ground with a speed of 50 m/s. Take g constant with a value 10 m/s^2. The work done by the (i) gravitational force and the (ii) resistive force of air is

(1) (i) 1.25 J (ii) -8.25 J

(2) (i) 100 J (ii) 8.75 J

(3) (i) -10 J (ii) -8.25 J

(4) (i) 10 J (ii) -8.75 J

13. A long solenoid of diameter 0.1 m has 2×10^4 turns per meter. At the centre of the solenoid, a coil of 100 turns and radius 0.01 m is placed with its axis coinciding with the solenoid axis. The current in the solenoid reduces at a constant rate to 0 A from 4 A in 0.05 s. If the resistance of the coil is $10\ \pi^2$ ohm, the total charge flowing through the coil during this time is

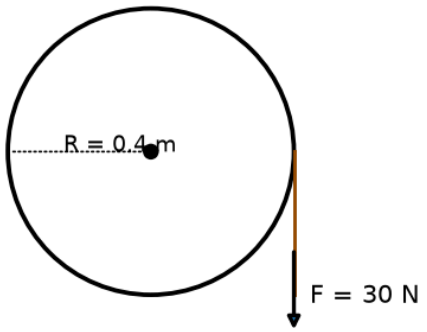
(1) $32\pi\ \mu C$

(2) 16 μC

(3) 32 μC

(4) $16\pi\ \mu C$

14. A rope wound on a hollow cylinder of mass 3 kg and radius 40 cm is pulled with a force of 30 N. The angular acceleration of the cylinder is:



Hollow cylinder M = 3 kg, R = 0.4 m; rope pulled with F = 30 N

(1) 25 m/s²

(2) 0.25 rad/s²

(3) 25 rad/s²

(4) 5 rad/s²

15. Which of the following statements are correct?
(a) The centre of mass of a body always coincides with its centre of gravity.
(b) The centre of mass is the point where the total gravitational torque on the body is zero.
(c) A couple on a body produces both translational and rotational motion.
(d) Mechanical advantage greater than one means a small effort can lift a large load.

(1) (b) and (d)

(2) (a) and (b)

(3) (b) and (c)

(4) (c) and (d)

16. Two discs of equal moment of inertia I, rotating about their common axis with angular speeds w1 and w2, are brought face-to-face into contact (axes coinciding). The loss of energy in the process is:

(1) (1/2) I (w1-w2)²

(2) (1/4) I (w1-w2)²

(3) I (w1-w2)²

(4) (1/8) I (w1-w2)²

17. The acceleration due to gravity at a height 1 km above the earth equals that at a depth d below the surface. Then:

(1) d = 1/2 km

(2) d = 1 km

(3) d = 3/2 km

(4) d = 2 km

18. Two astronauts are floating in gravitational free space after losing contact with their spaceship. The two will:

(1) keep floating at the same distance apart

(2) move towards each other

(3) move away from each other

(4) become stationary

19. In an electromagnetic wave in free space the root mean square value of the electric field is E_rms = 6 V/m. The peak value of the magnetic field is

(1) 1.41×10^{-8} T

(2) 2.83×10^{-8} T

(3) 0.70×10^{-8} T

(4) 4.23×10^{-8} T

20. The bulk modulus of a spherical object is B. If it is subjected to uniform pressure p, the fractional decrease in radius is

(1) p/B

(2) B/3p

(3) 3p/B

(4) p/3B

21. The resistance of a wire is R. If it is melted and stretched to n times its original length, its new resistance is:

(1) nR

(2) R/n

(3) n^2R

(4) R/n^2

22. A potentiometer is an accurate and versatile device to measure emf because the method involves:

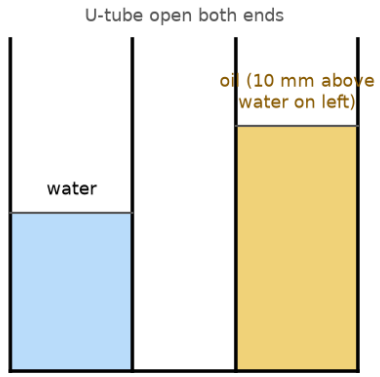
(1) cells

(2) potential gradients

(3) a condition of no current flow through the galvanometer

(4) a combination of cells, galvanometer and resistances

23. A U-tube with both ends open to the atmosphere is partially filled with water. Oil, which is immiscible with water, is poured into one side until it stands at a distance of 10 mm above the water level on the other side. Meanwhile the water rises by 65 mm from its original level (see figure). The density of the oil is:



(1) 650 kg m^{-3}

(2) 425 kg m^{-3}

(3) 800 kg m^{-3}

(4) 928 kg m^{-3}

24. A beam of light from a source L is incident normally on a plane mirror fixed at a certain distance x from the source. The beam is reflected back as a spot on a scale placed just above the source L. When the mirror is rotated through a small angle θ, the spot of light is found to move through a distance y on the scale. The angle θ is given by

(1) y/2x

(2) y/x

(3) 2x/y

(4) x/y

25. A thin prism having refracting angle 10° is made of glass of refractive index 1.42. This prism is combined with another thin prism of glass of refractive index 1.7. This combination produces dispersion without deviation. The refracting angle of the second prism should be

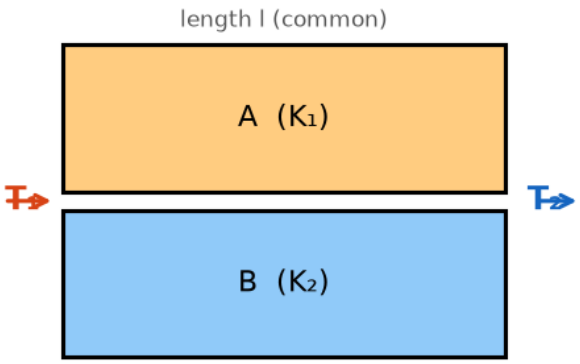
(1) 4°

(2) 6°

(3) 8°

(4) 10°

26. Two rods A and B of different materials are welded together side by side as shown in the figure. Their thermal conductivities are K_1 and K_2. The effective thermal conductivity of the composite rod (for heat flowing from the left face at T_1 to the right face at T_2) will be:



(1) $(K_1 + K_2)/2$ **(2)** $3(K_1 + K_2)/2$

(3) $K_1 + K_2$ **(4)** $2(K_1 + K_2)$

27. A spherical black body of radius 12 cm radiates 450 W power at 500 K. If the radius were halved and the temperature doubled, the power radiated (in watt) would be:

(1) 225 **(2)** 450

(3) 1000 **(4)** 1800

28. The ratio of resolving powers of an optical microscope for two wavelengths $\lambda_1 = 4000$ Å and $\lambda_2 = 6000$ Å is

(1) 8 : 27 **(2)** 9 : 4

(3) 3 : 2 **(4)** 16 : 81

29. Young's double slit experiment is first performed in air and then in a medium other than air. It is found that 8th bright fringe in the medium lies where 5th dark fringe lies in air. The refractive index of the medium is nearly

(1) 1.25 **(2)** 1.59

(3) 1.69 **(4)** 1.78

30. Two Polaroids P_1 and P_2 are placed with their axes perpendicular to each other. Unpolarised light I_0 is incident on P_1. A third polaroid P_3 is kept in between P_1 and P_2 such that its axis makes an angle 45° with that of P_1. The intensity of transmitted light through P_2 is

(1) $I_0/2$ **(2)** $I_0/4$

(3) $I_0/8$ **(4)** $I_0/16$

31. The photoelectric threshold wavelength of silver is 3250×10^{-10} m. The velocity of the electron ejected from a silver surface by ultraviolet light of wavelength 2536×10^{-10} m is (Given $h = 4.14 \times 10^{-15}$ eV·s and $c = 3 \times 10^8$ m/s):

(1) 6×10^5 m/s **(2)** 0.6×10^6 m/s

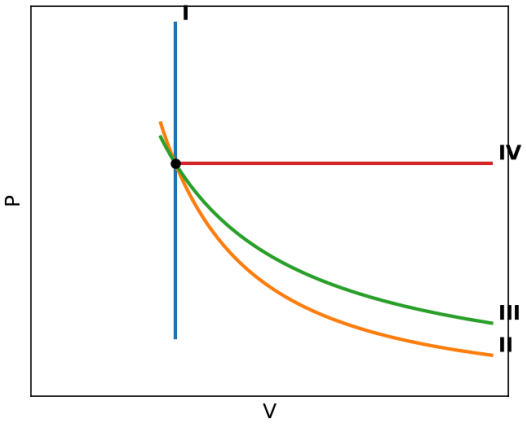
(3) 61×10^3 m/s **(4)** 0.3×10^6 m/s

32. The de Broglie wavelength of a neutron in thermal equilibrium with heavy water at a temperature T (kelvin) and mass m is:

(1) $h/\sqrt{(mkT)}$ **(2)** $h/\sqrt{(3mkT)}$

(3) $2h/\sqrt{(3mkT)}$ **(4)** $2h/\sqrt{(mkT)}$

33. The figure shows a P-V diagram with three isotherms at 700 K, 500 K and 300 K. Four processes I, II, III and IV start from a common initial state. Match each process with its type:\\ List-I (Process): I, II, III, IV\\ List-II (Type): (a) Adiabatic, (b) Isobaric, (c) Isochoric, (d) Isothermal.\\ Which of the following is the correct matching?



(1) I→a, II→c, III→d, IV→b

(2) I→c, II→a, III→d, IV→b

(3) I→d, II→a, III→c, IV→b

(4) I→b, II→c, III→a, IV→d

34. A Carnot engine having an efficiency of $\frac{1}{10}$ as a heat engine is used as a refrigerator. If the work done on the system is 10 J, the amount of energy absorbed from the reservoir at lower temperature is

(1) 1 J

(2) 90 J

(3) 99 J

(4) 100 J

35. The ratio of wavelengths of the last line of Balmer series and the last line of Lyman series is:

(1) 2

(2) 1

(3) 4

(4) 0.5

36. A gas mixture consists of 2 moles of O_2 and 4 moles of Ar at temperature T. Neglecting all vibrational modes, the total internal energy of the system is:

(1) 4 RT

(2) 15 RT

(3) 9 RT

(4) 11 RT

37. Radioactive material 'A' has decay constant '8λ' and material 'B' has decay constant 'λ'. Initially they have the same number of nuclei. After what time will the ratio of the number of nuclei of material 'A' to that of 'B' be 1/e? (Out of syllabus)

(1) 1/λ

(2) 1/7λ

(3) 1/8λ

(4) 1/9λ

38. A spring of force constant k is cut into lengths in the ratio 1 : 2 : 3. These pieces are first connected in series, giving force constant k′, and then in parallel, giving force constant k″. The ratio k′ : k″ is

(1) 1 : 6

(2) 1 : 9

(3) 1 : 11

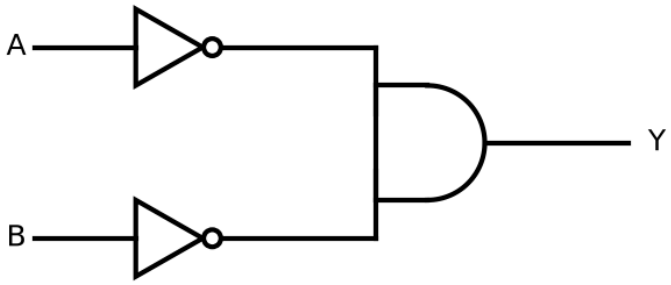
(4) 1 : 14

39. A particle executes linear simple harmonic motion with an amplitude of 3 cm. When the particle is at 2 cm from the mean position, the magnitude of its velocity equals the magnitude of its acceleration. Its time period (in seconds) is

(1) $5/(2\pi)$ **(2)** $(5\sqrt{2})/\pi$

(3) $(4\pi)/\sqrt{5}$ **(4)** $(2\pi)/\sqrt{3}$

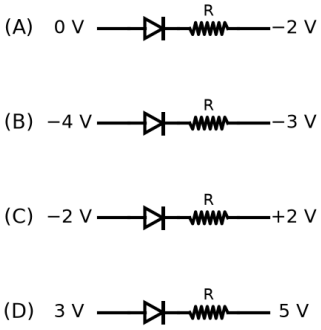
40. The given electrical network (with inputs A, B and output Y) is equivalent to:



(1) AND gate **(2)** OR gate

(3) NOR gate **(4)** NOT gate

41. Which one of the following represents a forward biased diode?



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

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

42. Two nearest (successive) harmonics of a tube closed at one end and open at the other are 220 Hz and 260 Hz. The fundamental frequency of the system is:

(1) 10 Hz **(2)** 20 Hz

(3) 30 Hz **(4)** 40 Hz

43. If molality of the dilute solution is doubled, the value of molal depression constant (K_f) will be

(1) Doubled
(2) Halved
(3) Tripled
(4) Unchanged

44. Which of the following is dependent on temperature?

(1) Molality
(2) Molarity
(3) Mole fraction
(4) Weight percentage

45. Which of the following concentration terms is dependent on temperature?

(1) Molality
(2) Molarity
(3) Mole fraction
(4) Mass percentage

46. In the electrochemical (Daniell) cell $\mathrm{Zn} \mid \mathrm{ZnSO_4(0.01\,M)} \,||\, \mathrm{CuSO_4(1.0\,M)} \mid \mathrm{Cu}$, the emf is E_1. When the concentration of $\mathrm{ZnSO_4}$ is changed to $1.0\ \mathrm{M}$ and that of $\mathrm{CuSO_4}$ to $0.01\ \mathrm{M}$, the emf changes to E_2. Which one of the following is the correct relationship between E_1 and E_2? (Given $\frac{RT}{F} = 0.059$)

(1) $E_1 = E_2$
(2) $E_1 < E_2$
(3) $E_1 > E_2$
(4) $E_2 = 0 \neq E_1$

47. Which one is the wrong statement?

(1) de Broglie's wavelength is given by $\lambda = \dfrac{h}{mv}$, where m = mass of the particle and v = group velocity of the particle

(2) The uncertainty principle is $\Delta E \cdot \Delta t \geq \dfrac{h}{4\pi}$

(3) Half-filled and fully filled orbitals have greater stability due to greater exchange energy, greater symmetry and more balanced arrangement

(4) The energy of the $2s$ orbital is less than the energy of the $2p$ orbital in case of hydrogen-like atoms

48. Which one is a wrong statement?

(1) The electronic configuration of the N atom is $1s^2\,2s^2\,2p_x^1\,2p_y^1\,2p_z^1$

(2) An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers

(3) Total orbital angular momentum of an electron in an s orbital is equal to zero

(4) The value of m for d_{z^2} is zero

49. [NEET 2016 Phase 2 · NEET 2017 · NEET 2023 Phase 1] Which one of the following statements is \textbf{not} correct?

(1) Catalyst does not initiate any reaction

(2) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

(3) Enzymes catalyse mainly bio-chemical reactions

(4) Coenzymes increase the catalytic activity of enzyme

50. A first order reaction has a specific reaction rate of $10^{-2}\ \mathrm{s^{-1}}$. How much time will it take for $20\ \mathrm{g}$ of the reactant to reduce to $5\ \mathrm{g}$?

(1) $238.6\ \mathrm{s}$
(2) $138.6\ \mathrm{s}$
(3) $346.5\ \mathrm{s}$
(4) $693.0\ \mathrm{s}$

51. Mechanism of a hypothetical reaction $X_2 + Y_2 \longrightarrow 2XY$ is given below:
(i) $X_2 \rightleftharpoons X + X$ (fast)
(ii) $X + Y_2 \rightleftharpoons XY + Y$ (slow)
(iii) $X + Y \longrightarrow XY$ (fast)
The overall order of the reaction will be

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

(3) 0 **(4)** 1.5

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52. It is because of inability of ns^2 electrons of the valence shell to participate in bonding that

(1) Sn^{2+} is reducing while Pb^{4+} is oxidising **(2)** Sn^{2+} is oxidising while Pb^{4+} is reducing

(3) Sn^{2+} and Pb^{2+} are both oxidising and reducing **(4)** Sn^{4+} is reducing while Pb^{4+} is oxidising

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53. The element $Z = 114$ has been discovered recently. It will belong to which of the following family/group and electronic configuration?

(1) Halogen family, $[Rn]\,5f^{14}\,6d^{10}\,7s^2\,7p^5$ **(2)** Carbon family, $[Rn]\,5f^{14}\,6d^{10}\,7s^2\,7p^2$

(3) Oxygen family, $[Rn]\,5f^{14}\,6d^{10}\,7s^2\,7p^4$ **(4)** Nitrogen family, $[Rn]\,5f^{14}\,6d^{10}\,7s^2\,7p^6$

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54. Which of the following pairs of ions is isoelectronic and isostructural?

(1) CO_3^{2-}, NO_3^- **(2)** ClO_3^-, CO_3^{2-}

(3) SO_3^{2-}, NO_3^- **(4)** ClO_3^-, SO_3^{2-}

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55. Which of the following pairs of compounds is isoelectronic and isostructural?

(1) $BeCl_2$, XeF_2 **(2)** TeI_2, XeF_2

(3) IBr_2^-, XeF_2 **(4)** IF_3, XeF_2

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56. Match the interhalogen compounds of Column I with the geometry in Column II and assign the correct code.
Column I: (a) XX', (b) XX_3', (c) XX_5', (d) XX_7'
Column II: (i) T-shape, (ii) Pentagonal bipyramidal, (iii) Linear, (iv) Square pyramidal, (v) Tetrahedral

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

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

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57. The most suitable method of separation of a 1 : 1 mixture of ortho- and para-nitrophenols is

(1) Sublimation **(2)** Chromatography

(3) Crystallisation **(4)** Steam distillation

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58. Which one of the following pairs of species have the same bond order?

(1) CO, NO **(2)** O_2^-, NO^+

(3) CN^-, CO **(4)** N_2, O_2^-

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59. [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.

60. The reason for greater range of oxidation states in actinoids is attributed to

(1) the radioactive nature of actinoids.

(2) actinoid contraction.

(3) $5f$, $6d$ and $7s$ levels having comparable energies.

(4) $4f$ and $5d$ levels being close in energies.

61. The correct order of the stoichiometries of $AgCl$ formed when $AgNO_3$ in excess is treated with the complexes $CoCl_3 \cdot 6\,NH_3$, $CoCl_3 \cdot 5\,NH_3$, $CoCl_3 \cdot 4\,NH_3$ respectively is:

(1) 1 $AgCl$, 3 $AgCl$, 2 $AgCl$

(2) 3 $AgCl$, 1 $AgCl$, 2 $AgCl$

(3) 3 $AgCl$, 2 $AgCl$, 1 $AgCl$

(4) 2 $AgCl$, 3 $AgCl$, 1 $AgCl$

62. Correct increasing order for the wavelengths of absorption in the visible region for the complexes of Co^{3+} is:

(1) $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(H_2O)_6]^{3+}$

(2) $[Co(H_2O)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$

(3) $[Co(H_2O)_6]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$

(4) $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(H_2O)_6]^{3+}$

63. An example of a sigma-bonded organometallic compound is:

(1) Ruthenocene

(2) Grignard's reagent

(3) Ferrocene

(4) Cobaltocene

64. Pick out the correct statement with respect to $[Mn(CN)_6]^{3-}$:

(1) It is sp^3d^2 hybridised and octahedral

(2) It is sp^3d^2 hybridised and tetrahedral

(3) It is d^2sp^3 hybridised and octahedral

(4) It is dsp^2 hybridised and square planar

65. Identify A and predict the type of reaction:

2-bromoanisole (an aryl bromide bearing an $-OCH_3$ group ortho to Br) $\xrightarrow{NaNH_2}$ A

(1) o-Methoxyaniline ($-NH_2$ ortho to $-OCH_3$); substitution reaction

(2) p-Methoxyaniline ($-NH_2$ para to $-OCH_3$); elimination-addition reaction

(3) m-Bromoanisole type product; cine substitution reaction

(4) m-Methoxyaniline; cine substitution reaction

66. A gas is allowed to expand in a well insulated container against a constant external pressure of $2.5\ atm$ from an initial volume of $2.50\ L$ to a final volume of $4.50\ L$. The change in internal energy ΔU of the gas in joules will be

(1) $1136.25\ J$

(2) $-500\ J$

(3) $-505\ J$

(4) $+505\ J$

67. For a given reaction, $\Delta H = 35.5\ kJ\,mol^{-1}$ and $\Delta S = 83.6\ J\,K^{-1}mol^{-1}$. The reaction is spontaneous at: (Assume that ΔH and ΔS do not vary with temperature.)

(1) $T < 425\ K$

(2) $T > 425\ K$

(3) All temperatures

(4) $T > 298\ K$

68. Which one is the most acidic compound?

(1) o-Cresol (2-methylphenol)

(2) Phenol C_6H_5OH

(3) o-Nitrophenol (2-nitrophenol)

(4) 2,4,6-Trinitrophenol (picric acid)

69. The heating of phenyl-methyl ether (anisole) with HI produces

(1) Ethyl chloride

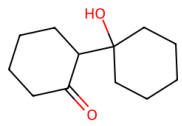
(2) Iodobenzene

(3) Phenol

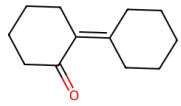
(4) Benzene

70. Which of the following is the product formed when cyclohexanone undergoes aldol condensation followed by heating?

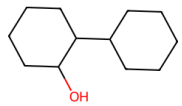
(A)



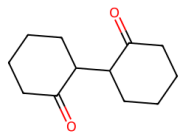
(B)



(C)



(D)



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

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

---

71. Consider the following reactions of X $(\mathrm{C_2H_6O})$:

$$\mathrm{X} \xrightarrow[573\,\mathrm{K}]{\mathrm{Cu}} \mathrm{A}$$

\ce{A ->[{[Ag(NH3)2]+, OH-}][\Delta] silver mirror}

$$\mathrm{A} \xrightarrow[\text{aldol}]{\mathrm{OH^-},\ \Delta} \mathrm{Y}$$

\ce{A ->[{H2N-NH-CO-NH2}] Z}

Identify A, X, Y and Z.

(1) A = methoxymethane, X = ethanoic acid, Y = acetate ion, Z = hydrazine

(2) A = methoxymethane, X = ethanol, Y = ethanoic acid, Z = semicarbazide

(3) A = ethanal, X = ethanol, Y = but-2-enal, Z = semicarbazone

(4) A = ethanol, X = acetaldehyde, Y = butanone, Z = hydrazone

---

72. The IUPAC name of the compound $\mathrm{OHC-CH(CH_3)-CO-CH=CH-CH_3}$ is:

(1) 3-keto-2-methylhex-4-enal

(2) 5-formylhex-2-en-3-one

(3) 5-methyl-4-oxohex-2-en-5-al

(4) 3-keto-2-methylhex-5-enal

---

73. Name the gas that can readily decolourise acidified $\mathrm{KMnO_4}$ solution:

(1) $\mathrm{CO_2}$

(2) $\mathrm{SO_2}$

(3) $\mathrm{NO_2}$

(4) $\mathrm{P_2O_5}$

---

74. The correct increasing order of basic strength for the following compounds is

(I) Aniline, $\mathrm{C_6H_5NH_2}$

(II) p-Nitroaniline, $\mathrm{NH_2-C_6H_4-NO_2}$ ($-\mathrm{NO_2}$ at the para position)

(III) p-Toluidine, $\mathrm{NH_2-C_6H_4-CH_3}$ ($-\mathrm{CH_3}$ at the para position)

(1) II < III < I

(2) III < I < II

(3) III < II < I

(4) II < I < III

75. Which of the following reactions is appropriate for converting acetamide (CH_3CONH_2) to methanamine (CH_3NH_2)?

(1) Carbylamine reaction

(2) Hoffmann hypobromamide (bromamide) reaction

(3) Stephen's reaction

(4) Gabriel's phthalimide synthesis

---

76. [NEET 2016 Phase 2 · NEET 2017 · NEET 2023 Phase 1] Which one of the following statements is not correct?

(1) Catalyst does not initiate any reaction

(2) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

(3) Enzymes catalyse mainly bio-chemical reactions

(4) Coenzymes increase the catalytic activity of enzyme

---

77. [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

---

78. Which one is the correct order of acidity?

(1)
$CH_2{=}CH_2 > CH_3{-}CH{=}CH_2 > CH_3{-}C{\equiv}CH > CH{\equiv}CH$

(2)
$CH{\equiv}CH > CH_3{-}C{\equiv}CH > CH_2{=}CH_2 > CH_3{-}CH_3$

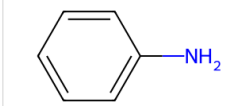
(3) $CH{\equiv}CH > CH_2{=}CH_2 > CH_3{-}C{\equiv}CH > CH_3{-}CH_3$

(4)
$CH_3{-}CH_3 > CH_2{=}CH_2 > CH_3{-}C{\equiv}CH > CH{\equiv}CH$

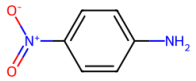
---

79. The correct increasing order of basic strength for the following compounds is: (I) aniline, (II) p-nitroaniline, (III) p-toluidine (4-methylaniline).

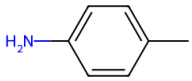
I



II



III



(1) II < III < I

(2) III < I < II

(3) III < II < I

(4) II < I < III

---

80. The correct statement regarding an electrophile is:

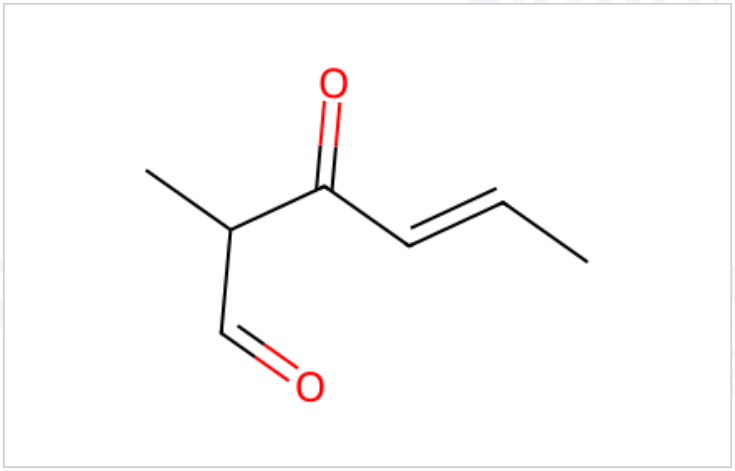
(1) An electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from a nucleophile.

(2) An electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from another electrophile.

(3) Electrophiles are generally neutral species and can form a bond by accepting a pair of electrons from a nucleophile.

(4) An electrophile can be either a neutral or a positively charged species and can form a bond by accepting a pair of electrons from a nucleophile.

81. The IUPAC name of the compound shown (a six-carbon chain bearing a terminal $-CHO$, an adjacent CH_3 branch, a ketone $C{=}O$, and a $C{=}C$ double bond) is:



(1) 3-keto-2-methylhex-4-enal

(2) 5-formylhex-2-en-3-one

(3) 5-methyl-4-oxohex-2-en-5-al

(4) 3-keto-2-methylhex-5-enal

82. With respect to the conformers of ethane, which of the following statements is true?

(1) Bond angle remains same but bond length changes

(2) Bond angle changes but bond length remains same

(3) Both bond angle and bond length change

(4) Both bond angles and bond length remain same

83. Predict the correct intermediate (A) and product (B) in the following reaction: \ce{H3C-C#CH ->[\text{H2O, H2SO4}][\text{HgSO4}] (A) -> (B)}

(1) A: $H_3C-C(OSO_3H){=}CH_2$; B: $H_3C-CO-CH_3$

(2) A: $H_3C-C(OH){=}CH_2$; B: $H_3C-C(OSO_3H){=}CH_2$

(3) A: $H_3C-CO-CH_3$; B: $H_3C-C{\equiv}CH$

(4) A: $H_3C-C(OH){=}CH_2$; B: $H_3C-CO-CH_3$

Biology · 82 Qs

84. The morphological nature of the edible part of coconut is

(1) Perisperm

(2) Cotyledon

(3) Endosperm

(4) Pericarp

85. Double fertilization is exhibited by

(1) Gymnosperms

(2) Algae

(3) Fungi

(4) Angiosperms

86. Functional megaspore in an angiosperm develops into

(1) Ovule

(2) Endosperm

(3) Embryo sac

(4) Embryo

87. Attractants and rewards are required for

(1) Anemophily

(2) Entomophily

(3) Hydrophily

(4) Cleistogamy

88. Flowers which have single ovule in the ovary and are packed into inflorescence are usually pollinated by

(1) Water **(2)** Bee

(3) Wind **(4)** Bat

89. Which of the following represents order of 'Horse'?

(1) Equidae **(2)** Perissodactyla

(3) Caballus **(4)** Ferus

90. Which of the following components provides sticky character to the bacterial cell?

(1) Cell wall **(2)** Nuclear membrane

(3) Plasma membrane **(4)** Glycocalyx

91. Which of the following are found in extreme saline conditions?

(1) Archaebacteria **(2)** Eubacteria

(3) Cyanobacteria **(4)** Mycobacteria

92. Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen?

(1) Bacillus **(2)** Pseudomonas

(3) Mycoplasma **(4)** Nostoc

93. [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.

94. Viroids differ from viruses in having :

(1) DNA molecules with protein coat **(2)** DNA molecules without protein coat

(3) RNA molecules with protein coat **(4)** RNA molecules without protein coat

95. Capacitation occurs in

(1) Rete testis **(2)** Epididymis

(3) Vas deferens **(4)** Female Reproductive tract

96. A temporary endocrine gland in the human body is

(1) Pineal gland **(2)** Corpus cardiacum

(3) Corpus luteum **(4)** Corpus allatum

97. GnRH, a hypothalamic hormone, needed in reproduction, acts on

(1) Anterior pituitary gland and stimulates secretion of LH and oxytocin **(2)** Anterior pituitary gland and stimulates secretion of LH and FSH

(3) Posterior pituitary gland and stimulates secretion of oxytocin and FSH **(4)** Posterior pituitary gland and stimulates secretion of LH and relaxin

98. An example of colonial alga is

(1) Chlorella **(2)** Volvox

(3) Ulothrix **(4)** Spirogyra

99. Life cycle of Ectocarpus and Fucus respectively are

(1) Haplontic, Diplontic **(2)** Diplontic, Haplodiplontic

(3) Haplodiplontic, Diplontic **(4)** Haplodiplontic, Haplontic

100. Zygotic meiosis is characteristic of

(1) Marchantia **(2)** Fucus

(3) Funaria **(4)** Chlamydomonas

101. [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

102. Select the mismatch :

(1) Pinus – Dioecious **(2)** Cycas – Dioecious

(3) Salvinia – Heterosporous **(4)** Equisetum – Homosporous

103. Match the following sexually transmitted diseases (Column - I) with their causative agent (Column - II) and select the correct option.

Column - I
(a) Gonorrhea
(b) Syphilis
(c) Genital Warts
(d) AIDS

Column - II
(i) HIV
(ii) Neisseria
(iii) Treponema
(iv) Human Papilloma virus

Choose the correct answer:

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

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

104. The function of copper ions in copper releasing IUD's is :

(1) They suppress sperm motility and fertilising capacity of sperms **(2)** They inhibit gametogenesis

(3) They make uterus unsuitable for implantation **(4)** They inhibit ovulation

105. In case of a couple where the male is having a very low sperm count, which technique will be suitable for fertilisation?

(1) Intrauterine transfer

(2) Gamete intracytoplasmic fallopian transfer

(3) Artificial Insemination

(4) Intracytoplasmic sperm injection

106. An important characteristic that Hemichordates share with Chordates is

(1) Absence of notochord

(2) Ventral tubular nerve cord

(3) Pharynx with gill slits

(4) Pharynx without gill slits

107. Which among these is the correct combination of aquatic mammals?

(1) Seals, Dolphins, Sharks

(2) Dolphins, Seals, Trygon

(3) Whales, Dolphins, Seals

(4) Trygon, Whales, Seals

108. In case of poriferans the spongocoel is lined with flagellated cells called:

(1) Ostia

(2) Oscula

(3) Choanocytes

(4) Mesenchymal cells

109. Among the following characters, which one was not considered by Mendel in his experiments on pea?

(1) Stem – Tall or Dwarf

(2) Trichomes – Glandular or non-glandular

(3) Seed – Green or Yellow

(4) Pod – Inflated or Constricted

110. A normal cell of an organism has a gene which codes for a protein with 333 amino acids, and the base at position 901 is deleted such that the length of the RNA becomes 998 bases, how many codons will be altered?

(1) 1

(2) 11

(3) 33

(4) 333

111. A disease caused by an autosomal primary non-disjunction is

(1) Down's syndrome

(2) Klinefelter's syndrome

(3) Turner's syndrome

(4) Sickle cell anemia

112. Thalassemia and sickle cell anemia are caused due to a problem in globin molecule synthesis. Select the correct statement.

(1) Both are due to a qualitative defect in globin chain synthesis

(2) Both are due to a quantitative defect in globin chain synthesis

(3) Thalassemia is due to less synthesis of globin molecules

(4) Sickle cell anemia is due to a quantitative problem of globin molecules

113. Which one from those given below is the period for Mendel's hybridization experiments?

(1) 1856 - 1863

(2) 1840 - 1850

(3) 1857 - 1869

(4) 1870 - 1877

114. The genotypes of a Husband and Wife are IAIB and IAi. Among the blood types of their children, how many different genotypes and phenotypes are possible?

(1) 3 genotypes ; 3 phenotypes

(2) 3 genotypes ; 4 phenotypes

(3) 4 genotypes ; 3 phenotypes

(4) 4 genotypes ; 4 phenotypes

115. Which of the following RNAs should be most abundant in animal cell?

(1) r-RNA **(2)** t-RNA

(3) m-RNA **(4)** mi-RNA

116. During DNA replication, Okazaki fragments are used to elongate

(1) The leading strand towards replication fork **(2)** The lagging strand towards replication fork

(3) The leading strand away from replication fork **(4)** The lagging strand away from the replication fork

117. A particular mRNA, in a hypothetical case, codes for a protein with 333 amino acids, and the base at position 901 is deleted such that the length of the RNA becomes 998 bases, how many codons will be altered?

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

(3) 33 **(4)** 333

118. DNA replication in bacteria occurs

(1) During S-phase **(2)** Within nucleolus

(3) Prior to fission **(4)** Just before transcription

119. The association of histone H1 with a nucleosome indicates:

(1) Transcription is occurring **(2)** DNA replication is occurring

(3) The DNA is condensed into a Chromatin Fibre **(4)** The DNA double helix is exposed

120. Spliceosomes are not found in cells of

(1) Plants **(2)** Fungi

(3) Animals **(4)** Bacteria

121. The final proof for DNA as the genetic material came from the experiments of

(1) Griffith **(2)** Hershey and Chase

(3) Avery, Mcleod and McCarty **(4)** Hargobind Khorana

122. Coconut fruit is a

(1) Drupe **(2)** Berry

(3) Nut **(4)** Capsule

123. Root hairs develop from the region of

(1) Maturation **(2)** Elongation

(3) Root cap **(4)** Meristematic activity

124. In Bougainvillea thorns are the modifications of

(1) Stipules **(2)** Adventitious root

(3) Stem **(4)** Leaf

125. (Out of syllabus but asked in last 3 years) Which of the following is made up of dead cells?

(1) Xylem parenchyma **(2)** Collenchyma

(3) Phellem **(4)** Phloem

126. Which of the following facilitates opening of stomatal aperture?

(1) Contraction of outer wall of guard cells

(2) Decrease in turgidity of guard cells

(3) Radial orientation of cellulose microfibrils in the cell wall of guard cells

(4) Longitudinal orientation of cellulose microfibrils in the cell wall of guard cells

127. (Out of syllabus but asked in last 3 years) The vascular cambium normally gives rise to

(1) Phelloderm

(2) Primary phloem

(3) Secondary xylem

(4) Periderm

128. (Out of syllabus but asked in last 3 years) Identify the wrong statement in context of heartwood.

(1) Organic compounds are deposited in it

(2) It is highly durable

(3) It conducts water and minerals efficiently

(4) It comprises dead elements with highly lignified walls

129. Artificial selection to obtain cows yielding higher milk output represents

(1) Stabilizing selection as it stabilizes this character in the population

(2) Directional as it pushes the mean of the character in one direction

(3) Disruptive as it splits the population into two one yielding higher output and the other lower output

(4) Stabilizing followed by disruptive as it stabilizes the population to produce higher yielding cows

130. [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

131. Transplantation of tissues/organs fails often due to non-acceptance by the patient's body. Which type of immune-response is responsible for such rejections?

(1) Autoimmune response

(2) Cell-mediated immune response

(3) Hormonal immune response

(4) Physiological immune response

132. MALT constitutes about _____ percent of the lymphoid tissue in human body.

(1) 50%

(2) 20%

(3) 70%

(4) 10%

133. Frog's heart when taken out of the body continues to beat for some time.

Select the best option from the following statements:

(a) Frog is a poikilotherm

(b) Frog does not have any coronary circulation

(c) Heart is "myogenic" in nature

(d) Heart is autoexcitable

Options

(1) Only (c)

(2) Only (d)

(3) & (b)

(4) & (d)

---

134. Select the correct route for the passage of sperms in male frogs:

(1) Testes → Bidder's canal → Kidney → Vasa efferentia → Urinogenital duct → Cloaca

(2) Testes → Vasa efferentia → Kidney → Seminal Vesicle → Urinogenital duct → Cloaca

(3) Testes → Vasa efferentia → Bidder's canal → Ureter → Cloaca

(4) Testes → Vasa efferentia → Kidney → Bidder's canal → Urinogenital duct → Cloaca

---

135. Myelin sheath is produced by

(1) Schwann Cells and Oligodendrocytes

(2) Astrocytes and Schwann Cells

(3) Oligodendrocytes and Osteoclasts

(4) Osteoclasts and Astrocytes

---

136. [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

---

137. Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP?

(1) Lysosome

(2) Ribosome

(3) Chloroplast

(4) Mitochondrion

---

138. Which of the following in sewage treatment removes suspended solids?

(1) Tertiary treatment

(2) Secondary treatment

(3) Primary treatment

(4) Sludge treatment

---

139. Which of the following is correctly matched for the product produced by them?

(1) Acetobacter aceti : Antibiotics

(2) Methanobacterium : Lactic acid

(3) Penicillium notatum : Acetic acid

(4) Saccharomyces cerevisiae : Ethanol

140. Which one of the following statements is correct, with reference to enzymes?

(1) Apoenzyme = Holoenzyme + Coenzyme

(2) Holoenzyme = Apoenzyme + Coenzyme

(3) Coenzyme = Apoenzyme + Holoenzyme

(4) Holoenzyme = Coenzyme + Cofactor

141. Which of the following are not polymeric?

(1) Nucleic acids

(2) Proteins

(3) Polysaccharides

(4) Lipids

142. A gene whose expression helps to identify transformed cell is known as

(1) Selectable marker

(2) Vector

(3) Plasmid

(4) Structural gene

143. The process of separation and purification of expressed protein before marketing is called

(1) Upstream processing

(2) Downstream processing

(3) Bioprocessing

(4) Postproduction processing

144. What is the criterion for DNA fragments movement on agarose gel during gel electrophoresis?

(1) The larger the fragment size, the farther it moves

(2) The smaller the fragment size, the farther it moves

(3) Positively charged fragments move to farther end

(4) Negatively charged fragments do not move

145. Which of the following options gives the correct sequence of events during mitosis?

(1) Condensation → nuclear membrane disassembly → crossing over → segregation → telophase

(2) Condensation → nuclear membrane disassembly → arrangement at equator → centromere division → segregation → telophase

(3) Condensation → crossing over → nuclear membrane disassembly → segregation → telophase

(4) Condensation → arrangement at equator → centromere division → segregation → telophase

146. Anaphase promoting complex (APC) is a protein degradation machinery necessary for proper mitosis of animal cells. If APC is defective in a human cell, which of the following is expected to occur?

(1) Chromosomes will not condense

(2) Chromosomes will be fragmented

(3) Chromosomes will not segregate

(4) Recombination of chromosome arms will occur

147. Mycorrhizae are the example of

(1) Fungistasis

(2) Amensalism

(3) Antibiosis

(4) Mutualism

148. Asymptote in a logistic growth curve is obtained when

(1) The value of 'r' approaches zero

(2) K = N

(3) K > N

(4) K < N

149. With reference to factors affecting the rate of photosynthesis, which of the following statements is not correct?

(1) Light saturation for CO_2 fixation occurs at 10% of full sunlight

(2) Increasing atmospheric CO_2 concentration upto 0.05% can enhance CO_2 fixation rate

(3) C3 plants responds to higher temperatures with enhanced photosynthesis while C4 plants have much lower temperature optimum

(4) Tomato is a greenhouse crop which can be grown in CO_2 - enriched atmosphere for higher yield

150. Phosphoenol pyruvate (PEP) is the primary CO2 acceptor in :

(1) C3 plants

(2) C4 plants

(3) C2 plants

(4) C3 and C4 plants

151. Which ecosystem has the maximum biomass?

(1) Forest ecosystem

(2) Grassland ecosystem

(3) Pond ecosystem

(4) Lake ecosystem

152. Which statement is wrong for Krebs' cycle?

(1) There are three points in the cycle where NAD+ is reduced to NADH + H+

(2) There is one point in the cycle where FAD+ is reduced to FADH2

(3) During conversion of succinyl CoA to succinic acid, a molecule of GTP is synthesised

(4) The cycle starts with condensation of acetyl group (acetyl CoA) with pyruvic acid to yield citric acid

153. Which one of the following is related to Ex-situ conservation of threatened animals and plants?

(1) Wildlife Safari parks

(2) Biodiversity hot spots

(3) Amazon rainforest

(4) Himalayan region

154. Alexander Von Humbolt described for the first time

(1) Ecological Biodiversity

(2) Laws of limiting factor

(3) Species area relationships

(4) Population Growth equation

155. The region of Biosphere Reserve which is legally protected and where no human activity is allowed is known as

(1) Core zone

(2) Buffer zone

(3) Transition zone

(4) Restoration zone

156. Fruit and leaf drop at early stages can be prevented by the application of

(1) Cytokinins

(2) Ethylene

(3) Auxins

(4) Gibberellic acid

157. Lungs are made up of air-filled sacs the alveoli. They do not collapse even after forceful expiration, because of :

(1) Residual Volume

(2) Inspiratory Reserve Volume

(3) Tidal Volume

(4) Expiratory Reserve Volume

158. The hepatic portal vein drains blood to liver from

(1) Heart

(2) Stomach

(3) Kidneys

(4) Intestine

159. Frog's heart when taken out of the body continues to beat for some time. Select the best option from the following statements:

(a) Frog is a poikilotherm
(b) Frog does not have any coronary circulation
(c) Heart is "myogenic" in nature
(d) Heart is autoexcitable

Choose the correct option:

(1) Only (c)
(2) Only (d)
(3) & (b)
(4) & (d)

160. Adult human RBCs are enucleate. Which of the following statement(s) is/are most appropriate explanation for this feature?

(a) They do not need to reproduce
(b) They are somatic cells
(c) They do not metabolize
(d) All their internal space is available for oxygen transport

Select the correct option:

(1) Only (d)
(2) Only (a)
(3) (a), (c) and (d)
(4) and (c)

161. A decrease in blood pressure/volume will not cause the release of

(1) Renin
(2) Atrial Natriuretic Factor
(3) Aldosterone
(4) ADH

162. Out of 'X' pairs of ribs in humans only 'Y' pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation :

(1) X = 12, Y = 7; True ribs are attached dorsally to vertebral column and ventrally to the sternum
(2) X = 12, Y = 5; True ribs are attached dorsally to vertebral column and sternum on the two ends
(3) X = 24, Y = 7; True ribs are dorsally attached to vertebral column but are free on ventral side
(4) X = 24, Y = 12; True ribs are dorsally attached to vertebral column but are free on ventral side

163. The pivot joint between atlas and axis is a type of

(1) Fibrous joint
(2) Cartilaginous joint
(3) Synovial joint
(4) Saddle joint

164. Receptor sites for neurotransmitters are present on

(1) Membranes of synaptic vesicles
(2) Pre-synaptic membrane
(3) Tips of axons
(4) Post-synaptic membrane

165. Hypersecretion of Growth Hormone in adults does not cause further increase in height, because

(1) Growth Hormone becomes inactive in adults
(2) Epiphyseal plates close after adolescence
(3) Bones loose their sensitivity to Growth Hormone in adults
(4) Muscle fibres do not grow in size after birth

Answer Key

1.C	2.A	3.B	4.B	5.A	6.C	7.B	8.A	9.D	10.A	11.A
12.D	13.C	14.C	15.A	16.B	17.D	18.B	19.B	20.D	21.C	22.C
23.D	24.A	25.B	26.A	27.D	28.C	29.D	30.C	31.B	32.B	33.B
34.B	35.C	36.D	37.B	38.C	39.C	40.C	41.A	42.B	43.D	44.B
45.B	46.C	47.D	48.A	49.B	50.B	51.D	52.A	53.B	54.A	55.C
56.B	57.D	58.C	59.D	60.C	61.C	62.A	63.B	64.C	65.A	66.C
67.B	68.D	69.C	70.B	71.C	72.A	73.B	74.D	75.B	76.B	77.D
78.B	79.D	80.D	81.A	82.D	83.D	84.C	85.D	86.C	87.B	88.C
89.B	90.D	91.A	92.C	93.A	94.D	95.D	96.C	97.B	98.B	99.C
100.D	101.C	102.A	103.A	104.A	105.C	106.C	107.C	108.C	109.B	110.C
111.A	112.C	113.A	114.C	115.A	116.D	117.C	118.C	119.C	120.D	121.B
122.A	123.A	124.C	125.C	126.C	127.C	128.C	129.B	130.D	131.B	132.A
133.D	134.D	135.A	136.D	137.D	138.C	139.D	140.B	141.D	142.A	143.B
144.B	145.B	146.C	147.D	148.B	149.C	150.B	151.A	152.D	153.A	154.C
155.A	156.C	157.A	158.D	159.D	160.A	161.B	162.A	163.C	164.D	165.B