MedicNEET

NEET 2019 — Previous Year Question Paper

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Physics · 45 Qs

1. A hollow metal sphere of radius R is uniformly charged. The electric field due to the sphere at a distance r from the centre

   (1) increases as r increases for r < R and for r > R

   (2) is zero for r < R, decreases as r increases for r > R

   (3) is zero for r < R, increases as r increases for r > R

   (4) decreases as r increases for r < R and for r > R

2. Two parallel infinite line charges with linear charge densities +λ C/m and –λ C/m are placed at a distance of 2R in free space. What is the electric field mid-way between the two line charges?

   (1) zero

   (2) $2\lambda/(\pi\varepsilon_0 R)$ N/C

   (3) $\lambda/(\pi\varepsilon_0 R)$ N/C

   (4) $\lambda/(2\pi\varepsilon_0 R)$ N/C

3. Two point charges A and B, having charges +Q and –Q respectively, are placed at a certain distance apart and the force acting between them is F. If 25% of the charge of A is transferred to B, then the force between the charges becomes

   (1) F

   (2) 9F/16

   (3) 16F/9

   (4) 4F/3

4. In an experiment, the percentage errors in the measurement of physical quantities A, B, C and D are 1%, 2%, 3% and 4% respectively. Then the maximum percentage error in the measurement X, where X = A^(1/2) B^2 / (C^(1/3) D^3), will be:

   (1) -(3/13)%

   (2) 16%

   (3) -10%

   (4) 10%

5. The unit of thermal conductivity is:

   (1) J m K^{-1}

   (2) J m^{-1} K^{-1}

   (3) W m K^{-1}

   (4) W m^{-1} K^{-1}

6. A person in a lift drops a coin. The coin takes time t_1 to reach the floor when the lift is at rest, and time t_2 when the lift is moving up with uniform velocity. Then:

(1) $t_1 = t_2$ **(2)** $t_1 < t_2$

(3) $t_1 > t_2$ **(4)** $t_1 = 2t_2$

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7. A person travelling in a straight line moves with a constant velocity v_1 for a certain distance x and with a constant velocity v_2 for the next equal distance. The average velocity v is given by the relation:

(1) $\frac{2}{v} = \frac{1}{v_1} + \frac{1}{v_2}$ **(2)** $\frac{1}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

(3) $v = \frac{v_1 + v_2}{2}$ **(4)** $v = \sqrt{v_1 v_2}$

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8. Two particles A and B are moving in uniform circular motion in concentric circles of radii r_A and r_B with speeds v_A and v_B respectively. Their time period of rotation is the same. The ratio of the angular speed of A to that of B is:

(1) $r_A : r_B$ **(2)** $v_A : v_B$

(3) $r_B : r_A$ **(4)** $1 : 1$

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9. The speed of a swimmer in still water is 20 m/s. The speed of river water is 10 m/s flowing due east. If he is standing on the south bank and wishes to cross the river along the shortest path, the angle at which he should make his strokes with respect to north is:

(1) 30° west **(2)** 0°

(3) 60° west **(4)** 45° west

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10. Two bullets are fired horizontally and simultaneously towards each other from the rooftops of two buildings 100 m apart and of the same height 200 m, with the same speed 25 m/s. When and where will the two bullets collide? ($g = 10\ \mathrm{m/s^2}$)

(1) after 2 s at a height of 180 m **(2)** after 2 s at a height of 20 m

(3) after 4 s at a height of 120 m **(4)** they will not collide

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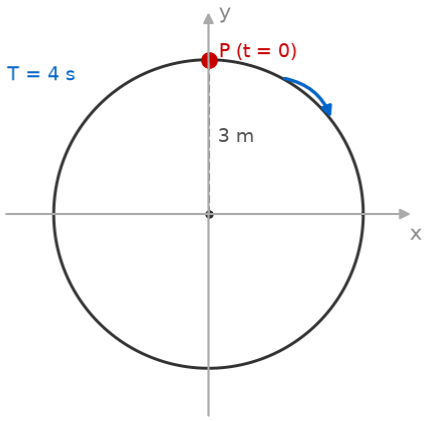
11. The radius of a circle, the period of revolution, the initial position and the sense of revolution are indicated in the figure (radius 3 m, period $T = 4$ s, particle P starts at $t = 0$ on the $+y$ axis). The y-projection of the radius vector of the rotating particle P is:



(1) $y(t) = -3\cos(2\pi t)$ m

(2) $y(t) = 4\sin\left(\frac{\pi t}{2}\right)$ m

(3) $y(t) = 3\cos\left(\frac{3\pi t}{2}\right)$ m

(4) $y(t) = 3\cos\left(\frac{\pi t}{2}\right)$ m

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12. A particle starting from rest moves in a circle of radius r. It attains a velocity of V_0 m/s in the nth round. Its angular acceleration is:

(1) $\frac{V_0}{n}\ \text{rad/s}^2$

(2) $\frac{V_0^2}{2\pi n r^2}\ \text{rad/s}^2$

(3) $\frac{V_0^2}{4\pi n r^2}\ \text{rad/s}^2$

(4) $\frac{V_0}{4\pi n r}\ \text{rad/s}^2$

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13. A mass m is attached to a thin wire and whirled in a vertical circle. The wire is most likely to break when:

(1) the mass is at the highest point

(2) the wire is horizontal

(3) the mass is at the lowest point

(4) the wire is inclined at 60° to the vertical

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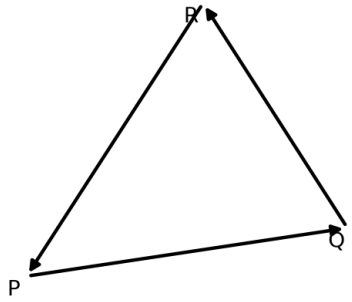
14. A particle moving with velocity V is acted upon by three forces represented by the sides of a triangle PQR (taken in order). The velocity of the particle will:



(1) increase

(2) decrease

(3) remain constant

(4) change according to the smallest force

15. A block of mass 10 kg is in contact with the inner wall of a hollow cylindrical drum of radius 1 m. The coefficient of friction between the block and the wall is 0.1. The minimum angular velocity of the drum (rotating about its vertical axis) needed to keep the block stationary is ($g = 10\ m/s^2$):

(1) $\sqrt{10}$ rad/s

(2) $(\sqrt{10})/2$ rad/s

(3) 10 rad/s

(4) 10π rad/s

16. Ionized hydrogen atoms and α-particles with same momenta enter perpendicular to a constant magnetic field B. The ratio of the radii of their paths r_h : r_α will be:

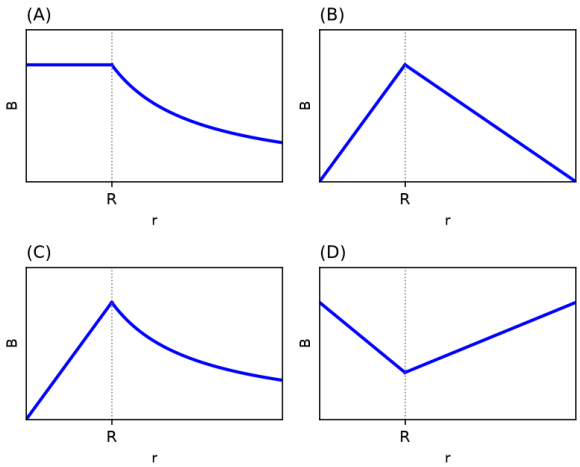
(1) 2 : 1

(2) 1 : 2

(3) 4 : 1

(4) 1 : 4

17. A cylindrical conductor of radius R is carrying a constant current. The plot of the magnitude of the magnetic field B with the distance d from the centre of the conductor is correctly represented by the figure:



(1) A

(2) B

(3) C

(4) D

18. When an object is shot up a long smooth inclined plane kept at 60^° with the horizontal, it travels a distance x_1 along the plane. When the inclination is decreased to 30^° and the same object is shot with the same velocity, it travels a distance x_2. Then $x_1:x_2$ will be

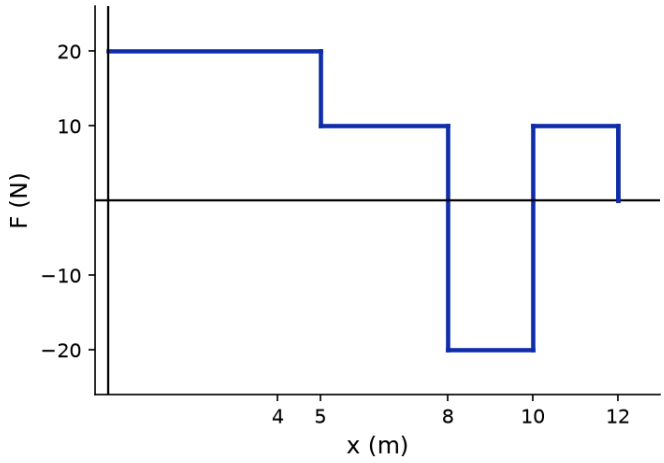
(1) 1 : √(2)

(2) √(2) : 1

(3) 1 : √(3)

(4) 1 : 2√(3)

19. An object of mass 500 g, initially at rest, is acted upon by a variable force whose X-component varies with X as shown in the graph. The velocities of the object at the points X = 8 m and X = 12 m would be, respectively (nearly)



(1) 18 m/s and 24.4 m/s

(2) 23 m/s and 24.4 m/s

(3) 23 m/s and 20.6 m/s

(4) 18 m/s and 20.6 m/s

20. A force F=20+10y acts on a particle in the y-direction, where F is in newton and y in metre. The work done by this force to move the particle from y=0 to y=1 m is

(1) 20 J

(2) 30 J

(3) 5 J

(4) 25 J

21. Body A of mass 4m moving with speed u collides with another body B of mass 2m at rest. The collision is head-on and elastic in nature. After the collision the fraction of energy lost by the colliding body A is

(1) 1/9

(2) 8/9

(3) 4/9

(4) 5/9

22. A 800 turn coil of effective area 0.05 m^2 is kept perpendicular to a magnetic field 5×10^{-5} T. When the plane of the coil is rotated by 90 degrees around any of its coplanar axis in 0.1 s, the emf induced in the coil will be:

(1) 2 V

(2) 0.2 V

(3) 2×10^{-3} V

(4) 0.02 V

23. In which of the following devices, the eddy current effect is not used?

(1) Induction furnace

(2) Magnetic braking in train

(3) Electromagnet

(4) Electric heater

24. A solid cylinder of mass 2 kg and radius 4 cm rotates about its axis at 3 rpm. The torque required to stop it within 2 revolutions is:

(1) $2\pi \times 10^{-6}$ N m

(2) 2×10^{-3} N m

(3) 12×10^{-4} N m

(4) 2×10^{6} N m

25. A circuit when connected to an AC source of 12 V gives a current of 0.2 A. The same circuit when connected to a DC source of 12 V, gives a current of 0.4 A. The circuit is

(1) series LR

(2) series RC

(3) series LC

(4) series LCR

26. The work done to raise a mass m from the surface of the earth to a height h equal to the radius of the earth R is:

(1) mgR

(2) 2mgR

(3) ½mgR

(4) (3/2)mgR

27. The work done to raise a mass m from the surface of the earth to a height equal to the radius of the earth R is:

(1) 2mgR

(2) mgR/4

(3) mgR

(4) mgR/2

28. A body weighs 200 N on the surface of the earth. How much will it weigh half way down to the centre of the earth?

(1) 150 N

(2) 200 N

(3) 250 N

(4) 100 N

29. A parallel plate capacitor of capacitance 20 μF is being charged by a voltage source whose potential is changing at the rate of 3 V/s. The conduction current through the connecting wires and the displacement current through the plates of the capacitor would be, respectively,

(1) Zero, 60 μA

(2) 60 μA, 60 μA

(3) 60 μA, zero

(4) Zero, zero

30. When a block of mass M is suspended by a long wire of length L, the length of the wire becomes (L + l). The elastic potential energy stored in the extended wire is:

(1) Mgl

(2) MgL

(3) (1/2) Mgl

(4) (1/2) MgL

31. The stress-strain curves are drawn for two different materials X and Y. It is observed that the ultimate strength point and the fracture point are close to each other for material X, but are far apart for material Y. We can say that materials X and Y are likely to be (respectively)

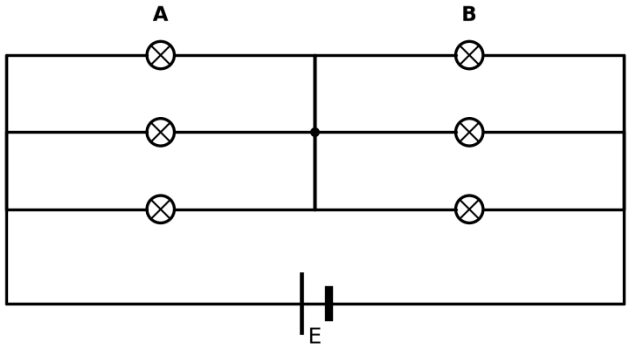
(1) ductile and brittle

(2) brittle and ductile

(3) brittle and plastic

(4) plastic and ductile

32. Six similar bulbs are connected as shown with a DC source of emf E and zero internal resistance. The ratio of power consumed when (i) all glow to (ii) when two of section A and one of section B glow, is:



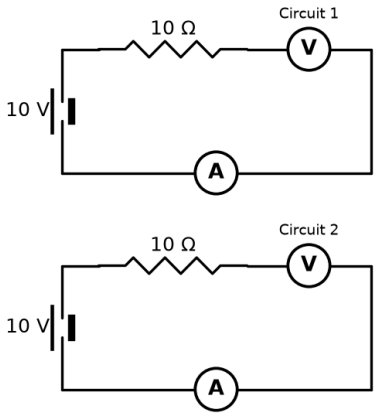
(1) 4 : 9

(2) 9 : 4

(3) 1 : 2

(4) 2 : 1

33. In the two circuits shown (same 10 V cell, same 10 Ω resistor; ideal meters, only the order of V and A swapped), the readings of the voltmeters and ammeters will be:



(1) $V_2 > V_1$ and $i_1 > i_2$

(2) $V_1 = V_2$ and $i_1 > i_2$

(3) $V_1 = V_2$ and $i_1 = i_2$

(4) $V_2 > V_1$ and $i_1 = i_2$

34. Which of the following acts as a circuit protecting device?

(1) Conductor

(2) Inductor

(3) Switch

(4) Fuse

35. A small hole of cross-sectional area 2 mm² is present near the bottom of a fully filled open tank of height 2 m. Taking g = 10 m s^{-2}, the rate of flow of water through the open hole would be nearly:

(1) 12.6×10^{-6} m^3 s^{-1}

(2) 8.9×10^{-6} m^3 s^{-1}

(3) 2.23×10^{-6} m^3 s^{-1}

(4) 6.4×10^{-6} m^3 s^{-1}

36. A soap bubble of radius 1 mm is blown from a detergent solution of surface tension 2.5×10^{-2} N m^{-1}. The pressure inside the bubble equals the pressure at a point Z_0 below the free surface of water in a container. Taking g = 10 m s^{-2} and density of water = 10^3 kg m^{-3}, the value of Z_0 is:

(1) 100 cm **(2)** 10 cm

(3) 1 cm **(4)** 0.5 cm

37. Two similar thin equi-convex lenses of focal length f each are kept coaxially in contact with each other such that the focal length of the combination is F_1. When the space between the two lenses is filled with glycerin (which has the same refractive index, $\mu = 1.5$, as that of glass) then the equivalent focal length is F_2. The ratio $F_1 : F_2$ will be

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

(3) 2 : 3 **(4)** 3 : 4

38. In total internal reflection, when the angle of incidence is equal to the critical angle for the pair of media in contact, what will be the angle of refraction?

(1) 180° **(2)** 0°

(3) Equal to angle of incidence **(4)** 90°

39. A copper rod of length 88 cm and an aluminium rod of unknown length have their increase in length independent of the increase in temperature. The length of the aluminium rod is: ($\alpha_{Cu} = 1.7 \times 10^{-5}$ K^{-1}, $\alpha_{Al} = 2.2 \times 10^{-5}$ K^{-1})

(1) 6.8 cm **(2)** 113.9 cm

(3) 88 cm **(4)** 68 cm

40. The SI unit of thermal conductivity is:

(1) J m K^{-1} **(2)** J m^{-1} K^{-1}

(3) W m K^{-1} **(4)** W m^{-1} K^{-1}

41. In a double slit experiment, when light of wavelength 400 nm was used, the angular width of the first minima formed on a screen placed 1 m away, was found to be 0.2°. What will be the angular width of the first minima, if the entire experimental apparatus is immersed in water? ($n_{water} = 4/3$)

(1) 0.266° **(2)** 0.15°

(3) 0.05° **(4)** 0.1°

42. An electron is accelerated through a potential difference of 10000 V. Its de Broglie wavelength is, (nearly): ($m_e = 9 \times 10^{-31}$ kg)

(1) 12.2×10^{-13} m **(2)** 12.2×10^{-12} m

(3) 12.2×10^{-14} m **(4)** 12.2 nm

43. In which of the following processes, heat is neither absorbed nor released by a system?

(1) Isothermal **(2)** Adiabatic

(3) Isobaric **(4)** Isochoric

44. The total energy of an electron in an atom in an orbit is –3.4 eV. Its kinetic and potential energies are, respectively:

(1) –3.4 eV, –3.4 eV **(2)** –3.4 eV, –6.8 eV

(3) 3.4 eV, –6.8 eV **(4)** 3.4 eV, 3.4 eV

45. Increase in temperature of a gas filled in a container would lead to:

(1) Increase in its mass

(2) Increase in its kinetic energy

(3) Decrease in its pressure

(4) Decrease in intermolecular distance

Chemistry · 37 Qs

46. The mixture that forms a maximum boiling azeotrope is:

(1) Water + Nitric acid

(2) Ethanol + Water

(3) Acetone + Carbon disulphide

(4) Heptane + Octane

47. For an ideal solution, the correct option is:

(1) $\Delta_{mix}S = 0$ at constant T and P

(2) $\Delta_{mix}V \neq 0$ at constant T and P

(3) $\Delta_{mix}H = 0$ at constant T and P

(4) $\Delta_{mix}G = 0$ at constant T and P

48. The number of moles of hydrogen molecules required to produce 20 moles of ammonia through the Haber process is

(1) 10

(2) 20

(3) 30

(4) 40

49. For the cell reaction $2\,Fe^{3+}\,(aq) + 2\,I^{-}\,(aq) \longrightarrow 2\,Fe^{2+}\,(aq) + I_2\,(aq)$, $E^{\circ}_{cell} = 0.24$ V at 298 K. The standard Gibbs energy ($\Delta_r G^{\circ}$) of the cell reaction is:

(1) -46.32 kJ mol^{-1}

(2) -23.16 kJ mol^{-1}

(3) 46.32 kJ mol^{-1}

(4) 23.16 kJ mol^{-1}

50. For a cell involving one electron $E^{\circ}_{cell} = 0.59$ V at 298 K, the equilibrium constant for the cell reaction is: (Given that $\frac{2.303\,RT}{F} = 0.059$ V at $T = 298$ K)

(1) 1.0×10^{2}

(2) 1.0×10^{5}

(3) 1.0×10^{10}

(4) 1.0×10^{30}

51. $4d$, $5p$, $5f$ and $6p$ orbitals are arranged in the order of decreasing energy. The correct option is:

(1) $5f > 6p > 5p > 4d$

(2) $6p > 5f > 5p > 4d$

(3) $6p > 5f > 4d > 5p$

(4) $5f > 6p > 4d > 5p$

52. Which of the following series of transitions in the spectrum of the hydrogen atom falls in the visible region?

(1) Lyman series

(2) Balmer series

(3) Paschen series

(4) Brackett series

53. If the rate constant for a first order reaction is k, the time t required for the completion of 99% of the reaction is given by:

(1) $t = \dfrac{0.693}{k}$

(2) $t = \dfrac{6.909}{k}$

(3) $t = \dfrac{4.606}{k}$

(4) $t = \dfrac{2.303}{k}$

54. For the chemical reaction $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ the correct option is:

(1) -\frac{1}{3}\frac{d[\ce{H2}]}{dt} = \frac{1}{2}\frac{d[\ce{NH3}]}{dt}

(2) -\frac{d[\ce{N2}]}{dt} = 2\frac{d[\ce{NH3}]}{dt}

(3) -\frac{d[\ce{N2}]}{dt} = \frac{1}{2}\frac{d[\ce{NH3}]}{dt}

(4) -\frac{3}{2}\frac{d[\ce{H2}]}{dt} = \frac{d[\ce{NH3}]}{dt}

55. For the second period elements the correct increasing order of first ionisation enthalpy is:

(1) $Li < Be < B < C < N < O < F < Ne$

(2) $Li < B < Be < C < O < N < F < Ne$

(3) $Li < B < Be < C < N < O < F < Ne$

(4) $Li < Be < B < C < O < N < F < Ne$

56. The number of sigma (σ) and pi (π) bonds in pent-2-en-4-yne is

(1) 10 σ bonds and 3 π bonds

(2) 8 σ bonds and 5 π bonds

(3) 11 σ bonds and 2 π bonds

(4) 13 σ bonds and no π bonds

57. Which of the following diatomic molecular species has only π bonds according to Molecular Orbital Theory?

(1) O_2

(2) N_2

(3) C_2

(4) Be_2

58. Match the Xenon compounds in Column-I with their structure in Column-II and assign the correct code:
Column-I: (a) XeF_4, (b) XeF_6, (c) $XeOF_4$, (d) XeO_3
Column-II: (i) pyramidal, (ii) square planar, (iii) distorted octahedral, (iv) square pyramidal

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

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

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

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

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. Aluminium chloride in acidified aqueous solution forms a complex 'A', in which the hybridisation state of Al is 'B'. What are 'A' and 'B', respectively?

(1) $[Al(H_2O)_6]^{3+}$, sp^3d^2

(2) $[Al(H_2O)_4]^{3+}$, sp^3

(3) $[Al(H_2O)_4]^{3+}$, dsp^2

(4) $[Al(H_2O)_6]^{3+}$, d^2sp^3

61. Which of the following reactions are disproportionation reactions?

(a) $2Cu^{+} \longrightarrow Cu^{2+} + Cu$
(b) $3MnO_4^{2-} + 4H^{+} \longrightarrow 2MnO_4^{-} + MnO_2 + 2H_2O$
(c) $2KMnO_4 \longrightarrow K_2MnO_4 + MnO_2 + O_2$
(d) $2MnO_4^{-} + 3Mn^{2+} + 2H_2O \longrightarrow 5MnO_2 + 4H^{+}$

Select the correct option from the following:

(1) (a) and (b) only

(2) (a), (b) and (c)

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

(4) (a) and (d) only

62. The manganate (MnO_4^{2-}) and permanganate (MnO_4^-) ions are tetrahedral, due to:

(1) the π-bonding involves overlap of p-orbitals of oxygen with d-orbitals of manganese.

(2) there is no π-bonding.

(3) the π-bonding involves overlap of p-orbitals of oxygen with p-orbitals of manganese.

(4) the π-bonding involves overlap of d-orbitals of oxygen with d-orbitals of manganese.

63. Match the catalyst with the process:

Catalyst
(i) V_2O_5
(ii) $TiCl_4 + Al(CH_3)_3$
(iii) $PdCl_2$
(iv) Nickel complexes

Process
(a) The oxidation of ethyne to ethanal
(b) Polymerisation of alkynes
(c) Oxidation of SO_2 in the manufacture of H_2SO_4
(d) Polymerisation of ethylene

Which of the following is the correct option?

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

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

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

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

64. When neutral or faintly alkaline $KMnO_4$ is treated with potassium iodide, iodide ion is converted into 'X'. 'X' is

(1) I_2

(2) IO_4^-

(3) IO_3^-

(4) IO^-

65. The oxidation state of Cr in CrO_5 is:

(1) -6

(2) $+12$

(3) $+6$

(4) $+4$

66. What is the correct electronic configuration of the central atom in $K_4[Fe(CN)_6]$ based on crystal field theory?

(1) $t_{2g}^4 e_g^2$

(2) $t_{2g}^6 e_g^0$

(3) $e^3 t_2^3$

(4) $e^4 t_2^2$

67. The Crystal Field Stabilisation Energy (CFSE) for $[CoCl_6]^{4-}$ is $18000\ cm^{-1}$. The CFSE for $[CoCl_4]^{2-}$ will be:

(1) $6000\ cm^{-1}$

(2) $16000\ cm^{-1}$

(3) $18000\ cm^{-1}$

(4) $8000\ cm^{-1}$

68. Among the following, the reaction that proceeds through an electrophilic substitution is:

(1) $C_6H_5N_2^+I^- + Cu_2Cl_2 \longrightarrow C_6H_5I + N_2$

(2) $C_6H_6 + Cl_2 \xrightarrow{AlCl_3} C_6H_5Cl + HCl$

(3) $C_6H_6 + 3\,Cl_2 \xrightarrow{h\nu} C_6H_6Cl_6$

(4) $CH_4 + Cl_2 \xrightarrow{\Delta} CH_3Cl + HCl$

69. An alkene A on reaction with O_3 then Zn/H_2O gives propanone and ethanal in equimolar ratio. Addition of HCl to alkene A gives B as the major product. The structure of B is:

(1) $CH_3CH_2CH(CH_3)CH_2Cl$ (primary chloride)

(2) $CH_3CH_2CH(CH_2Cl)CH_3$ (primary side-chain chloride)

(3) $CH_3CH_2C(Cl)(CH_3)CH_3$ (2-chloro-2-methylbutane)

(4) $CH_3CH(CH_3)CHClCH_3$ (secondary chloride)

70. Under isothermal condition, a gas at $300\ K$ expands from $0.1\ L$ to $0.25\ L$ against a constant external pressure of $2\ bar$. The work done by the gas is (Given that $1\ L\ bar = 100\ J$)

(1) $-30\ J$

(2) $5\ kJ$

(3) $25\ J$

(4) $30\ J$

71. For the cell reaction $2\,Fe^{3+}\,(aq) + 2\,I^-\,(aq) \longrightarrow 2\,Fe^{2+}\,(aq) + I_2\,(aq)$, $E^\circ_{cell} = 0.24\ V$ at $298\ K$. The standard Gibbs energy ($\Delta_r G^\circ$) of the cell reaction is:

(1) $-46.32\ kJ\,mol^{-1}$

(2) $-23.16\ kJ\,mol^{-1}$

(3) $46.32\ kJ\,mol^{-1}$

(4) $23.16\ kJ\,mol^{-1}$

72. For a cell involving one electron, $E^\circ_{cell} = 0.59\ V$ at $298\ K$. The equilibrium constant for the cell reaction is: (Given that $\dfrac{2.303RT}{F} = 0.059\ V$ at $T = 298\ K$)

(1) 1.0×10^2

(2) 1.0×10^5

(3) 1.0×10^{10}

(4) 1.0×10^{30}

73. In which case is the change in entropy negative?

(1) Evaporation of water

(2) Expansion of a gas at constant temperature

(3) Sublimation of solid to gas

(4) $2\,H\,(g) \longrightarrow H_2\,(g)$

74. The structure of intermediate A in the following reaction is:

$$C_6H_5CH(CH_3)_2 + O_2 \longrightarrow A$$
$$A \xrightarrow{H^+/H_2O} C_6H_5OH + CH_3COCH_3$$

(1) $C_6H_5-O-CH(CH_3)_2$

(2) $C_6H_5-C(CH_3)_2-O-O-H$

(3) $C_6H_5-O-O-CH(CH_3)_2$

(4) $C_6H_5-CH_2-C(CH_3)(OOH)H$

75. The compound that is most difficult to protonate is:

(1) $HCHO$

(2) CH_3CHO

(3) CH_3COCH_3

(4) C_6H_5CHO

76. The major product of the following reaction is: benzene-1,2-dicarboxylic acid (phthalic acid) \ce{->[{NH3}][{strong heating}]} ?

(1) Aromatic ring bearing one $-COOH$ and one $-CONH_2$ group (mono-amide)

(2) Phthalimide (benzene fused to a five-membered cyclic imide)

(3) Aromatic ring bearing one $-COOH$ and one $-NH_2$ group (anthranilic-acid type)

(4) Aromatic ring bearing two $-NH_2$ groups (ortho-diamine)

77. The correct order of the basic strength of methyl-substituted amines in aqueous solution is:

(1) $(CH_3)_2NH > CH_3NH_2 > (CH_3)_3N$

(2) $(CH_3)_3N > CH_3NH_2 > (CH_3)_2NH$

(3) $(CH_3)_3N > (CH_3)_2NH > CH_3NH_2$

(4) $CH_3NH_2 > (CH_3)_2NH > (CH_3)_3N$

78. [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

79. Enzymes that utilize ATP in phosphate transfer require an alkaline earth metal (M) as the cofactor. M is:

(1) Be

(2) Mg

(3) Ca

(4) Sr

80. The non-essential amino acid among the following is:

(1) Valine

(2) Leucine

(3) Alanine

(4) Lysine

81. The most suitable reagent for the following conversion is: $CH_3-C\equiv C-CH_3 \longrightarrow$ cis-2-butene

(1) Na / liquid NH_3

(2) H_2, Pd/C, quinoline

(3) Zn / HCl

(4) Hg^{2+} / H^+, H_2O

82. An alkene "A" on reaction with O_3 and $Zn-H_2O$ gives propanone and ethanal in equimolar ratio. Addition of HCl to alkene "A" gives "B" as the major product. The structure of product "B" is:

(1) $Cl-CH_2-CH_2-CH(CH_3)-CH_3$

(2) $H_3C-CH_2-CH(CH_2Cl)-CH_3$

(3) $H_3C-CH_2-C(CH_3)(Cl)-CH_3$

(4) $H_3C-CH(Cl)-CH(CH_3)-CH_3$

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83. In some plants, the female gamete develops into embryo without fertilization. This phenomenon is known as

(1) Autogamy

(2) Parthenocarpy

(3) Syngamy

(4) Parthenogenesis

84. What is the fate of the male gametes discharged in the synergid?

(1) One fuses with egg other(s) degenerate(s) in the synergid.

(2) All fuse with the egg.

(3) One fuses with the egg, other(s) fuse(s) with synergid nucleus.

(4) One fuses with the egg and other fuses with central cell nuclei.

85. Persistent nucellus in the seed is known as

(1) Chalaza

(2) Perisperm

(3) Hilum

(4) Tegmen

86. Which one of the following statements regarding post-fertilization development in flowering plants is incorrect?
(1) Ovary develops into fruit
(2) Zygote develops into embryo
(3) Central cell develops into endosperm
(4) Ovules develop into embryo sac

(1) Ovary develops into fruit
(2) Zygote develops into embryo
(3) Central cell develops into endosperm
(4) Ovules develop into embryo sac

87. Select the correctly written scientific name of Mango which was first described by Carolus Linnaeus:

(1) Mangifera indica Car. Linn.
(2) Mangifera indica Linn.
(3) Mangifera indica
(4) Mangifera Indica

88. Match Column I with Column II:

Column I
(a) Saprophyte
(b) Parasite
(c) Lichens
(d) Mycorrhiza

Column II
(i) Symbiotic association of fungi with plant roots
(ii) Decomposition of dead organic materials
(iii) Living on living plants or animals
(iv) Symbiotic association of algae and fungi

Choose the correct answer from the options given below:

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

89. [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.

90. [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.

91. Colostrum the yellowish fluid, secreted by mother during the initial days of lactation is very essential to impart immunity to the new born infants because it contains :

(1) Natural killer cells
(2) Monocytes
(3) Macrophages
(4) Immunoglobulin A

92. Select the correct sequence for transport of sperm cells in male reproductive system.

(1) Testis → Epididymis → Vasa efferentia → Rete testis → Inguinal canal → Urethra

(2) Seminiferous tubules → Rete testis → Vasa efferentia → Epididymis → Vas deferens → Ejaculatory duct → Urethra → Urethral meatus

(3) Seminiferous tubules → Vasa efferentia → Epididymis → Inguinal canal → Urethra

(4) Testis → Epididymis → Vasa efferentia → Vas deferens → Ejaculatory duct → Inguinal canal → Urethra → Urethral meatus

93. Extrusion of second polar body from egg nucleus occurs :

(1) after entry of sperm but before fertilization

(2) after fertilization

(3) before entry of sperm into ovum

(4) simultaneously with first cleavage

94. Select the incorrect statement:

(1) FSH stimulates the sertoli cells which help in spermiogenesis

(2) LH triggers ovulation in ovary

(3) LH and FSH decrease gradually during the follicular phase

(4) LH triggers secretion of androgens from the Leydig cells

95. From evolutionary point of view, retention of the female gametophyte with developing young embryo on the parent sporophyte for some time, is first observed in :

(1) Liverworts

(2) Mosses

(3) Pteridophytes

(4) Gymnosperms

96. [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

97. Select the hormone-releasing Intra-Uterine Devices.

(1) Vaults, LNG-20

(2) Multiload 375, Progestasert

(3) Progestasert, LNG-20

(4) Lippes Loop, Multiload 375

98. Which of the following contraceptive methods do involve a role of hormone?

(1) Lactational amenorrhea, Pills Emergency contraceptives.

(2) Barrier method, Lactational amenorrhea, Pills.

(3) CuT, Pills, Emergency contraceptives.

(4) Pills, Emergency contraceptives, Barrier methods.

99. Which of the following sexually transmitted diseases is not completely curable?

(1) Gonorrhoea

(2) Genital warts

(3) Genital herpes

(4) Chlamydiasis

100. Match the following organisms with their respective characteristics :

Column I
A. Pila
B. Bombyx
C. Pleurobrachia
D. Taenia

Column II
i. Flame cells
ii. Comb plates
iii. Radula
iv. Malpighian tubules

Select the correct option from the following :

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

101. Consider following features

(a) Organ system level of organisation
(b) Bilateral symmetry
(c) True coelomates with segmentation of body

Select the correct option of animal groups which possess all the above characteristics

(1) Annelida, Arthropoda and Chordata
(2) Annelida, Arthropoda and Mollusca
(3) Arthropoda, Mollusca and Chordata
(4) Annelida, Mollusca and Chordata

102. The frequency of recombination between gene pairs on the same chromosome as a measure of the distance between genes was explained by:

(1) T.H. Morgan
(2) Gregor J. Mendel
(3) Alfred Sturtevant
(4) Sutton Boveri

103. In Antirrhinum (Snapdragon), a red flower was crossed with a white flower and in F1 generation pink flowers were obtained. When pink flowers were selfed, the F2 generation showed white, red and pink flowers. Choose the incorrect statement from the following:

(1) This experiment does not follow the Principle of Dominance.
(2) Pink colour in F1 is due to incomplete dominance.
(3) Ratio of F2 is 1/4 (Red) : 2/4 (Pink) : 1/4 (White)
(4) Law of Segregation does not apply in this experiment

104. What is the genetic disorder in which an individual has an overall masculine development, gynaecomastia, and is sterile?

(1) Turner's syndrome
(2) Klinefelter's syndrome
(3) Edward syndrome
(4) Down's syndrome

105. Which of the following features of genetic code does allow bacteria to produce human insulin by recombinant DNA technology?

(1) Genetic code is not ambiguous

(2) Genetic code is redundant

(3) Genetic code is nearly universal

(4) Genetic code is specific

106. Under which of the following conditions will there be no change in the reading frame of following mRNA?
5'AACAGCGGUGCUAUU3'

(1) Insertion of G at 5th position

(2) Deletion of G from 5th position

(3) Insertion of A and G at 4th and 5th positions respectively

(4) Deletion of GGU from 7th, 8th and 9th positions

107. Purines found both in DNA and RNA are

(1) Adenine and thymine

(2) Adenine and guanine

(3) Guanine and cytosine

(4) Cytosine and thymine

108. Expressed Sequence Tags (ESTs) refers to :

(1) Genes expressed as RNA

(2) Polypeptide expression

(3) DNA polymorphism

(4) Novel DNA sequences

109. Match the following genes of the Lac operon with their respective products :

Column-I
(a) i gene
(b) z gene
(c) a gene
(d) y gene

Column-II
(i) β-galactosidase
(ii) Permease
(iii) Repressor
(iv) Transacetylase

Select the correct option.

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

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

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

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

110. Placentation in which ovules develop on the inner wall of the ovary or in peripheral part, is

(1) Basal

(2) Axile

(3) Parietal

(4) Free central

111. Grass leaves curl inwards during very dry weather. Select the most appropriate reason from the following:

(1) Closure of stomata

(2) Flaccidity of bulliform cells

(3) Shrinkage of air spaces in spongy mesophyll

(4) Tyloses in vessels

112. (Out of syllabus but asked in last 3 years) Which of the statements given below is not true about formation of Annual Rings in trees?

(1) Annual ring is a combination of spring wood and autumn wood produced in a year

(2) Differential activity of cambium causes light and dark bands of tissue early and late wood respectively.

(3) Activity of cambium depends upon variation in climate.

(4) Annual rings are not prominent in trees of temperate region.

113. Phloem in gymnosperms lacks:

(1) Albuminous cells and sieve cells

(2) Sieve tubes only

(3) Companion cells only

(4) Both sieve tubes and companion cells

114. Match the hominids with their correct brain size :
(a) Homo habilis - (i) 900 cc
(b) Homo neanderthalensis - (ii) 1350 cc
(c) Homo erectus - (iii) 650-800 cc
(d) Homo sapiens - (iv) 1400 cc
Select the correct option.

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

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

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

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

115. In a species, the weight of newborn ranges from 2 to 5 kg. 97% of the newborn with an average weight between 3 to 3.3 kg survive whereas 99% of the infants born with weight from 2 to 2.5 kg or 4.5 to 5 kg die. Which type of selection process is taking place?

(1) Directional Selection

(2) Stabilizing Selection

(3) Disruptive Selection

(4) Cyclical Selection

116. A gene locus has two alleles A, a. If the frequency of dominant allele A is 0.4, then what will be the frequency of homozygous dominant, heterozygous and homozygous recessive individuals in the population?

(1) 0.36(AA); 0.48(Aa); 0.16(aa)

(2) 0.16(AA); 0.24(Aa); 0.36(aa)

(3) 0.16(AA); 0.48(Aa); 0.36(aa)

(4) 0.16(AA); 0.36(Aa); 0.48(aa)

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 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

118. Variations caused by mutation, as proposed by Hugo de Vries are

(1) random and directional

(2) random and directionless

(3) small and directional

(4) small and directionless

119. Drug called 'Heroin' is synthesized by

(1) methylation of morphine

(2) acetylation of morphine

(3) glycosylation of morphine

(4) nitration of morphine

120. Which of the following immune responses is responsible for rejection of kidney graft?

(1) Auto-immune response

(2) Humoral immune response

(3) Inflammatory immune response

(4) Cell-mediated immune response

121. Identify the correct pair representing the causative agent of typhoid fever and the confirmatory test for typhoid.

(1) Plasmodium vivax / UTI test

(2) Streptococcus pneumoniae / Widal test

(3) Salmonella typhi / Anthrone test

(4) Salmonella typhi / Widal test

122. The ciliated epithelial cells are required to move particles or mucus in a specific direction. In humans, these cells are mainly present in

(1) Bile duct and Bronchioles

(2) Fallopian tubes and Pancreatic duct

(3) Eustachian tube and Salivary duct

(4) Bronchioles and Fallopian tubes

123. Select the correct sequence of organs in the alimentary canal of cockroach starting from mouth.

(Out of syllabus but asked in last 3 years)

(1) Pharynx → Oesophagus → Crop → Gizzard → Ileum → Colon → Rectum

(2) Pharynx → Oesophagus → Gizzard → Crop → Ileum → Colon → Rectum

(3) Pharynx → Oesophagus → Gizzard → Ileum → Crop → Colon → Rectum

(4) Pharynx → Oesophagus → Ileum → Crop → Gizzard → Colon → Rectum

124. Match the following structures with their respective location in organs.

List I

A. Crypts of Lieberkuhn

B. Glisson's Capsule

C. Islets of Langerhans

D. Brunner's Glands

List II

I. Pancreas

II. Duodenum

III. Small intestine

IV. Liver

Select the correct option from the following:

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

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

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

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

125. Which of the following pair of organelles does not contain DNA?

(1) Mitochondria and Lysosomes

(2) Chloroplast and Vacuoles

(3) Lysosomes and Vacuoles

(4) Nuclear envelope and Mitochondria

126. The shorter and longer arms of a submetacentric chromosome are referred to as

(1) s-arm and l-arm respectively

(2) p-arm and q-arm respectively

(3) q-arm and p-arm respectively

(4) m-arm and n-arm respectively

127. The concept of "Omnis cellula-e cellula" regarding cell division was first proposed by

(1) Rudolf Virchow

(2) Theodor Schwann

(3) Schleiden

(4) Aristotle

128. [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

129. Which of the following statements regarding mitochondria is incorrect?

(1) Outer membrane is permeable to monomers of carbohydrates, fats and proteins.

(2) Enzymes of electron transport are embedded in outer membrane.

(3) Inner membrane is convoluted with infoldings.

(4) Mitochondrial matrix contains single circular DNA molecule and ribosomes.

130. Select the correct group of biocontrol agents.

(1) Bacillus thuringiensis, Tobacco mosaic virus, Aphids

(2) Trichoderma, Baculovirus, Bacillus thuringiensis

(3) Oscillatoria, Rhizobium, Trichoderma

(4) Nostoc, Azospirillium, Nucleopolyhedrovirus

131. Match the following organisms with the products they produce:

Column-I
(a) Lactobacillus
(b) Saccharomyces cerevisiae
(c) Aspergillus niger
(d) Acetobacter aceti

Column-II
(i) Cheese
(ii) Curd
(iii) Citric Acid
(iv) Bread
(v) Acetic acid

Choose the correct option.

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

132. Which of the following can be used as a biocontrol agent in the treatment of plant disease?

(1) Trichoderma
(2) Chlorella
(3) Anabaena
(4) Lactobacillus

133. Pinus seed cannot germinate and establish without fungal association. This is because :

(1) its embryo is immature.
(2) it has obligate association with mycorrhizae.
(3) it has very hard seed coat.
(4) its seeds contain inhibitors that prevent germination.

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

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

135. Concanavalin A is

(1) an alkaloid
(2) an essential oil
(3) a lectin
(4) a pigment

136. Consider the following statement :
(A) Coenzyme or metal ion that is tightly bound to enzyme protein is called prosthetic group.
(B) A complete catalytic active enzyme with its bound prosthetic group is called apoenzyme.
Select the correct option.

(1) Both (A) and (B) are true.
(2) is true but (B) is false.
(3) Both (A) and (B) are false.
(4) is false but (B) is true.

137. Which one of the following equipments is essentially required for growing microbes on a large scale, for industrial production of enzymes?

(1) BOD incubator
(2) Sludge digester
(3) Industrial oven
(4) Bioreactor

138. Following statements describe the characteristics of the enzyme Restriction Endonuclease. Identify the incorrect statement.

(1) The enzyme cuts DNA molecule at identified position within the DNA.

(2) The enzyme binds DNA at specific sites and cuts only one of the two strands.

(3) The enzyme cuts the sugar-phosphate backbone at specific sites on each strand.

(4) The enzyme recognizes a specific palindromic nucleotide sequence in the DNA.

139. DNA precipitation out of a mixture of biomolecules can be achieved by treatment with

(1) Isopropanol

(2) Chilled ethanol

(3) Methanol at room temperature

(4) Chilled chloroform

140. [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.

141. What triggers activation of protoxin to active Bt toxin of Bacillus thuringiensis in boll worm?

(1) Body temperature

(2) Moist surface of midgut

(3) Alkaline pH of gut

(4) Acidic pH of stomach

142. Which of the following is true for Golden rice?

(1) It is Vitamin A enriched, with a gene from daffodil

(2) It is pest resistant, with a gene from Bacillus thuringiensis

(3) It is drought tolerant, developed using Agrobacterium vector

(4) It has yellow grains, because of a gene introduced from a primitive variety of rice

143. Cell in G0 phase :

(1) exit the cell cycle

(2) enter the cell cycle

(3) suspend the cell cycle

(4) terminate the cell cycle

144. The correct sequence of phases of cell cycle is :

(1) M → G1 → G2 → S

(2) G1 → G2 → S → M

(3) S → G1 → G2 → M

(4) G1 → S → G2 → M

145. [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

146. Which of the following ecological pyramids is generally inverted?

(1) Pyramid of numbers in grassland

(2) Pyramid of energy

(3) Pyramid of biomass in a forest

(4) Pyramid of biomass in a sea

147. Conversion of glucose to glucose-6-phosphate, the first irreversible reaction of glycolysis, is catalyzed by

(1) Aldolase

(2) Hexokinase

(3) Enolase

(4) Phosphofructokinase

148. Where is respiratory electron transport system (ETS) located in plants ?

(1) Mitochondrial matrix

(2) Outer mitochondrial membrane

(3) Inner mitochondrial membrane

(4) Intermembrane space

149. Respiratory Quotient (RQ) value of tripalmitin is

(1) 0.9

(2) 0.7

(3) 0.07

(4) 0.09

150. Which one of the following is not a method in situ conservation of biodiversity?

(1) Biosphere Reserve

(2) Wildlife Sanctuary

(3) Botanical Garden

(4) Sacred Grove

151. Which of the following is the most important cause of animals and plants being driven to extinction?

(1) Over-exploitation

(2) Alien species invasion

(3) Habitat loss and fragmentation

(4) Co-extinctions

152. The Earth Summit held in Rio de Janeiro in 1992 was called

(1) to reduce CO_2 emissions and global warming

(2) for conservation of biodiversity and sustainable utilization of its benefits

(3) to assess threat posed to native species by invasive weed species

(4) for immediate steps to discontinue use of CFCs that were damaging the ozone layer

153. Which of the following is the most important cause for animals and plants being driven to extinction?

(1) Habitat loss and fragmentation

(2) Drought and floods

(3) Economic exploitation

(4) Alien species invasion

154. It takes very long time for pineapple plants to produce flowers. Which combination of hormones can be applied to artificially induce flowering in pineapple plants throughout the year to increase yield?

(1) Auxin and Ethylene

(2) Gibberellin and Cytokinin

(3) Gibberellin and Abscisic acid

(4) Cytokinin and Abscisic acid

155. The maximum volume of air a person can breathe in after a forced expiration is known as :

(1) Expiratory Capacity

(2) Vital Capacity

(3) Inspiratory Capacity

(4) Total lung Capacity

156. Tidal Volume and Expiratory Reserve Volume of an athlete is 500 mL and 1000 mL, respectively. What will be his Expiratory Capacity if the Residual Volume is 1200 mL?

(1) 1500 mL

(2) 1700 mL

(3) 2200 mL

(4) 2700 mL

157. Due to increasing air-borne allergens and pollutants, many people in urban areas are suffering from respiratory disorder causing wheezing due to

(1) benign growth on mucous lining of nasal cavity

(2) inflammation of bronchi and bronchioles

(3) proliferation of fibrous tissues and damage of the alveolar walls

(4) reduction in the secretion of surfactants by pneumocytes.

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158. Match the Column-I with Column-II:

Column-I
(a) P-wave
(b) QRS complex
(c) T-wave
(d) Reduction in the size of T-wave

Column-II
(i) Depolarisation of ventricles
(ii) Repolarisation of ventricles
(iii) Coronary ischemia
(iv) Depolarisation of atria
(v) Repolarisation of atria

Select the correct option:

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

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

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

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

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159. All the components of the nodal tissue are autoexcitable. Why does the SA node act as the normal pacemakar?

(1) SA node has the lowest rate of depolarisation.

(2) SA node is the only component to generate the threshold potential.

(3) Only SA node can convey the action potential to the other components.

(4) SA node has the highest rate of depolarisation.

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160. A specialised nodal tissue embedded in the lower corner of the right atrium, close to Atrio-ventricular septum, delays the spreading of impulses to heart apex for about 0.1 sec. The delay allows.

(1) blood to enter aorta.

(2) the ventricles to empty completely.

(3) blood to enter pulmonary arteries.

(4) the atria to empty completely.

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161. What would be the heart rate of a person if the cardiac output is 5 L, blood volume in the ventricles at the end of diastole is 100 mL and at the end of ventricular systole is 50 mL?

(1) 50 beats per minute

(2) 75 beats per minute

(3) 100 beats per minute

(4) 125 beats per minute

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162. Match the items in Column-I with those in Column-II:

Column-I
(a) Podocytes
(b) Protonephridia
(c) Nephridia
(d) Renal calculi

Column-II
(i) Crystallised oxalates
(ii) Annelids
(iii) Amphioxus
(iv) Filtration slits

Select the correct option from the following

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

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

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

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

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163. Use of an artificial kidney during hemodialysis may result in :

(a) Nitrogenous waste build-up in the body
(b) Non-elimination of excess potassium ions
(c) Reduced absorption of calcium ions from gastro-intestinal tract
(d) Reduced RBC production

Which of the following options is the most appropriate?

(1) and (b) are correct

(2) and (c) are correct

(3) and (d) are correct

(4) and (d) are correct

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164. Match the following parts of a nephron with their function:

(a) Descending limb of Henle's loop
(b) Proximal convoluted tubule
(c) Ascending limb of Henle's loop
(d) Distal convoluted tubule

(i) Reabsorption of salts only
(ii) Reabsorption of water only
(iii) Conditional reabsorption of sodium ion and water
(iv) Reabsorption of ion, water and organic nutrients.

Select the correct option from the following

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

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

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

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

165. Which of the following factors is responsible for the formation of concentrated urine?

(1) Low levels of antidiuretic hormone

(2) Maintaining hyperosmolarity towards inner medullary interstitium in the kidneys.

(3) Secretion of erythropoietin by Juxtaglomerular complex

(4) Hydrostatic pressure during glomerular filtration

166. Select the correct option.

(1) 8th, 9th and 10th pairs of ribs articulate directly with the sternum.

(2) 11th and 12th pairs of ribs are connected to the sternum with the help of hyaline cartilage.

(3) Each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.

(4) There are seven pairs of vertebrosternal, three pairs of vertebrochondral and two pairs of vertebral ribs.

167. Which of the following muscular disorders is inherited?

(1) Tetany

(2) Muscular dystrophy

(3) Myasthenia gravis

(4) Botulism

168. Match the following joints with the bones involved:

List I
(a) Gliding joint
(b) Hinge joint
(c) Pivot joint
(d) Saddle joint

List II
(i) Between carpal and metacarpal of thumb
(ii) Between Atlas and Axis
(iii) Between the carpals
(iv) Between Humerus and Ulna

Select the correct option from the following:

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

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

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

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

169. How does steroid hormone influence the cellular activities?

(1) Changing the permeability of the cell membrane

(2) Binding to DNA and forming a gene-hormone complex

(3) Activating cyclic AMP located on the cell membrane

(4) Using aquaporin channels as second messenger

170. Which of the following glucose transporters is insulin-dependent?

(1) GLUT I

(2) GLUT II

(3) GLUT III

(4) GLUT IV

171. Identify A, B and C in the diagramatic representation of the mechanism of hormone action. Select the correct option from the following. (A diagram of the mechanism of hormone action is shown, depicting a hormone binding to a membrane-bound receptor on the target cell, with labels A, B and C pointing respectively to the hormone, the receptor, and the intracellular signalling molecule generated; identify what each of A, B and C represents.)

(1) A-Steroid Hormone; B-Hormone-receptor Complex, C-Protein

(2) A-Protein Hormone, B-Receptor; C-Cyclic AMP

(3) A-Steroid Hormone; B-Receptor, C-Second Messenger

(4) A-Protein Hormone; B-Cyclic AMP, C-Hormone-receptor Complex

172. Match the following hormones with the respective disease.

Column I
(a) Insulin
(b) Thyroxin
(c) Corticoids
(d) Growth Hormone

Column II
(i) Addison's disease
(ii) Diabetes insipidus
(iii) Acromegaly
(iv) Goitre
(v) Diabetes mellitus

Select the correct option

(1) (v), (b) (i), (c) (ii), (d) (iii)

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

(3) (v), (b) (iv), (c) (i), (d) (iii)

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

Answer Key

1.B	**2**.C	**3**.B	**4**.B	**5**.D	**6**.A	**7**.A	**8**.D	**9**.A	**10**.A	**11**.D
12.C	**13**.C	**14**.C	**15**.C	**16**.A	**17**.C	**18**.C	**19**.C	**20**.D	**21**.B	**22**.D
23.D	**24**.A	**25**.A	**26**.C	**27**.D	**28**.D	**29**.B	**30**.C	**31**.B	**32**.B	**33**.C
34.D	**35**.A	**36**.C	**37**.B	**38**.D	**39**.D	**40**.D	**41**.B	**42**.B	**43**.B	**44**.C
45.B	**46**.A	**47**.C	**48**.C	**49**.A	**50**.C	**51**.A	**52**.B	**53**.C	**54**.A	**55**.B
56.A	**57**.C	**58**.B	**59**.D	**60**.A	**61**.A	**62**.A	**63**.A	**64**.C	**65**.C	**66**.B
67.D	**68**.B	**69**.C	**70**.A	**71**.B	**72**.C	**73**.D	**74**.B	**75**.D	**76**.B	**77**.A
78.D	**79**.B	**80**.C	**81**.B	**82**.C	**83**.D	**84**.D	**85**.B	**86**.D	**87**.B	**88**.D
89.D	**90**.A	**91**.D	**92**.B	**93**.A	**94**.C	**95**.C	**96**.C	**97**.C	**98**.A	**99**.C
100.B	**101**.A	**102**.C	**103**.D	**104**.B	**105**.C	**106**.D	**107**.B	**108**.A	**109**.C	**110**.C
111.B	**112**.D	**113**.D	**114**.C	**115**.B	**116**.C	**117**.D	**118**.B	**119**.B	**120**.D	**121**.D
122.D	**123**.A	**124**.C	**125**.C	**126**.B	**127**.A	**128**.D	**129**.B	**130**.B	**131**.B	**132**.A
133.B	**134**.B	**135**.C	**136**.C	**137**.D	**138**.B	**139**.B	**140**.B	**141**.C	**142**.A	**143**.A
144.D	**145**.D	**146**.D	**147**.B	**148**.C	**149**.B	**150**.C	**151**.C	**152**.B	**153**.A	**154**.A
155.B	**156**.A	**157**.B	**158**.A	**159**.D	**160**.D	**161**.C	**162**.C	**163**.C	**164**.B	**165**.B
166.D	**167**.B	**168**.A	**169**.B	**170**.D	**171**.B	**172**.C				