TECHNO INDIA GROUP OF PUBLIC SCHOOLS

Dt. 13-12-2025

NEET (XII)

Monthly Mock Test - 6 (December-2025)

Time Allowed: **3 hours** Maximum Marks: **720**

General Instructions:

1. This test will be a 3 hours Test, Maximum Marks 720.
2. This test consists of 180 questions of Physics, Chemistry and Biology. All questions are COMPULSORY to attempt. MCQ (one correct answer).
3. Each question is of 4 marks.
4. There are three parts in the question paper, consisting Part-I Physics (Q. No. 1 to 45), Part-II Chemistry (Q. no. 46 to 90), Part-III Biology (Q. no. 91 to 180).
5. There will be only one correct choice in the given four choices for each question. For each question 4 marks will be awarded for correct choice, 1 mark will be deducted for incorrect choice and zero mark will be awarded for unattempted question.
6. Any textual, printed or written material, mobile phones, calculator, etc. is not allowed for the students appearing for the test.
7. All calculations / written work should be done in the rough sheet provided.

Space For Rough Works

PHYSICS

1. In a circuit, the current is given by

$i = 5\sin\left(100t - \frac{\pi}{2}\right)$

and the AC potential is $V = 200\sin(100t)$ volt. Then the power consumption is:

① 20 watt ② 40 watt ③ 1000 watt ④ 0 watt

2. For series LCR circuit, the correct statement is:

① Applied e.m.f. and potential difference across resistance are in the same phase.

② Applied e.m.f. and potential difference at inductor coil have a phase difference of $\pi/2$.

③ Potential difference at capacitor and inductor have a phase difference of $\pi/2$.

④ Potential difference across resistance and capacitor have a phase difference of $\pi/2$.

3. The magnetic field of an electromagnetic wave is given by

$B_y = 3\times10^{-7}\sin\left(10^3 x + 3\times10^{11} t\right)$,

where x is in meter and t in second. The wavelength of the electromagnetic wave is:

① 6.28 cm ② 3.14 cm ③ 0.63 cm ④ 0.32 cm

4. The image formed by a convex mirror of focal length 30 cm is a quarter of the size of the object. The distance of the object from the mirror is:

① 30 cm ② 90 cm ③ 120 cm ④ 60 cm

5. A light wave has a frequency of 4×10^{14} Hz and a wavelength of 5×10^{-7} meter in a medium. The refractive index of the medium is:

① 1.5 ② 1.33 ③ 1.0 ④ 0.66

6. The sun makes 0.5° angle on the earth's surface. Its image is made by a convex lens of 50 cm focal length. The diameter of the image will be:

① 5 mm ② 4.36 mm ③ 7 mm ④ 1 mm

7. An equiconvex lens has a power of 2D. If it is made of glass of refractive index 1.25, then the radius of curvature of its each surface will be:

① 20 cm ② 10 cm ③ 40 cm ④ 25 cm

8. A plate of mass 10 g is in equilibrium in air due to the force exerted by a light beam on the plate. Calculate the power of the beam, if the plate is perfectly absorbing:

① 3×10^8 W ② 3×10^7 W

③ 2.4×10^6 W ④ 2.4×10^8 W

9. **Choose the correct option for given statements:**

Statement I: The kinetic energy of photoelectrons emitted by a photosensitive surface depends on the intensity of the incident radiation.

Statement II: In the photoelectric emission process, the maximum energy of the photoelectrons increases with in-creasing intensity of the incident light.

① Statement I is correct, Statement II is incorrect. ② Statement II is correct, Statement I is incorrect.

③ Both Statement I and Statement II are correct. ④ Both Statement I and Statement II are incorrect.

Cont.. 4

10. A material particle with a rest mass m_0 is moving with a velocity of light (C). Then, the wavelength of the de-Broglie wave associated with it is:

① $\frac{h}{m_0 C}$ ② Zero

③ ∞ ④ $\frac{m_0 C}{h}$

11. Let E_1 and E_2 be the binding energies of two nuclei A and B. It is observed that two nuclei of A combine together to form a B nucleus. This observation is correct only if:

① $E_1 > E_2$ ② $E_2 > E_1$ ③ $E_2 > 2E_1$ ④ None

12. Binding energy per nucleon of ${}_1^2\text{H}$ and ${}_2^4\text{He}$ are 1.1 MeV and 7.0 MeV respectively. Energy released in the process

${}_1^2H + {}_1^2H \rightarrow {}_2^4He$

is:

① 20.8 MeV ② 16.6 MeV ③ 25.2 MeV ④ 23.6 MeV

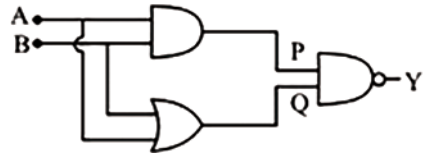
13. In terms of Rydberg constant R, the shortest wavelength in Balmer series of Hydrogen atom spectrum will be:

① R1 ② R4 ③ 23R ④ R9

14. Difference between n^{th} and $(n+1)^{\text{th}}$ Bohr's radius of Hydrogen atom is equal to $(n-1)^{\text{th}}$ Bohr's radius. The value of n is:

① 1 ② 2 ③ 3 ④ 4

15. In the following logic circuit, the sequence of the inputs, A, B are (0, 0), (0, 1). The output Y for this sequence will be:



① 1, 0 ② 0, 1

③ 1, 1 ④ 0, 0

16. With increasing biasing voltage of a photodiode, the magnitude of photoelectric current:

① Remains constant. ② From photodiode in reverse bias, is zero.

③ Increases initially and then saturates. ④ Increases linearly.

17. The electric field intensity due to an infinite cylindrical thin wire having charge q per unit length at a distance r from its axis is:

① Directly proportional to r^2 ② Directly proportional to r^3

③ Inversely proportional to r ④ Inversely proportional to r^2

18. Charges of $+\frac{10}{3}\times 10^{-9} C$ are placed at each of the four corners of a square of side 8 cm. The potential at the intersection of diagonals is:

① $150\sqrt{2}$ V ② $1500\sqrt{2}$ V ③ $900\sqrt{2}$ V ④ 900 V

19. B_x and B_y are the magnetic field at the center of two coils x and y respectively, each carrying equal current. If coil x has 200 turns and 20 cm radius and coil y has 400 turns and 20 cm radius, the ratio of B_x and B_y is:

① 1 : 1 ② 1 : 2 ③ 2 : 1 ④ 4 : 1

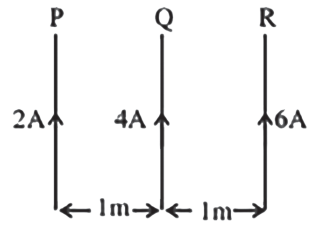
20. Two ions of masses 4 amu and 16 amu have charges +2*e* and +3*e* respectively. These ions pass through the region of constant perpendicular magnetic field. The kinetic energy of both ions is the same then:

① Lighter ion will be deflected less than heavier ion.
② Lighter ion will be deflected more than heavier ion.
③ Both ions will be deflected equally.
④ No ion will be deflected.

21. Magnetic moment of orbital electron in first orbit of H-atom is μ_B, then magnetic moment of that electron in second orbit is:

① μB ② 2μB ③ μ2B ④ 4μB

22. Three long straight wires are carrying current according to the diagram, then magnetic force per unit length on wire *Q* is:

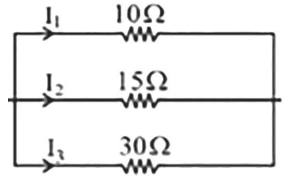


① 8×10^{-7} N/m
② 32×10^{-7} N/m
③ 4×10^{-7} N/m
④ 16×10^{-7} N/m

23. The drift velocity of the electrons in a copper wire of length 2 m under the application of a potential difference of 200 V is 0.5 ms^{-1}. Their mobility (in $m^2 V^{-1} s^{-1}$) is:

① 2.5×10^{-3} ② 2.5×10^{-2} ③ 5×10^{2} ④ 5×10^{-3}

24. In this circuit, the value of I_2 is:



① 0.2 A
② 0.3 A
③ 0.4 A
④ 0.6 A

25. Two waves originating from S_1 and S_2 , having zero initial phase difference and common wavelength λ, will show completely destructive interference at *P*, if ($S_1P - S_2P$) is:

① 5λ ② 0.75λ ③ 0.6λ ④ 5.5λ

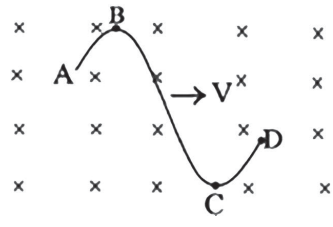
26. Two polaroids have their polarizing directions parallel so that the intensity of the transmitted light is maximum. The angle through which either polaroid must be turned so that intensity of transmitted light is dropped to one-half of the previous transmitted is:

① 180° ② 120° ③ 90° ④ 45°

27. In a single slit diffraction experiment, the first minimum for red light (660 nm) coincides with the first maximum of some other wavelength λ. The value of λ is:

① 4400 Å ② 6600 Å ③ 2000 Å ④ 3500 Å

28. A conductor *ABCD* is moving with speed *V* along the *X*-axis in a region where the magnetic field is uniform and directed into the plane of the paper. Between which points is the maximum induced emf produced?



① AC ② BD
③ AB ④ BC

29. In an experiment to determine the focal length (f) of a concave mirror by the parallax method, a student places the object pin A on the principal axis at a distance x from pole P. The student looks at pin A and its inverted image from a distance keeping his/her eye in line with PA. When the student shifts his/her eye towards the left, the image appears to the right of the pin, then:

① $x < f$ ② $f < x < 2f$ ③ $x = 2f$ ④ $x > 2f$

30. **Assertion:** A P-N junction diode is used in reverse bias to detect the intensity of light.

Reason: In reverse bias condition, current is small but it is more sensitive to changes in the intensity of incident light.

① Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

② Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

③ Assertion is True but the Reason is False.

④ Both Assertion & Reason are False.

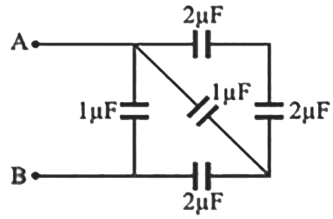
31. A parallel plate air capacitor has capacity 'C' and separation between the plates is 'd'. A potential difference 'V' is applied between the plates. Force of attraction between the plates of the parallel plate air capacitor is:

① $\frac{C^2V^2}{2d^2}$ ② $\frac{C^2V^2}{2d}$ ③ $\frac{CV^2}{2d}$ ④ $\frac{CV^2}{d}$

32. An electric dipole of length 20 cm having $\pm 3 \times 10^{-3} C$ charge placed at 60° with respect to uniform electric field experiences a torque of magnitude 6 N·m. The potential energy of dipole is:

① $-2\sqrt{3}$ J ② $5\sqrt{3}$ J ③ $-3\sqrt{2}$ J ④ $3\sqrt{5}$ J

33. The total capacity of the system of capacitors shown in the adjoining figure between the points A and B is:



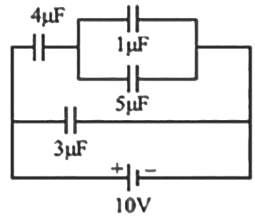
① 1μF

② 2μF

③ 3μF

④ 4μF

34. For the circuit shown in the figure, the charge on the 4μF capacitor is:



① 30 μC

② 40 μC

③ 24 μC

④ 54 μC

35. A parallel plate capacitor having capacitance C farad is connected with a battery of emf V volt. Keeping the capacitor connected with the battery, a dielectric slab of dielectric constant K is inserted between the plates. The dimensions of the slab are such that it fills the whole space between the capacitor plates. Then:

① charge on the capacitor plates remains the same

② charge on the plates become K times

③ potential difference between the plates decreases to V/K

④ all of the above

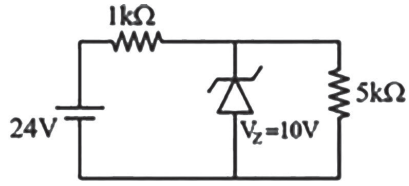
36. One requires 11 eV of energy to dissociate a carbon monoxide molecule into carbon and oxygen atoms. The minimum frequency of the appropriate electromagnetic radiation to achieve the dissociation lies in:

① visible region ② infrared region ③ ultraviolet region ④ microwave region

37. What is the angular momentum of an electron in Bohr's hydrogen atom whose energy is –3.4 eV?

① $\frac{h}{\pi}$ ② $\frac{h}{2\pi}$ ③ $\frac{h}{4\pi}$ ④ $\frac{3h}{2\pi}$

38. For the given circuit the power across zener diode is _____ mW.



① 100
② 110
③ 120
④ 130

39. Match list-I with list-II

	List-I		**List-II**
(a)	Rectifier	(i)	Used for stepping up or stepping down the A.C. voltage
(b)	Stabilizer	(ii)	Used to convert A.C. voltage into DC voltage
(c)	Transformer	(iii)	Used to remove any ripple in the rectified output voltage
(d)	Filter	(iv)	Used for constant output voltage

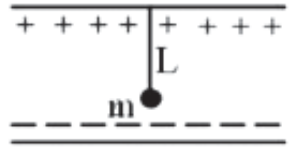
① a-(ii), b-(iv), c-(i), d-(iii) ② a-(iii), b-(iv), c-(i), d-(ii)

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

40. Two point charges Q and $-3Q$ are placed at some distance apart. If the electric field due to $-3Q$ at the location of Q is $E\hat{i}$, then the electric field due to Q at the locality of $-3Q$ is:

① $(-E)\hat{i}$ ② $\frac{E}{3}\hat{i}$ ③ $(-3E)\hat{i}$ ④ $\left(-\frac{E}{3}\right)\hat{i}$

41. A small sphere carrying a charge 'q' is hanging in between two parallel plates by a string of length L as shown in the figure. The time period of the pendulum is T_0. When parallel plates are charged as shown, the time period changes to T. The ratio T/T_0 is equal to:



① $\left(\frac{g+\frac{gE}{m}}{g}\right)$ ② $\left(\frac{g}{g+\frac{gE}{m}}\right)^{3/2}$ ③ $\left(\frac{g}{g+\frac{gE}{m}}\right)^{1/2}$ ④ None of these

42. What is the magnetic moment due to given current distribution?

① $Ia^2\hat{j}$ ② $Ia^2\hat{i}$ ③ $Ia^2\left(\hat{i}+\hat{j}\right)$ ④ $Ia^2\left(\hat{i}+\hat{k}\right)$

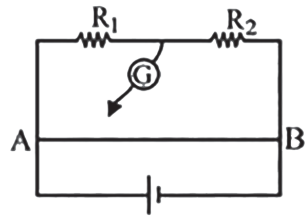
43. A particle of mass m and charge q is in an electric and magnetic field, given by

$$E = 2\hat{i}+3\hat{j}, \quad B = 4\hat{j}+6\hat{k}$$

The charged particle is shifted from the origin to the point $P(x=1, y=1)$ along a straight path. The magnitude of the total work done on it is:

① (0.35) q ② (0.15) q ③ 2.5 q ④ 5 q

44. In the meter bridge experiment for given values of R_1 and R_2, the balance point is 20 cm from point A. When R_2 is shunted by 20 Ω resistance, the balancing point shifts to 50 cm from point A. Find the value of R_2.



① 20 Ω ② 15 Ω
③ 60 Ω ④ 80 Ω

45. The length of thin wire required to manufacture a solenoid coil of inductance L and length l (If cross-sectional diameter is considered much less than its length) is:

① $\sqrt{\frac{\pi Ll}{2\mu_0}}$ ② $\sqrt{\frac{4\pi Ll}{\mu_0}}$ ③ $\sqrt{\frac{2\pi Ll}{\mu_0}}$ ④ $\sqrt{\frac{\pi Ll}{\mu_0}}$

CHEMISTRY

46. A 0.1 molal aqueous solution of a weak acid is 30% ionised. If K_f of water 1.86°C/m, the freezing point of the solution will be

① –0.18°C ② –0.54°C ③ –0.36°C ④ –0.24°C

47. The vapour pressure of two liquids 'P' and 'Q' are 80 and 60 torr, respectively. The total vapour pressure of solution obtained by mixing 3 mole of 'P' and 2 mole of Q would be :

① 72 torr ② 140 torr ③ 68 torr ④ 20 torr

48. A 5% solution of cane sugar (M.W = 342) is isotonic with 1% solution of a substance X. The molecular weight of 'X' is :

① 3.42 ② 171.2 ③ 68.4 ④ 136.8

49. The vapour pressure at a given temperature of an ideal solution containing 0.2 mole of a non-volatile solute and 0.8 mol of solvent is 60 mm of Hg. The vapour pressure of the pure solvent at the same temperature is :

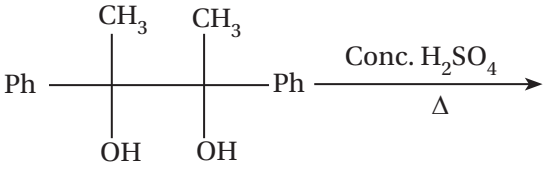
① 150 mm of Hg ② 60 mm of Hg ③ 75 mm of Hg ④ 120 mm of Hg

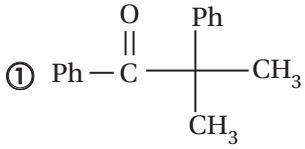
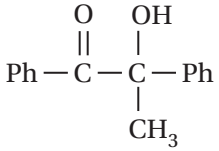
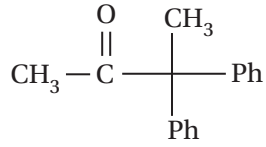
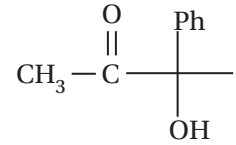
50. Which one of he following salts will have the same value of Van't Hoff factor (i) as that of $K_4[Fe(CN)_6]$.

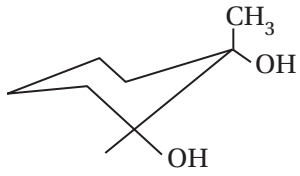
① $Al_2(SO_4)_3$ ② NaCl ③ $Al(NO_3)_2$ ④ Na_2SO_4

51. All form ideal solution except :

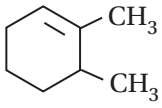
① C_6H_6 and $C_6H_5CH_3$ ② C_2H_6 and C_2H_5I
③ C_6H_5 and C_6H_5Br ④ C_2H_5I and C_2H_5OH

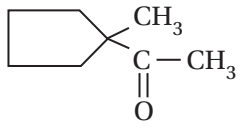
52.  product is :

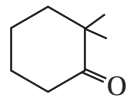
① 
② 
③ 
④ 

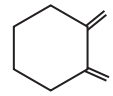
53. 

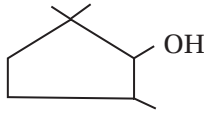
$\xrightarrow{\text{Conc. } H_2SO_4}$ product is

① 

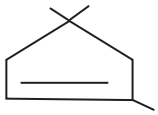
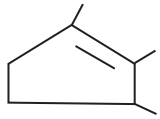
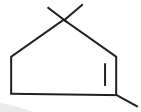
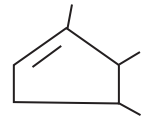
② 

③ 

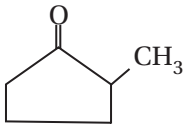
④ 

54. 

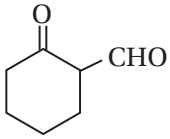
$\xrightarrow[\Delta]{\text{Conc. } H_2SO_4}$ Major product is :

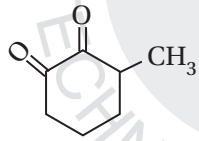
① 
② 
③ 
④ 

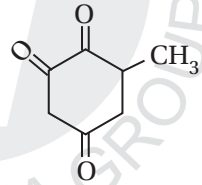
55. In the given reaction (X) will be :

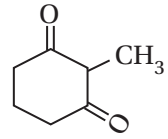


$\xrightarrow{SeO_2}$ 'X' ;

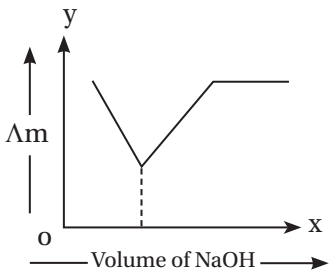
① 

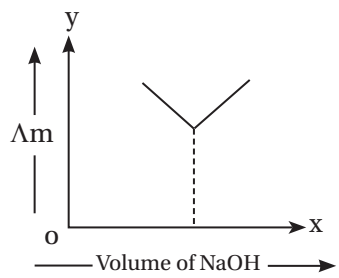
② 

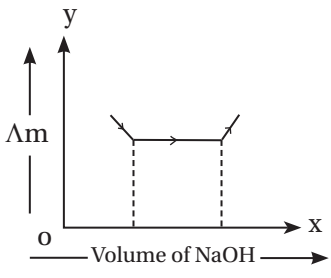
③ 

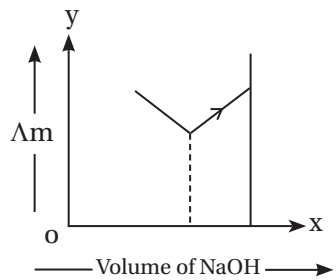
④ 

56. Conductometric titration curve of a equimolar mixture of a HCl and HCN with NaOH(aq) is

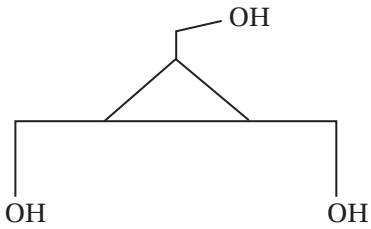
① 

② 

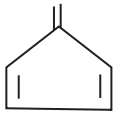
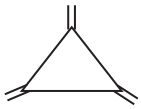
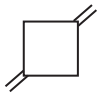
③ 

④ 

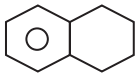
57.



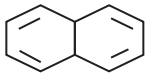
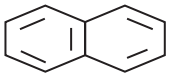
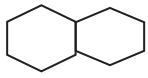
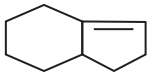
$\xrightarrow[\Delta]{\text{Conc. } H_2SO_4}$ Major product 'A' :

①  ②  ③  ④ 

58. What should be the product of the following reaction ?



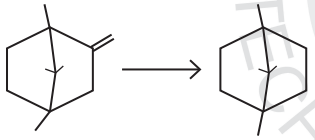
$\xrightarrow[\text{2. Alc . KOH, } \Delta]{\text{1. W.B.S}}$?
3. N.B.S
4. Alc . KOH, Δ

①  ②  ③  ④ 

59. The formation of pH_4^+ is difficult compared to NH_4^+ because :

① lonepair of 'P' is optically inert
② lonepair of 'P' resides in almost pure p-orbital
③ lonepair of 'P' resides at sp^3 orbital.
④ lonepair of 'P' resides at almost pure s-orbital.

60. Which of the following reagents can not be used for the following conversion?



(Camphor) (Camphane)

① Red P + HI ② Zn – Hg / Conc. HCl ③ $N_2H_4/C_2H_5O^-$ ④ Pd / $BaSO_4$

61. Which of the following complex/complexes exhibit geometrical isomerism ?

① $[Pt(NH_3)_2Cl_2]$ ② $[CO(en)_2Cl_2]^+$ ③ Both 1 and 2 ④ $[ZnClBr_2]^{2-}$

62. Two consecutive irreversible first order reaction can be represented by

$$A \xrightarrow{K_1} B \xrightarrow{K_2} C$$

$$[A]_t \longrightarrow [A_0] \cdot e^{-K_1 T}$$

$$[B]_t \longrightarrow \frac{K[A_0]}{K_2 - K_1} \cdot e^{-K1t} \_\_\_\_\_ e^{-K2^+t}$$

At what time will 'B' be present in greatest concentration ?

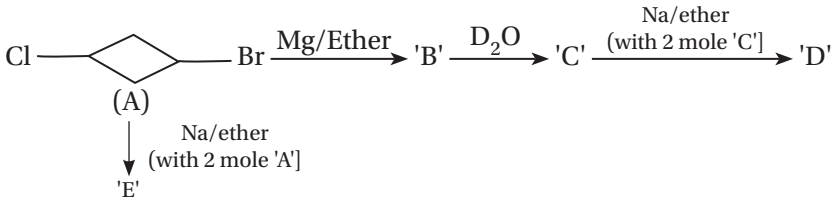
① $\frac{K_1}{K_2 - K_1}$ ② $\frac{K_1}{(K_1 - K_2)} \log_e\left(\frac{K_1}{K_2}\right)$ ③ $\frac{1}{(K_2 - K_1)} \log_e\left(\frac{K_1}{K_2}\right)$ ④ $\frac{K_1}{K_2}$

63. Calculate the half-life of the first order reaction.

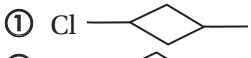
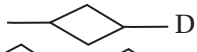
$C_2H_4O(g) \longrightarrow CH_4(g) + CO(g)$

If the initial pressure of $C_2H_4O(g)$ is 80 mm and the total pressure at the end of 20 mm is 120 mm.

① 40 mm ② 120 mm ③ 20 mm ④ 80 mm

64. 

'D' & 'E' are respectively :

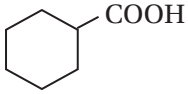
①  & 

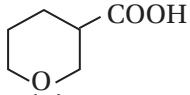
② 

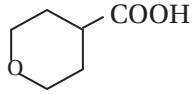
③ 

④ None of these

65. The correct order of strengths of the carboxylic acids is :


(I)


(II)


(III)

① I > II > III ② II > III > I ③ III > II > I ④ II > I > III

66. In chromic acid anhydride (CrO_3), Cr has d° configuration but it is bright orange coloured solid, the colour is due to :

① d – d transition ② charge transfer (L → M) transition

③ Charge transfer (M – L) transition ④ p – d transition.

67. The reagents used in the preparation of aspirin from salicylic acid is :

① $SOCl_2$, pyridine ② CH_3COOH, HCl ③ CH_3Cl, $AlCl_3$ ④ $(CH_3CO)_2O$, H^+

68. for a spontaneous reaction the ΔG, equilibrium constant and E°_{cell} will be respectively :

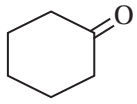
① –ve, > 1, –ve ② –ve, < 1 , –ve ③ ve, > 1, –ve ④ –ve, > 1, +ve

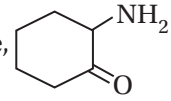
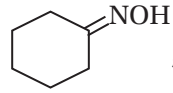
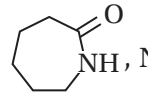
69. The Van't Hoff's factor for 0.1(M) $Ba(NO_3)_2$ solution is 2.74. The degree of dissociation is :

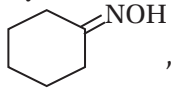
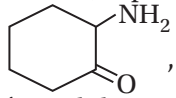
① 91.3% ② 87% ③ 100% ④ 74%

70. Glucose does not react with :

① HNO_3 ② HI / Red P ③ D.N.P ④ Fehling's solution

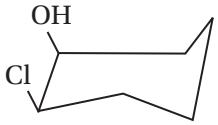
71.  $\xrightarrow{NH_2OH}$ 'A' $\xrightarrow{\text{Oleum}}$ 'B' $\xrightarrow{\text{Polymerised}}$ C; 'A' , 'B' and 'C' are ;

① Cyclohexanone oxime,  urotrop ②  ,  , Nylon 6

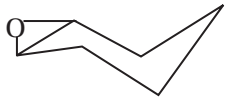
③ Cyclohexanone oxime, caprolactum, urotropine. ④  ,  , cyanuric triazide

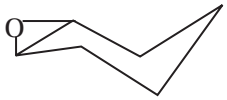
72. Hybridisation of 'N' in solid N_2O_5 :

① Sp^2 ② Sp^3 ③ Sp and Sp^2 ④ Sp and Sp^3

73. 

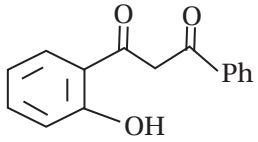
$\xrightarrow{NaOH}$?

① 

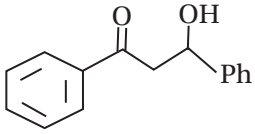
② 

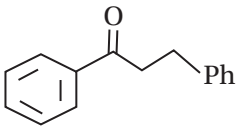
③ 

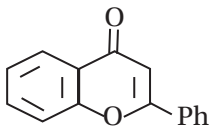
④ None of these

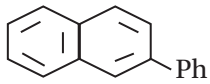
74. 

$\xrightarrow{H^+}$?

① 

② 

③ 

④ 

75. $K(S) + H_2O(l) \rightarrow KOH(aq) + \frac{1}{2} H_2(g)$; $\Delta H = -48$ Kcal

$H2(g) + \frac{1}{2} O_2(g) \rightarrow H_2O(l)$; $\Delta H = -68.4$ Kcal.

$KOH(s) + H_2O \rightarrow KOH(aq)$ $\Delta H = -14.0$ Kcal

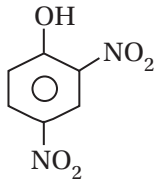
Using above data calculate the heat of formation of KOH(s) :

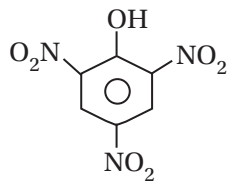
① –116.4 Kcal ② –102,4 Kcal ③ –62.0 Kcal ④ –130.4 Kcal

76. $Na_2S_2O_3.5H_2O$ is titrated with I_2 ; which is liberated by addition of 10 ml $K_2Cr_2O_7$ solution into K_I solution. If volume of $\frac{M}{25}$ sodium thiosulphate solution required to complete titration of I_2 is 3 ml. Then calculate Molarity of $K_2Cr_2O_7$ solution. (Molecular weight of $K_2Cr_2O_7 = 294.18$)

① $\frac{32}{25}$ ② $\frac{8}{375}$ ③ $\frac{16}{25}$ ④ $\frac{8}{500}$

77. Which of the following does not give effervescences of CO_2 with aq. $NaHCO_3$ solution?

① H_2CO_3 ② 

③ 

④ None of these

78. Regarding SN_2 reaction which of the following is/are correct?

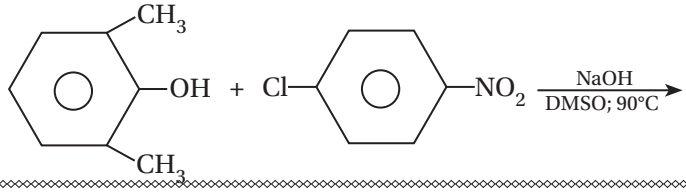
① On increasing polarity of solvent there is decrease in rate and order of reactivity of alkyl halides $3° < 2° < 1°$

② Transition state as trigonal bi pyramidal species

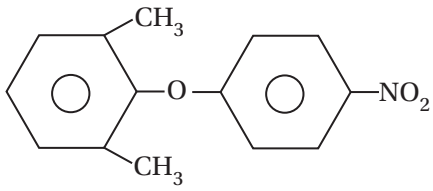
③ 100% inversion takes place

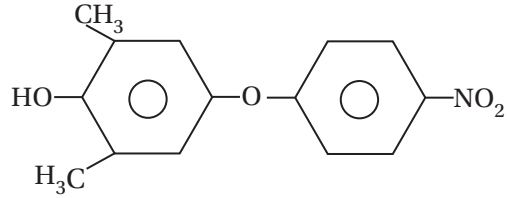
④ All of these are correct

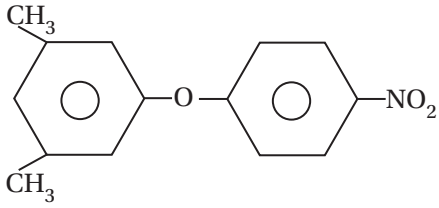
79. The major product of reaction,



is :

① 

② 

③ 

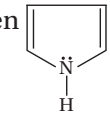
④ None of these

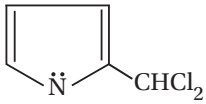
80. What should be minimum concentration of Cu^{2+} at which the cell reaction :

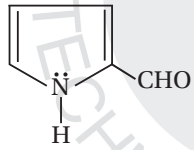
$Zn + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu$

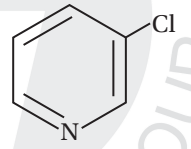
will be spontaneous, if $[Zn^{2+}] = 1$ M? [Let $E^0_{cell} = 1.18$ V]

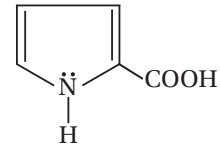
① 10^{-40} M ② 10^{-23} M ③ $10^{-11.8}$ M ④ 1.18×10^{-20} M

81. Which of the following is neither intermediate nor product of the reaction when  reacts with $CHCl_3$ and NaOH?

① 

② 

③ 

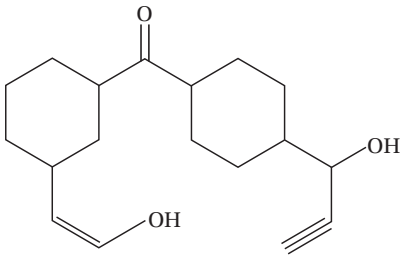
④ 

82. The specific conductance of saturated solution of silver chloride is K ($ohm^{-1}Cm^{-1}$). The limiting ionic conductance of Ag^+ and Cl^- ions are x and y respectively. The solubility of AgCl in g/litre is molar mass of AgCl = 143.5 g ($mole^{-1}$)

① $K\frac{1000}{x-y}$ ② $\frac{K}{(x+y)} \times 143.5$ ③ $\frac{K \times 100 \times 143.5}{x+y}$ ④ $\frac{K}{(x+y)} \times 46$

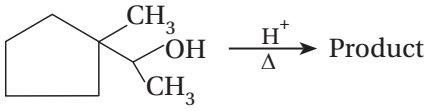
83. Rate constant for the reaction is 1.5×10^7 sec^{-1} at 50°C and 4.5×10^7 sec^{-1} at 100°C. What is the value of activation energy?

① 220 J $(mole)^{-1}$ ② 2300 J $(mole)^{-1}$ ③ 2.2×10^3 J $(mole)^{-1}$ ④ 2.2×10^4 J $(mole)^{-1}$

84. 

which of the following reagents will not react with above compound?

① Na metal ② $AgNO_3 + NH_4OH$ ③ $Cu_2Cl_2 + NH_4OH$ ④ $NaHCO_3$

85. 

what will be the sum of number of atoms involved in ring (i.e., x membered ring) and number of π-bond (y). $x + y = ?$

① 7 ② 4 ③ 9 ④ 5

86. In a reaction, the time required to complete half of the reaction was found to increase 16 times when initial concentration of the reactant was reduced to $\frac{1}{4}^{th}$. What is the order of the reaction?

① 2 ② 3 ③ 4 ④ 1

87. 25 mL of silver nitrate solution, 1 M is added dropwise to 25 mL of potassium iodide, 1.05 M solution. The ion(s) present in very small quantity in the solution is/are

① NO_3^- only ② K^+ only ③ Ag^+ and I^- both ④ I^- only

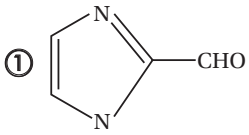
88. Element not present in Nessler's reagent is:

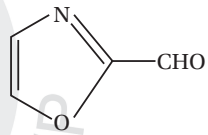
① Hg ② I ③ K ④ N

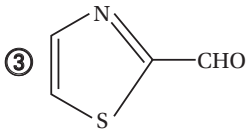
89. Which of the following compounds would give the following set of qualitative analysis?

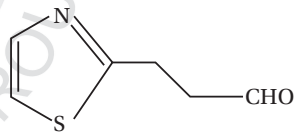
(i) Fehling's Test positive

(ii) Na fusion extract upon treatment with sodium nitroprusside gives a blood red colour.

① 

② 

③ 

④ 

90. An organic compound is treated with $NaNO_2$ and dil.HCl at 0°C. The resulting solution is added to an alkaline solution of β-naphthol where by brilliant red dye is produced. It shows the presence of :

① $—NO_2$ group ② aromatic $—NH_2$ group

③ $—CONH_2$ group ④ aliphatic $—NH_2$ group

Biology

91. A group of plants a animals with similar traits of any rank is:

① Species ② Taxon ③ Genus ④ Order

92. Gnetum, a gymnosperm, differs from *Cycas* and *Pinus*, but shows affinities with angiosperms in the features:

① Perianth and two integuments

② Embryo development and apical meristem

③ Absence of resin ducts and leaf venation

④ Presence of vessel elements and absence of archegonia

93. Evolutionary important character of *Selaginella* is:
① Heterosporous nature ② Rhizophore ③ Strobili ④ Ligule

94. The plant group that produces spores and embryos but lacks vascular tissues and seeds is:
① Pteridophyta ② Rhodophyta ③ Bryophyta ④ Phaeophyta

95. In gymnosperms, the endosperm is:
① Haploid ② Diploid ③ Triploid ④ Tetraploid

96. Two common characters found in centripede, cockroach and crab are:
① Jointed legs and chitinous exoskeleton ② Green glands and tracheae
③ Book lungs and antennae ④ Compound eyes and anal cerci

97. Biradial symmetry and lack of cnidoblasts are characteristic of—
① Hydra and star fish ② Starfish and sea anemone
③ *Ctenoplana* and *Beroe* ④ *Aurelia* and *Paramoecium*

98. Select the wrong statement
① Prawn has 2 pairs of antennae
② Millipedes have two pairs of appendages in each segment of the body
③ Nematocysts are characteristic of Phylum Cnidaria ④ Poriferons are exclusively marine

99. Which one of the following animals possesses nerve cells but no nerves?
① Hydra ② Tapeworm ③ Earthwarm ④ Frog's tadpole

100. Embryo of sunflower has:
① Two cotyledons ② One cotyledon ③ Five cotyledons ④ Four cotyledons

101. Which plant will lose its economic value if its fruits are produced by induced parthenocarpy?
① Pomegranate ② Banana ③ Orange ④ Grape

102. A plant bears fruit, has a column of vascular tissue and a tap root system. This plant is a
① Gymnosperm and monocot ② Gymnosperm and dicot
③ Angiosperm and dicot ④ Angiosperm and monocot

103. Frogs differ from humans in possessing:
① Thyroid and parathyroid ② Paired cerebral hemispheres
③ Nucleated RBCs ④ None of the above

104. Which of the following is correctly stated with respect to the common cockroach?
① Nitrogenous excretory product is urea
② Oxygen is transported by haemoglobin of blood
③ Malpighian tubules are excretory organs projecting out form the colon
④ The food is ground by mandibles and gizzard

105. Which one of the following does not differ in *E. coli* and *Chlamydomonas*?
① Cell membrane ② Chromosomal organisation
③ Ribosomes ④ Cell wall

106. Ribosomal RNA is actively synthesised in:
① Ribosomes ② Lysosomes ③ Nucleolus ④ Nucleoplasm

107. The desmosomes are concerned with
① Cell division ② Cell adherence ③ Cytolysis ④ Cellular excretion

108. In mitochondria, cristae act as sites for:
① Protein synthesis ② Phosphorylation of flavoprotein
③ Breakdown of macromolecules ④ Oxidation reduction

109. Nucleoproteins are synthesised in:
① Nucleoplasm ② Nuclear envelope ③ Nucleolus ④ Cytoplasm

110. ATP is
① Nucleotide ② Nucleoside ③ Nucleic acid ④ Vitamin

111. Role of enzyme in reactions:
① Decrease activation energy ② Increase activation energy
③ Inorganic catalyst ④ None of the above

112. Which of the following is most widely distributed in a cell?
① DNA ② Chloroplast ③ RNA ④ Sphaerosome

113. Enzymes having slightly different molecular structure but performing identical activity are:
① Holo enzymes ② Isoenzymes ③ Apoenzymes ④ Coenzymes

114. Which is not consistent with the double helical structure of DNA?
① A = T, C = G ② Density of DNA decreases on heating
③ A + T/C + G is not constant ④ Both A and B

115. RNA does not possess:
① Uracil ② Thymine ③ Adenosine ④ Cytosine

116. In the double helix of DNA, the two DNA strands are:
① Coiled around a common axis ② Coiled around each other
③ Coiled differently ④ Coiled over protein sheath

117. What occurs in crossing over?
① Recombination ② Independent assortment
③ Mutation ④ None

118. In a somatic cell cycle, DNA synthesis takes place in
① Gl phase ② Prophase of mitosis ③ S-phase ④ G2 phase

119. Which of the following represents the best stage to view the shape, size and number of chromosomes?
① Prophase ② Metaphase ③ Interphase ④ Telophase

120. Number of chromatids at metaphase is
① Two each in mitosis and meiosis ② Two in mitosis and one in meiosis
③ Two in mitosis and four in meiosis ④ One in mitosis and two in meiosis

121. The substrate for photorespiration is:
① PGA ② Glycolate ③ Serine ④ Glycine

122. The size of chlorophyll molecule is
① Head 15 × 15Å, tail 25Å ② Head 20 × 20Å, tail 25Å
③ Head 15 × 15Å, tail 20Å ④ Head 10 × 12Å, tail 25Å

123. NADP is reduced do NADPH in:
① PS I ② PS II
③ Calvin Cycle ④ Non cyclic photo phosphorylation

124. CO_2 joins the photosynthetic pathway in:
① PS I ② PS II ③ Light reaction ④ Dark reaction

125. Kranz anatomy is typical of:
① C4 plants ② C3 plants ③ C2 plants ④ CAM plants

126. Coconut milk factor is
① A gibberellin ② An auxin ③ ABA ④ Cytokinin

127. Hormone responsible for senescence is:
① ABA ② Auxin ③ GA ④ Cytokinin

128. If the apical bud has been removed, than we see
① More lateral branches ② More axillary buds
③ Plant growth stops ④ Flowering stops

129. Given below are four matchings of an animal and the respiratory organ.
(a) Silver fish—Trachea (b) Scorpion—Book lung
(c) Sea squirt—Pharyngeal gill slits (d) Dolphin—Skin
The correct matchings are—
① a and d ② a, b and c ③ b and d ④ c and d

130. Which vertebrate organ receives only oxygenated blood?
① Gill ② Lungs ③ Liver ④ Spleen

131. Arteries carry oxygenated blood, except:
① Hepatic ② Cardiac ③ Pulmonary ④ Aorta

132. Lymph differs from blood in possessing:
① Only WBC ② More RBC and WBC
③ More RBC and few WBC ④ More WBC and few RBC

133. Unit of muscle contraction is:
① Sarcomere ② Muscle fibre ③ S.R ④ Actin

134. Intercostal muscles occur in:
① Abdomen ② Ribs ③ Thigh ④ Diaphragm

135. Injury to vagus nerve in humans is not likely to affect:
① Gastrointestinal movements ② Pancreatic secretion
③ Cardiac movements ④ Tongue

Cont.. 18

136. The Nissl granules of neurons are made up of:
① DNA ② RNA ③ Ribosome ④ Protein

137. Third ventricle of brain is also called:
① Diacoel ② Rhinocoel ③ Metacoel ④ Paracoel

138. A chemical signal that has both endocrine and neural roles is:
① Cortisol ② Epinephrine ③ Melatonin ④ Calcitonin

139. Addition of a trace of thyroxine or iodine in water containing tadpoles will
① Keep then in larval stage ② Hasten their metamorphosis
③ Slow down their metamorphosis ④ Kill the tadpoles

140. Which hormone possesses anti-insulin effect?
① Cortisol ② Calcitonin ③ Oxytocin ④ Aldosterone

141. Perisperm is
① Remnant of endosperm ② Persistent nucleus
③ Peripheral part of endosperm ④ Disintegrated secondary nucellus

142. Total number of meiotic divisions required for forming 100 zygotes of wheat is
① 100 ② 125 ③ 75 ④ 50

143. Male gametophyte of an angiosperm is shed at
① Four celled pollen grain ② Microspore mother cell
③ Three celled pollen grain ④ None of the above

144. Formation of gametophyte from sporphyte, without meiosis, is called
① Apospory ② Apogamy ③ Parthenogenesis ④ Amphimixis

145. Micropyle of seed is involved in the passage of:
① Pollen tube ② Male gamete ③ Water ④ Gases

146. Blastopore is:
① Opening of neural tube ② Opening of gastrocoel
③ Future anterior end of embryo ④ Found in blastula

147. Freshly released human egg has:
① One Y-chromosome ② One X-Chromosome
③ Two X -Chromosomes ④ One X-Chromosome and one Y-Chromosome

148. Middle piece of mammalian sperm possesses:
① Mitochondria and centriole ② Mitochondria only
③ Centriole only ④ Nucleus and mitochondria

149. How many sperms are formed from a secondary spermatocyte?
① 4 ② 8 ③ 2 ④ 1

150. Human eggs are:
① Mesolecithal ② Microlecithal ③ Macrolecithal ④ Alecithal

151. Hysterectomy is the surgical removal of—
① Uterus ② Ovary ③ Vas deferens ④ Mammary glands

152. Oral contraceptives contain
① Progesterone ② LH ③ Oxytocin ④ Sterols

153. Cross between AaBB and aaBB will form—
① 1 AaBB : 1 aaBB ② All aaBB ③ 3AaBB : 1aaBB ④ 1AaBB : 3 aaBB

154. ABO blood group system is due to:
① Multifactor inheritance ② Incomplete dominance
③ Multiple allelism ④ Epistasis

155. tt mates with Tt. What will be the characteristic of the offspring?
① 75% recessive ② 50% recessive ③ 25% recessive ④ All dominant

156. Haemophilia is more common in males because it is a
① Recessive character carried by Y-chromosome ② Dominant character carried by Y-chromosome
③ Dominant trait carried by X-chromosome ④ Recessive trait carried by Y-chromosome

157. An octamer of 4 histones complexed with DNA forms:
① Endosome ② Nucleosome ③ Mesosome ④ Centromere

158. In the genetic dictionary, there are 64 codons as:
① 64 amino acids are to be coded ② 64 types of tRNAs are present
③ There are 44 nonsense codons and 20 sense codons ④ Genetic code is triplet

159. Which of the following are homologous organs?
① Wings of bird & locust ② Wing of bird & pectoral fins of fish
③ Wings of bat & butterfly ④ Legs of frog & cockroach

160. Genetic drift operates in:
① Small, isolated population ② Large, isolated population
③ Fast reproductive population ④ Slow reproductive population

161. According to palaentology, evolution of man started from—
① Africa ② France ③ Japan ④ China

162. What is true for individuals of the same species?
① Live in same niche ② Live in same habitat ③ Interbreeding ④ None of the above

163. In which era did reptiles dominate the earth?
① Mesozoic ② Coenozoic ③ Palaeozoic ④ Archaeozoic

164. Widal test is used for the diagnosis of
① Typhoid ② Plague ③ Pneumonia ④ Diphtheria

165. A person, likely to have contracted tetanus, is immunised by giving—
① Weakened germs ② Preformed antibodies
③ Dead germs ④ Wide spectrum antibodies

166. A metastatic cancerous tumour is termed 'sarcoma' if the disorder is in:
① Fibroblasts ② Circulatory system ③ Immune system ④ Epithelial cells

Cont.. 20

167. The term 'antibiotic' was coined by:
① Edward Jenner ② Alexandar Fleming ③ Boyes & Cohen ④ Selman Waksman

168. Which bacteria is used in gobar gas plants?
① Methanogens ② Nitrifying bacteria
③ Ammonifying bacteria ④ Denitrifying bacteria

169. The biofertilizers are:
① Anabaena and Azolla ② Cow-dung and farmyard waste
③ Manure ④ Green manure

170. Which one of the following does not have the ability to fix atmospheric nitrogen?
① *Azotobacter* ② *Anabaena* ③ *Nostoc* ④ *Spirogyra*

171. Stirred tank bioreactors have been designed for:
① Purification of the product
② Ensuring anaerobic conditions in the culture vessel
③ Availability of oxygen throughout the process ④ Addition of preservatives to the product

172. Maximum application of animal cell culture technology today is in the production of:
① Insulin ② Interferons ③ Vaccines ④ Edible proteins

173. What is true for plasmid?
① Plasmids are widely used in gene transfer ② Plasmids are found in virus
③ Plasmids have gene for vital activities ④ Plasmids are the main part of chromosome

174. First transgenic plant:
① Potato ② Tomato ③ Maize ④ Tobacco

175. Transgenic animal is that which has:
① Foreign RNA in all its cells ② Foreign DNA in some of its cells
③ Foreign DNA in all its cells ④ Both ① and ②

176. The sum total of the population of the same kind of organisms constitute:
① Colony ② Genus ③ Community ④ Species

177. The relation between algae and fungi in a lichen is:
① Parasitism ② Symbiosis ③ Commensalism ④ Amensalism

178. In an ecosystem, which one shows one-way passage?
① Free energy ② Nitrogen ③ Carbon ④ Potassium

179. Which one of the following areas in India, is a hot spot of biodiversity?
① Western Ghats ② Eastern Ghats ③ Gangetic plains ④ Sunderbans

180. Which one is not observed in a biodiversity hot spot?
① Less interspecific competition ② Species richness
③ Endemism ④ Accelerated species loss