NEET | IIT-JEE | FOUNDATION

Corporate Office: 44-A/1, Kalu Sarai, New Delhi 110016 | Web: www.meniit.com

ADMISSION TEST (JEE)

SAMPLE PAPER Set-1

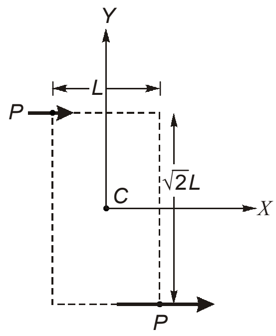
COURSE : XII Pass

PART-A : PHYSICS

[MULTIPLE CORRECT CHOICE TYPE]

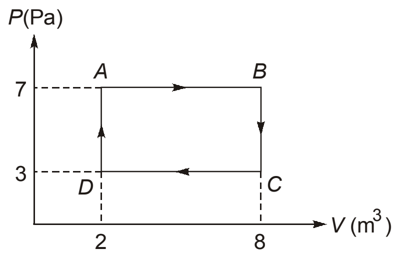
Q.1 to Q.25 has **four** choices (A), (B), (C), (D) out of which **only ONE option** is correct.

1. Two short electric dipoles having dipole moment p are kept on two corners of a rectangle as shown in figure. The direction of electric field at the centre C of rectangle, is



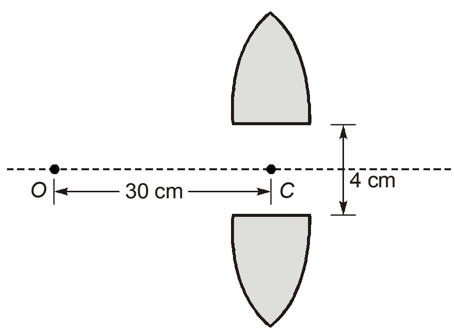
(A) Along –Y-axis (B) Along +Y-axis
(C) Along + X-axis (D) Along –X-axis

2. A gas undergoes the cyclic process as shown in figure. The cycle is repeated 25 times per second. The power generated is



(A) 600 W (2) 300 W
(C) 450 W (D) 750 W

3. A convex lens of focal length 20 cm is cut into two equal parts, that are shifted as shown in figure. An object is placed at 30 cm from point C. The distance between the images formed by the two halves of the lens is



(A) 6 cm (B) 12 cm
(C) 8 cm (D) 9 cm

4. Let t_1 be the time interval in which a particle executing SHM moves from a position, mid-way between the mean and extreme position, to the extreme position. Let t_2 be the time interval in which the particle executing SHM moves from extreme position to a position mid-way between extreme and mean position. Then $\frac{t_1}{t_2} =$

(A) 1
(B) 2
(C) $\frac{1}{2}$
(D) $\frac{1}{3}$

5. When a charge q is kept at $(-a, 0, 0)$, the electric field vector at $(0, b, 0)$ is $a\hat{i} + b\hat{j}$. Now, another charge $2q$ is also kept at $(a, 0, 0)$. The net electric field vector at $(0, b, 0)$ is

(A) $b\hat{j}$
(B) $-a\hat{i} + 2b\hat{j}$
(C) $-a\hat{i} + 3b\hat{j}$
(D) Zero

6. A rod of length l and cross-sectional area A has a variable thermal conductivity given by $K = aT$, where a is constant and T is temperature in kelvin. Two ends of rod are maintained at temperature T_1 and T_2. ($T_1 > T_2$). Heat current (Q) flowing through rod will be

(A) $Q = \frac{aA}{l}\left(T_1^2 - T_2^2\right)$
(B) $Q = \frac{aA}{2l}\left(T_1^2 - T_2^2\right)$
(C) $Q = \frac{aA}{2l}(T_1 - T_2)^2$
(D) $Q = \frac{aA}{l}(T_1 - T_2)^2$

7. The equation of state for a gas is given by $PV = nRT + \alpha V$, where n is the number of mole and α is constant. Initial pressure and temperature of 1 mole of the gas contained in a cylinder is P_0 and T_0 respectively. The work done by the gas when its temperature doubles isobarically will be

(A) $\frac{P_0 T_0 R}{P_0 - \alpha}$
(B) $\frac{P_0 T_0 R}{P_0 + \alpha}$
(C) $P_0 T_0 R \ln 2$
(D) $\frac{P_0 T_0 R}{P_0 + \alpha} \ln 2$

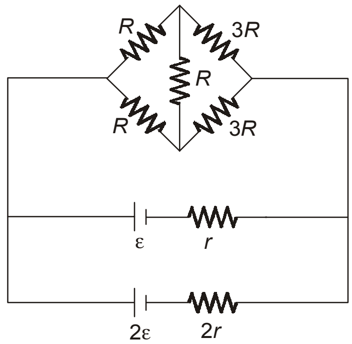
8. A ray travelling in air is incident on a spherical body $\left(\mu = \sqrt{3}\right)$ at an angle of incidence 60°. The ray after passing through sphere gets incident on the further surface of sphere and gets reflected and refracted. Then choose the correct alternative.

(A) Angle of refraction at first surface is 60°
(B) Angle of incidence at second surface is 60°
(C) Angle of deviation as ray comes out of sphere is 180°
(D) Angle of deviation as ray comes out of sphere is 240°

9. In a resonance column experiment, the first and second resonance occur at water levels 24.1 cm and 74.1 cm respectively below the open end. Third resonance will occur when water level is at depth of

(A) 115.0 cm
(B) 125.9 cm
(C) 124.8 cm
(D) 124.1 cm

10. The relation between R and r (internal resistance of battery) for which the power consumed in the external part (other than batteries) of the circuit is maximum



(A) $R = \frac{2r}{3}$ (B) $R = \frac{r}{3}$

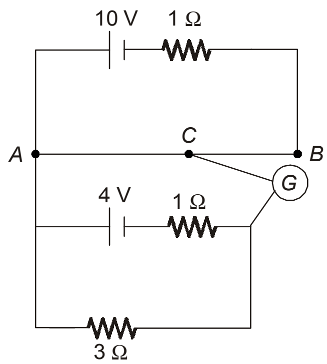
(C) $R = 3r$ (D) $R = \frac{r}{2}$

11. Two fixed charges $-Q$ and Q are located at the coordinates $(-a, 0)$ and $(a, 0)$ then locus of points (on a plane perpendicular to x-axis), where electric field is in negative x direction and magnitude of electric field is not less than $\frac{1}{8}$ th of field at origin

(A) $y^2 + z^2 \leq 2a^2$ (B) $x^2 + z^2 \leq 2a^2$

(C) $x^2 + y^2 \leq a^2$ (D) $y^2 + z^2 \leq 3a^2$

12. In the given potentiometer circuit, length of wire AB is 1 m and its resistance is $R = 9\Omega$. The length AC for no deflection in galvanometer is



(A) $\frac{1}{6}$ m (B) $\frac{1}{3}$ m

(C) $\frac{1}{2}$ m (D) $\frac{2}{3}$ m

13. The specific heat capacity of a monatomic gas for the process T^2V^n = constant is zero. The value of n is

(A) $\frac{2}{3}$ (B) $\frac{4}{3}$

(C) $\frac{1}{3}$ (D) $\frac{5}{3}$

14. A linear object of length 5 cm lies along the axis of a convex lens of a focal length 5 cm such that near end is at a distance of 10 cm from lens. The length of image will be

(A) 10.0 cm (B) 7.5 cm
(C) 5.0 cm (D) 2.5 cm

15. An astronomical telescope has an eyepiece of focal length 5 cm. If the angular magnification in normal adjustment is 5, then the distance between objective and eyepiece, if it is adjusted to give maximum angular magnification. (Near point, D = 20 cm)

(1) 26.67 cm (2) 30 cm
(3) 29 cm (4) 25 cm

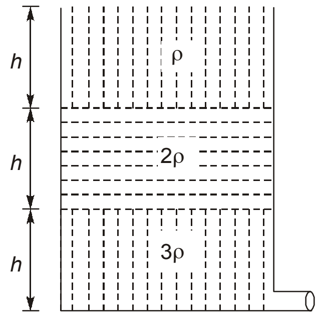
16. An energy of 68 eV is required to excite a hydrogen like atom from its second Bohr orbit to the third Bohr orbit. If atomic number of atom is Z and energy required to excite from 1^{st} Bohr orbit to 3^{rd} Bohr orbit is K, then value of K and Z respectively are

(A) 435.2 eV, 4 (B) 272 eV, 6
(C) 272 eV, 4 (D) 435.2 eV, 6

17. Two bodies A and B are joined through a conducting rod of high thermal conductivity. A and B are thermally insulated from surrounding. Initial temperature of A and B is 100°C and 20°C respectively. After one hour, temperature of A is 75°C and B is 35°C. After another 1 hour, temperature of A will be

(A) 55°C (B) 60°C
(C) 65°C (D) 62.5°C

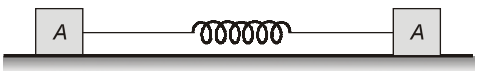
18. The speed of the liquid coming out of a small hole of a large vessel containing three liquids of densities 3ρ, 2ρ and ρ as shown in figure, is



(A) $\sqrt{8gh}$ (B) $\sqrt{3gh}$

(C) $\sqrt{2gh}$ (D) $2\sqrt{gh}$

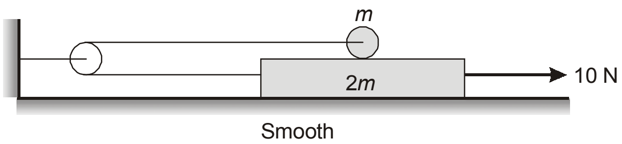
19. Two blocks A and B of mass m and 3m are connected by a massless spring of force constant k. Spring is stretched by an amount x and released. What is the velocity of block A when the spring comes to natural length?



(A) $\frac{x}{6}\sqrt{\frac{3k}{m}}$ (B) $\frac{x}{4}\sqrt{\frac{3k}{m}}$

(C) $\frac{x}{2}\sqrt{\frac{3k}{m}}$ (D) $x\sqrt{\frac{3k}{m}}$

20. A uniform solid cylinder of mass m and radius R is placed on a plank of mass $2m$ as shown in figure. Plank is being pulled with a force of 10 N. If it is given that friction between plank and cylinder is sufficient to prevent sliding of cylinder, then tension in string will be (Pulley is ideal)



(A) 9 N
(B) 4 N
(C) 8 N
(D) 6 N

Q.21 Three particles A, B and C are located at the vertices of an equilateral triangle of side l. They all start moving simultaneously with constant speed v, towards the next one ahead and similarly. Select incorrect option.

(A) Their velocity of approach is $\frac{3v}{2}$.

(B) They will meet after the time $\frac{2l}{3v}$.

(C) Distance covered by all the particle till they meet is $2l$

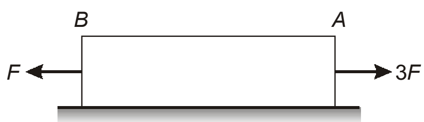
(D) Distance covered by a particle till they meet is $2l$.

Q.22 A particle is thrown with speed u, at an angle α with horizontal, from the bottom of an inclined plane, having an angle of inclination β with horizontal. The particle strikes the inclined plane horizontally. Then

(A) $\frac{\cos(\alpha-\beta)}{\sin\alpha\cos\beta}=\frac{1}{2}$
(B) $\frac{\sin(\alpha-\beta)}{\cos\alpha\cos\beta}=\frac{1}{2}$

(C) $\frac{\sin(\alpha-\beta)}{\sin\alpha\cos\beta}=\frac{1}{2}$
(D) $\frac{\sin(\alpha-\beta)}{\cos\alpha\sin\beta}=\frac{1}{2}$

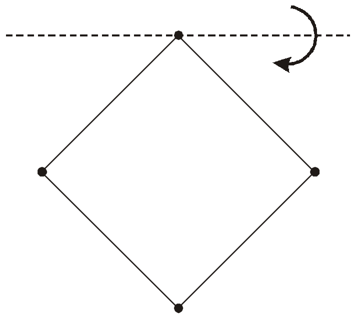
Q.23 A metallic rod of mass m, length l, Area of cross-section A and Young's modulus Y is being pulled horizontally by force $3F$ and F as shown. Take a differential element of very small length dx at distance $x = \frac{l}{3}$ from end A. The elongation in this element is



(A) $\frac{7}{3}\frac{Fdx}{AY}$
(B) $\frac{1}{3}\frac{Fdx}{AY}$

(C) $\frac{3}{2}\frac{Fdx}{AY}$
(D) $\frac{2Fdx}{AY}$

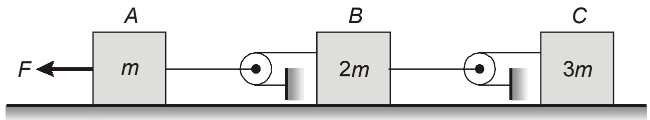
Q.24 A square plate of side l and uniform thickness hangs in vertical plane pivoted at its upper end such that axis of rotation is parallel to the plate plane. The period of oscillation of the plate is



(A) $2\pi\sqrt{\frac{7}{12}\frac{l}{g}}$ (B) $2\pi\sqrt{\frac{7\sqrt{2}}{12}\frac{l}{g}}$

(C) $2\pi\sqrt{\frac{7\sqrt{2}l}{10g}}$ (D) $2\pi\sqrt{\frac{6\sqrt{2}l}{g}}$

Q.25 As shown in figure, the coefficient of friction for blocks A, B and C are μ, 2μ and 3μ respectively. The minimum value of 'F' so as to shift block C, is



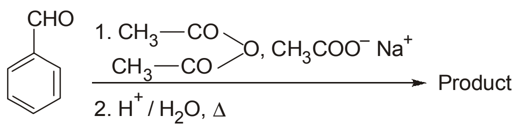
(A) 28 μmg (B) 26 μmg
(C) 45 μmg (D) 18 μmg

PART-B : CHEMISTRY

[MULTIPLE CORRECT CHOICE TYPE]

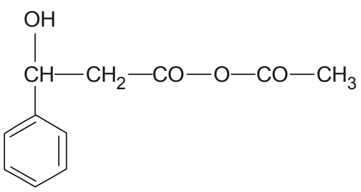
Q.26 to Q.50 has **four** choices (A), (B), (C), (D) out of which **only ONE option** is correct.

26.

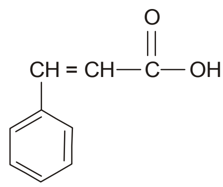


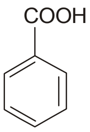
The major product formed in this reaction is

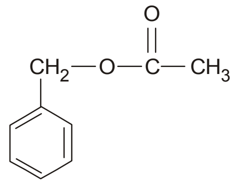
(A)



(B)



(C) 

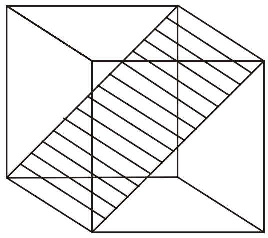
(D) 

27. Ionic hydride among following is

(A) BeH_2 (B) NH_3

(C) CaH_2 (D) CuH_2

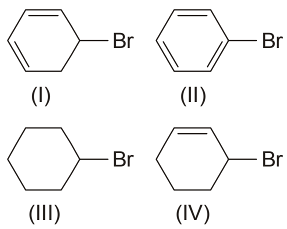
28. In the compound ZnS, the ions present in following shaded plane are removed. Identify the correct formula of the compound.



(A) Zn_4S_5 (B) Zn_5S_4

(C) Zn_7S_4 (4) Zn_4S_7

29. The increasing order of rate of hydrolysis of the following compounds by S_N1 mechanism is



(A) II < I < III < IV (B) I < IV < III < II

(C) II < III < IV < I (D) II < III < I < IV

30. $AgNO_3$ reacts with solutions of Na_2S, NaCN, Na_2CrO_4 and Na_3PO_4 separately to give precipitates. The respective colours of the precipitates are

(A) Yellow, black, red and white

(B) Black, white, red and yellow

(C) Yellow, red, white and black

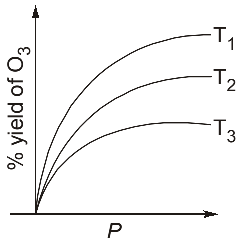
(D) White, yellow, red and black

31. Carbene is formed as the reaction intermediate in

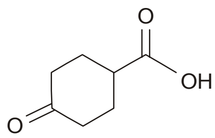
(A) Kolbe's reaction (B) Friedel-Crafts reaction

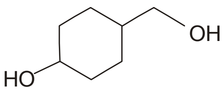
(C) Perkin reaction (D) Reimer-Tiemann reaction

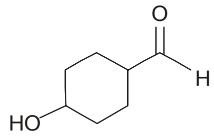
32. Preparation of ozone by the reaction $3O_2 \rightleftharpoons 2O_3(g)$ shows the following graph of % yield against pressure at different temperature then

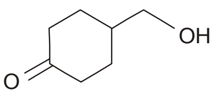


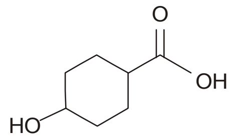
(A) $T_2 > T_1 > T_3$ (B) $T_1 > T_2 > T_3$
(C) $T_3 > T_2 > T_1$ (D) $T_1 = T_2 = T_3$

33. Reduction of  with $LiAlH_4$ gives

(A) 

(B) 

(C) 

(D) 

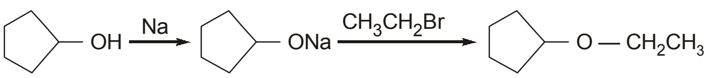
34. Hydrolysis of XeF_4 produces Xe, XeO_3, HF and O_2 molar ratio of Xe to XeO_3 produced will be
(A) 2 : 3 (B) 3 : 2
(C) 1 : 2 (D) 2 : 1

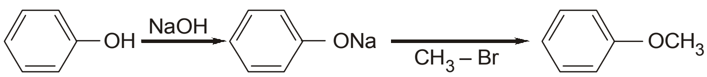
35. Which of the following is incorrect for Castner Kellner process?
(A) Hg acts as cathode
(B) Cl_2 gas evolves at anode
(C) Carbon acts as cathode as well as anode
(D) Caustic soda is prepared in this process

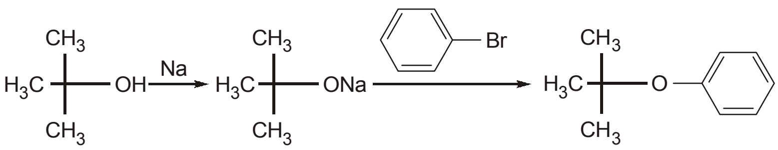
36. Number of waves in a Bohr's orbit of H atom is 2. Its potential energy would be
(A) –10.2 eV (2) –6.8 eV
(C) –3.02 eV (4) –1.51 eV

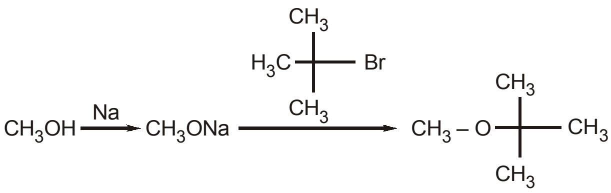
37. From the following, select the correct statement.
(A) $[Co(NH_3)_6]^{3+}$ is a high spin complex
(B) $[Ni(CO)_4]$ has tetrahedral geometry and is paramagnetic
(C) $[Fe(CN)_6]^{3-}$ is diamagnetic
(D) $[Co(C_2O_4)_3]^{3-}$ is inner orbital complex having d^2sp^3 hybridisation

38. Consider the following reactions involving Williamson's Ether Synthesis

(i) 

(ii) 

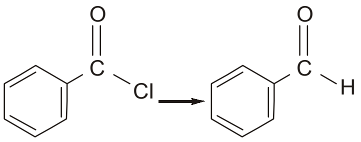
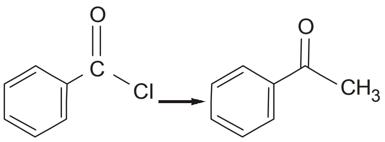
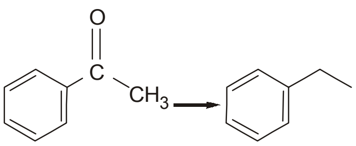
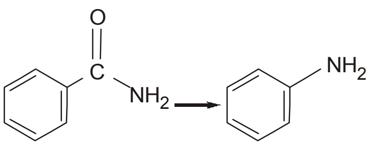
(iii) 

(iv) 

Which of the above reactions constitute good synthesis of ether?

(A) (i), (ii) & (iv) (B) (ii) & (iii) only
(C) (iii) & (iv) only (D) (i) & (ii) only

39. Match Column-I with Column-II and select the correct answer using the codes given below the lists

Column-I	Column-II
a. 	(i) DIBAL-H
b. 	(ii) $(CH_3)_2Cd$
c. 	(iii) $N_2H_4\,/\,\bar{O}H$
d. 	(iv) $LiAlH_4$
	(v) $NaOH/Br_2$

(A) a(i), b(ii), c(iii), d(iv) (B) a(ii), b(iii), c(i), d(iv)
(C) a(i), b(ii), c(iii), d(v) (D) a(ii), b(i), c(iii), d(v)

40. Correct match between Column I, II and III.

Column-I (Metal)	Column-II (Extraction Method)	Column-III (Ore)
(1) Cu	(i) Electrolysis	(P) Kaolinite
(2) Zn	(ii) Roasting	(Q) Siderite
(3) Al	(iii) Reduction in Blast furnace	(R) Malachite
(4) Fe	(iv) Partial Roasting	(S) Calamine

(A) (1), (i), (Q) (B) (2), (ii), (S)
(C) (3), (iv), (P) (D) (4), (iii), (R)

41. In acidic medium 0.5 moles of $K_2Cr_2O_7$ can oxidise completely

(A) 3.6 moles of $FeSO_4$ to $Fe_2(SO_4)_3$

(B) 1 mole of $FeSO_4$ to $Fe_2(SO_4)_3$

(C) 1.8 moles of Sn^{2+} to Sn^{4+}

(D) 0.5 moles of $KMnO_4$

42. The values of van der Waal's constants 'a' and 'b' for three different gases are given below

Gases	a	b
A_2	1.3	0.09
B_2	4.1	0.023
C_2	2.2	0.015

The correct order of ease of liquefaction of gases is

(A) $A_2 > B_2 > C_2$

(B) $B_2 > C_2 > A_2$

(C) $C_2 > B_2 > A_2$

(4) $A_2 > C_2 > B_2$

43. In which of the following groups all the members have linear shape?

(A) NO_2, N_3^-, ICl_2^+

(B) N_3^-, I_3^+, NO_2^+

(C) XeF_2, C_2H_2, SO_2

(D) $CO_2, BeCl_2, SnCl_2$

44. Which one of the following complexes exhibits chirality?

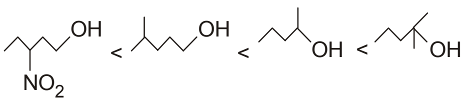
(A) $[Cr(OX)_3]^{3-}$

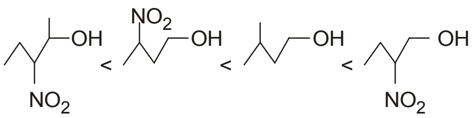
(B) cis - $[PtCl_2(en)]$

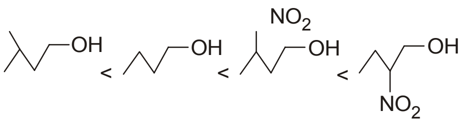
(C) cis - $[RhCl_2(NH_3)_2]^-$

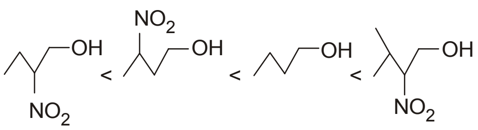
(D) trans - $[Co(NO_3)_4Cl_2]^+$

45. Correct reactivity order towards anhydrous $ZnCl_2$ + conc. HCl

(A) 

(B) 

(C) 

(D) 

46. The correct order of atomic radius is

(A) Mn < Fe < Co

(B) Sc < Ti < V

(C) Fe < Co < Zn

(D) Zn > Cu > Ni

47. Hybridisation of central atom of PCl_6^- and PO_4^{3-} are respectively

(A) sp^3d^2, sp^3d

(B) sp^3d^2, sp^3

(C) sp^3d, sp^3

(D) sp^3d^3, sp^2

48. Among the following, strength of H-bond is maximum in

(A) F — H - - - O
(B) O — H - - - O
(C) N — H - - - O
(D) N — H - - - N

49. In which one of the following processes, magnetic nature of species does not change?

(A) $O_2^+ \to O_2^{+2}$
(B) $CN^- \to CN$
(C) $F_2 \to F_2^+$
(D) $B_2 \to B_2^+$

Q.50 Select the correct statement for photochemical smog

(A) Photochemical smog occurs in cool humid climate
(B) Photochemical smog is called as oxidising smog
(C) It is mixture of smoke and SO_2
(D) Ozone is not a component of photochemical smog

PART-C : MATHEMATICS

[MULTIPLE CORRECT CHOICE TYPE]

Q.51 to Q.75 has **four** choices (A), (B), (C), (D) out of which **only ONE option** is correct.

51. A matrix is chosen at random from the set of all matrices of order 2 with elements 0, 1 or 2. The probability that the matrix chosen is singular, is

(A) $\frac{35}{81}$
(B) $\frac{31}{81}$
(C) $\frac{32}{81}$
(D) $\frac{50}{81}$

52. If $\cot^{-1}\left(\sqrt{\cos\alpha}\right) - \tan^{-1}\left(\sqrt{\cos\alpha}\right) = u,$ then $\sin u$ is equal to

(A) $\cot^2\frac{\alpha}{2}$
(B) $\tan^2\frac{\alpha}{2}$
(C) $\sin^2\frac{\alpha}{2}$
(D) $\cos^2\frac{\alpha}{2}$

53. The number of value(s) of x satisfying the equation $\log_2\left(\log_3\left(\log_2 x\right)\right) \ge \sqrt{(x-8)} + \sqrt{(8-x)}$ is

(A) Zero
(B) 1
(C) 3
(D) 4

54. $x^y = e^{\left(e^{2x-5\ln y}\right)}$, then $\left(\frac{dy}{dx}\right)_{x=e}$ is

(A) $e^{\frac{e}{3}}\left(2-\frac{1}{e}\right)$
(B) $e^{\frac{e}{3}}\left(\frac{1}{3}-\frac{1}{6e}\right)$
(C) $e^{\frac{e}{3}}$
(D) $\left(2-\frac{1}{e}\right)e^e$

55. If $f'(x)=(x-m)^{2k}(x-n)^{2k+1}, m<n,$ then (where $k \in Z^{+}$) which of the following must be true for function $f(x)$?
(A) $x = m$ is point of maxima
(B) $x = n$ is point of maxima
(C) $x = m$ is point of neither maxima nor minima
(D) $x = n$ is point of neither maxima nor minima

56. The number of point(s) of intersection of the curves $y = \text{cosec}^{-1}x$ and $y = x$ is
(A) 0
(B) 1
(C) 2
(D) 3

57. The area of the quadrilateral formed by the tangents at the vertices of pair of conics $x^2y^2 = 4$, is
(A) 4 sq. units
(B) 8 sq. units
(C) 16 sq. units
(D) 32 sq. units

58. $(p \wedge \sim q) \wedge (\sim p \wedge q)$ is
(A) A tautology
(B) A contradiction
(C) Neither a tautology nor a contradiction
(D) Equivalent to $p \cap q$

59. If 1, $\log_9(3^{1-x}+2)$, $\log_3(4\cdot 3^x - 1)$ are in A.P, then x is equal to
(A) $\log_3 4$
(B) $1 - \log_3 4$
(C) $1 - \log_4 3$
(D) $\log_4 3$

60. If $a_n = \sum_{r=0}^{n} \frac{1}{{}^nC_r}$, then $\sum_{r=0}^{n} \frac{r}{{}^nC_r}$ equals
(A) $(n-1)a_n$
(B) na_n
(C) $\frac{1}{2}na_n$
(D) $\frac{1}{4}na_n$

61. The mean and standard deviation of 1, 2, 3, 4, 5, 6 are respectively
(A) $\frac{7}{2}, \sqrt{\frac{35}{12}}$
(B) 3, 3
(C) $\frac{7}{2}, \sqrt{3}$
(D) $3, \frac{35}{12}$

62. Let F denotes the set of all onto functions from $A = \{a_1, a_2, a_3, a_4\}$ to $B = \{x, y, z\}$. A function f is chosen at random from F. The probability that $f^{-1}(x)$ exists
(A) $\frac{2}{3}$
(B) $\frac{1}{3}$
(C) $\frac{1}{6}$
(D) Zero

63. The value of $\int\left(e^{x\ln a}+e^{a\ln x}+e^{a\ln a}\right)dx$ is equal to (where $a > 0$, $x > 0$)
(A) $a^x\ln a+\frac{x^{a+1}}{a+1}+a^a x+c$
(B) $\frac{a^x}{\ln a}+\frac{x^{a+1}}{a+1}+a^a x+c$
(C) $a^x\ln a+x^a\ln x+a^x x+c$
(D) $\frac{a^x}{\ln a}+x^a\ln x+a^x x+c$

64. The angle between the two lines represented by $2x^2 + 5xy + 3y^2 + 2y - 8 = 0$ is $\tan^{-1} m$. Then m is equal to

(A) $\frac{1}{5}$ (B) $\frac{7}{5}$

(C) 5 (D) 7

65. The set of values of λ for which exactly one root of the equation $x^2 - \lambda x + 1 = 0$ lies between 1 and 2, is

(A) (1, 2) (B) (–2, –1)

(C) (–5, –2) (D) $\left(2, \frac{5}{2}\right)$

66. The number of complex numbers z, satisfying the equations $|z + 5| + |z - 5| = 10$ and $|z + 1| = 2$ is

(A) Zero (B) 1

(C) 2 (D) Infinite

67. If $\vec{a} = \hat{i} + 2\hat{j} + 3\hat{k}, \vec{b} = -\hat{i} + 2\hat{j} + \hat{k}, \vec{c} = \hat{j} + 2\hat{k},$ then $\begin{vmatrix} \vec{a}\cdot\vec{a} & \vec{a}\cdot\vec{b} & \vec{a}\cdot\vec{c} \\ \vec{b}\cdot\vec{a} & \vec{b}\cdot\vec{b} & \vec{b}\cdot\vec{c} \\ \vec{c}\cdot\vec{a} & \vec{c}\cdot\vec{b} & \vec{c}\cdot\vec{c} \end{vmatrix}$ equals

(A) 2 (B) 4

(C) 8 (D) 16

68. Equation of a plane passing through the points (2, 1, –1) and (1, 1, –2) and perpendicular to the plane $x + 2y + 3z = 4$, is

(A) $x + 2y + z - 3 = 0$ (B) $x + y - z - 4 = 0$

(C) $2x + y + z - 4 = 0$ (D) $2x + y - z - 5 = 0$

69. The integrating factor of the differential equation $\sin^2 x \cdot \frac{dy}{dx} + y = \cot x,$ is

(A) e^x (B) e

(C) $e^{\cot x}$ (D) $e^{-\cot x}$

70. Total number of arrangements of the letters of the word 'IITKANPUR' taking all at a time so that will vowels come together is

(A) 8640 (B) 4320

(C) 17280 (D) 8760

71. If the matrix $A=\begin{bmatrix}-1 & 0 & 1\\ 1 & 1 & 3\\ 2 & 0 & 2\end{bmatrix}$ is the inverse of BC where $B=\begin{bmatrix}2 & 6 & 4\\ 1 & 0 & 1\\ -1 & 1 & -1\end{bmatrix}$ then C^{-1} is equal to

(A) $\begin{bmatrix}-3 & 5 & 5\\ 0 & 0 & 9\\ 2 & 14 & 16\end{bmatrix}$

(B) $\begin{bmatrix}-3 & -5 & -5\\ 0 & 9 & 2\\ 2 & 14 & 6\end{bmatrix}$

(C) $\begin{bmatrix}-3 & -5 & 5\\ 0 & 9 & 14\\ 2 & 2 & 6\end{bmatrix}$

(D) $\begin{bmatrix}-3 & -5 & 5\\ 0 & 9 & 2\\ 2 & 14 & 6\end{bmatrix}$

72. If α and β are roots of equation $x^2 - a(x + 1) - b = 0$ where $a, b \in R - \{0\}$ and $a + b \neq 0$, then the value of $\dfrac{1}{\alpha^2 - a\alpha} + \dfrac{1}{\beta^2 - a\beta} - \dfrac{2}{a+b}$ is equal to

(A) $\dfrac{4}{a+b}$

(B) $\dfrac{2}{a+b}$

(C) Zero

(D) $\dfrac{1}{a+b}$

73. The sum of n terms of the series

$1.1 + 2.01 + 3.001 + ...$

(A) $\dfrac{n(n+1)}{2}+\dfrac{(10^n-1)}{9.10^n}$

(B) $\dfrac{n(n+1)}{2}+\dfrac{(10^{n-1}-1)}{9.10^n}$

(C) $\dfrac{n(n+1)}{2}+\dfrac{(10^{n+1}-1)}{9.10^n}$

(D) $\dfrac{n(n+1)}{2}+\dfrac{(10^n-1)}{9.10^{n+1}}$

74. The statement $(p \to q) \leftrightarrow (-q \to \sim p)$ is equivalent to

(A) Fallacy

(B) $\sim p \to q$

(C) $p \to \sim q$

(D) tautology

75. If the coefficient of variation of some observations is 60 and their standard deviation is 20, then their mean is

(A) 35

(B) 34

(C) 30.33

(D) 33.33

■■■■

ADMISSION TEST (JEE)
SAMPLE PAPER Set-1
COURSE : XII Pass

ANSWER KEY

1.	(A)	16.	(D)	31.	(D)	46.	(D)	61.	(A)
2.	(A)	17.	(D)	32.	(B)	47.	(B)	62.	(D)
3.	(B)	18.	(D)	33.	(A)	48.	(A)	63.	(B)
4.	(A)	19.	(C)	34.	(D)	49.	(D)	64.	(A)
5.	(C)	20.	(B)	35.	(C)	50.	(B)	65.	(D)
6.	(B)	21.	(D)	36.	(B)	51.	(B)	66.	(C)
7.	(A)	22.	(C)	37.	(D)	52.	(B)	67.	(D)
8.	(C)	23.	(A)	38.	(D)	53.	(B)	68.	(B)
9.	(D)	24.	(B)	39.	(C)	54.	(B)	69.	(D)
10.	(B)	25.	(C)	40.	(B)	55.	(C)	70.	(A)
11.	(D)	26.	(B)	41.	(B)	56.	(C)	71.	(B)
12.	(B)	27.	(C)	42.	(B)	57.	(C)	72.	(C)
13.	(B)	28.	(A)	43.	(B)	58.	(B)	73.	(A)
14.	(D)	29.	(C)	44.	(A)	59.	(B)	74.	(D)
15.	(C)	30.	(B)	45.	(A)	60.	(C)	75.	(D)