

SINCE 1984  **Brilliant**<sup>®</sup>  
STUDY CENTRE, PALA

# JEE MAIN 2026

## SESSION-2 SHIFT-2 EVENING



**VIDEO SOLUTION**  
**APRIL 04, 2026**  
**SATURDAY**

SCAN ME

### MEMORY BASED QUESTIONS

**QN** A telescope has resolving power of  $5 \times 10^{-7}$  radian. The wavelength of light is 500 nm. Find diameter of telescope. (In fermi meter)

- 1) 112                      2) 224                      3) 61                      4) 305

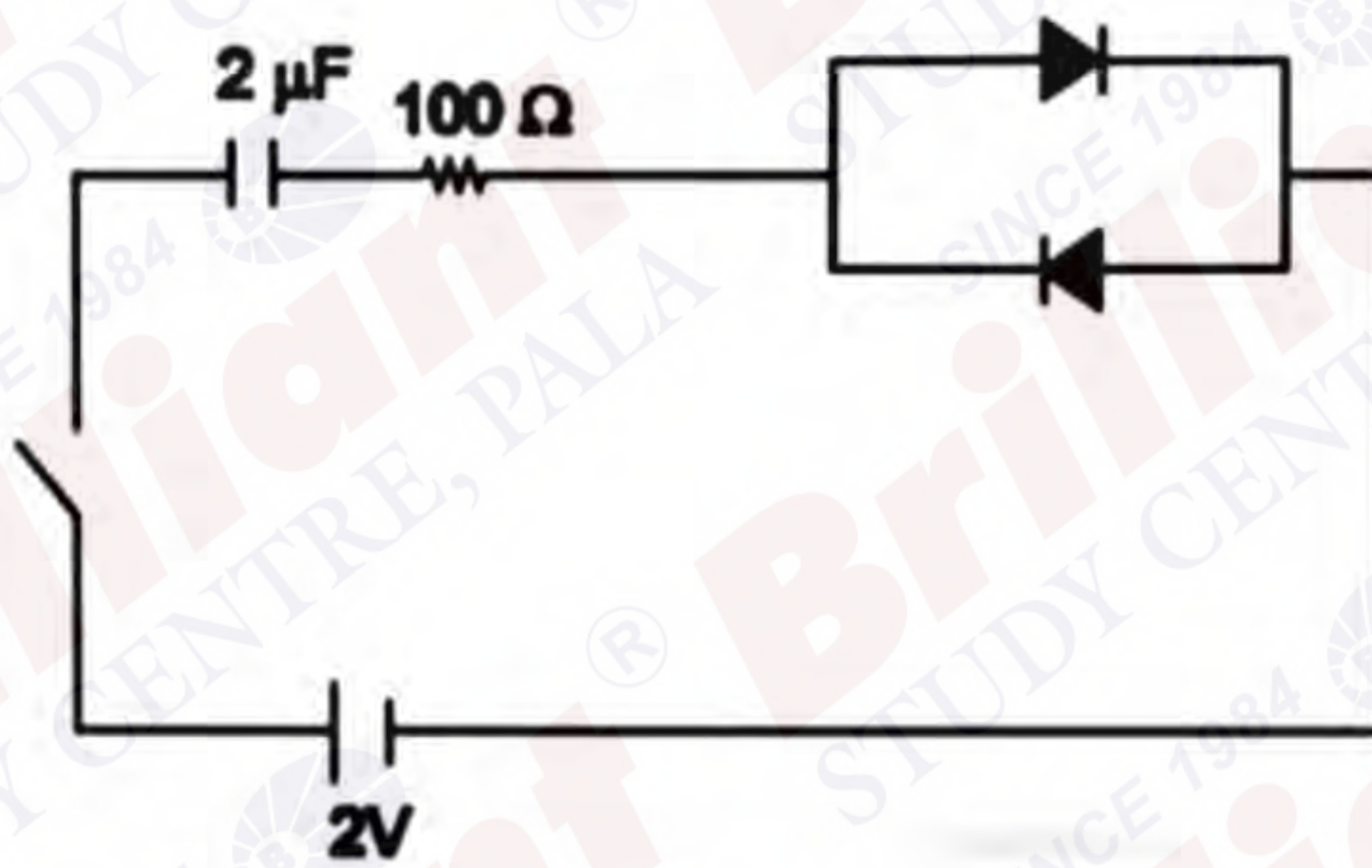
**QN** In single slit diffraction, distance between third minima & 1<sup>st</sup> minima is (a is slit width, D is distance of screen &  $\lambda$  is wavelength)

- 1)  $\frac{3\lambda D}{a}$                       2)  $\frac{4\lambda D}{a}$                       3)  $\frac{2\lambda D}{a}$                       4)  $\frac{\lambda D}{2a}$

**QN** Two forces  $\vec{f}_1$  and  $\vec{f}_2$  act simultaneously on a body  $\vec{F}_1 = 3\hat{i} + 5\hat{j}$  and  $\vec{F}_2 = 2\hat{i} - 4\hat{j} + 2\hat{k}$  and body is displaced by 25 cm along  $3\hat{i} - 4\hat{j}$  find work done by net force.

- 1) 55J                      2) 60J                      3) 70J                      4) 86J

**QN** If resistance of diode in forward bias is 10W then time constant of the circuit would be  $\alpha \times 10^{-5}$ . Find  $\alpha$ .

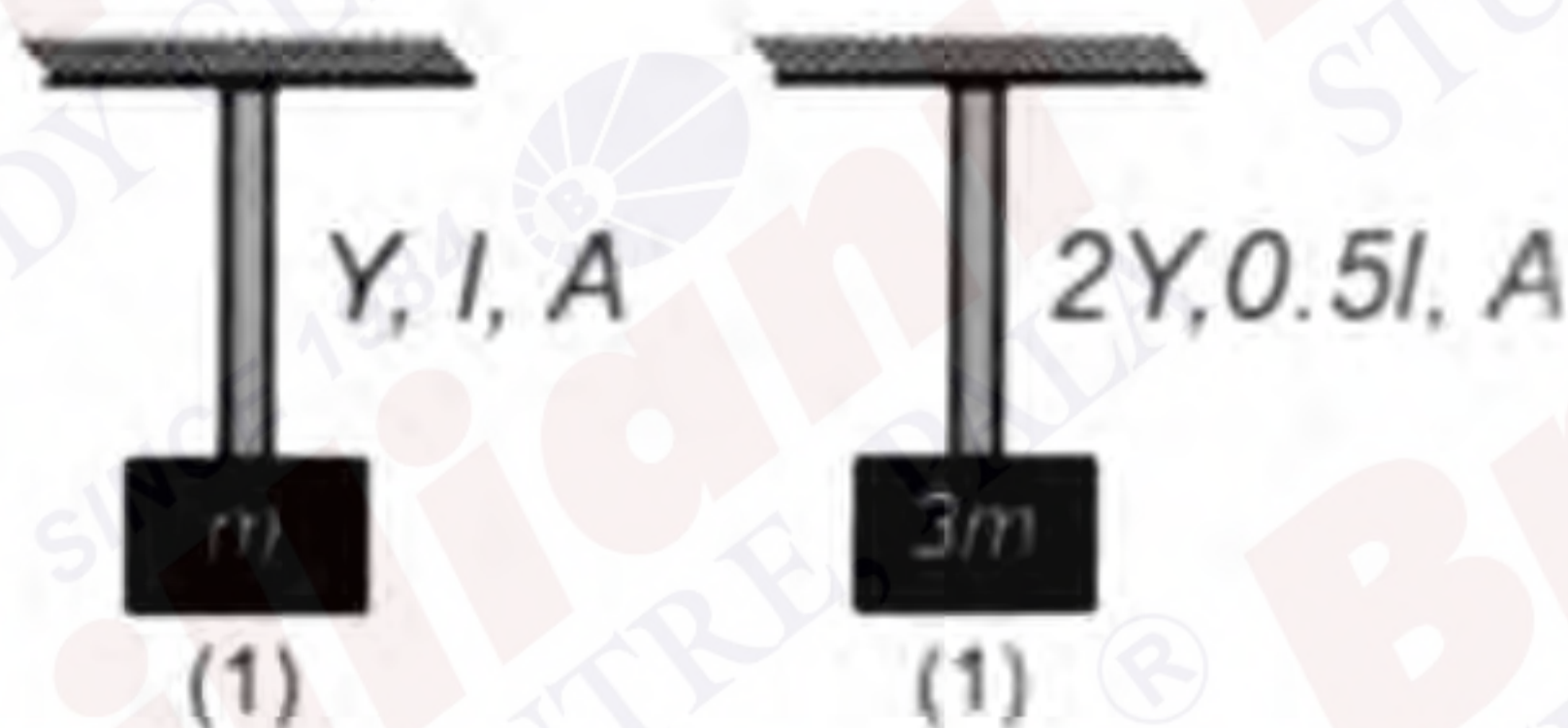


**QN** Bulk modulus of water is  $2.2 \times 10^9$  Pa. At depth 220m find % change in density (w.r.t the density at the surface).

- 1) 0.1%                      2) 1%                      3) 0.2%                      4) 2%

**QN** Two strings with length ( $l_1, l_2$ ), Young's moduli ( $Y_1, Y_2$ ) are elongated under two weights as shown. Find  $\Delta l_1 / \Delta l_2$ .

- 1) 3                      2) 2/3                      3) 4/3                      4) 1/3



**QN** Consider a ring of radius R, rotates about a horizontal axis as shown. Time period of small oscillate.

- 1)  $2\pi \sqrt{\frac{SR}{g}}$                       2)  $2\pi \sqrt{\frac{R}{2g}}$                       3)  $2\pi \sqrt{\frac{3R}{2g}}$                       4)  $2\pi \sqrt{\frac{R}{g}}$

**QN** Two Cars A & B are moving on a road with speed 100 km/h and 80 km/h a stone is thrown from Car B with speed V km/h relative to it. Stone hit the Car A with speed 5 m/s w.r.t Car A. (ignore gravity.). The V is \_\_\_\_\_.

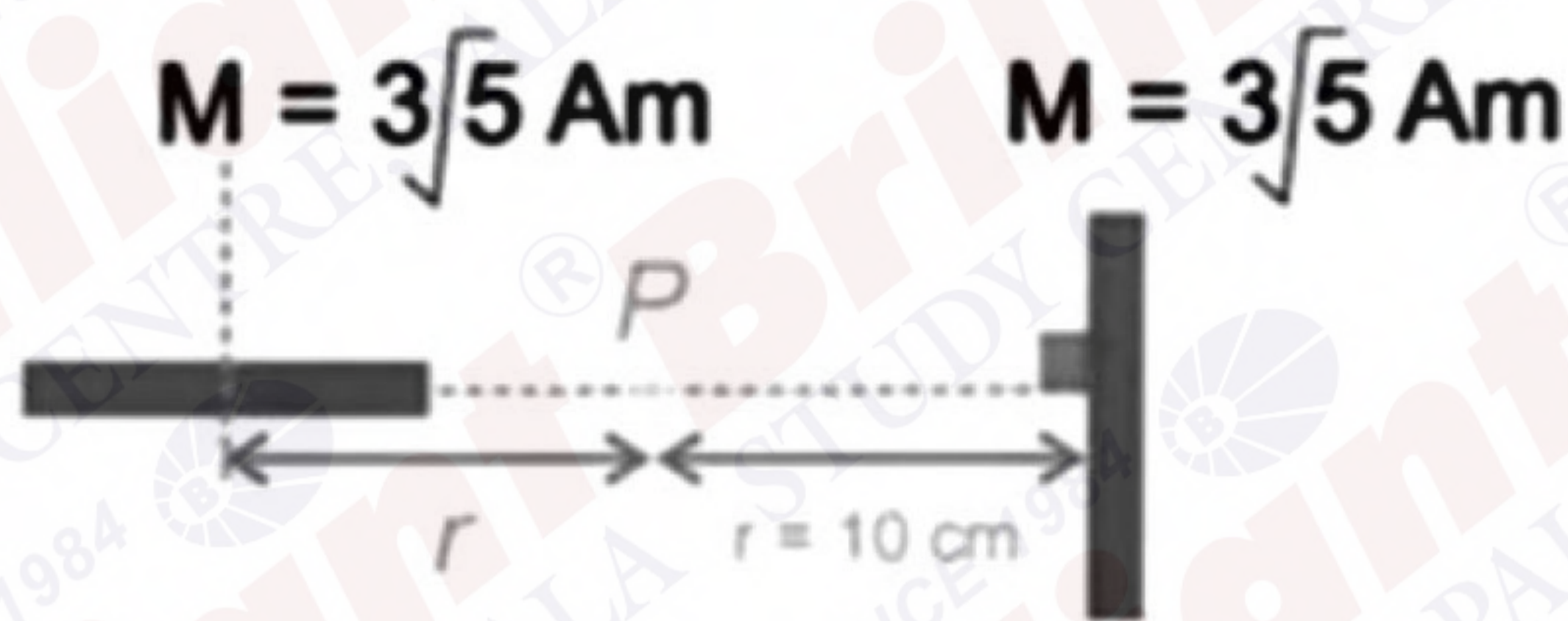
- 1) 18                      2) 38                      3) 48                      4) 20

**QN** List-I presents some physical quantity and list-II presents the dimensions. Match the two list appropriately.

	List-I		List-II
(A)	$f = \text{work function}$	(1)	$ML^2T^{-3}I^{-1}$
(B)	$v_s = \text{stopping potential}$	(2)	$M^0L^0T^{-1}$
(C)	$h = \text{Planck's constant}$	(3)	$ML^2T^{-2}$
(D)	$f = \text{frequency}$	(4)	$ML^2T^{-1}$

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

**QN** Point P at  $r = 10 \text{ cm}$  distance from centers of two bar magnet each of magnetic moment  $3\sqrt{5} \text{ Am}$ . Magnetic field at P is

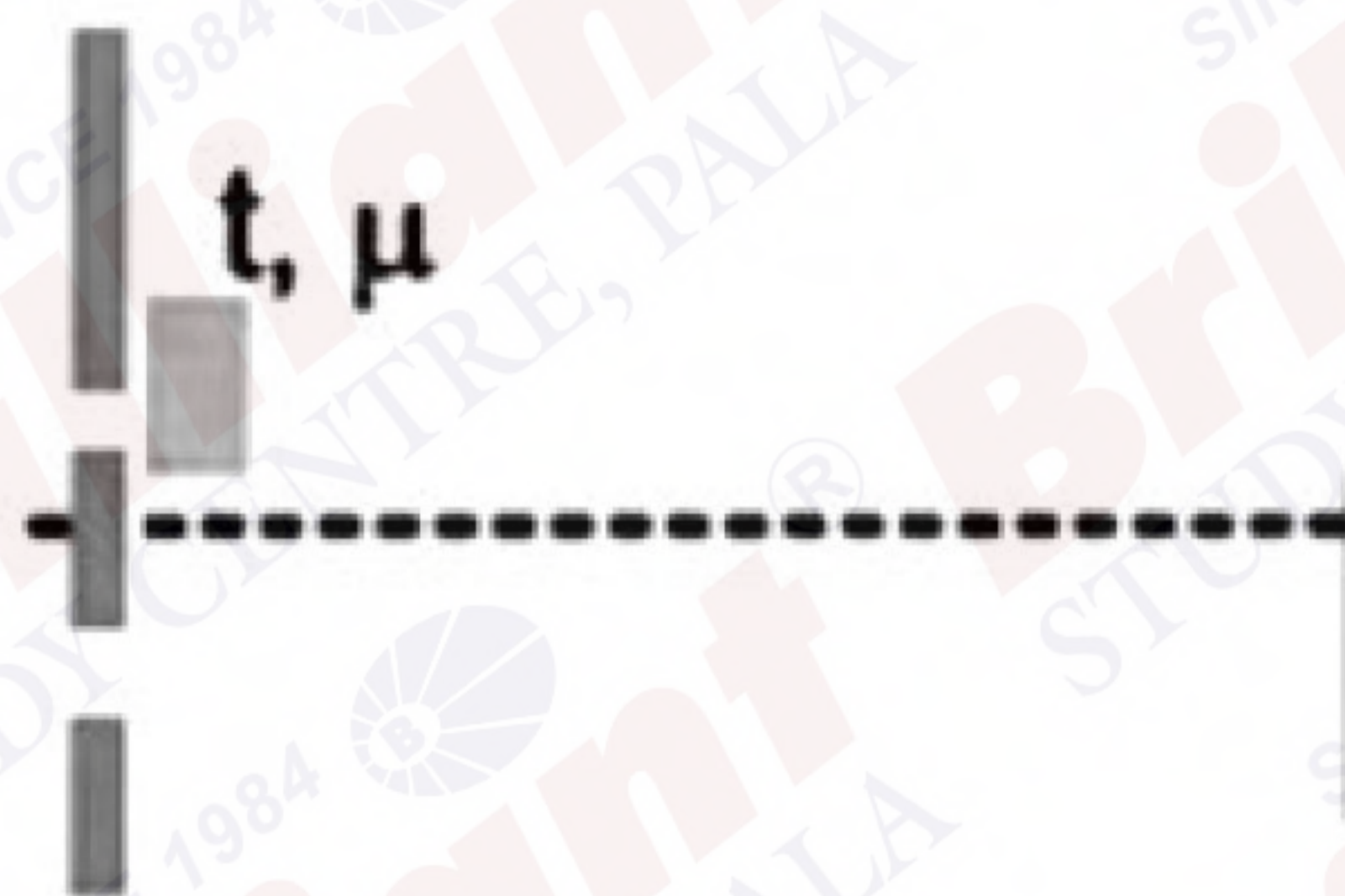


- 1) 1.5mT      2) 2mT      3) 2.5mT      4) 4.5mT

**QN** Bullets are fired from a gun in all the direction at all angles. Maximum range on horizontal ground is 6.4m. Find speed of bullet at the time of firing,

- 1)  $4\sqrt{2} \text{ ms}$       2) 8m/s      3) 16 m/s      4)  $8\sqrt{2} \text{ ms}$

**QN** In YDSE initially pattern was observed without covering the slits. Then after, one transparent sheet of thickness  $t$  and refractive index  $\mu = 3/2$  is being placed before one of the slit. It is observed that 1st maxima with transparent sheet coincides with 7th maxima without the sheet. Find the value of  $t$ .



- 1)  $t = 12\lambda$       2)  $t = 6\lambda$       3)  $t = 9\lambda$       4)  $t = 3\lambda$

**QN** Two scenarios of a dipole present in two electric field (i)  $\vec{E}_1 = E_0\hat{x}$  (ii)  $\vec{E}_2 = E_0\hat{x} + 2E_0\hat{y} + 2E_0\hat{z}$ . The dipole is in stable equilibrium in separation instants. Time periods  $T_1$  &  $T_2$  are in ratio of (for small oscillations)

- 1)  $3^{\frac{1}{4}}$       2)  $3^{\frac{1}{8}}$       3)  $5^{\frac{1}{2}}$       4)  $5^{\frac{1}{4}}$

**QN** Electron, proton are accelerated with same potential to achieve de-Broglie wavelength of  $\lambda_1$  and  $\lambda_2$  ( $m_p = 1849 m_e$ ) then  $\frac{\lambda_1}{\lambda_2}$  is

- 1) 37      2) 43      3) 1/41      4) 1/48

**QN** Find equivalent capacitance between points A & B.  $C_1 = C_2 = C_3 = 1\mu\text{F}$ ,  $C_4 = 2\mu\text{F}$

- 1)  $6\mu\text{F}$       2)  $1\mu\text{F}$       3)  $\frac{4}{3}\mu\text{F}$       4)  $5\mu\text{F}$

QN

Match the list-I with list-II

	List-I (Name)		List-II (Reagent used)
(I)	Tollen's reagent	(P)	$\text{Cu}^{2+}/\text{OH}^-$
(II)	Fehling's reagent	(Q)	$[\text{Ag}(\text{NH}_3)_2]^+\text{OH}^-$
(III)	Williamson method	(R)	dil. $\text{KMnO}_4$
(IV)	Bayer's reagent	(S)	$\text{R-X} + \text{RO}^- \text{Na}$

1 (I)-(Q), (II)-(P), (III)-(S), (IV)-(R)

2 (I)-(P), (II)-(Q), (III)-(R), (IV)-(S)

3 (I)-(Q), (II)-(S), (III)-(P), (IV)-(R)

4 (I)-(Q), (II)-(R), (III)-(P), (IV)-(S)

QN

Manganese forms oxide and fluoride with highest oxidation state. The difference in the highest oxidation state of Mn in the oxide and fluoride is

1) 1

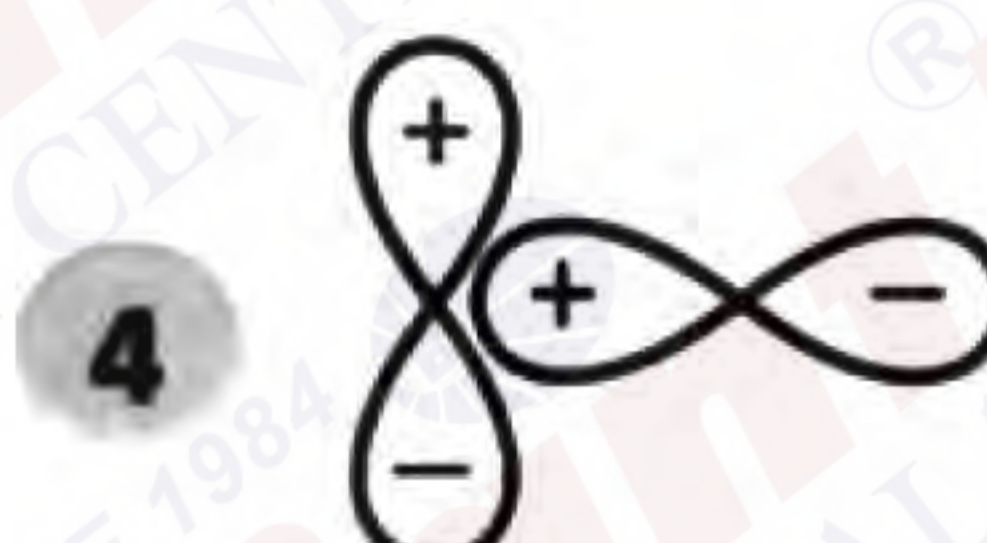
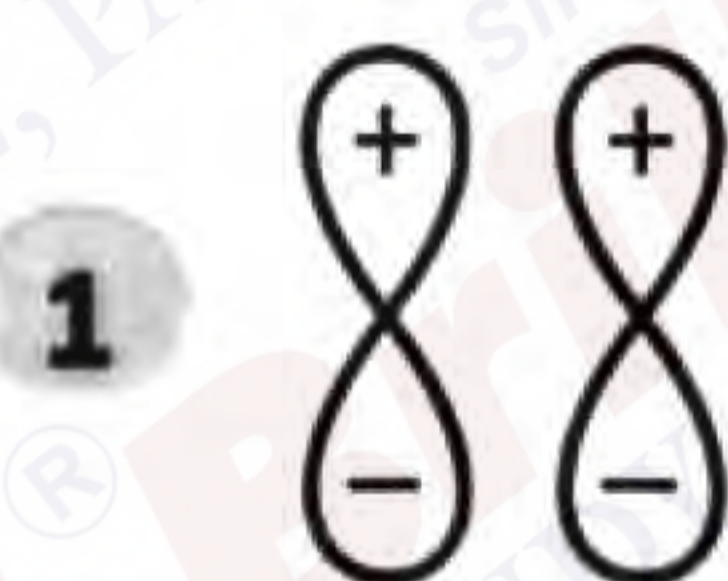
2) 2

3) 3

4) 4

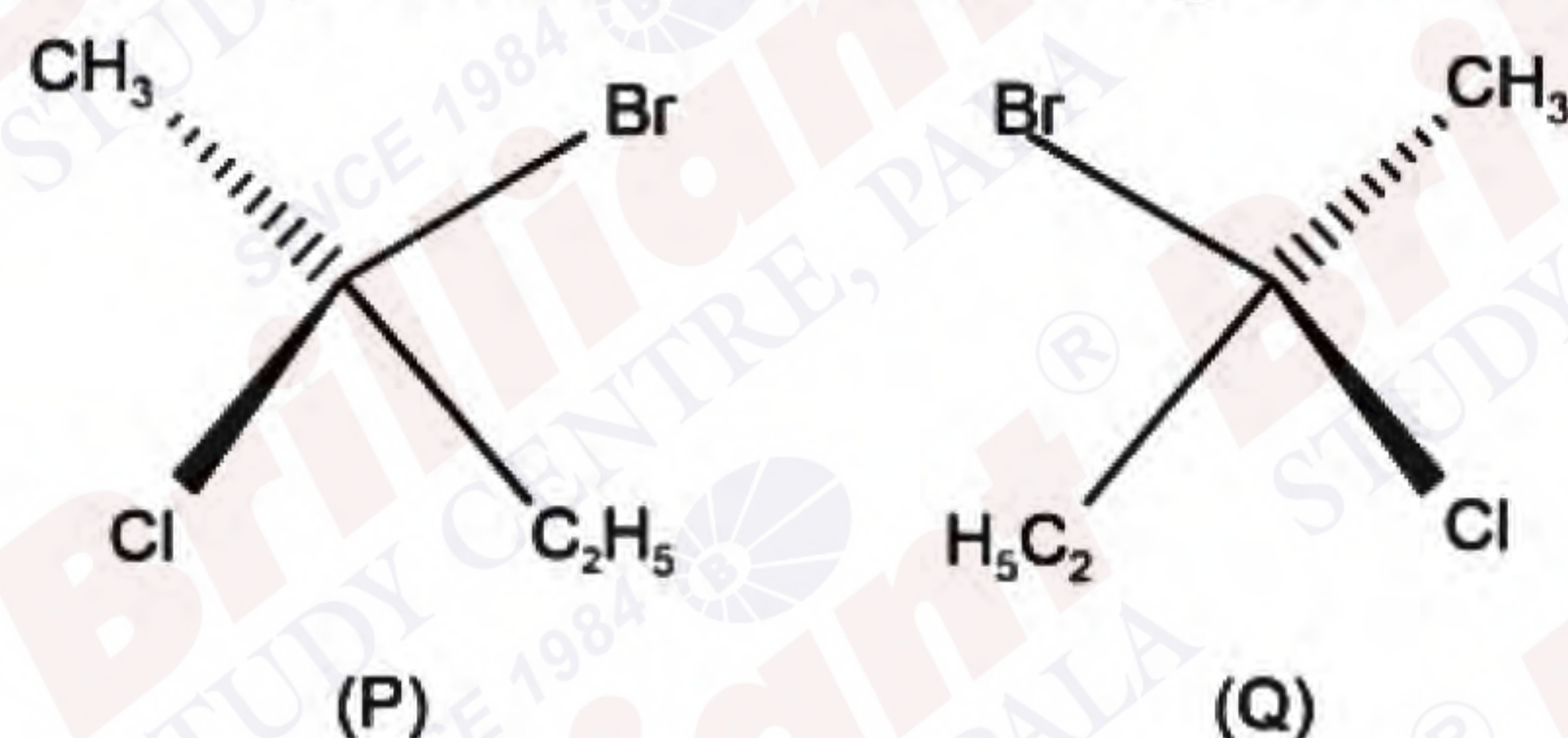
QN

Two atom are bonding along Z-axis. How will  $\pi^*$  orbital look like : (Z is inter nuclear axis)



QN

Identify the relation between the following structures (P) and (Q)



1 Homomers

2 Enantiomers

3 Diastereomers

4 None of these

**QN** Hybridisation of N atom in  $\text{NH}_3$  and  $\text{N}(\text{SiH}_3)_3$  are respectively

1  $\text{sp}^3, \text{sp}^3$

2  $\text{sp}^2, \text{sp}^2$

3  $\text{sp}^3, \text{sp}^2$

4  $\text{sp}^3, \text{sp}$

**QN** 0.32g of organic compound during estimation by Carius method gave 0.932g of  $\text{BaSO}_4$ . The % of sulphur in organic compound (Molar mass of  $\text{BaSO}_4 = 233\text{g/mol}$ )

**QN** Which allotrope of phosphorus is thermodynamically most stable and least reactive?

1) White phosphorus    2) Red phosphorus    3) Black phosphorus    4) Yellow phosphorus

**QN** Match the complexes given in List - I with the properties given in List - II

**List-I**

(i)  $[\text{Ni}(\text{CO})_4]$

(ii)  $[\text{Ni}(\text{CN})_4]^{2-}$

(iii)  $[\text{NiCl}_4]^{2-}$

(iv)  $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$

**List-II**

(P)  $\text{sp}^3, 2$  unpaired  $e^-$

(Q)  $\text{sp}^3\text{d}^2, 2$  unpaired  $e^-$

(R)  $\text{sp}^3, 0$  unpaired  $e^-$

(S)  $\text{dsp}^2, 0$  unpaired  $e^-$

1 (i) - (S), (ii) - (R), (iii) - (P), (iv) - (Q)

2 (i) - (R), (ii) - (P), (iii) - (S), (iv) - (Q)

3 (i) - (R), (ii) - (S), (iii) - (P), (iv) - (Q)

4 (i) - (P), (ii) - (S), (iii) - (R), (iv) - (Q)

**QN** How many of these species having identical radii according to the Bohr's theory

i) H (first orbit)

ii)  $\text{He}^+$  (First orbit)

iii)  $\text{He}^+$  (Second orbit)

iv)  $\text{Li}^{2+}$  (First orbit)

v)  $\text{Be}^{3+}$  (Second orbit)

1) 3

2) 2

3) 4

4) 1

**QN** A) 2 moles of cyclohexane

B) 68.4g of sucrose

C) 70.2L of dihydrogen at STP

The order of total number of atoms present

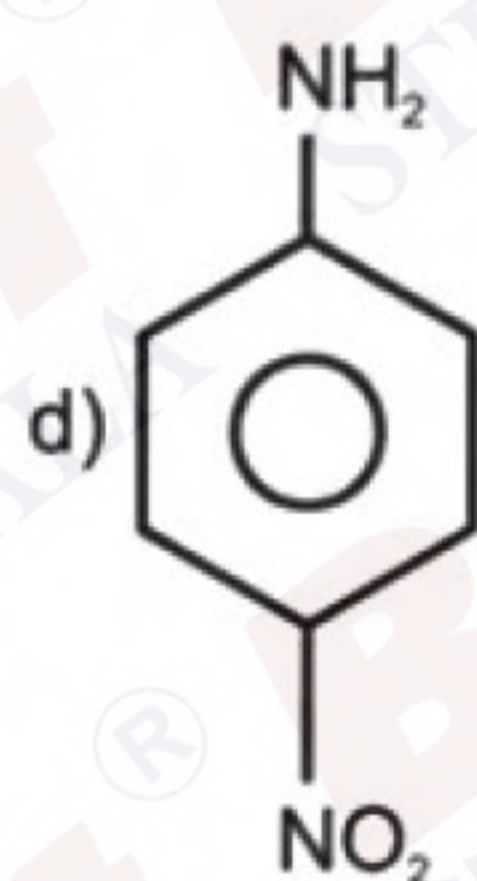
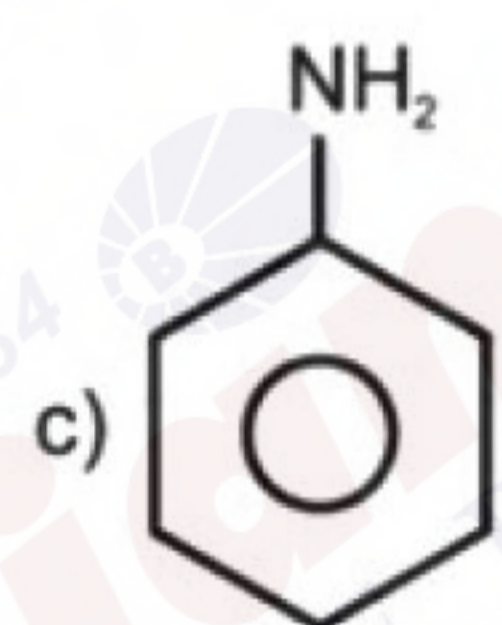
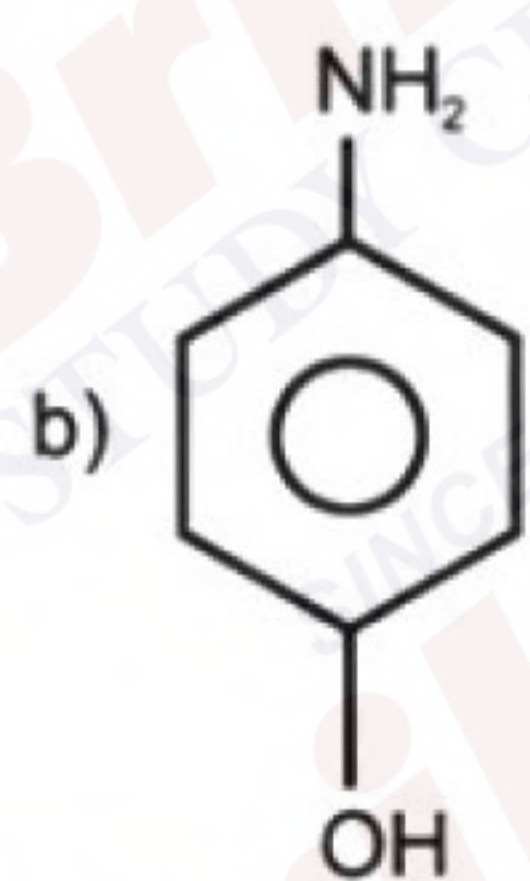
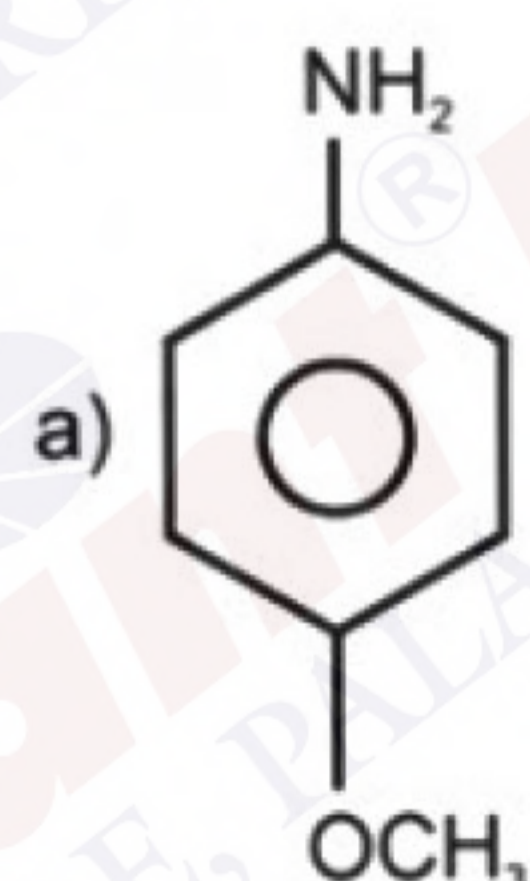
1)  $C > A > B$

2)  $B > A > C$

3)  $A > B > C$

4)  $C > B > A$

**QN** Acidic strength order of the following compounds



a)  $a > b > c > d$

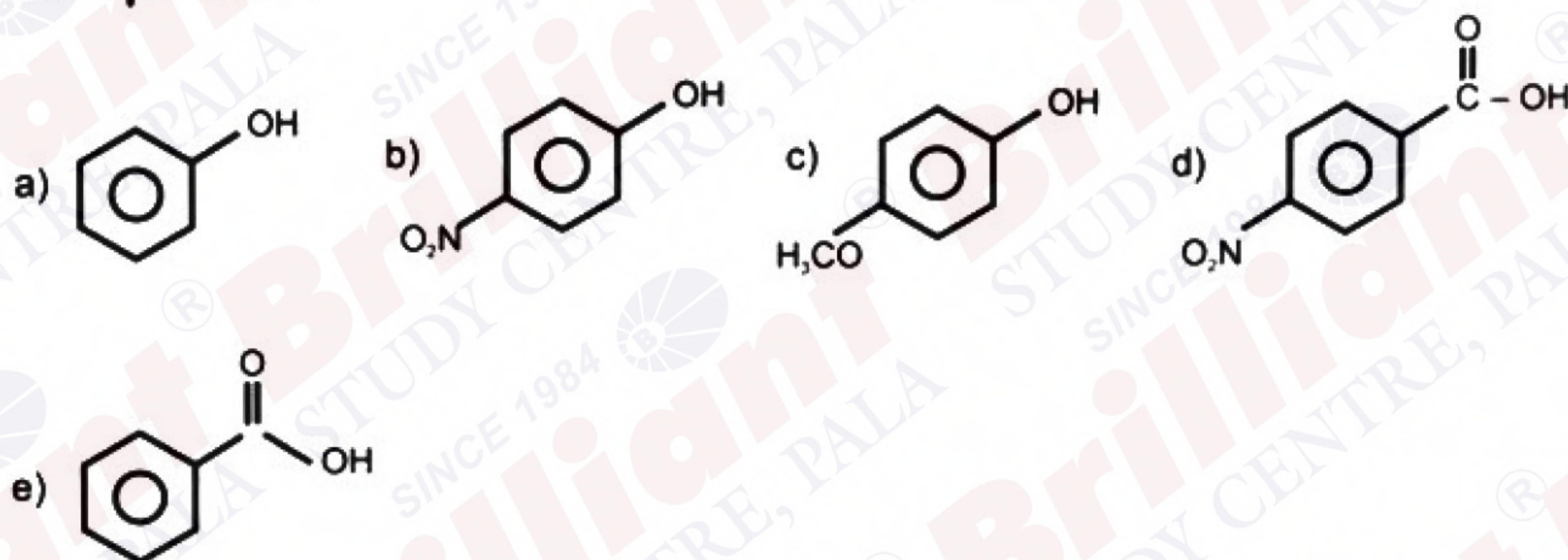
b)  $b > d > a > c$

c)  $c > b > a > d$

d)  $a > c > d > b$

**QN**

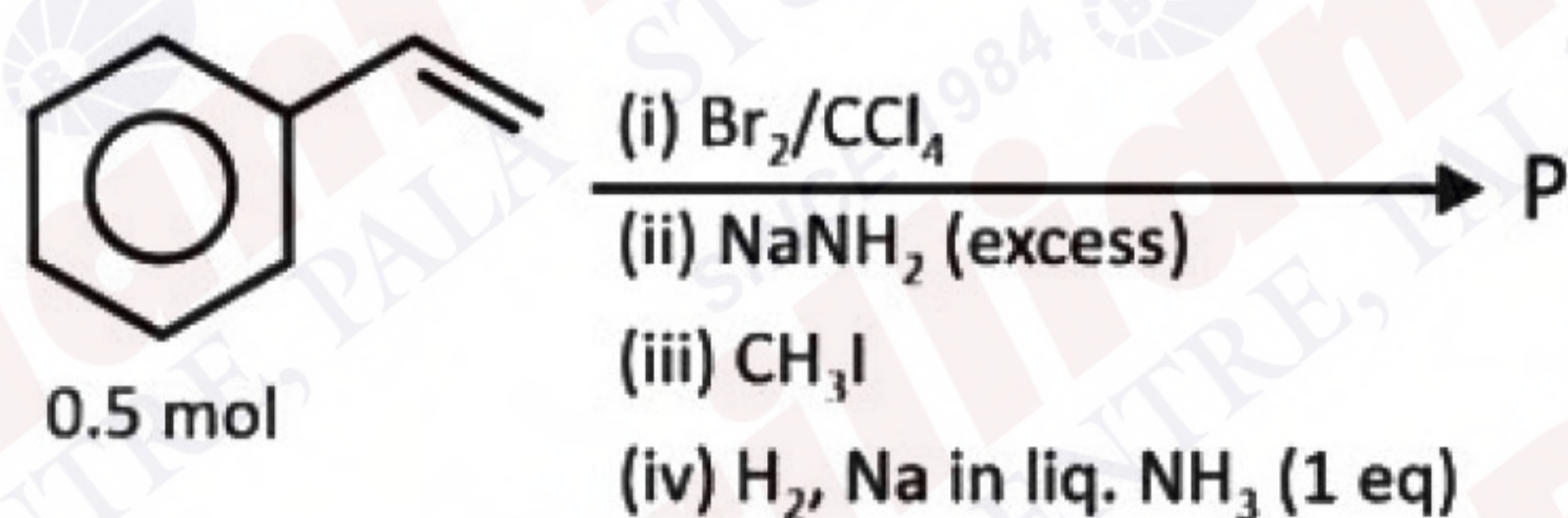
The decreasing order of acidity among the following compounds



- a)  $e > d > b > a > c$   
 b)  $d > e > b > a > c$   
 c)  $d > e > a > b > c$   
 d)  $e > d > a > c > b$

**QN**

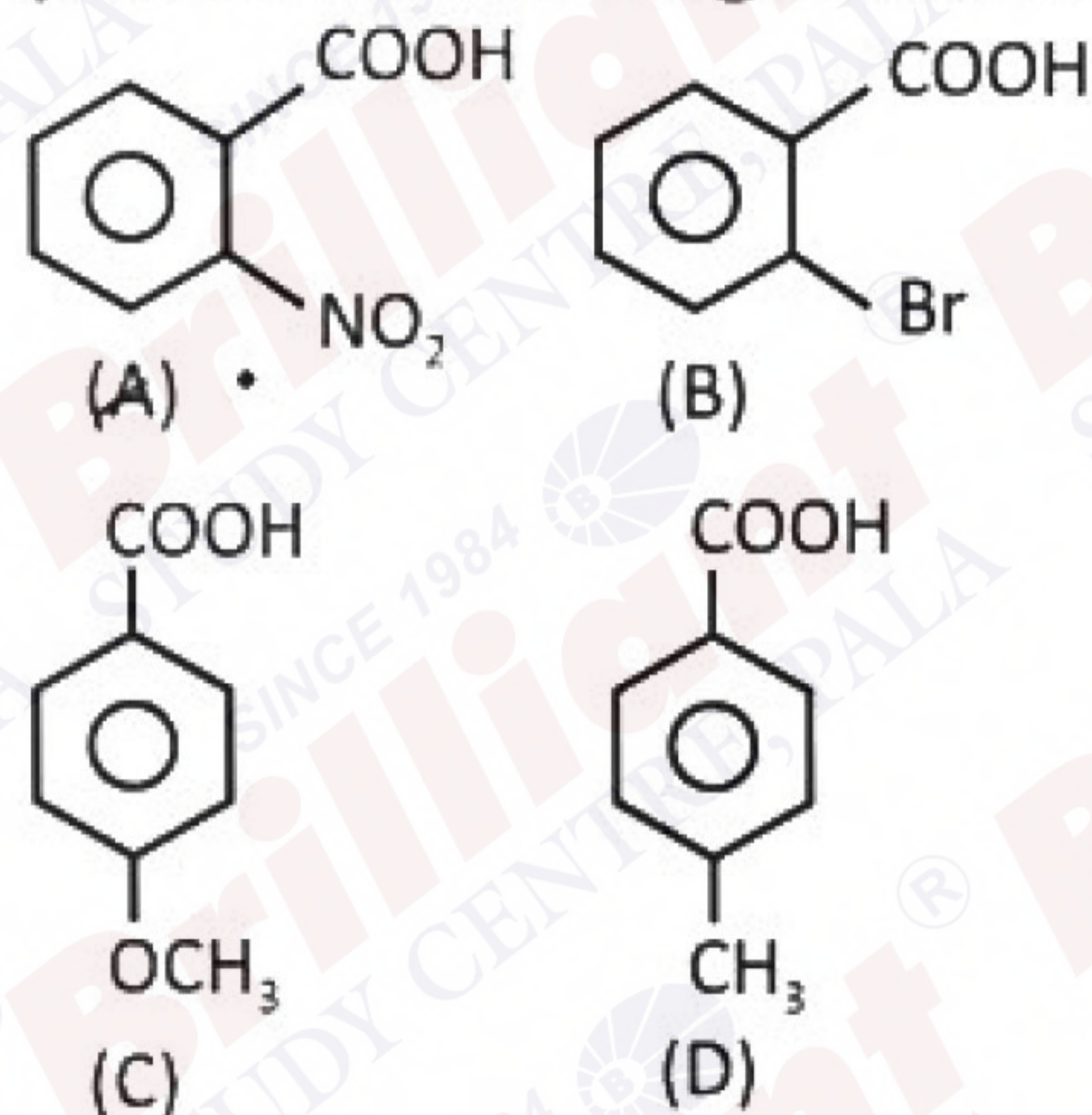
Consider the reaction :



Find the mass of 'P' obtained in 'g'. 'P' is an aromatic compound.

**QN**

Compare acidic strength of following molecule.



1  $A > B > C > D$

3  $B > A > C > D$

**QN**

Consider the following complex ions

- A.  $[\text{Fe}(\text{CN})_6]^{3-}$   
 B.  $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$   
 C.  $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$   
 D.  $[\text{FeCl}_6]^{3-}$

Which of the following represents the order of the number of unpaired electrons?

- 1)  $A < B = C = D$                       2)  $A < C < B = D$   
 3)  $A < C < B < D$                       3)  $A = C < B = D$

**QN** If the system of equations  
 $x + y + z = 5$   
 $x + 2y + 3z = 9$   
 $x + 3y + \lambda z = \mu$  has infinite number of solutions. Then, the value of  $\lambda + \mu$  is

- 1) 18                                      2) 23                                      3) 21                                      4) 22

**QN** The number of non - negative integer solution of the equation  $a + b + 2c = 22$  is

- 1) 124                                      2) 144                                      3) 135                                      4) 136

**QN** Evaluate  $(0.2)^{(0.2)^{\log^a \sqrt{5}}} + (0.04)^{\log^b 5}$

if  $\alpha = \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots$

$= \frac{1}{3} + \frac{1}{9} + \frac{1}{27} + \dots$

- 1) 4    2) 8    3) 12    4) 10

**QN** In expansion of  $\left(9x + \frac{1}{3\sqrt{x}}\right)^{18}$ , if the coefficient of term independent of x is 221k, then the value of k is

**QN** Let  $x_1, x_2, x_3, \dots, x_{10}$  be 10 observations such that  $\sum_{i=1}^{10} (x_i - 1)^2 = 90$  and  $\sum_{i=1}^{10} (x_i + 2)^2 = 180$ . Then, the standard deviation of  $x_1, x_2, x_3, \dots, x_{10}$  is

**QN**  $\int_{-1}^1 \cot^{-1}(1 + x + x^2) dx$  is equal to

**QN** In expansion of  $\left(9x - \frac{1}{3\sqrt{x}}\right)^{18}$ , if the coefficient of term independent of x is 221k, then the value of k is

- 1) 82                                      2) 83                                      3) 84                                      4) 86

**QN** If  $\sqrt{3}i, 1$  are the roots of  $x^3 + ax^2 + bx + c = 0$   $a, b, c \in \mathbb{R}$ . Then  $\int_{-1}^1 (x^3 + ax^2 + bx + c) dx$  is

- 1)  $\frac{20}{3}$                                       2)  $\frac{10}{3}$                                       3)  $-\frac{20}{3}$                                       4)  $-\frac{10}{3}$

**QN**  $\int_{-1}^1 \cot^{-1}(1 + x + x^2) dx$  is equal to

- 1)  $2 \tan^{-1} 2 - \frac{1}{2} \ln 5$                                       2)  $2 \tan^{-1} 2 + \frac{1}{2} \ln 5$                                       3)  $2 \tan^{-1} 2 - \frac{1}{5} \ln 2$                                       4)  $\frac{1}{2} \tan^{-1} 2 + \frac{1}{5} \ln 2$

**QN** Let  $x_1, x_2, x_3, \dots, x_{10}$  be 10 observations such that  $\sum_{i=1}^{10} (x_i - 1)^2 = 90$  and  $\sum_{i=1}^{10} (x_i + 2)^2 = 180$ .

Then, the standard deviation of  $x_1, x_2, x_3, \dots, x_{10}$  is

- 1)  $2\sqrt{2}$                       2) 3                      3) 9                      4) 10

**QN** Area bounded by  $x = -2y^2$  and  $x = 1 - 4y^2$  is

- 1)  $\frac{\sqrt{2}}{3}$  sq. units                      2)  $\frac{2\sqrt{2}}{3}$  sq. units                      3)  $\frac{2}{3}$  sq. units                      4)  $\frac{3\sqrt{3}}{2}$  sq. units

**QN** Three distinct numbers are chosen at random from the first 31 natural numbers  $\{1, 2, 3, \dots, 31\}$ . If the probability that selected numbers, when arranged increasing order, form an arithmetic

progression is  $\frac{a}{b}$  then  $a + b$  is

**QN** Consider a right-angle triangle ABC, inscribed in a parabola  $x^2 = 16y$  such that  $(8, 4)$  is vertex of the right angle

The eccentricity of the locus of the centroid of the triangle

- 1) 1                      2)  $\frac{1}{\sqrt{2}}$                       3)  $\sqrt{2}$                       4)  $\frac{1}{2}$