SINCE 1984

Brilliant®

STUDY CENTRE, PALA

# JEE MAIN 2026

# SESSION-1

# SHIFT-2 EVENING

# VIDEO SOLUTION

SCAN ME

## MEMORY BASED QUESTIONS

SINCE 1984
Brilliant®
STUDY CENTRE, PALA
Ph - 04822 206416, 206516, 206459
www.brilliantpala.org

# 22-01-2026 SHIFT 2-EVENING

## MEMORY BASED QUESTIONS

## PHYSICS

**QN** Find the dimensions of the expression $\frac{\varepsilon_0 E}{T}$, where $\varepsilon_0$, E and T are permittivity, electric field and time.

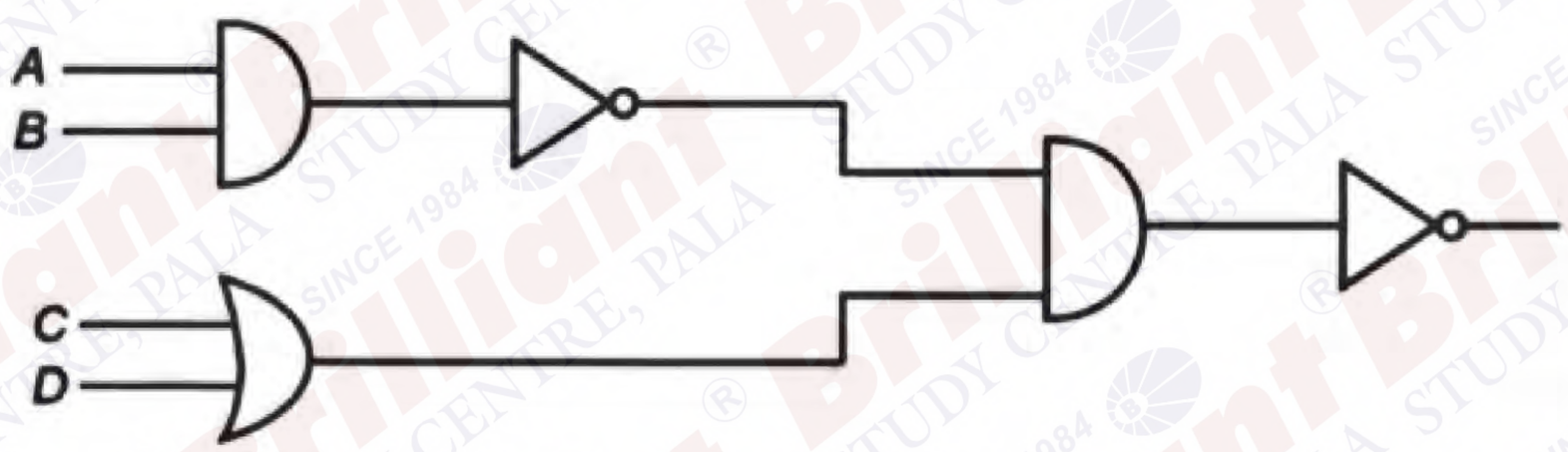
1 $AL$ 2 $AL^{-2}$

3 $MA^{-1}L$ 4 $MLA^2$

**QN** In an open organ pipe 3rd and 6th harmonic frequency differ by 3200 Hz. Find the length of organ pipe (speed of sound = 320 m/s)

1) 5 cm 2) 10 cm 3) 15 cm 4) 20 cm

**QN** For the given logic gate find output function




1 $\bar{A} \cdot \bar{B} + C + D$ 2 $\bar{A} + \bar{B} + \bar{C} \cdot \bar{D}$

3 $AB + CD$ 4 $AB + \bar{C} \cdot \bar{D}$

**QN** 3 small identical bubbles of water having same charge on each coalesce to forma biggen bubbe, Then the ratio of the potentials on one initial bubble & that on the resultant bigger bubble is :

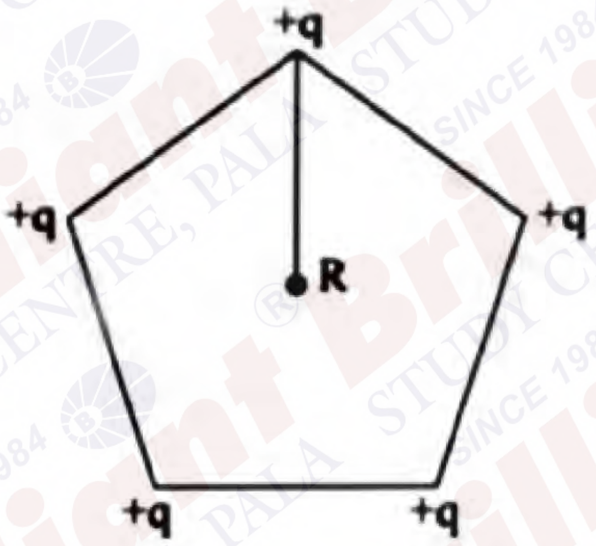
(a) $1:3^{2/3}$

(b) $3^{2/3}:1$

(c) $1:2^{2/3}$

(d) $1:3^{1/3}$

**QN** Five positive charges each having charge q are placed at the vertices of a pentagon as shown in the figure. The electric potential (V) & the electric field ($\vec{E}$) at the center 0 of the pentagon due to the 5 positive charges are:-




a) $V = 0, E = 0$

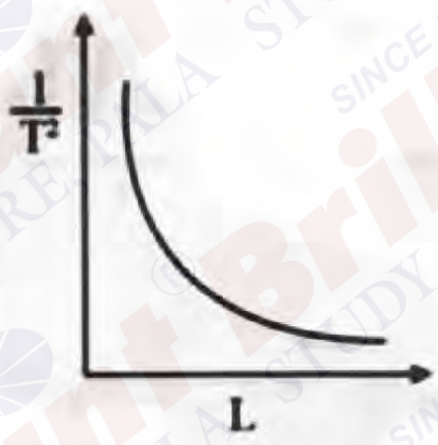
b) $V = \frac{5q}{4\pi\varepsilon_0 r}$
$E = \frac{5q}{4\pi\varepsilon_0 r^2}$

c) $V = \frac{5a}{4\pi\varepsilon_0 r}\vec{E} = 0$

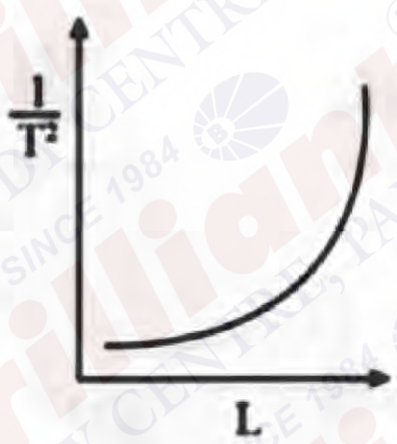
d) $V = \frac{5q}{4\pi\varepsilon_0 r}$
$E = \frac{5\sqrt{3}q}{8\pi\varepsilon_0 r^2}\hat{r}$

**QN** Using a simple pendulum experiment g is determined by measuring its time period T. Which of the following plots represent correct relation b/w the pendulum length $\ell$ & time period T.

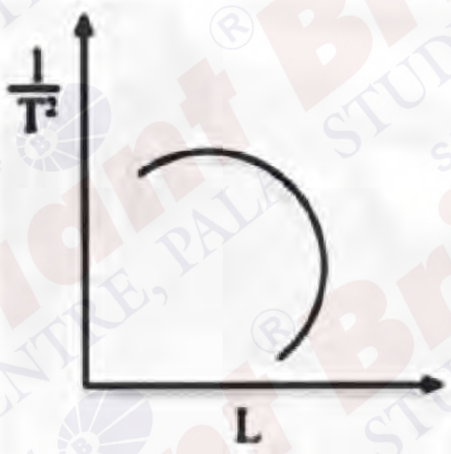
A)



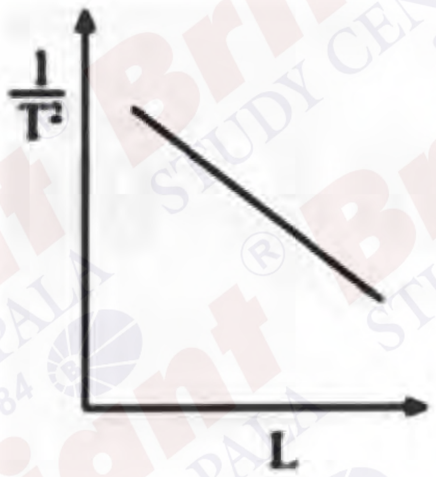

B)



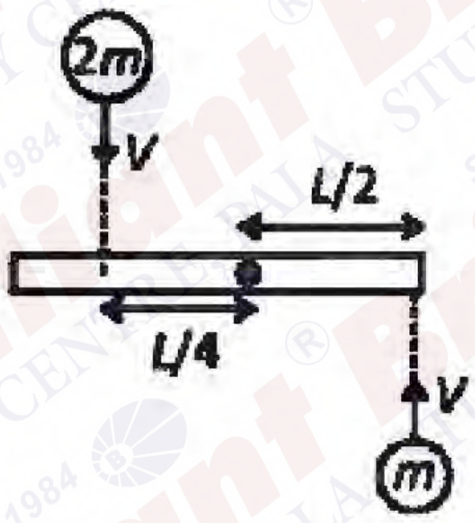

C)




D)



**QN** Two balls of mass 2m and m collides with rod of mass m and length L as shown balls stick to the rod after collision. Find $\frac{v}{\omega}$ if rod is hinged at centre. (L = 8m)




1) 11/2 2) 11/3 3) 11/4 4) 9/4

**QN** A gas undergoes a process in which state variable changes from (1 atm, 60 ml, 27°C) to (P atm, 30 ml, 77° C) the P is

1) 3 atm 2) $\frac{5}{4}$atm 3) $\frac{7}{3}$atm 4) $\frac{4}{3}$atm

**QN** Which of the following is/are true for YDSE experiment?

I. Fringe width increases if slit width is constant & wavelength increased

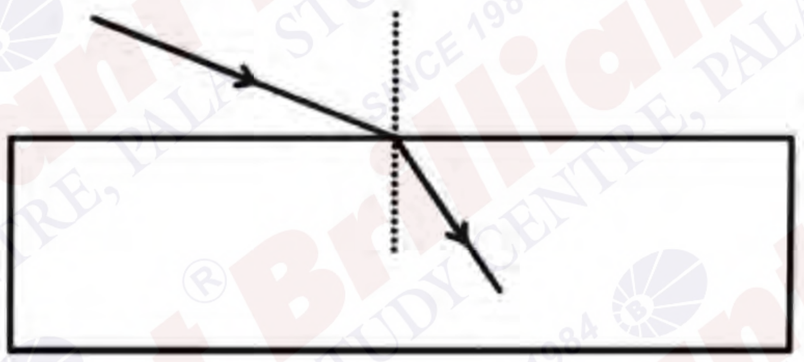
II. Fringe width increases if slit width is constant & wavelength decreased

III. Fringe width increases if slit width is increased & wavelength constant

IV. Fringe width increases if slit width is decreased & wavelength constant

1) i, iii 2) i, iv 3) ii, iii 4) ii, iv

**QN** A light ray incident on a slab of refractive index $\frac{3}{2}$, if wavelength of refracted ray is 520 nm. Find wavelength of incident ray

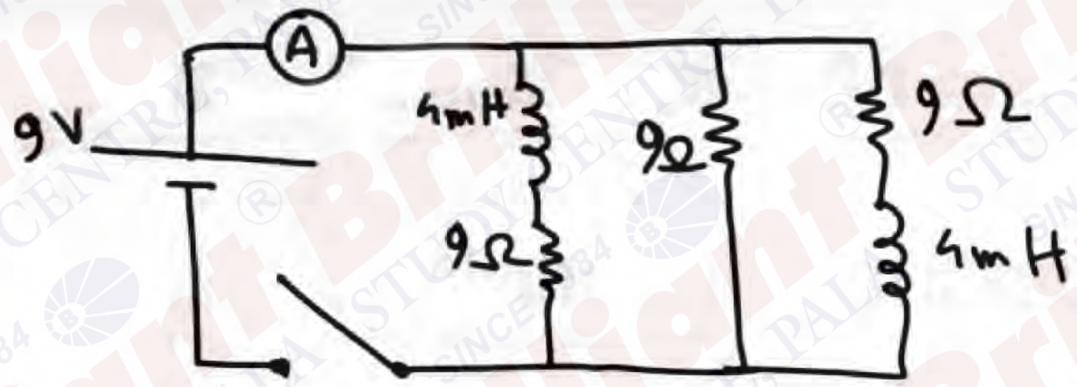


1) 460 nm 2) 780 nm 3) 360 nm 4) 560 nm

**QN** A laser beam has intensity of $4.0\times10^{14}\ w/m^2$. The amplitude of magnetic field associated with. beam is .....T

1) 1.83 2) 5.5 3) 18.3 4) 2.0

**QN** Fig. shows a circuit that contains 3 resistances ($9\Omega$ each) & two inductors (4 mH)) The reading of ammeter at the moment switch K is turned ON, is .....A.




a. 3 b. 0 c. 2 d. 1

**QN** If the string connecting $m$ and ground is cut find the speed (approx..) with which $2m$ block hits the ground as shown. ($g = 10\ m/s^2$)

1) $3\ m/s$ 2) $4\ m/s$ 3) $2\sqrt{6}\ m/s$ 4) $6\sqrt{2}\ m/s$

**QN** In hydrogen type atom, shortest wavelength in Lyman series is given as 91 nm. Then longest wavelength in Paschen series of this atom shall be

1) 31.82 nm 2) 113.3 nm 3) 1.87 mm 4) 2.31 mm

**QN** Statement - 1 : Kinetic energy of system = $\frac{1}{2}m_1v_1^2+\frac{1}{2}m_2v_2^2$ ..... $\frac{1}{2}m_nv_n^2$

Statement - 2 : Kinetic energy of system = Kinetic energy of center of mass + kinetic energy with respect to centre of mass

**QN** Find the percentage change in height risen by liquid if density of fluid, radius of capillary and surface tension of liquid are decreased by 1%. Assume contact angle doesn't change and capillary is of sufficent length.

1) +1% 2) –1% 3) +3% 4) –3%

Brilliant® SINCE 1984
STUDY CENTRE, PALA
Ph - 04822 206416, 206516, 206459
www.brilliantpala.org

# 22-01-2026 SHIFT 2-EVENING

## MEMORY BASED QUESTIONS

## CHEMISTRY

**QN** Correct order if ionisation enthalpy is

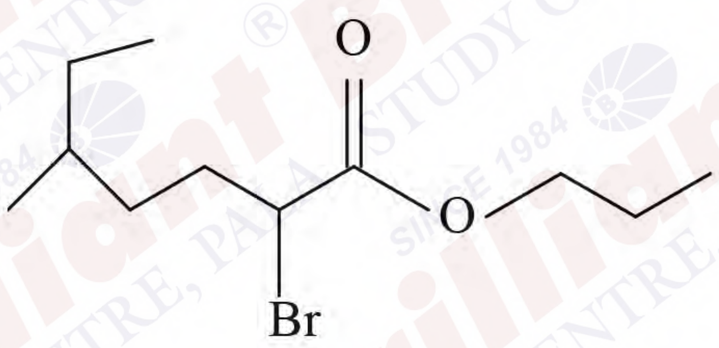
1) $F > Cl > Cl^- > F^-$

**QN** Which of the following is a mixed oxide?

1) $Fe_2O_3$ 2) $PbO_2$

3) $Pb_3O_4$ 4) $BaO_2$

**QN** Corect IUPAC name for following compoud is



**QN** 100 g 98% by weght $H_2SO_4$ is mixed with 100 g 49% by weight $H_2SO_4$. Mole fraction of $H_2SO_4$ in solution is

1) 0.9 2) 0.1 3) 0.67 4) 0.33

**QN** Energy of first (lowest) balmer line of H- atom is xJ. The energy of second line of H- atom is

1) x 2) 2x 3) 1.35 x 4) $\frac{x}{1.35}$

**QN** Match the following

| List I<br>Reaction with Glucose | List II |
|---|---|
| A) Hydroxyl amine | 1) Gluconic acid |
| B) $Br_2$ water | 2) Glucose pentaacetate |
| C) Excess acetic anhydride | 3) Saccharic acid |
| D) Conc. $HNO_3$ | 4) Glucoxine |

**QN** The correct order of electron gain enthalpy (magnitude only) for group 16 elements is

1) Te > Se > S > O 2) S > Se > Te > O

3) O > S > Se > Te 4) S > O > Se > Te

**QN**  $NH_2 \xrightarrow[NaOH]{C_6H_5COCl} A \xrightarrow[H_2O]{LiAlH_4} B$

**QN** Which of the following is a mixed oxide?

1) $Fe_2O_3$ 2) $PbO_2$

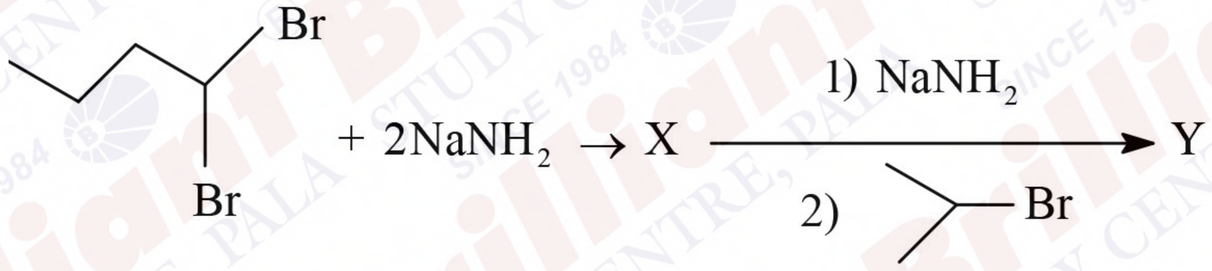
3) $Pb_3O_4$ 4) $BaO_2$

**QN** Which of following is basic buffer?

1) $NaOH + CH_3COONa$ 2) $NaOH + Na_2SO_4$

3) $K_2SO_4 + H_2SO_4$ 4) $NH_4OH + NH_4Cl$

**QN**




1) Isopropyl but-1-yune

2) 2-methyl hex -2-yne

3) 5-Methyl hex - 2-yne

4) 2-Methyl hex - 2-yne

**QN** Consider the following data

$Na(s) + \frac{1}{2}Cl_2(g) \rightarrow NaCl(s)$ $\Delta H^0 = -411\ kJ/mole^{-1}$

$Na(s) \rightarrow Na(g)$ $\Delta H^0 = 107\ kJ/mole$

$Cl_2(g) \rightarrow 2Cl(g)$ $\Delta H^0 = 242\ kJ/mole$

$Cl(g) + e^- \rightarrow Cl^-(g)$ $\Delta H^0 = -355\ kJ/mole$

$Na(g) \rightarrow Na^+(g) + e^-$ $\Delta H^0 = 502\ kJ/mole^{-1}$

Find out lattice energy of $NaCl(s)$

1) $-786\ kJ\ mole^{-1}$ 2) $-628\ kJ\ mole^{-1}$

3) $-428\ kJ\ mole^{-1}$ 4) $-3936\ kJ\ mole^{-1}$

**QN** 5.8g Aniline is converted into benzanilide with some reaction sequences. Calculat mass of benzanilide formed, if percentage yield of reaction is 82%.

$Ph - COCl + PhNH_2 \xrightarrow{NaOH}$ Benzanilide

SINCE 1984
Brilliant®
STUDY CENTRE, PALA
Ph - 04822 206416, 206516, 206459
www.brilliantpala.org

# 22-01-2026 SHIFT 2-EVENING

## MEMORY BASED QUESTIONS

## MATHEMATICS

**QN** If complex numbers $z_1, z_2, z_3.....z_n$ satisfy the equation $4z^2+\bar{z}=0$ then $\sum_{i=1}^{n}|z_i|^2$ is equal to

**QN** Let $\alpha,\beta$ be the real roots of quadratic equation $12x^2-20x+3\lambda=0$ $\lambda\in z$. If $\frac{1}{2}\le|\beta-\alpha|\le\frac{3}{2}$ then the sum of all possible values of $\lambda$ is

**QN** The number of elements in the relation $R=\{(x,y):4x^2+y^2<52, x,y\in z\}$

**QN** If the mean deviation about median of the numbers k,2k,3k.....1000k is 500, then $k^2$ is equal to

**QN** Area enclosed by $4x^2+y^2\le 8$ and $y^2\le 4x$

1) $\left(\pi+\frac{4}{3}\right)sq.unit$ 2) $\left(\pi-\frac{4}{3}\right)sq.unit$ 3) $\left(\pi+\frac{2}{3}\right)sq.unit$ 4) $\left(\pi-\frac{2}{3}\right)sq.unit$

**QN** Let a,b,c are in A.P. and $a^2$, $2b^2$, $c^2$ are in A.P. and a + b + c = 1 then find a $(a^2+b^2+c^2)$

**QN** If cos $\cos(\alpha-\beta)=\frac{-1}{10}$ and $\sin(\alpha+\beta)=\frac{8}{9}$ then find $(2\alpha)$

**QN** If $\lim_{x\to 0}\frac{e^{(a-1)x}-2\cos(bx)+e^{-x}(c-2)}{x\cos x-\log(1+x)}=2$ then find $a^2+b^2+c^2$

**QN** If $\frac{\cos y}{1-2\sin y}dy=\frac{dx}{16\sqrt{9\sqrt{x}+x}\left(4+\sqrt{9+\sqrt{x}}\right)}$ and f(49) = $\alpha$ then find $2\sin(\alpha)$

**QN**
$x-ny+z=6$
$x-(n-2)y+(n+1)z=8$
$(n-1)y+z=1$
Let n = number on the dice when rolled randomly then P (that system of equation has unique solution) = $\frac{k}{6}$, then sum of value of k and all possible value of n is

**QN** If the domain of the function $f(x)=\log_3\log_5\left(7-\log_2\left(x^2-10x+85\right)+\sin^{-1}\left|\frac{3x-7}{17-x}\right|\right)$ be $(\alpha,\beta)$ then $\alpha+\beta=$

**QN** If $P(10,2\sqrt{15})$ lie on hyperbola $\frac{x^2}{a^2}\cdot\frac{y^2}{b^2}=1$ and length of latus rectum is 8 then square of area of $\Delta PS_1S_2$ (where $S_1$ and $S_2$ are focii of hyperbola)

**QN** $f(x) = [x]^2 - [x+3] - 3,\ x \in /Rw$ for c. [.] is to GIF

Then

a) $\int_0^2 f(x)dx = {}^{-}6$

b) f(x) = 0 for infinitely many values of x

c) f(x) > 0 only for $x \in [4, \infty)$

d) f(x) < 0 only for $x \in [-1, 3)$

**QN** Let $C_r$ denote the coefficient of $x^r$ in the binomial expansion of $(1+x)^n, n \in N; 0 \le r \le n$. *If* $P_n = c_o - c_1 + \frac{2}{3}^3 c_2 - \frac{2^3}{4} c_3 + ..... + \frac{(-2)^n}{n+1} c_n$, then the value of

$$\sum_{n=1}^{25} \frac{1}{p^{2n}}$$

A) 650 B) 675 C) 680 D) 525

**QN** Let L be the line $\frac{x+1}{2} = \frac{y+1}{3} = \frac{z+3}{6}$ and let S be the set of all points (a,b,c) on L. whose distance from the line $\frac{x+1}{2} = \frac{y+1}{3} = \frac{z-9}{0}$. along the line L is 7. Then $\sum_{(a,b,c) \in s} (a+b+c)$. is equal to

a) 34 b) 6 c) 28 d) 40