SINCE 1984

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STUDY CENTRE, PALA

JEE MAIN 2026

SESSION-1
SHIFT-2 EVENING

SCAN ME

VIDEO SOLUTION
JANUARY 24, 2026
SATURDAY

MEMORY BASED QUESTIONS

Brilliant® SINCE 1984
STUDY CENTRE, PALA
Ph - 04822 206416, 206516, 206459
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MEMORY BASED QUESTIONS

PHYSICS

QN A spring of stiffness k = 15 N/m is cut into a ratio of 3 : 1. Find the spring constant of smaller length spring thus formed.

1) 15N/m 2) 30N/m 3) 45N/m 4) 60N/m

QN EM waves and their source are given

Column I		Column II	
a)	X-rays	p)	Hot bodies and molecules
b)	Infrared Rays	q)	Oscillatory current in Atenas
c)	Microwaves	r)	Magnetron
d)	Radio waves	s)	Fast moving electrons striking a metal plate

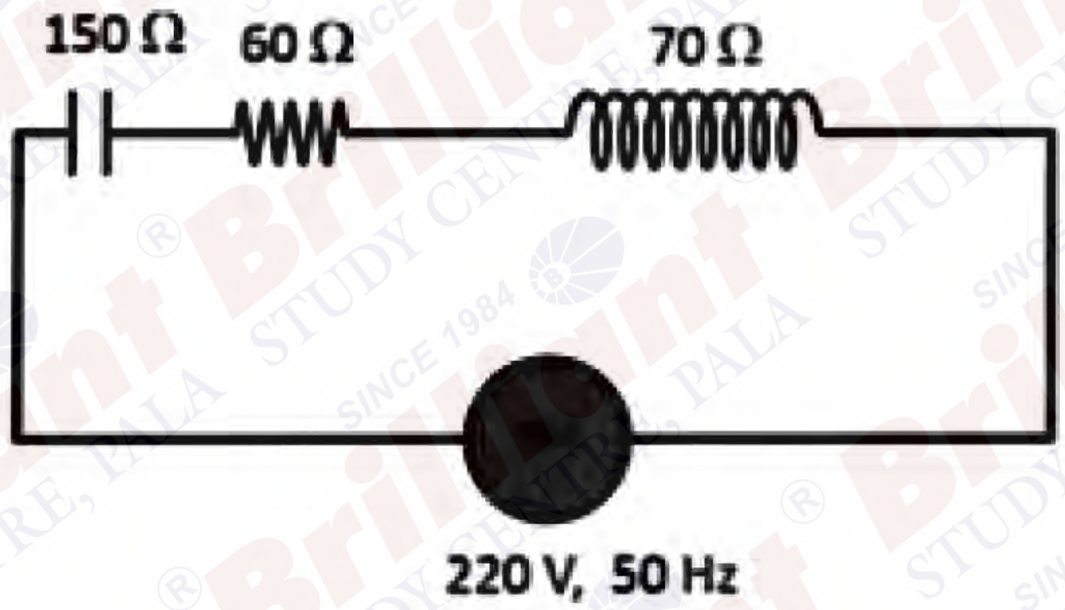
1) a-p, b-s, c-r, d-q 2) a-s, b-p, c-r, d-q

3) a-s, b-p, c-s, d-q 4) a-s, b-r, c-p, d-q

QN In H-like atom ratio of speed in two orbits is 3 : 2, then ratio of energy is

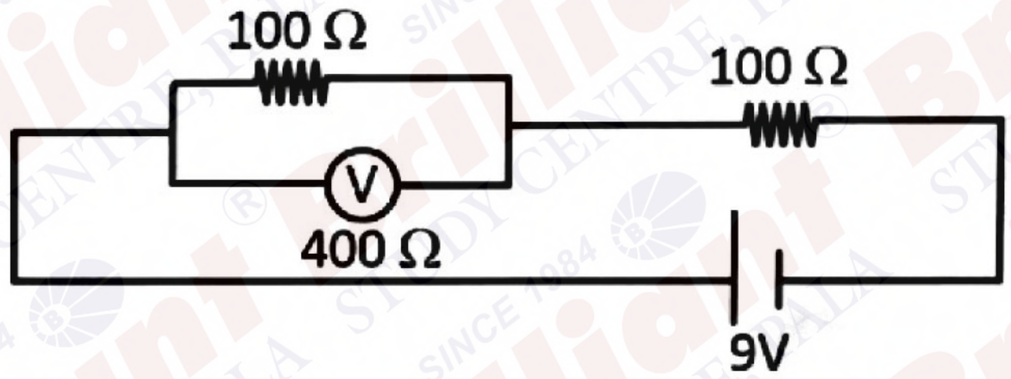
1) 2 : 3 2) 9 : 4 3) 2 : 1 4) 5 : 3

QN For the given ac circuit, find the power factor.



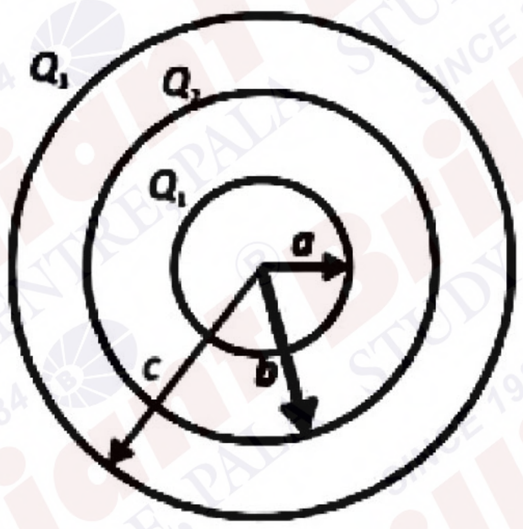
1) 4/5 2) 3/5 3) 3/4 4) 4/3

QN A voltmeter of 400W resistance is in parallel with 100 W resistor. And the combination is connected with 100W resistor and a battery of 9 volt in series as shown. Find the reading of voltmeter.



1) 5volts 2) 3volts 3) 4volts 4) 6 volts

QN Three uniformly concentric charged shells are kept as shown. Find potential of each shell.



1) $V_A = \frac{kQ_1}{a} + \frac{kQ_2}{b} + \frac{kQ_3}{c}, V_B = \frac{k(Q_1+Q_2+Q_3)}{b}, V_C = \frac{k(Q_1+Q_2+Q_3)}{c}$

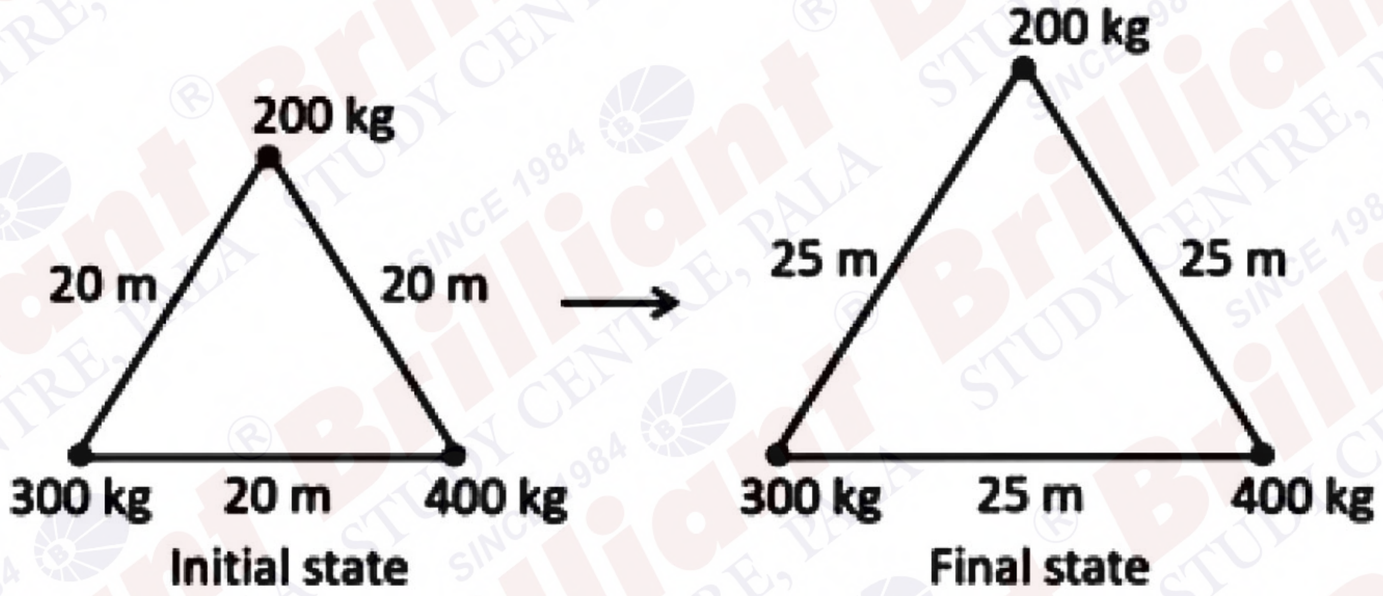
2) $V_A = \frac{kQ_1}{a} + \frac{kQ_2}{b} + \frac{kQ_3}{c}, V_B = \frac{k(Q_1+Q_2)}{b} + \frac{kQ_3}{c}, V_C = \frac{k(Q_1+Q_2+Q_3)}{c}$

3) $V_A = \frac{kQ_1}{a} + \frac{k(Q_2+Q_3)}{c}, V_B = \frac{k(Q_1+Q_2)}{b} + \frac{kQ_3}{c}, V_C = \frac{k(Q_1+Q_2+Q_3)}{c}$

4) $V_A = \frac{kQ_1}{a} + \frac{kQ_2}{b} + \frac{kQ_3}{c}, V_B = \frac{k(Q_1+Q_2)}{a} + \frac{kQ_2}{b}, V_C = \frac{k(Q_1+Q_2+Q_3)}{c}$

QN Find the work done.

(Given : $G = 6.67\times10^{-11}$ N-m^2/kg^2)



1) 1.7342×10^{-7}J 2) 1.6253×10^{-7} J 3) 2.5232×10^{-7} J 4) 6.6325×10^{-7} J

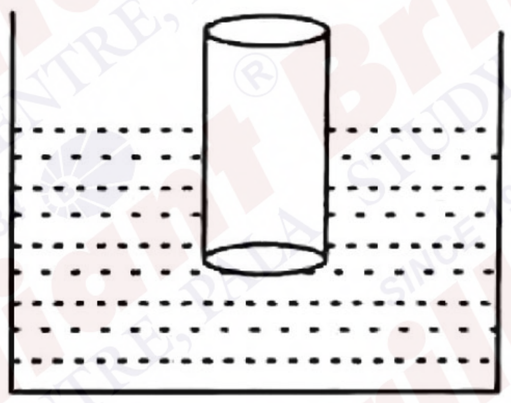
QN Match the two Lists given below.

List I		List II	
a)	Magnetic flux	1.	$M^1L^2T^{-2}A^{-2}$
b)	Magnetic permeability	2.	$M^1L^2T^{-2}A^{-1}$
c)	Magnetic induction	3.	$M^1L^1T^{-2}A^{-2}$
d)	Self induction	4.	$M^1L^0T^{-2}A^{-1}$

1) a-2, b-3, c-4, d-1 2) a-3, b-2, c-1, d-4 3) a-4, b-3, c-1, d-2 4) a-1, b-2, c-3, d-4

QN A cylinder of mass m, length l and area of cross section A is in equilibrium in liquid of density ρ.

Find time period of small vertical oscillations.

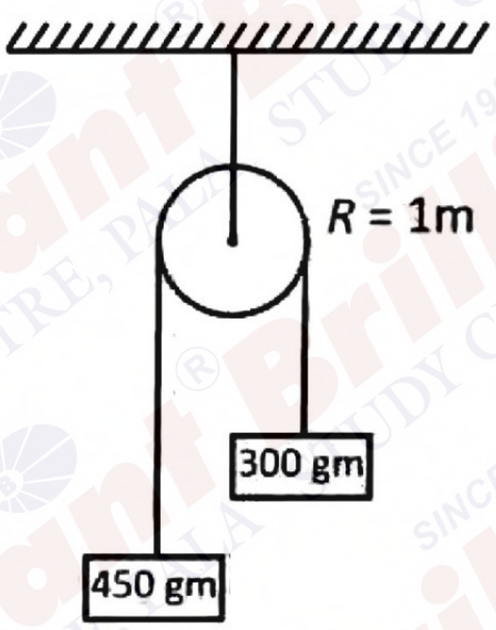


1) $2\pi\sqrt{\frac{mA}{\rho g}}$ 2) $2\pi\sqrt{\frac{mg}{\rho A}}$ 3) $2\pi\sqrt{\frac{m}{\rho A^2 g}}$ 4) $2\pi\sqrt{\frac{m}{\rho A g}}$

QN A dipole is placed in uniform magnetic field B = 800 gauss at an angle 30° then it experiences the torque of 16×10^{-3} N-m. Find the work done in slowly moving the dipole from stable equilibrium to unstable equilibrium.

1) 64×10^{-3} J 2) 5×10^{-3} J 3) 24.5×10^{-3} J 4) 7.6×10^{-3} J

QN When system is released from rest the heavier mass goes 81cm in sec, find rotational inertia. (g = 10 m/s^2)



1) 74.25 kg-m^2 2) 100.25 kg-m^2 3) 50.25 kg-m^2 4) 25.25 kg-m^2

Q4N Statement-1 : Binding energy per nucleon always increases with mass number.

Statement-2 : Binding energy per nucleon for smaller mass number always performs nucleon fusion.

1) Statement-1, true

Statement- 2, false

2) Statement-1, true

Statement- 2, true

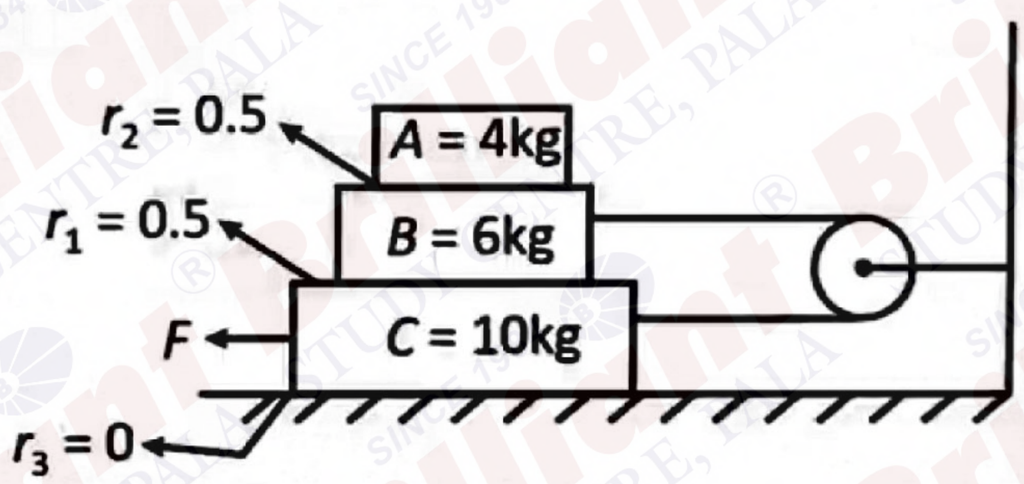
3) Statement-1, false

Statement- 2, true

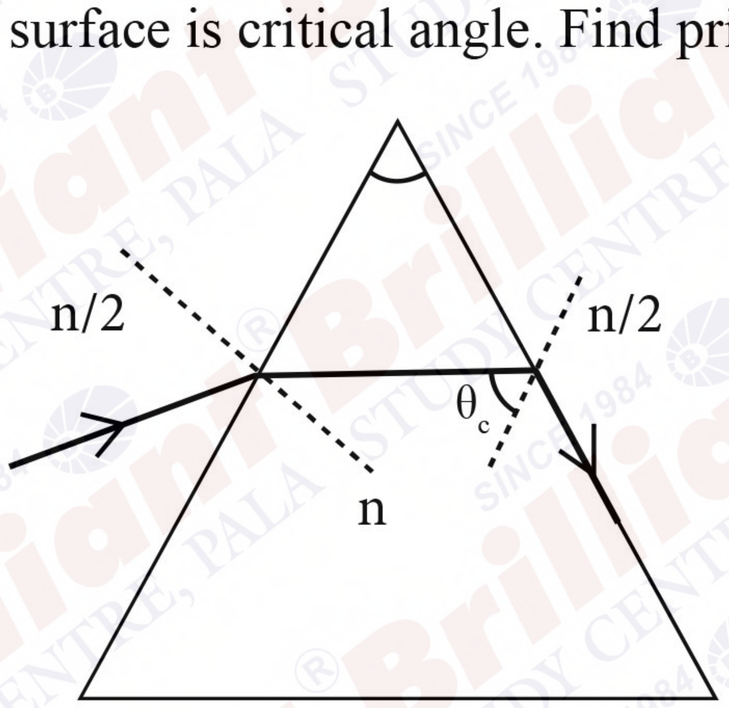
4) Statement-1, false

Statement- 2, false

Q5N For the given arrangement find the value of F(in Newton) so that body c moves with constant velocity.

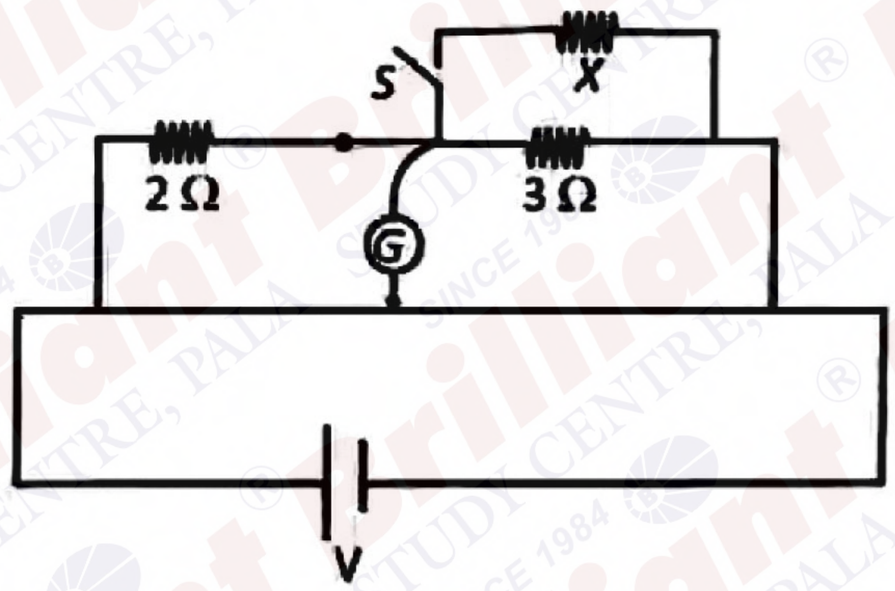


Q6N A light ray incident on the prism such that deviation is minimum and angle of incidence on 2nd surface is critical angle. Find prism angle.



1) 90° 2) 60° 3) 105° 4) 74°

QN In meter bridge diagram given below, if S is closed, null point shifts by 25cm. Find value of resistance X. (in cm)



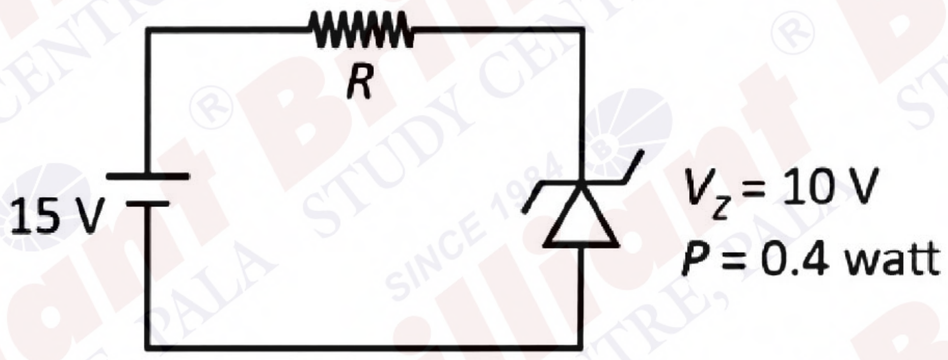
1) 4.1 2) 1.68 3) 6.28 4) 5.4

QN Velocity of electron in n^{th} shell of a hydrogen like atom is 3×10^5 m/s and velocity of electron in m^{th} shell of that atom is 2.5×10^5 m/s. Find ratio of radius of m^{th} shell to n^{th} shell.

1) 25/40 2) 25/36 3) 36/25 4) 36/35

QN For a microscope focal length of objective is 2cm and focal length of eyepiece is 4cm. Tube length is L= 10cm. Magnification for normal adjustment is 5x. Find the value of x.

QN For the given the breakdown voltage of Zener diode is $V_Z = 10$ volts and it can withstand the power dissipation of 0.4 watt. Find the value of resistance R (in Ω)



QN If potential varies as distance r as $v(r) = ar^3 + b$. Total magnitude of charge Q inclosed within a sphere of unit radius is $Q = \alpha(\pi a \varepsilon_0)$. Find the value of α.

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24-01-2026 SHIFT 2-EVENING

MEMORY BASED QUESTIONS

CHEMISTRY

QN An electron make transition from higher energy orbit (n_2) to lower energy orbit (n_1) in Li^{2+} ion such that $n_1 + n_2 = 4$ & $n_2\ n_1 = 2$. Determine the wavelength emitted in the dimension (in nm)

1) 12.9 nm 2) 11.4 nm 3) 16.7 nm 4) 9.2 nm

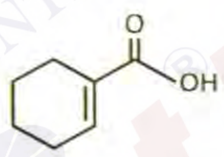
QN Correct order of 2nd Ionization enthalpy

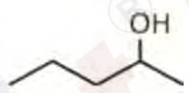
1) O<C<N<F 2) C<N<O<F 3) C<N<F<O 4) C<O<N<F

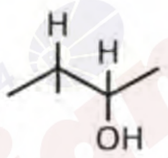
QN How many linear tripeptides are possible with valine (Val), Glycine (Gly) and Alanine (Ala). No amino acid should be repeated?

1) 8 2) 5 3) 6 4) 4

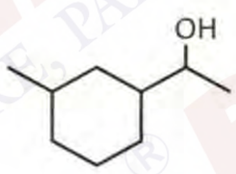
QN Which of the following molecules is secondary alcohol?

a) 

b) 

c) 

d) 

e) 

1 b, c, e only

2 b, c, d, e only

3 a, c, d, e only

4 a, b, d only

QN Order of wavelength of absorbed radiation for the below given complexes is,

(a) $[Co(NH_3)_6]^{3+}$ (b) $[Co(NH_3)_5H_2O]^{3+}$
(c) $[CoF_6]^{3-}$ (d) $[Co(CN)_6]^{3-}$

1 d > a > c > b

2 d > a > b > c

3 d < a < b < c

4 d < a < c < b

QN Given :

$\Delta H_{atom}\ (CH_4) = x\ kJ\ mole^{-1}$

$\Delta H_{atom}\ (C_2H_6) = y\ kJ\ mole^{-1}$

Find out bond energy (C – C) (kJ/mole).

1 $y - x$

2 $y - 4x$

3 $y - \frac{3x}{2}$

4 $y - 2x$

QN Which of the following have same bond order and are paramagnetic?

1 $O_2^+,\ N_2^-$

2 $O_2^+,\ O_2^-$

3 $O_2^-,\ N_2^-$

4 $O_2^-,\ N_2^+$

QN **X is an oxo anion of the lightest element of Group 7 of d-Block. Which is the color of the potassium salt of element X, in it' s highest oxidation state?**

1) Purple **2) Yellow** **3) Green** **4) Orange**

QN **How would you distinguish between product formed P and Q of reaction given below**

1 **Fehling solution test**

2 **Tollens test**

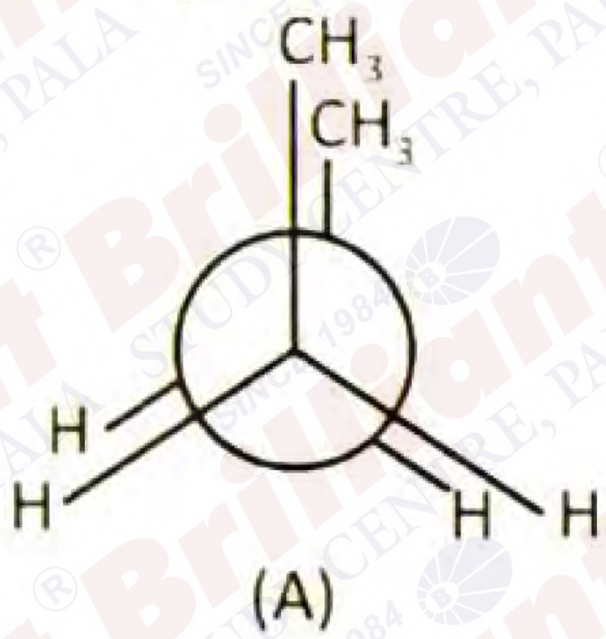
3 **2, 4 DNP test**

4 **Iodoform test**

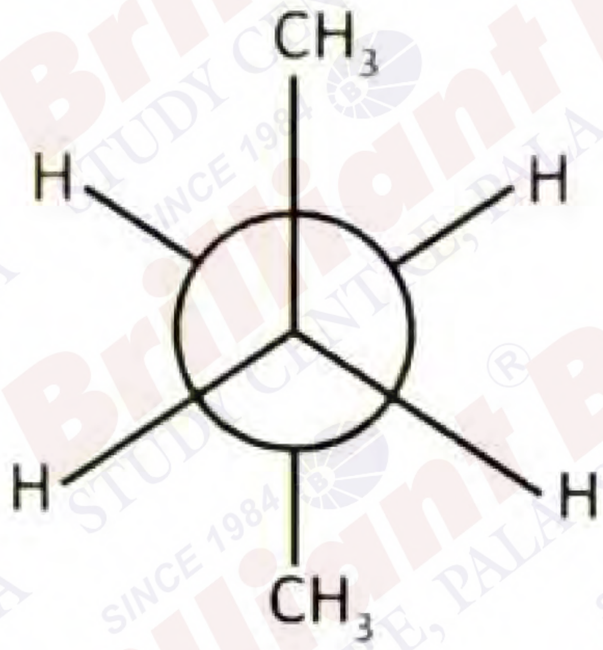
QN. A group VII element which has a+7 oxidation state forms a salt with potassium (K). What is the colour of this salt?

1) Green **2) Yellow** **3) Orange** **4) Purple**

QN Given below are two statements based on structures given



(A)



(B)

Statement I : B is more stable than A.

Statement II : Dihedral angle of B is more than A.

In the light of the above two statements, choose the correct option.

1) Both statement I and II are correct

2) Both statement I and II are incorrect

3) Statement I is correct but II is incorrect

4) Statement I is incorrect but II is correct

QN Vapor pressures of two volatile species A and B are 55 mm and 120 mm respectively. If mole fraction of 'A' in liquid state is 0.8, then mole fraction of 'B' in vapor state is

1) 0.65 **2) 0.45** **3) 0.35** **4) 0.53**

QN **Statement-I :** RMgX react with CO_2 followed by acidification form product, which reacts with NH_3/Δ then reacts with NaOCl form product which further reacts with $CHCl_3$/NaOH and final product is $R-N\rightrightarrows C$.

Statement-II : $R-N\rightrightarrows C$ on hydrolysis gives RCOOH.

Which amongs the following statement is correct.

(1) Statement-I and Statement-II both are correct

(2) Statement-I is incorrect Statement-II is correct

(3) Statement-I is correct Statement-II is incorrect

(4) Statement-I and Statement-II both incorrect

QN Which of the following statement is correct about reasonance and resonating structures?

Resonating structure with more covalent bonds is more stable

The resonance structures differ in position of electrons and relative position of atoms

The stability of resonance hybrid decreases with increasing number of equivalent resonating structure

Electronegative atom bearing positive charge in the canonical form is more stable

QN Consider the following reversible reaction wherein the moles of species at equilibrium is given

	P_2	+	Q_2	⇌	$2PQ$
$t = t_{eq}$	2 mol		2 mol		2 mol

If one mole of P_2 and one mole of Q_2 are added at equilibrium. The number of moles of P_2, Q_2 and PQ at new equilibrium, respectively are

1 $\frac{4}{3}, \frac{4}{3}, \frac{8}{3}$

2 $\frac{8}{3}, \frac{8}{3}, \frac{8}{3}$

3 $\frac{4}{3}, \frac{4}{3}, \frac{4}{3}$

4 $\frac{8}{3}, \frac{8}{3}, \frac{4}{3}$

QN $\underset{(2M,\,2L)}{KOH} + \underset{(1\,mol)}{Cl_2} \longrightarrow Cl^{\ominus} + ClO^{\ominus} + K^{\oplus}$

Find the conc. of each product and choose correct option

1 $[Cl^-] = [ClO^-] = [K^+] = 0.5\ M$

2 $[Cl^-] = [K^+] = 1.5\ M$

3 $[Cl^-] = [ClO^-] = 0.5\ M$

4 $[Cl^-] = [ClO^-] = 0.75\ M$

QN If words are arranged in a dictionary alphabatically , then rank of UDAIPUR is?

QN The maximum value of n for which 40^n divides 60! is equal to

1) 11 2) 12 3) 13 4) 14

QN If $Z = (1 + i)(1 + 2i) (1 + 3i) ...(1 + ni)$ ne $\in N$ and $|z|^2 = 44200$ then n is equal to

QN The image of the parabola $x^2 = 4y$ in the line $x - y = 1$is

1) $(y - 1)^2 = 4(x + 1)$ 2) $(y+1)^2 = 4(x - 1)$ 3) $(y + 1)^2 = 4(x + 1)$ 4) $(y-1)^2=4(x-1)$

QN The value of sum $S=\left(\frac{1}{3}+\frac{4}{7}\right)+\left(\left(\frac{1}{3}\right)^2+\left(\frac{4}{7}\right)^2+\frac{1}{3}\times\frac{4}{7}\right)+$

$$\left(\left(\frac{1}{3}\right)^2+\left(\frac{1}{3}\right)^2\times\frac{4}{7}+\frac{1}{3}\times\left(\frac{4}{7}\right)^2+\left(\frac{4}{7}\right)^2\right)$$

QN Let the equation $x^4 - ax^2 + 9 = 0$ have four real and distinct roots. Then the least integral value of a is

1) 5 2) 6 3) 7 4) 8

QN $\lim\limits_{x\to 0}\dfrac{\tan(\tan x)-\tan(\sin x)}{\tan x-\sin x}=$

1) 1 2) –1 3) 2 4) $\frac{1}{2}$

QN The domain of $\sin^{-1}\left[\dfrac{1}{x^2-2x-1}\right]$ is $(\infty,\alpha]\cup[\beta,\delta]\cup[\lambda,\infty)$. The value of $\alpha+\beta+\delta+\lambda$

1) 17 2) 4 3) 3 4) 6

QN If $4x^2 + y^2 < s2$, $x, y \in Z$ then the number of ordered pairs (x, y) is

1) 67 2) 87 3) 77 4) 38

QN Consider these state,emts regarding the function $f(x) = |\log x| - |x-1|$

Statement 1 : f(x) is differentiable for all $x > 0$

Statement 2 : f(x) is increasing in $(1,\infty)$

Statement 3 : f(x) is decreasing in (0, 1)

1) Statement 1 and statement 3 is true

2) All statements are correct

3) Statement 2 and statement 3 are correct

4) Statement 1 and statement 2 are correct

QN Find number of solutions of the equation$\tan(x + 100^0) = \tan(x+50^0) \times \tan x \times \tan(x - 50^0)$

whre $x \in (0, \pi)$

1) 3 2) 4 3) 6 4) 5

QN If $\int \frac{7x^{10} + 9x^8}{\left(1 + x^2 + 2x^9\right)^2} dx = f(x) + C$ and $f(1) = \frac{1}{4}$, then $f(x)$ is

1) $\frac{x^9}{2x^2 + 9 + x^9}$ 2) $\frac{x^9}{2 + x^2 + x^9}$ 3) $\frac{x^9}{1 + x^2 + 2x^9}$ 4) $\frac{x^9}{1 + x^9 + 2x^2}$

QN Let $X = \{1, 2, 3....19\}$. If new data $Y = \{y_i : y_i = ax_i + b, x, \in x\}$

such that mean 120 respectively find the sum of all values of b is

1) 50 2) 40 3) 60 4) 30

QN Let the point (h, k) lies on $x^2 + y^2 = 4$ and (2h+1,3k+2) lies on ellipse having eccentricity e.

Then the value of $\frac{5}{e^2}$

QN Given $P = [P_{ij}]$ and $Q = [q_{ij}]_{3x3}$ where $q_{ij} = 2^{i+j-1} P_{ij}$. If $|Q| = 2^{10}$, then the value of $|adj(adj(P))|$ is