JEE MAIN 2025

PAPER DISCUSSION

Attempt : 01
Date : 22nd Jan 2024
Shift : 01

LIVE STREAMING

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JEE MAIN 2025 PAPER DISCUSSION

JEE ULTIMATE CRASH COURSE 2025

Organic Chemistry

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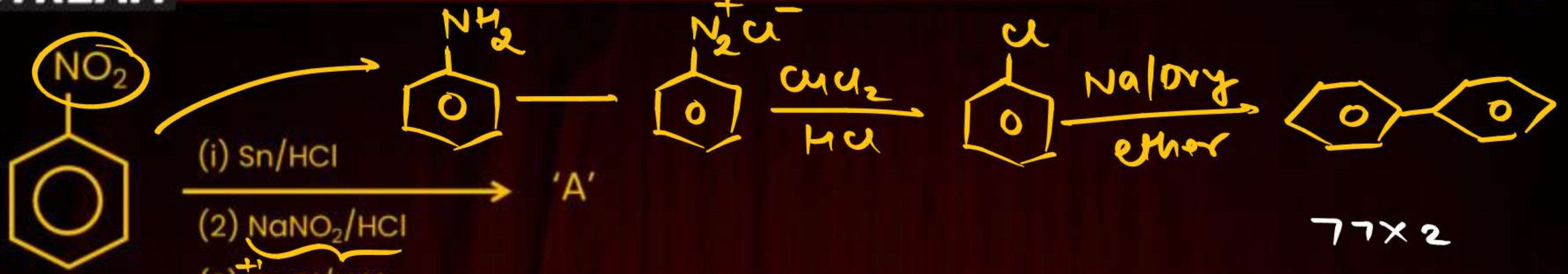

(i) Sn/HCl

(2) $NaNO_2$/HCl

(3) $CuCl/HCl$

(4) Na/Dry ether

'A'

Molecular weight of 'A' = ?

77 × 2

= 154

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Calculate Number of stereoisomers of $CH_3 - CH = CH - CH(OH) - CH_3$

$2^n = 2^2 = 4$

Weight of the organic compound is 180 g and the weight of the AgCl precipitated 143.5 g. Calculate the estimation of Cl in _____ %

wt of Cl = 35.5 g

Wt of Ag = 180 g.

AgCl

$$\%\ Cl = \frac{35.5}{143.5} \times \frac{W_{AgCl}}{W_{OC}} \times 100\ \%$$

$$= \frac{35.5}{143.5} \times \frac{143.5}{180} \times 100$$

$$= 19.7 \simeq 20\ \%$$

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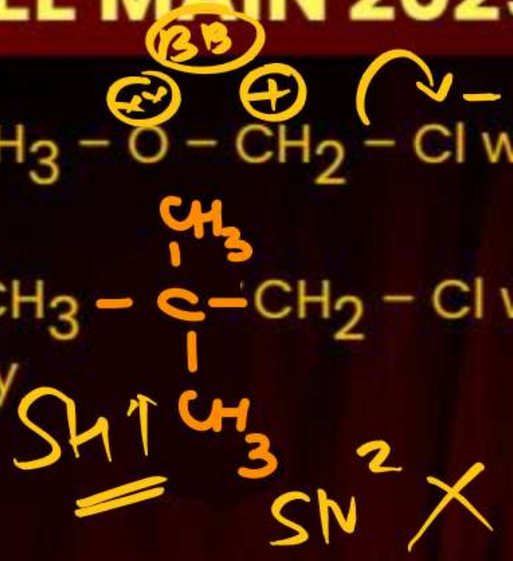
Statement - I : $CH_3 - O - CH_2 - Cl$ will show nucleophilic substitution by SN1 mechanism in protic medium

Statement – II : $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - CH_2 - Cl$ will undergo nucleophilic substitution via SN2 mechanism easy



A. Statement- I and statement –II both are correct

B. Statement- I and statement –II both are incorrect

C. Statement- I is correct but statement –II is incorrect

D. Statement- I is incorrect but statement –II is correct

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Which of the following acid is present in Vitamin C?

A. Saccharic acid

B. Aspartic acid

C. Adipic acid

D. Ascorbic acid

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MP ∝ C.L.E

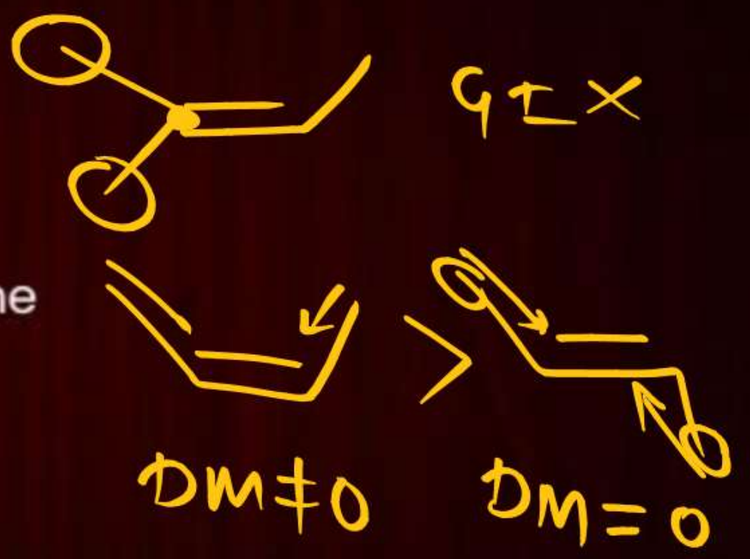
Identify the incorrect statement

A ✓ MP of Cis 2 butene is greater than tran 2-butene.

B 2-methyl 2-butene can have two geometrical isomer

C DP moment of cis 2 butene is greater than trans 2 butene

D In trans isomer identical groups are opposite direction



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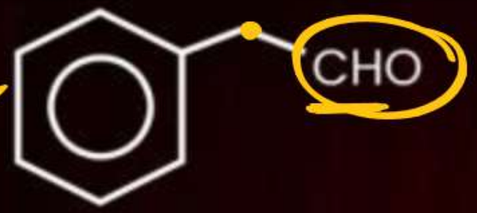
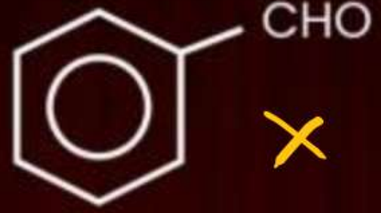
Total no. of comp. gives positive test with Fehling's solution?

Ali A'd ✓
Aro Ald ×
Ket ×

A 

B 

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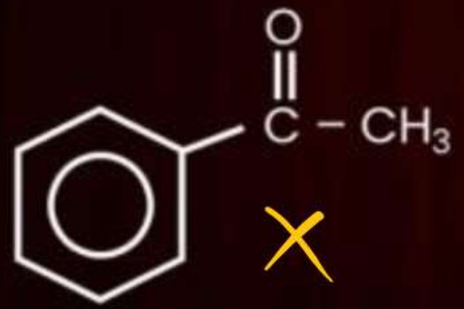
Ans (2)

C 

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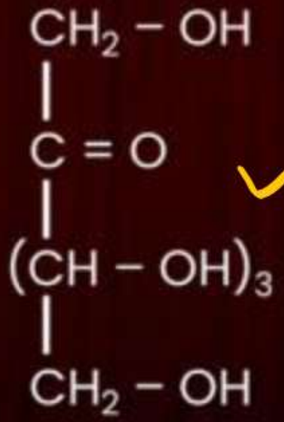
D 

✓

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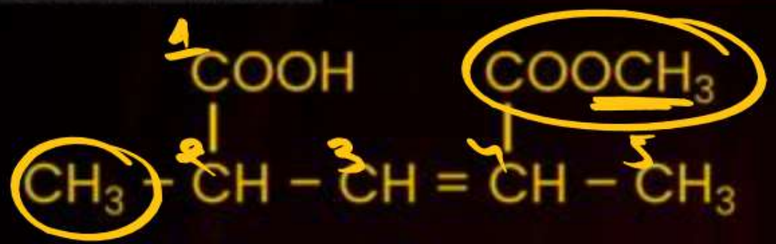

IUPAC Name ?

A. 4-methoxycarbonyl-2-methylpent-3-enoic acid

B. 3-methoxycarbonyl-2-methylpent-3-enoic acid

C. 5-methoxycarbonyl-2-methylpent-3-enoic acid

D. 2-methoxycarbonyl-3-methylpent-3-enoic acid

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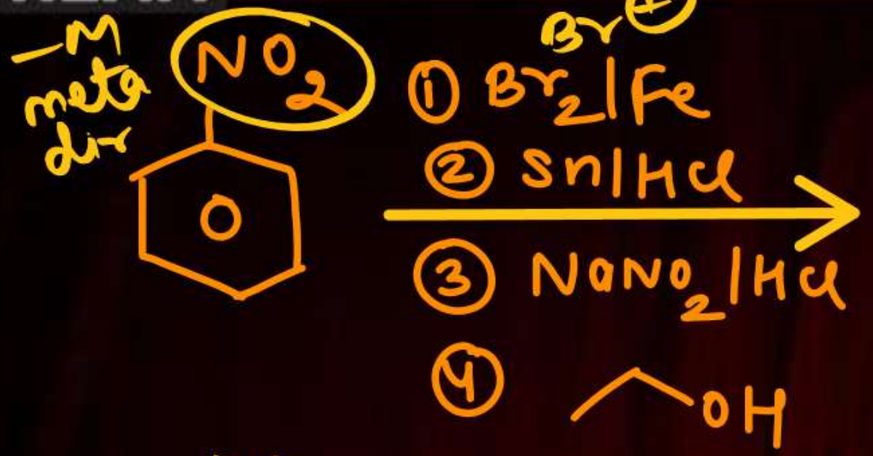
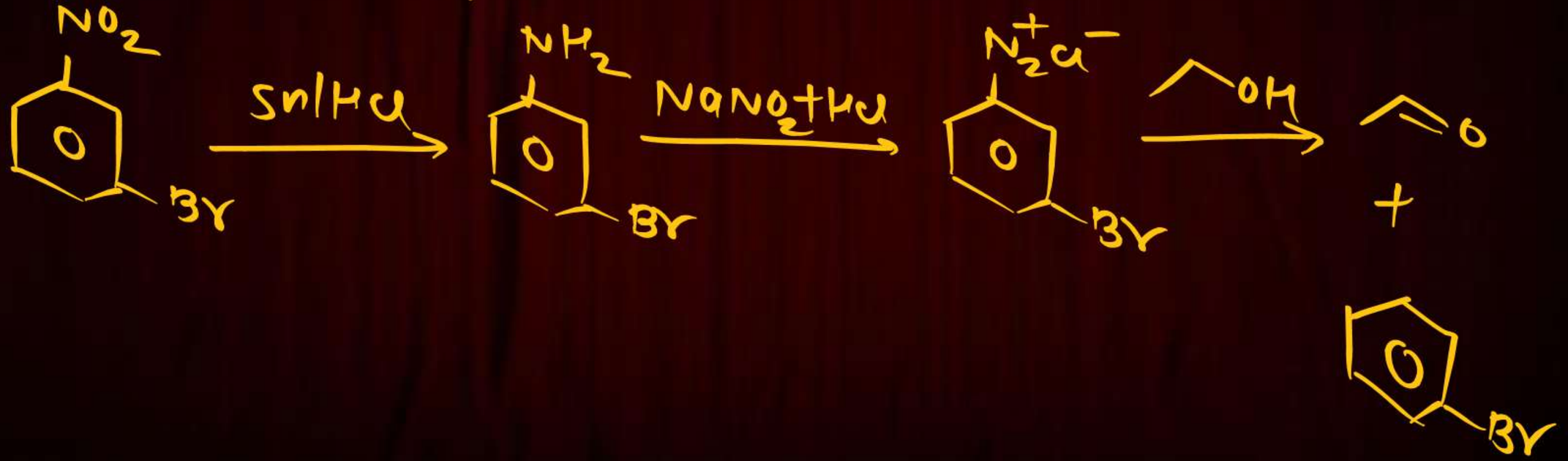
Q1





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JEE MAIN 2025

PAPER DISCUSSION

Sub : Physics
Attempt : 01
Date : 12th Jan 2024
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Find the dimensions of $\frac{B}{\mu_0}$

A $[AL]$

B $[AL^{-1}]$

C $[MAL]$

D $[MALT^{-1}]$

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Solid sphere of mass M, radius R exerts force F on a point mass. Now a concentric spherical mass M/7 is removed. what is new force ?

A F/7

B 6F/7

C 5F/7

D 3F/7

Assertion: When YDSE set up is dipped in a denser medium than the fringe width decreases.

Reason: Speed of light decreases in denser medium but frequency of light remains same.

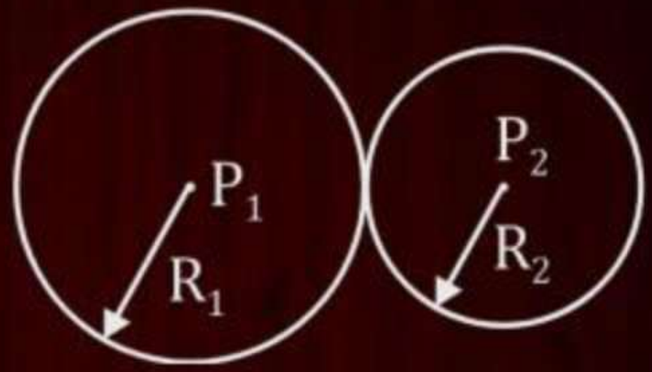
Find the radius of curvature of the common surface of two bubbles ($R_1 > R_2$)

A $R = \frac{R_1 R_2}{R_1 + R_2}$

B $R = \frac{2R_1 R_2}{R_1 - R_2}$

C $R = \frac{R_1 R_2}{R_1 - R_2}$

D $R = \frac{R_1 R_2}{(R_1 - R_2)}$



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An electron in the group state of the hydrogen atom has the orbit, radius of 5.0×10^{-10} m while that for the electron in third excited state is 8.48×10^{-10} m. The radio of the de-Broglie wavelength is electron om the ground state to that in the excited state is:

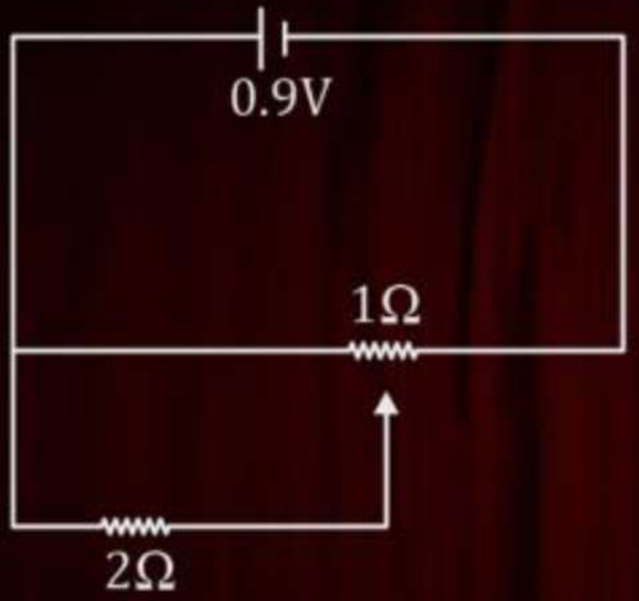
A 9

B 3

C 4

D 16

Find current in the circuit, Jockey is at middle point on 1Ω



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Statement I- In a vernier callipers, one vernier scale division is smaller than one main scale division.

Statement II- The vernier constant is given by one main scale division multiplied by the number of vernier scale divisions.

A. Statement I is true and Statement II is false.

B. Statement I is false and Statement II is true.

C. Both the statements are true.

D. Both the statements are false.

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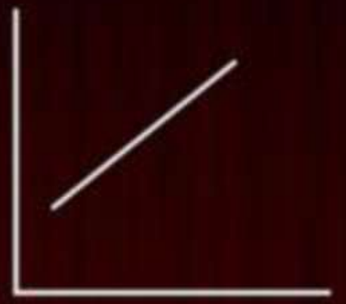
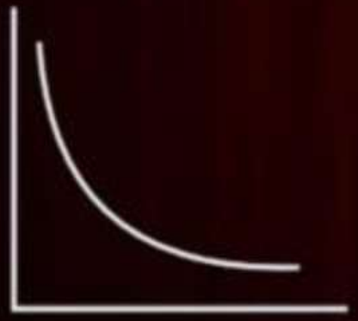
Identify the correct graph between the resistivity of conductor and temperature

A

B



C



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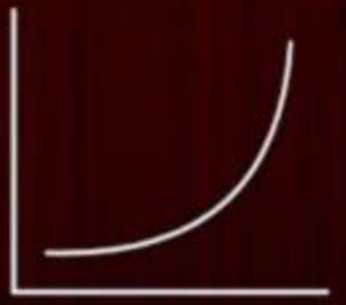

From a sphere of mass M and radius R, a cavity of radius R/2 is created. Find the moment of inertia about an axis passing through the centre of sphere.

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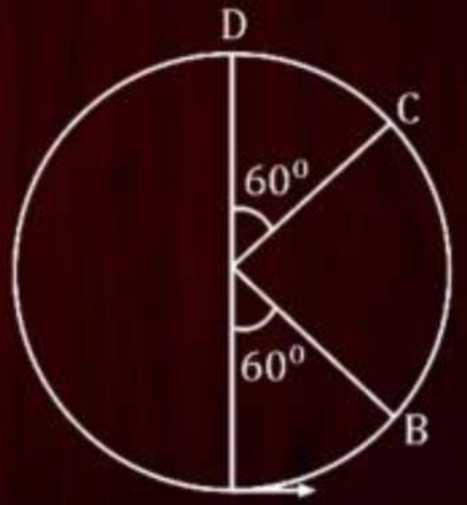
A bob of mass m is suspended at a point 'O' by a light string of length 'l' and left to perform vertical motion (circular) as shown in figure. Initially by applying horizontal velocity V_0 at the point 'A', the string becomes slack when the bob reaches at the point 'D'. The ratio of the K.E of the bob at the points B and C is

A 2

B 4

C 1

D 3



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A Parallel plate capacitor of capacitance 40 μF is connected to a 100 V power supply now the intermediate space between the plates is filled with a dielectric material of dielectric constant K = 2. So due to the introduction dielectric the extra charge and the change in electrostatic energy in the capacitor respectively is:

A 2 mc and 0.4 J

B 2 mc and 0.2 J

C 4 mc and 0.2 J

D 8 mc and 2 J

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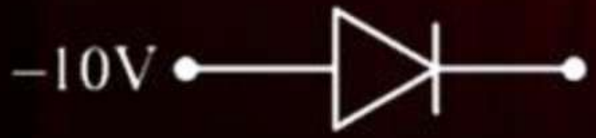
Identify the diode connected in forward bias

A 

B 

C 

D 

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What amount of heat is required to convert 1 gm of ice at –10°C into steam at 110°C?

A $\Delta Q = 730$ cal

B $\Delta Q = 1100$ cal

C $\Delta Q = 930$ cal

D $\Delta Q = 900$ cal

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Statement I- When non – ideal batteries are connected in parallel then the resultant emf is lesser than either of the battery

Statement II- When non – ideal batteries are connected in parallel then the resultant resistance of their internal resistance is smaller than either of the resistance

A. I true , II false

B. I false, II true

C. Both true

D. Both false

LIVE STREAM

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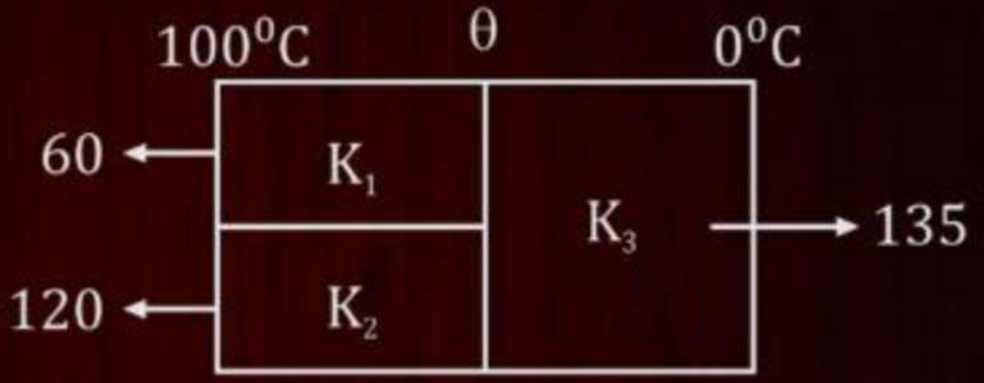
In the diagram given below, the value of coefficients of thermal conductivity, $K_1 = 60$, $K_2 = 120$ W/mC, $K_3 = 135$ W/mC. The temperature at the left most end is 100 °C and right most end is 0 °C find the temperature θ.



A 40°C

B 45°C

C 55°C

D 60°C

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PAPER DISCUSSION

Sub : Mathematics
Attempt : 01
Date : 12th Jan 2024
Shift : 01

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A 5-letter word is to be made using any distinct 5 alphabets such that middle alphabet is M and letters should be in increasing order.

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The shortest distance between the lines $\frac{x-1}{2}=\frac{y-2}{3}=\frac{z-1}{4}$ and $\frac{x+2}{7}=\frac{y-2}{8}=\frac{z+1}{2}$ is

A $\frac{88}{\sqrt{1277}}$

B $\frac{78}{\sqrt{1277}}$

C $\frac{66}{\sqrt{1277}}$

D $\frac{55}{\sqrt{1277}}$

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Two balls are selected at random one by one without replacement from the bag containing 4 white and 6 black balls. If the probability that the first selected ball is black given that the second selected is also black, is m/n when gcd(m, n) = 1, then m + n = ?

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If $s_n = \sum_{r=0}^{n} T_r = \frac{(2n-1)(2n+1)(2n+3)(2n+5)}{64}$ then find $\sum_{r=1}^{n} \frac{1}{T_r} =$

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JEE ULTIMATE CRASH COURSE 2025

If $y^2 dx + \left(\frac{1}{y} - x\right) dy = 0$ and $x(1) = 1$ then find $x\left(\frac{1}{2}\right)$

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If $f(x) = \begin{cases} -3ax^2 - 2 & x < 1 \\ a^2 + bx & x \geq 1 \end{cases}$ given f(x) is continuous 4 differentiate. Area enclosed by f(x) and line y = –20 is $\alpha + \beta\sqrt{3}$ then find $\alpha + \beta$.

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$e^{5(\ln x)^2+3} = x^8$. Product of all real values of x.

LIVE STREAM

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If A be a 3 × 3 square matrix such that det(A) = –2. If det (3adj(–6adj(3A))) = 2n × 3m, where $m \geq n$, then 3m + 2n is equal to

A 103

B 104

C 106

D 105

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Let the triangle PQR be the image of the triangle with vertices (1, 3), (3, 1) (2, 4) in the line x + 2y = 2. If the centroid ΔPQR is the point (α, β) then $15(\alpha - \beta)$ is equation

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If A = {1, 2, 3}, find the number of non empty equivalence relation on set A

A 4

B 5

C 6

D 7

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A coin tossed three times. Let x denote number of times tail follows a head. If μ and σ^2 denote the mean and variance of x the value of $64(\mu + \sigma^2)$.

$a_1, a_2, \ldots, a_n$ are in G.P.

$a_1 a_5 = 28$

$a_2 + a_4 = 29$

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$$f(x) = 7(\tan x)^8 + 7(\tan x)^6 - 3(\tan x)^4 - 3(\tan^2 x)$$

$$I_1 = \int f(x)dx, I_2 \int xf(x)dx$$

$$7I_1 + 12I_2$$

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Let f(x) be a real differentiable function such that f(0) = 1 and $f(x)f'(y) + f(y)f'(x)$ for all $x, y \in R$. Then $\sum_{n=1}^{100} \log_e f(n) =$

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The Foci of hyperbola are (1, 14) and (1, –12) and passes through the point (1, 6) then its latus rectum is

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$$\sum_{n=1}^{5} \frac{{}^{11}C_{2r+1}}{2r+2} = \frac{m}{n}, \gcd(m, n) = 1,$$

$m - n = ?$

LIVE STREAM

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$A = \{1,2,3,\ldots,10\}$,

$B = \left\{\frac{m}{n}, m > n, m, n \in A, \gcd(m, n) = 1\right\}$

Then no. of elements in B = ?

A 31

B 33

C 29

D 28

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JEE ULTIMATE CRASH COURSE 2025

If $f(x) = 16(\sec^{-1}x)^2 + (cosec^{-1}x)^2$ then the max. and min. value of f(x) is respectively,

A $\frac{1001\pi^2}{33}$ and $\frac{2\pi^2}{9}$

B $\frac{1117\pi^2}{68}$ and $\frac{4\pi^2}{17}$

C $\frac{1105\pi^2}{68}$ and $\frac{4\pi^2}{17}$

D $\frac{1268\pi^2}{27}$ and $\frac{3\pi^2}{16}$

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If $8 = 3 + \frac{1}{4}(3 + p) + \frac{1}{4^2}(3 + p^2) + \ldots \infty$, then the value of p is

A $\frac{14}{5}$

B $\frac{16}{5}$

C $\frac{3}{5}$

D $\frac{4}{5}$

Area outside the parabola and inside the circle $\left(x-2\sqrt{3}\right)^2+y^2=12$ and parabola $y^2=2\sqrt{3}x$.

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Coefficient of x^{2012} in the expansion of $(1 - x)^{2008} (1 + x + x^2)2007$

A 0

B 1

C 2

D 3

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Thank YOU

JEE MAIN 2025

PAPER DISCUSSION

Attempt : 01
Date : 22nd Jan 2024
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LIVE STREAMING

LIVE STREAM

JEE MAIN 2025 PAPER DISCUSSION

JEE ULTIMATE CRASH COURSE 2025

Physical Chemistry

LIVE STREAM

JEE MAIN 2025 PAPER DISCUSSION

JEE ULTIMATE CRASH COURSE 2025

Compare boiling point of given solutions

(i) 10^{-4} M NaCl

(ii) 10^{-3} M NaCl

(iii) 10^{-2} M NaCl

(iv) 10^{-4} M Urea

A) I > II > III > IV

B) III > II > I > IV

C) II > I > III > IV

D) II > I > II > IV

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JEE ULTIMATE CRASH COURSE 2025

$CO_2(g) + C(s) \rightleftharpoons 2CO(g)$

If initial pressure of CO_2 is 0.6 atm and after equilibrium is established, total pressure is 0.8 atm. Then, find K_p.

A 0.4

B 0.2

C 0.6

D 0.8

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JEE ULTIMATE CRASH COURSE 2025

Radius of electron in ground state for hydrogen is a_0, then radius of electron in He^+ ion in 3rd excited state is a. Then $\frac{a_0}{a}$ is:

A 1/2

B 1/4

C 1/16

D 1/8

LIVE STREAM

JEE MAIN 2025 PAPER DISCUSSION

JEE ULTIMATE CRASH COURSE 2025

If a work function of Cs and Fr is 1.9 and 2.5 eV . If light of h = 500 nanometre which element will show photoelectric effect.

JEE MAIN 2025

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JEE ULTIMATE CRASH COURSE 2025

Physical Chemistry

LIVE STREAM

JEE MAIN 2025 PAPER DISCUSSION

JEE ULTIMATE CRASH COURSE 2025

Compare boiling point of given solutions

(i) 10^{-4} M NaCl
(ii) 10^{-3} M NaCl
(iii) 10^{-2} M NaCl
(iv) 10^{-4} M Urea

2
1

$\Delta T_b = i K_b m$

A. I > II > III > IV

B. III > II > I > IV

C. II > I > III > IV

D. II > I > II > IV

LIVE STREAM

JEE MAIN 2025 PAPER DISCUSSION

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$CO_2(g) + C(s) \rightleftharpoons 2CO(g)$

If initial pressure of CO_2 is 0.6 atm and after equilibrium is established, total pressure is 0.8 atm. Then, find K_p.

A. 0.4

B. 0.2

C. 0.6

D. 0.8

$$\begin{array}{ccccc} CO_2(g) & + & C(s) & \rightleftharpoons & 2CO(g) \\ 0.6 & & & & 0 \\ 0.6-p & & & & 2p \end{array}$$

$$0.6 - p + 2p = 0.8$$

$$p = 0.2$$

$$K_p = \frac{P_{CO}^2}{P_{CO_2}}$$

$$= \frac{(0.2 \times 2)^2}{0.4}$$

$$= \frac{(0.4)^2}{(0.4)} = 0.4$$

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Radius of electron in ground state for hydrogen is a_0, then radius of electron in He^+ ion in 3rd excited state is a. Then $\frac{a_0}{a}$ is:

A) 1/2

B) 1/4

C) 1/16

D) 1/8

$$a = (r_{He^+})_4 = a_0 \frac{4^2}{2} = 8a_0$$

$$\frac{a_0}{a} = \frac{1}{8}$$

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$$\frac{(T_{D.B})_1}{(T_{D.B})_4} = \frac{x}{4x} = \frac{1}{4}$$

x
$2x$
$3x$
$4x$
$5x$
⋮
⋮
⋮

If a work function of Cs and Fr is 1.9 and 2.5 eV . If light of λ = 500 nanometre which element will show photoelectric effect.

$$\Delta E_{eV} = \frac{1240}{500} = 2.48 \text{ eV}$$

$$E = \frac{hc}{\lambda} = 2.4845$$

[Coll. prop.

Bohr model]

JEE MAIN 2025

PAPER DISCUSSION

Sub : Chemistry
Attempt : 01
Date : 12th Jan 2024
Shift : 01

LIVE STREAM

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Mathematics

LIVE STREAM

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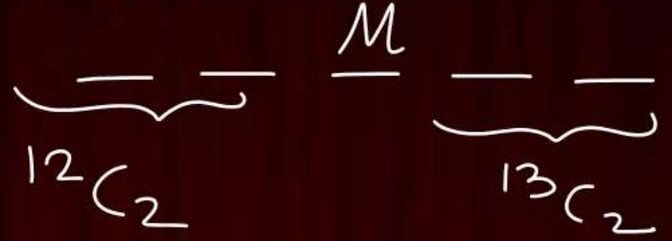
Easy

A 5-letter word is to be made using any distinct 5 alphabets such that middle alphabet is M and letters should be in increasing order.



$$^{12}C_2 \times {}^{13}C_2$$

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Easy

The shortest distance between the lines $\frac{x-1}{2}=\frac{y-2}{3}=\frac{z-1}{4}$ $(1,2,1)$ and $\frac{x+2}{7}=\frac{y-2}{8}=\frac{z+1}{2}$ $(-2,2,-1)$ is

(A) $\frac{88}{\sqrt{1277}}$

(B) $\frac{78}{\sqrt{1277}}$

(C) $\frac{66}{\sqrt{1277}}$

(D) $\frac{55}{\sqrt{1277}}$

$$\vec{b_1}\times\vec{b_2}=\begin{vmatrix}\hat{i}&\hat{j}&\hat{k}\\2&3&4\\7&8&2\end{vmatrix}$$

$$d_{min}=\left|\frac{(a_2-a_1)\cdot(\vec{b_1}\times\vec{b_2})}{|\vec{b_1}\times\vec{b_2}|}\right|$$

$$\hat{i}[6-32]-\hat{j}[4-28]+\hat{k}[16-21]$$

$$\vec{b_1}\times\vec{b_2}=-26\hat{i}+24\hat{j}-5\hat{k}$$

$$|\vec{b_1}\times\vec{b_2}|=\sqrt{26^2+24^2+5^2}$$

$$\vec{a_2}-\vec{a_1}=3\hat{i}+2\hat{k}$$

$$N^r=-26\times3-10$$

$$-78-10=-88$$

$$d_{min}=\frac{88}{\sqrt{\quad}}$$

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(M)

Two balls are selected at random one by one without replacement from the bag containing 4 white and 6 black balls. If the probability that the first selected ball is black given that the second selected is also black, is m/n when gcd(m, n) = 1, then m + n = ?

$$P(A/B) = \frac{\frac{6}{10} \times \frac{5}{9}}{\frac{4}{10} \times \frac{6}{9} + \frac{6}{10} \times \frac{5}{9}}$$

$$\frac{5}{4+5}$$

$$= 5/9$$

$$P = \frac{BB}{(WB + BB)}$$

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Easy

If $y^2 dx + \left(\frac{1}{y} - x\right) dy = 0$ and $x(1) = 1$ then find $x\left(\frac{1}{2}\right)$

$$y^2 \frac{dx}{dy} + \frac{1}{y} - x = 0$$

$$y^2 \frac{dx}{dy} - x = -\frac{1}{y}$$

$$\frac{dx}{dy} - \frac{x}{y^2} = -\frac{1}{y^3}$$

$$IF = e^{\int -\frac{1}{y^2} dy} = e^{\frac{1}{y}}$$

$$x e^{\frac{1}{y}} = -\int \frac{1}{y^3} e^{\frac{1}{y}} dy$$

$$\frac{1}{y} = t \Rightarrow -\frac{1}{y^2} dy = dt$$

$$x e^{\frac{1}{y}} = \int t e^t dt$$

$$x e^{\frac{1}{y}} = t e^t - e^t + c$$

$$x e^{\frac{1}{y}} = \frac{1}{y} e^{\frac{1}{y}} - e^{\frac{1}{y}} + c$$

$x = 1, y = 1$

$$e = e - e + c$$

$$\Rightarrow \boxed{c = e}$$

$y = \frac{1}{2}, x = ?$

LIVE STREAM

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Easy

$e^{5(\ln x)^2+3} = x^8$, Product of all real values of x.

$e^{5(\ln x)^2+3} = x^8$

ln both sides

$(5(\ln x)^2+3) = 8\ln x$

$\ln x = t$

$5t^2+3 = 8t$

$5t^2-8t+3=0$

$5t^2-5t-3t+3=0$

$(5t-3)(t-1)=0$

$t = 3/5, 1$

$\ln x = 3/5$ or $\ln x = 1$

$x = e^{3/5}$ or $x = e$

$e^{3/5} \cdot e^1 = e^{3/5+1} = e^{8/5}$

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Diff

If $S_n = \sum_{r=0}^{n} T_r = \dfrac{(2n-1)(2n+1)(2n+3)(2n+5)}{64}$ then find $\lim_{n\to\infty} \sum_{r=1}^{n} \dfrac{1}{T_r} =$

$T_n = S_n - S_{n-1}$

$$\frac{(2n-1)(2n+1)(2n+3)(2n+5)}{64} - \frac{(2n-3)(2n-1)(2n+1)(2n+3)}{64}$$

$$= \frac{1}{64}(2n-1)(2n+1)(2n+3)\left[(2n+5)-(2n-3)\right]$$

$$= \frac{1}{8}\left[(2n-1)(2n+1)(2n+3)\right]$$

$$\frac{1}{T_r} = \frac{8}{(2r-1)(2r+1)(2r+3)}$$

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$$\frac{1}{T_r} = \frac{8}{4}\frac{(2r+3)-(2r-1)}{(2r-1)(2r+1)(2r+3)}$$

$$\frac{1}{T_r} = 2\left[\frac{1}{(2r-1)(2r+1)} - \frac{1}{(2r+1)(2r+3)}\right]$$

$$1 \quad 2\left[\frac{1}{1\cdot 3} - \frac{1}{3\cdot 5}\right]$$

$$1 \quad 2\left[\frac{1}{3\cdot 5} - \frac{1}{5\cdot 7}\right] \qquad S_\infty = 2/3$$

$$\vdots$$

$$\left[-0\right]$$

(M)

If $f(x) = \begin{cases} -3ax^2 - 2 & x < 1 \\ a^2 + bx & x \geq 1 \end{cases}$ given f(x) is continuous and differentiable. $a \neq 1$

Area enclosed by f(x) and line $y = -20$ is $\alpha + \beta\sqrt{3}$ then find $\alpha + \beta$.

$-3a - 2 = a^2 + b$

$f'(x) = \begin{cases} -6ax \\ b \end{cases}$

$b = -6a$

$-3a - 2 = a^2 - 6a$

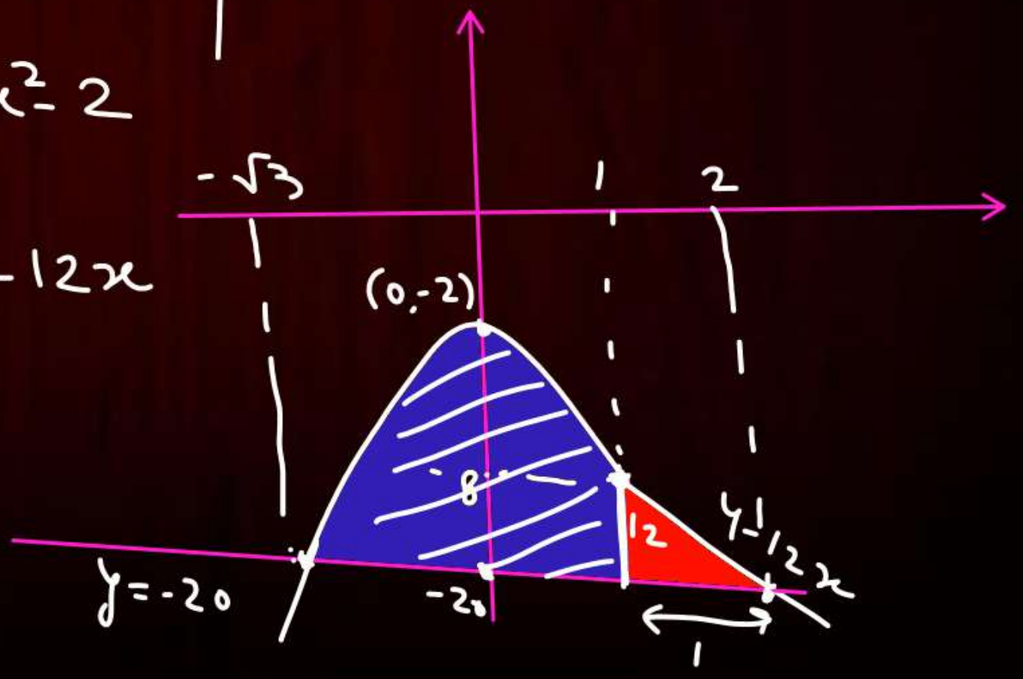
$a^2 - 3a + 2 = 0$

$a = 2, 1$

$a = 2 \Rightarrow b = -12$ ✓

$a = 1, b = -6$ ✗

$f(x) = \begin{cases} -6x^2 - 2 \\ y - 12x \end{cases}$



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$$-6x^2 - 2 = -20$$

$$-6x^2 = -18$$

$$x^2 = 3$$

$$x = -\sqrt{3}$$

$x < 1$

$$4 - 12x = -20.$$

$$4 + 20 = 12x$$

$$24 = 12x$$

$$x = 2$$

$$\int_{-\sqrt{3}}^{1} (y_p - (-20))\,dx + \frac{1}{2} \times 12 \times 1$$

6

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(M)

If A be a 3 × 3 square matrix such that det(A) = −2. If $\det(3\,\text{adj}(-6\,\text{adj}(3A))) = 2^{m+n}\,3^{mn}$ where m > n the n. Find 4m + 3n.

$4\times7+3\times3$

$28+9=37$

$m+n=10$

$mn=21$

$m=7$, $n=3$

$|3\,\text{adj}(-6\,\text{adj}\,3A)|$

$|3\,\text{adj}(-6\times3^2\,\text{adj}\,A)|$

$|3\cdot6^2\cdot3^4\,\text{adj}(\text{adj}\,A)|$

$3^3\cdot6^6\cdot3^{12}\,|\text{adj}(\text{adj}\,A)|$

$3^3\cdot3^6\cdot2^6\,3^{12}$

$|A|^{(n-1)^2} = 3^{21}\cdot2^6\,|A|^4 = 3^{21}\cdot2^6\cdot2^4$

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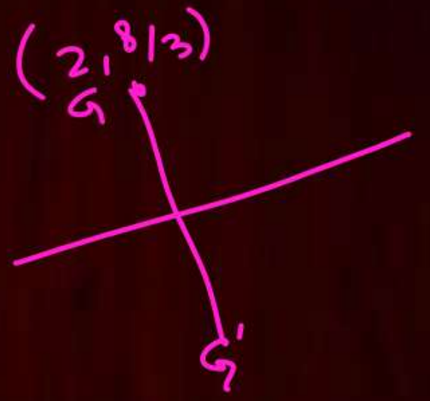
(8)

Let the triangle PQR be the image of the triangle with vertices (1, 3), (3, 1) (2, 4) in the line x + 2y = 2. If the centroid ΔPQR is the point (α, β) then $15(\alpha - \beta)$ is equation

$$\frac{x-2}{2\times1} = \frac{y-8/3}{2\times2} = -\left[\frac{2+16/3-8}{5}\right]$$

$$G\left[\frac{6}{3}, \frac{8}{3}\right] = \left[2, \frac{8}{3}\right]$$

$$\frac{x-2}{2} = \frac{y-8/3}{4} = -\frac{16}{15}$$



$$\frac{x-2}{2} = -\frac{16}{15}$$

$$x-2 = -\frac{32}{15}$$

$$x = 2 - \frac{32}{15}$$

$$x = -2/15$$

$$y - 8/3 = -\frac{64}{15}$$

$$y = \frac{40}{15} - \frac{64}{15}$$

$$y = -\frac{24}{15}$$

$$15\left[-2/15 + \frac{24}{15}\right] = 22$$

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If A = {1, 2, 3}, find the number of non empty equivalence relation on set A

A 4

B 5

C 6

D 7

$\{(1,1)(2,2)(3,3)\}$

$(1,1)(2,2)(3,3)(1,2)(2,1)$

$(1,3)(3,1)$

$(2,3)(3,2)$

$\{(1,1)(2,2)(3,3)(1,2)(2,1)(1,3)(3,1)(2,3)(3,2)\}$

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$a_1, a_2, \ldots, a_n$ are in G.P.

$a_1 a_5 = 28$

$a_2 + a_4 = 29$

Find $a_6 = ?$

$a_5 = ar^4$

$a \cdot ar^4 = 28$

$a^2 r^4 = 28 \rightarrow (1)$

$ar + ar^3 = 29 \rightarrow (2)$

$ar = 1$

$\downarrow 3$

$ar^3 = 28$

$r^2 = 28$

α $\quad$ β

$\alpha + \beta = 29$

$\alpha\beta = 28$

$x^2 - 29x + 28 = 0$

1×28

$a_6 = ar^5$

$= ar \cdot r^4$

$= 1 \cdot (28)^2$

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Let f(x) be a real differentiable function such that $f(0) = 1$ and $f(x)f'(y) + f(y)f'(x)$ for all $x, y \in R$. Then $\sum_{n=1}^{100} \log_e f(n) =$

$$f(x+y) = f(x)f'(y) + f(y)f'(x)$$

$y = 0$

$$f(x) = f(x)f'(0) + f(0)f'(x)$$

$$f(x) = f(x)f'(0) + f'(x) \quad (f(0) = 1)$$

let $f'(0) = k$

$$f(x) = \frac{1}{2}f(x) + f'(x)$$

$$\frac{f(x)}{2} = f'(x)$$

$$\frac{dy}{dx} = \frac{y}{2}$$

$$\int \frac{dy}{y} = \int \frac{dx}{2}$$

$$\ln y = \frac{x}{2}$$

$$f(0) = f(0)f'(0) + f'(0)$$

$$1 = 2f'(0)$$

$$f'(0) = \frac{1}{2}$$

$$\sum \frac{x}{2} = \frac{1}{2} \cdot \frac{100 \times 101}{2}$$

(E) ✓

The Foci of hyperbola are $(1, 14)$ and $(1, -12)$ and passes through the point $(1, 6)$ then its latus rectum is

f_1 f_2

$2ae = 26$

$ae = 13$ ✓

$e = 13/5$

$b^2 = a^2(e^2 - 1)$

$LR = 2b^2/a$.

$P(1, 6)$

$|PF_1 - PF_2| = 2a$

$PF_1 = 8$, $PF_2 = 18$

$|8 - 18| = 2a$

$10 = 2a \Rightarrow a = 5$

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$$\sum_{r=0}^{5} \frac{{}^{11}C_{2r+1}}{2r+2} = \frac{m}{n}, \gcd(m,n) = 1,$$

$m - n = ?$

$$\sum_{r=0}^{5} \frac{1}{12} {}^{12}C_{2r+2}$$

$$\frac{1}{12}\left[{}^{12}C_2 + {}^{12}C_4 + {}^{12}C_6 + \cdots + {}^{12}C_{12}\right]$$

$$\frac{1}{12}\left[{}^{12}C_0 + {}^{12}C_2 + {}^{12}C_4 + \cdots + {}^{12}C_{12} - {}^{12}C_0\right]$$

$$\frac{1}{12}\left[2^{11} - 1\right]$$

$m = 2^{11} - 1$

$n = 12$

$r^2 = 12$

$r = 2\sqrt{3}$

Area outside the parabola and inside the circle $(x-2\sqrt{3})^2 + y^2 = 12$ and parabola $y^2 = 2\sqrt{3}x$.

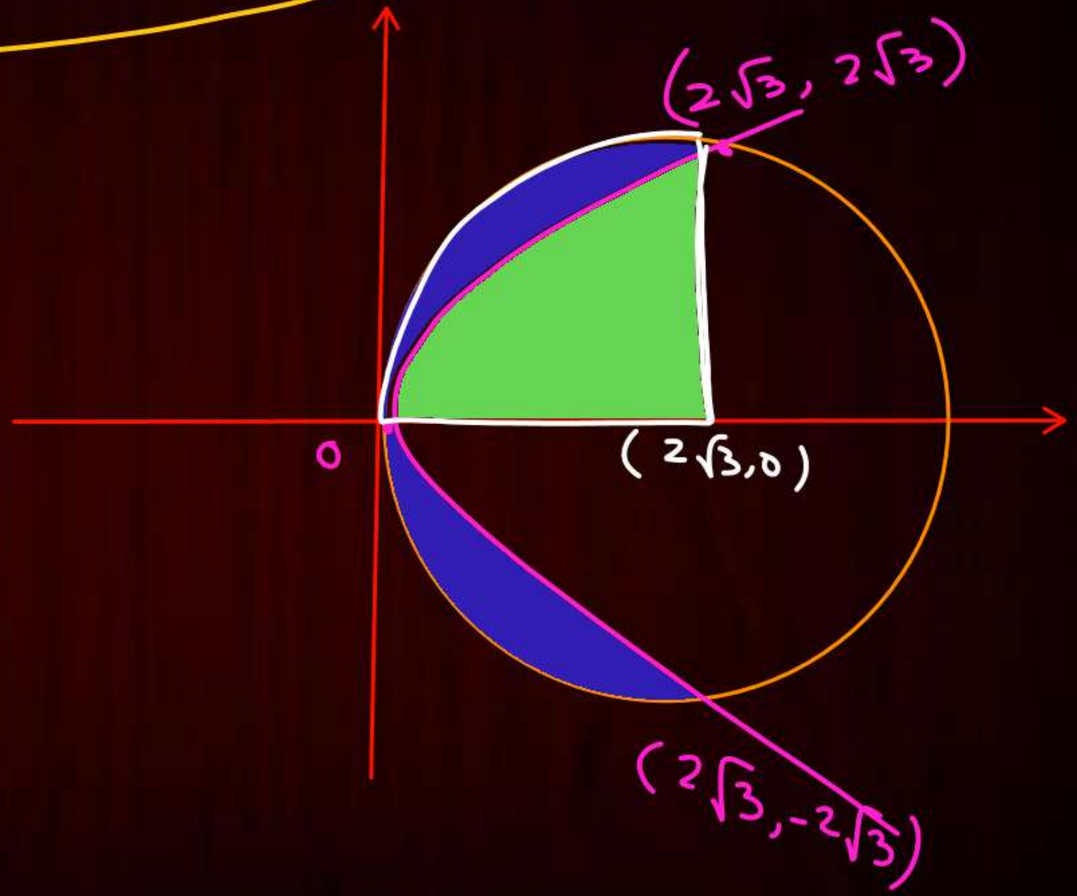
$(x-2\sqrt{3})^2 + 2\sqrt{3}x = 12$

$x^2 + 12 - 4\sqrt{3}x + 2\sqrt{3}x = 12$

$x^2 = 2\sqrt{3}x$

$x = 0, \; x = 2\sqrt{3}$

$$\text{Area} = 2\left[\frac{\pi r^2}{4} - \int_0^{2\sqrt{3}} y_p \, dx\right]$$



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$22\pi^2$

If $f(x) = 16\left((\sec^{-1}x)^2 + (\text{cosec}^{-1}x)^2\right)$ then the sum of max. and min. value of f(x) is

$f(x)|_{min} = 16\left[(\pi/4)^2 + (\pi/4)^2\right]$

$\pi^2 + \pi^2 = 2\pi^2$

$f(x)_{max}$ ↗ $16\left[0^2 + (\pi/2)^2\right]$

↘ $16\left[\pi^2 + (-\pi/2)^2\right]$

$16\left[\pi^2 + \frac{\pi^2}{4}\right]$

$16\pi^2 + 4\pi^2 = 20\pi^2$

$\sec^{-1}x \in [0, \pi]$

$\text{Cosec}^{-1}x \in [-\pi/2, \pi/2]$

$y = 16\left[\theta^2 + (\pi/2 - \theta)^2\right]$

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$f(x) = 7(\tan x)^8 + 7(\tan x)^6 - 3(\tan x)^4 - 3(\tan^2 x)$

$I_1 = \int f(x)dx, I_2 = \int xf(x)dx$

$7I_1 + 12I_2$

$f(x) = 7\tan^6 x[\tan^2 x + 1] - 3\tan^2 x[\tan^2 x + 1]$

$I_1 = \int f(x)\,dx$ $\quad \sec^2 x\,[7\tan^6 x - 3\tan^2 x]$

$I_1 = \int (7\tan^6 x - 3\tan^2 x)\sec^2 x\,dx$

$\int (7t^6 - 3t^2)\,dt \quad \tan x = t$

$= t^7 - t^3 = (\tan x)^7 - (\tan x)^3$

$I_2 = \int x f(x)dx = x(\tan^7 x - \tan^3 x) - \int [(\tan x)^7 - (\tan x)^3]\,dx$

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Circle lie in the second quadrant with radius 2 and touching both coordinate areas. Another circle with centres (2, 6) exactly intersect the first circle at two points then range of it's radius is (a, b) then find (a + b).

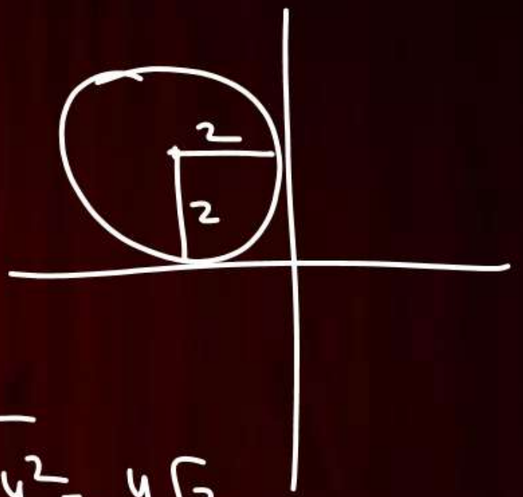
$|r_1 - r_2| < C_1C_2 < r_1 + r_2$

$|r_2 - 2| < 4\sqrt{2} < 2 + r_2$

$r = 2$

$C_1 \ (-2, 2)$

$C_2 \ [2, 6]$



$C_1C_2 = \sqrt{4^2 + 4^2} = 4\sqrt{2}$

$-4\sqrt{2} < r_2 - 2 < 4\sqrt{2}$

$\boxed{r_2 < 2 + 4\sqrt{2}}$ & $\boxed{r_2 > 4\sqrt{2} - 2}$

$r_2 + 2 > 4\sqrt{2}$

$a = 4\sqrt{2} - 2$ & $b = 4\sqrt{2} + 2$

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A coin tossed three times. Let x denote number of times tail follows a head. If μ and σ^2 denote the mean and variance of x the value of $64(\mu + \sigma^2)$.

	x	P(Xi)	Xi P(Xi)	Xi² P(Xi)
HHH	0	1/8	0	0
HHT	1	1/8	1/8	1/8
THH	0	1/8	0	0
HTH	1	1/8	1/8	1/8
TTH	0	1/8	0	0
THT	1	1/8	1/8	1/8
HTT	1	1/8	1/8	1/8
TTT	0	1/8	0	0
			4/8 = 1/2	

$\sigma^2 = 4/8 - (1/2)^2$

$1/2 - 1/4$

$= 1/4$

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$A = \{1,2,3,\ldots,10\}$,

$B = \left\{\frac{m}{n}, n > m, m, n \in A, \gcd(m,n) = 1\right\}$

Then no. of elements in B = ?

(A) 31 ✓

(B) 33

(C) 29

(D) 28

$n = 10$ $m = 1, 3, 7, 9$

$n = 9$, $m = 1, 2, 4, 5, 7, 8$

$n = 8$, $m = 1, 3, 5, 7$

$n = 7$, $m = 1, 2, 3, 4, 5, 6$

$n = 6$, $m = 1, 5$

$n = 5$, $m = 1, 2, 3, 4$

$n = 4$, $m = 1, 3$

=

$m = 3$, $n = 1, 2$

$m = 2$, $n = 1$

$m = 1$, n x

31

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Thank

YOU

JEE MAIN 2025

PAPER DISCUSSION

Sub : Physics
Attempt : 01
Date : 22th Jan 2024
Shift : 01

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Find the dimensions of $\frac{B}{\mu_0}$ = ?

A [AL]

B [AL^{-1}]

C [MAL]

D [$MALT^{-1}$]

$B = \mu_0 n i$.

$\frac{B}{\mu_0} = ni = \frac{N_1}{L} I = [L^{-1}A]$.

$M^0 i^0 T^0$

Find the radius of curvature of the common surface of two bubbles ($R_1 > R_2$)

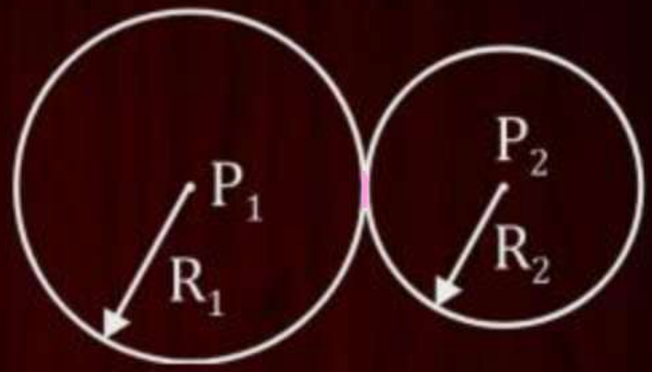
A $R = \frac{R_1 R_2}{R_1 + R_2}$

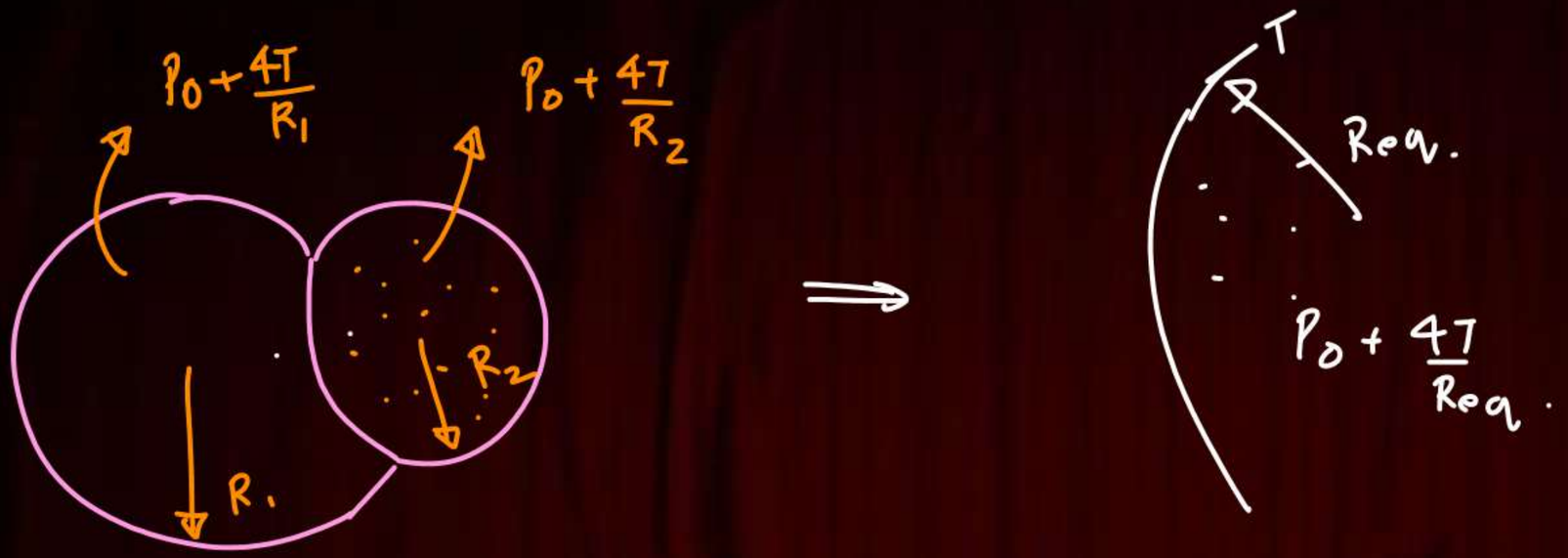
B $R = \frac{2R_1 R_2}{R_1 - R_2}$

C $R = \frac{R_1 R_2}{R_1 - R_2}$ ✓ Ans

D $R = \frac{R_1 R_2}{(R_1 - R_2)}$

$\uparrow P_i = P_{atm} + \frac{4T}{R}$ $\downarrow$





$$\cancel{P_0} + \frac{4T}{R_2} - \left(\cancel{P_0} + \frac{4T}{R_1}\right] = \frac{4T}{R_{eq}}$$

$$\frac{1}{R_2} - \frac{1}{R_1} = \frac{1}{R_{eq}} \Rightarrow R_{eq} = \frac{R_1 R_2}{R_1 - R_2}$$

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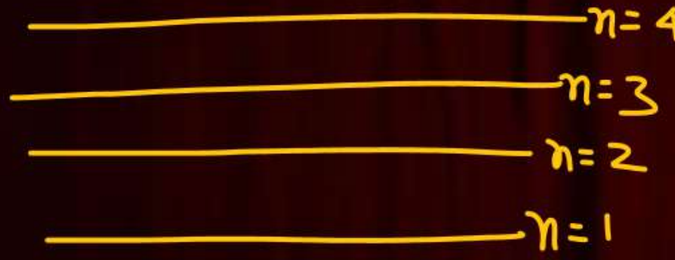
An electron in the group state of the hydrogen atom has the orbit, radius of 5.0×10^{-10} m while that for the electron in third excited state is 8.48×10^{-10} m. The radio of the de-Broglie wavelength is electron om the ground state to that in the excited state is:

A) 9

B) 3

C) 4

D) 16



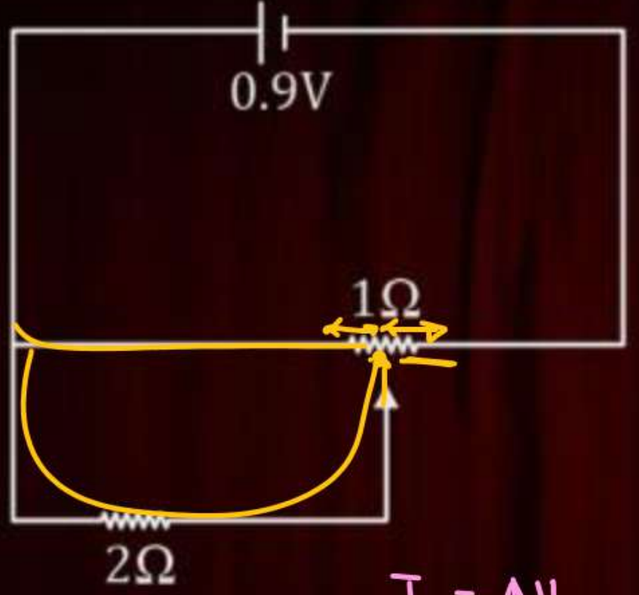
$V_n = V_0 \frac{Z}{n}$

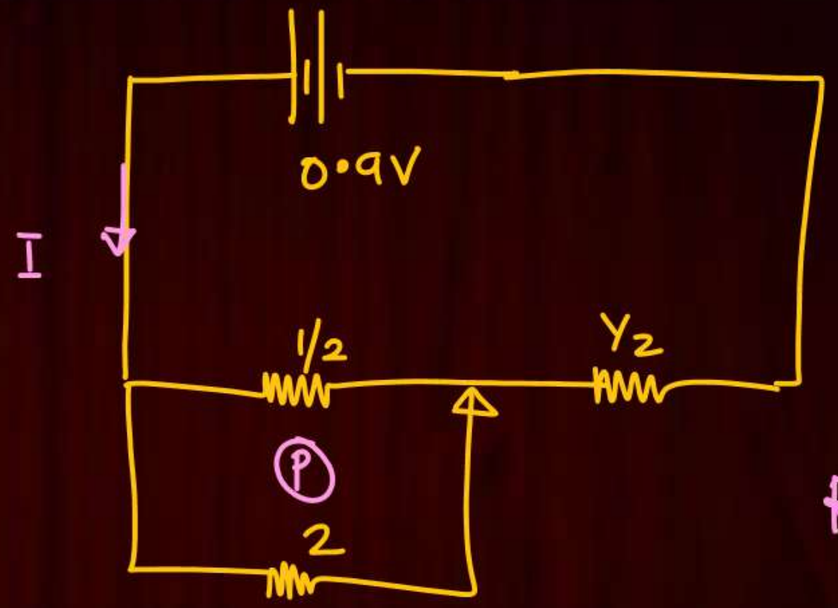
$\frac{\lambda_1}{\lambda_4} = \frac{h}{mv_1} \times \frac{mv_2}{h}$

$\frac{\lambda_1}{\lambda_4} = \frac{v_4}{v_1} = \frac{n_4}{n_1}$

$\frac{\lambda_1}{\lambda_4} = \frac{4}{1}$

Find current in the circuit, Jockey is at middle point on 1Ω





$I = \frac{\Delta V}{R} = \frac{0.9}{1} \times 10$

$= 1.$

$R_{eq} = \frac{2 \times \frac{1}{2}}{2 + \frac{1}{2}} = \frac{2}{5}$

$R_{ckt} = \frac{2}{5} + \frac{1}{2}$

$= \frac{4+5}{10}$

$= \frac{9}{10}.$

Assertion: When YDSE set up is dipped in a denser medium than the fringe width decreases. (T)

Reason: Speed of light decreases in denser medium but frequency of light remains same. (T)

Source dependent.

$\beta = \frac{\lambda D}{d}$ → Medium $\lambda_{med} = \frac{\lambda}{\mu}$.

$$\beta_{new} = \frac{\beta_{old}}{\mu}$$

$\mu > 1$

$\beta_{new} \downarrow$.

LIVE STREAM

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JEE ULTIMATE CRASH COURSE 2025

Statement I- In a vernier callipers, one vernier scale division is smaller than one main scale division. (T)

Statement II- The vernier constant is given by one main scale division multiplied by the number of vernier scale divisions. (F)

L.S = 1MSD − 1VSD.

(A) Statement I is true and Statement II is false.

(B) Statement I is false and Statement II is true.

(C) Both the statements are true.

(D) Both the statements are false.

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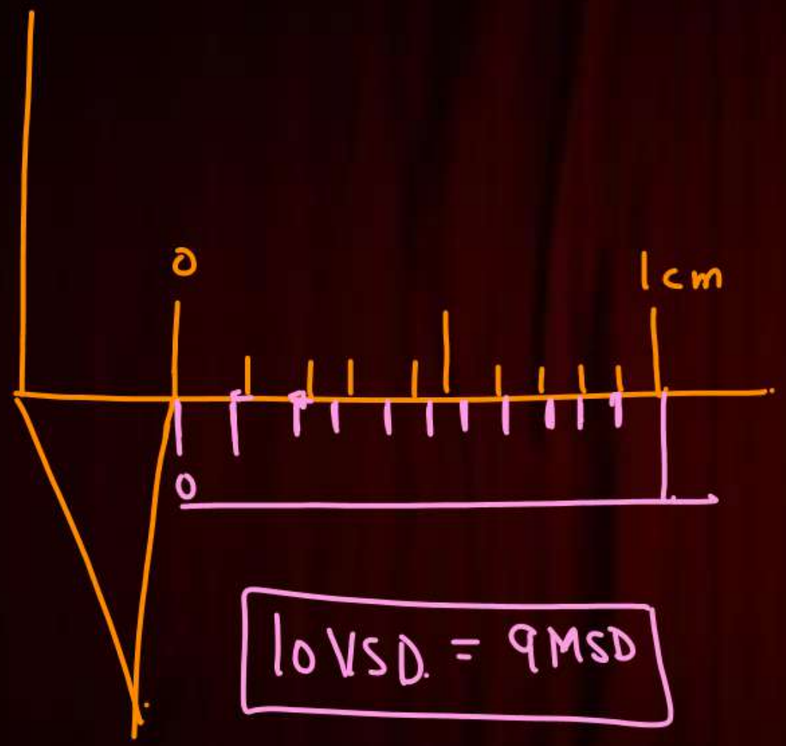

$10\,VSD = 9\,MSD$

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Identify the correct graph between the resistivity of conductor and temperature

$R = R_0[1+\alpha\Delta T]$

$\rho = \rho_0[1+\alpha\Delta T]$

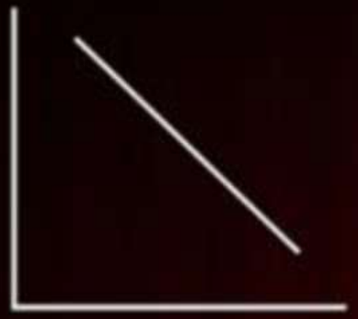
Conductor.

$T \uparrow \quad R \uparrow$.

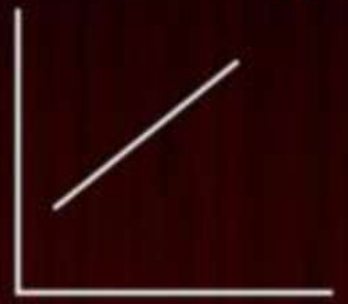
$R = R_0[1+\alpha\Delta T+\beta\Delta T^2]$ (Very high Temp.)

$R = R_0[1+\alpha\Delta T]$.

A



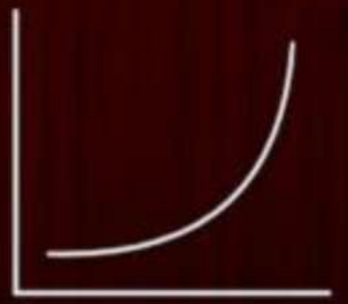
B

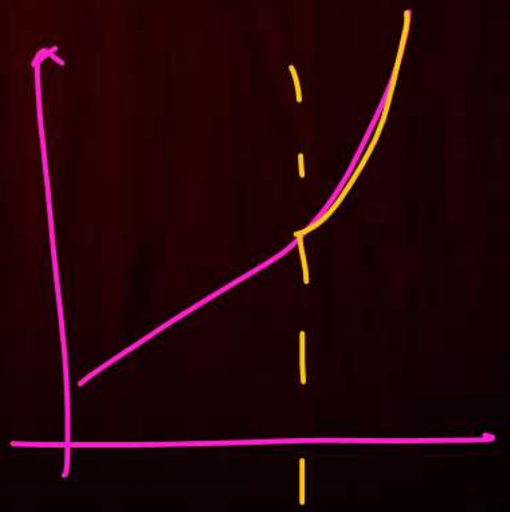


C

Semiconductor.

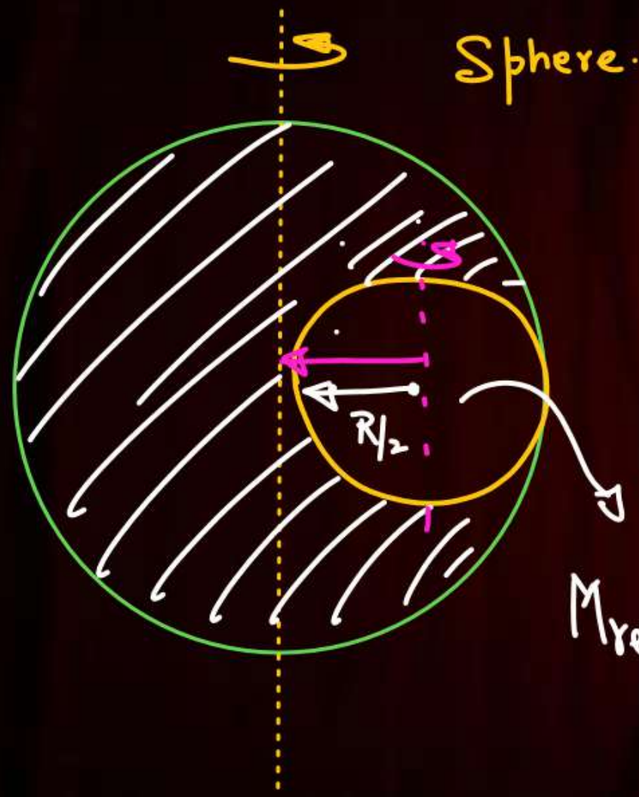
D





disc/.

From a sphere of mass M and radius R, a cavity of radius R/2 is created. Find the moment of inertia about an axis passing through the centre of sphere.



Sphere.

$I_{Ans} = I_{biggersphere} - I_{smallersphere}\big|_{common\ axis}$.

$= \frac{2}{5}MR^2 - \left[\frac{2}{5}\left(\frac{M}{8}\right)\left(\frac{R}{2}\right)^2 + \frac{M}{8}\left(\frac{R}{2}\right)^2\right]$.

$M_{removed} = \frac{M}{\frac{4}{3}\pi R^3} \times \frac{4}{3}\pi\left(\frac{R}{2}\right)^3$

$\frac{M}{8}$

disc ke Case Mein.

$M_{removed} = \frac{M}{\pi R^2} \times \pi\left(\frac{R}{2}\right)^2 \Rightarrow \frac{M}{4}$.

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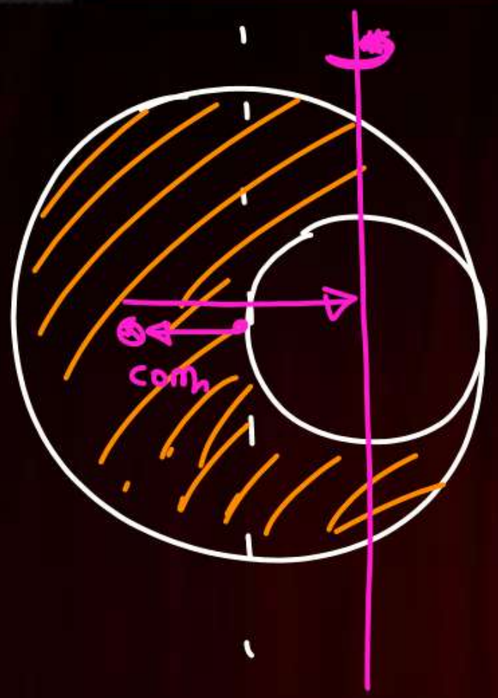
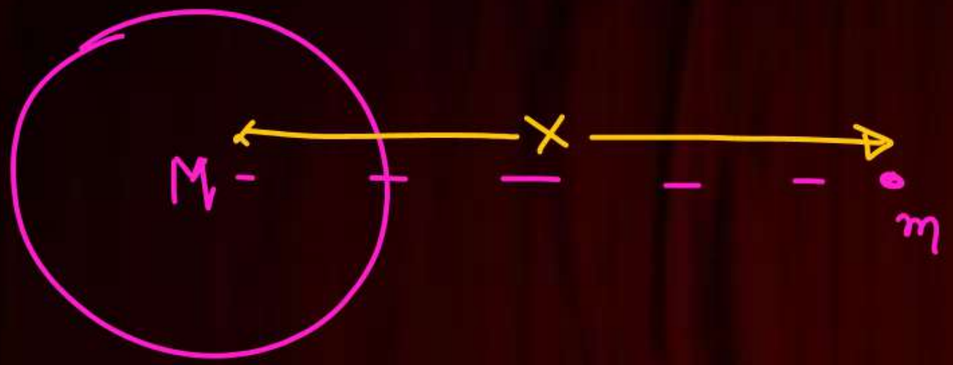
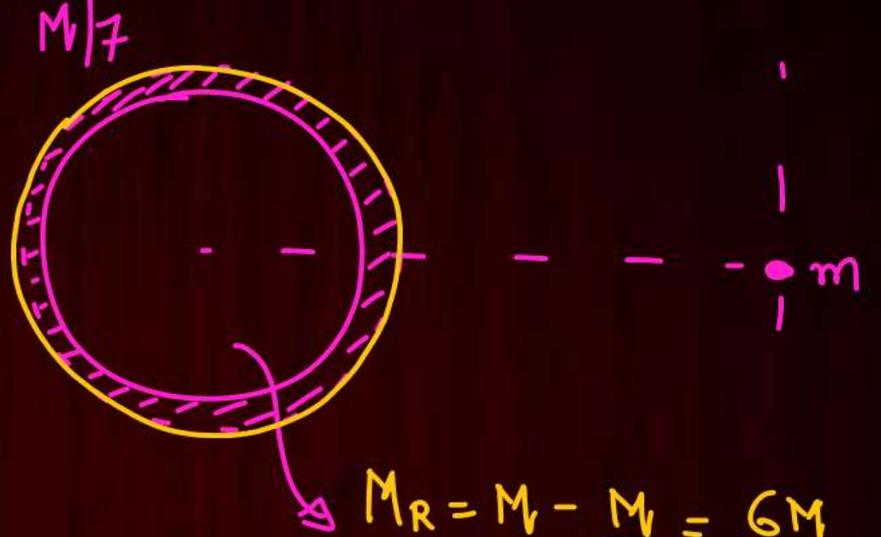
Case 2



Gravitation.



$$F = \frac{GMm}{x^2}$$



$$M_R = M - \frac{M}{7} = \frac{6M}{7}$$

$F_{new} = ?$

$$F_{new} = \frac{G\left(\frac{6M}{7}\right)m}{x^2} = \frac{6}{7}F.$$

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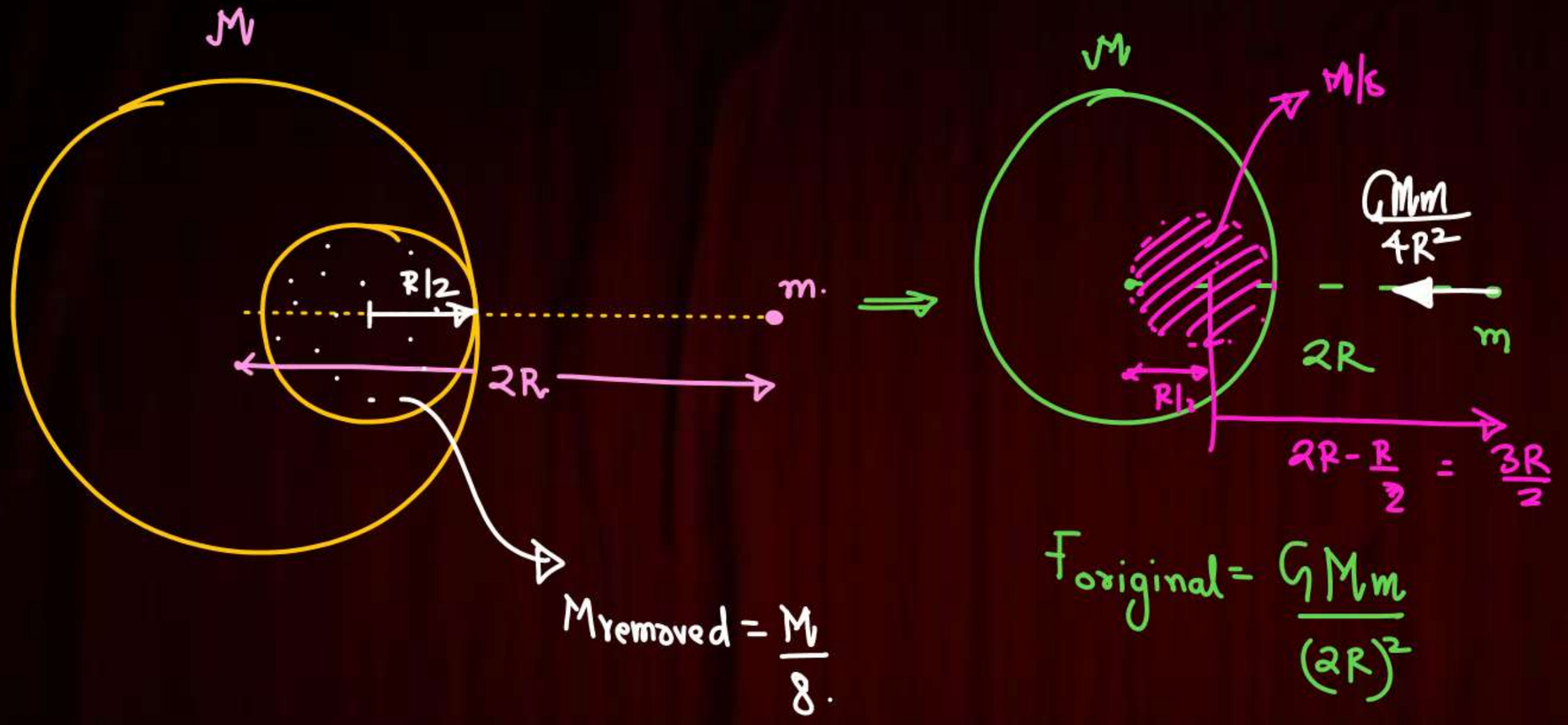
#



$$F_{original} = \frac{GMm}{(2R)^2}$$

$$F_{final} = \frac{GMm}{(2R)^2} - \frac{G(M/8)m}{\left(\frac{3R}{2}\right)^2} = \text{——}.$$

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A bob of mass m is suspended at a point 'O' by a light string of length 'l' and left to perform vertical motion (circular) as shown in figure. Initially by applying horizontal velocity V_0 at the point 'A', the string becomes slack when the bob reaches at the point 'D'. The ratio of the K.E of the bob at the points B and C is

slack $T=0$

(A) 2 ✓

(B) 4

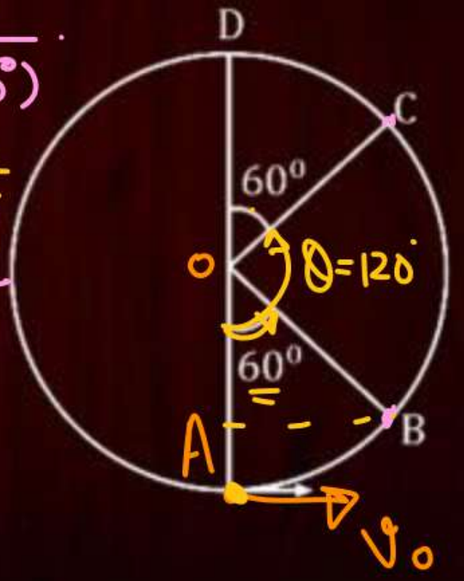
(C) 1

(D) 3

$$\frac{KE_B}{KE_C} = \frac{\frac{1}{2}mv_B^2}{\frac{1}{2}mv_C^2} = \frac{v_B^2}{v_C^2} = \frac{5gl - 2gl(1-\cos 60)}{5gl - 2gl(1-\cos 120^\circ)}$$

$$= \frac{5gl - gl}{5gl - 3gl} = \frac{4gl}{2gl} = \frac{2}{1}$$

Velocity at any angle θ $v = \sqrt{u^2 - 2gl(1-\cos\theta}$



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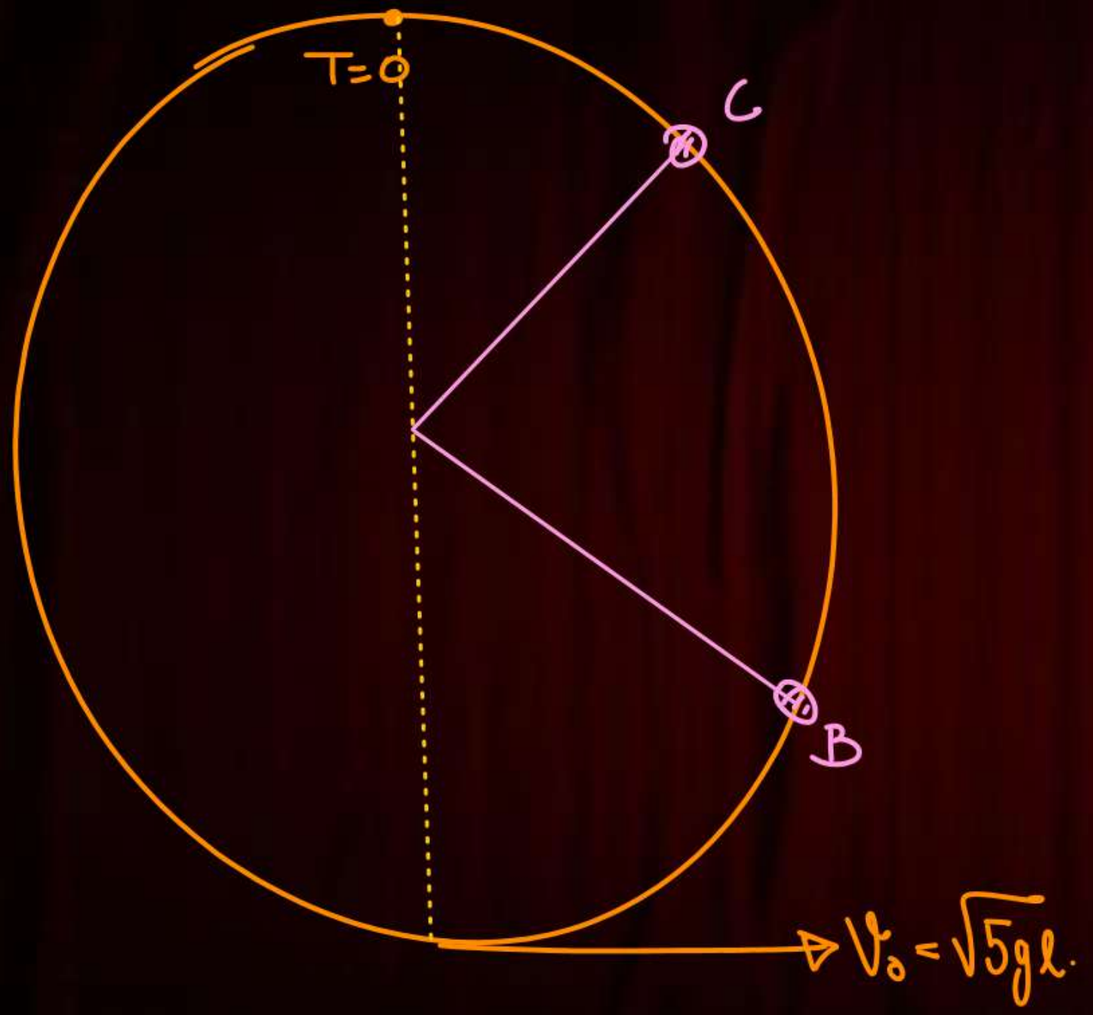

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A Parallel plate capacitor of capacitance 40 μF is connected to a 100 V power supply now the intermediate space between the plates is filled with a dielectric material of dielectric constant K = 2. So due to the introduction dielectric the extra charge and the change in electrostatic energy in the capacitor respectively is:

A. 2 mc and 0.4 J

B. 2 mc and 0.2 J

C. 4 mc and 0.2 J

D. 8 mc and 2 J

K = 2

$C_{new} = 2C$

$q_{new} = 2q_i$

$\Delta q = CV$

$= 40 \times 10^{-6} \times 100$

$= 4 \times 10^{-3}$.

ΔE

f

Δq.

$V = f_i C$

$q = CV$

$E_i = \frac{1}{2} CV^2$ $E_f = \frac{1}{2}(2C)V^2$

$= 2E_i$

$\Delta E = \frac{1}{2} CV^2 =$

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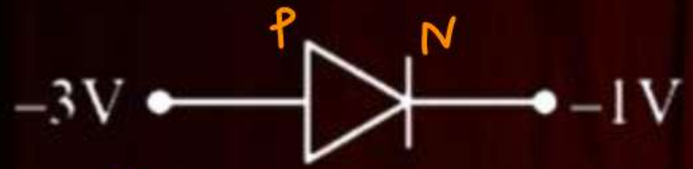
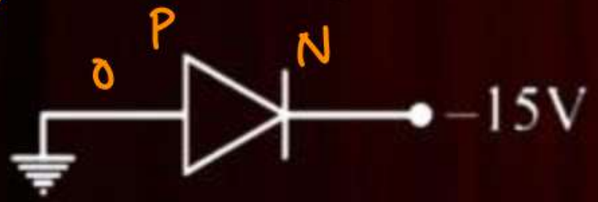
Identify the diode connected in forward bias

A

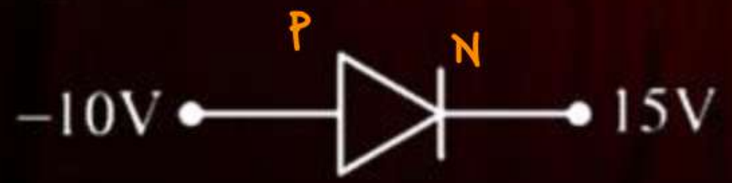
B



C



D



F·B $V_P > V_N$.

$V_P - V_N = 2 - 4 = -2$ ✗

$-3-(-1) = -2$ ✗

$0-(-15) = +15$ ✓

LIVE STREAM

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What amount of heat is required to convert 1 gm of ice at –10°C into steam at 110°C?

(A) $\Delta Q = 730$ cal

(B) $\Delta Q = 1100$ cal

(C) $\Delta Q = 930$ cal

(D) $\Delta Q = 900$ cal

$S_i = 0.5 \frac{cal}{gm°c}$

$S_w = 1 \frac{cal}{gm°c}$

$L_f = 80 \frac{cal}{gm}$

$L_v = 540 \frac{cal}{gm}$

$Q = ms_v\Delta T$.

Vapor at 110°C.

LIVE STREAM

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Statement I- When non – ideal batteries are connected in parallel then the resultant emf is lesser than either of the battery (Not a Necessary Condition) False.

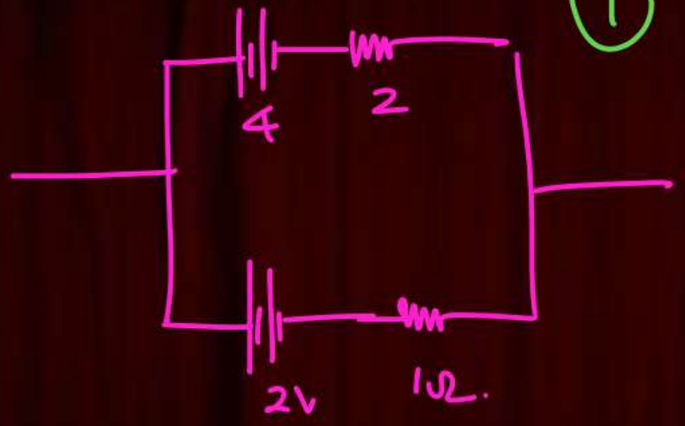
Statement II- When non – ideal batteries are connected in parallel then the resultant resistance of their internal resistance is smaller than either of the resistance (T)

A. I true , II false

B. I false, II true ✓

C. Both true

D. Both false



$\frac{r_{eq}}{2/3} = \frac{4}{2} + \frac{2}{1}$

$\mathcal{E}_{eq} = \frac{2}{3}(4) = \frac{8}{3} \approx 3$

$r_{eq} = \frac{2 \times 1}{3} = \frac{2}{3}$

Series

LIVE STREAM

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$R = L/KA$

In the diagram given below, the value of coefficients of thermal conductivity, $K_1 = 60$, $K_2 = 120$ W/mC, $K_3 = 135$ W/mC. The temperature at the left most end is 100 °C and rightmost end is 0 °C find the temperature θ.

A 40°C

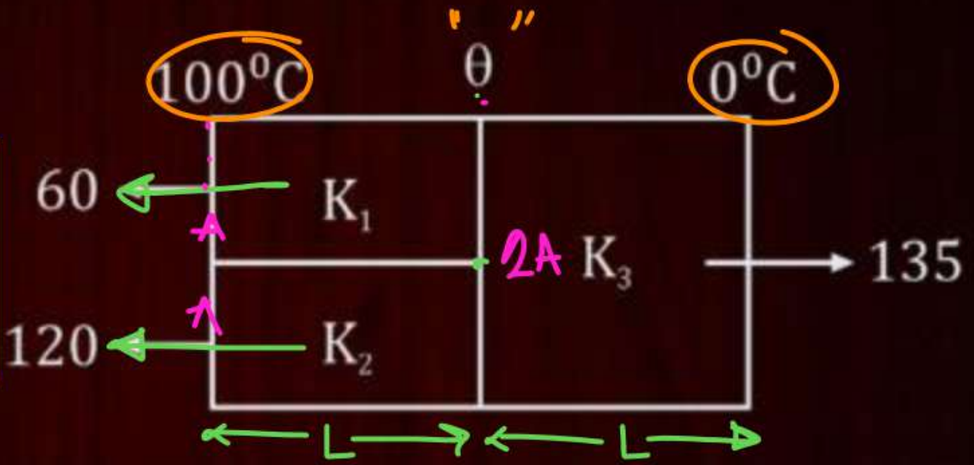
B 45°C

C 55°C

D 60°C

$I_{\text{any Junction}} = 0$

$$\frac{\theta-100}{\frac{L}{(60)A}} + \frac{\theta-100}{\frac{L}{(120)A}} + \frac{\theta-0}{\frac{L}{(135)2A}} = 0$$



$60(\theta-100) + 120(\theta-100) + 270\theta = 0$

$60\theta + 120\theta + 270\theta = 450\theta$

$600 + 1200 = 1800$

$\theta = \frac{1800}{45}$

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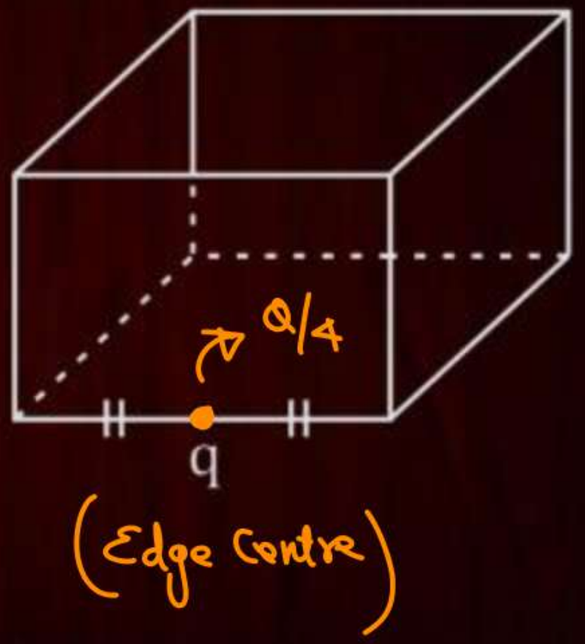
A charge of value q is placed at the edge of a imaginary cube of side a as shown in figure. find the net flux through the cube.

$\phi_{net} = \frac{q_i}{\varepsilon_0}$

$= \frac{Q}{4\varepsilon_0}$



A $q/6\varepsilon_0$

B $q/4\varepsilon_0$

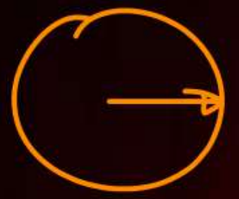
C $q/8\varepsilon_0$

D $q/2\varepsilon_0$

$e = 1$

Two spherical black bodies of radius 0.8 m and 0.2 m are at temperatures of 400 K and 800 K respectively. Find ratio of rate of heat loss.

$\frac{dQ}{dt} = \sigma e A T^4$



Ratio

$$\frac{\left.\frac{dQ}{dt}\right|_1}{\left.\frac{dQ}{dt}\right|_2} = \frac{4\pi r_1^2 T_1^4}{4\pi r_2^2 T_2^4} = \left(\frac{0.8}{0.2}\right)^2 \left[\frac{4}{8}\right]^4$$

$= \_\_\_\_$

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A particle is projected with velocity 60 m/s at an angle 30° with respect to horizontal. It reaches height h_1 in 1st second and height h_2 in last second during its motion. Find the ratio of h_1/h_2

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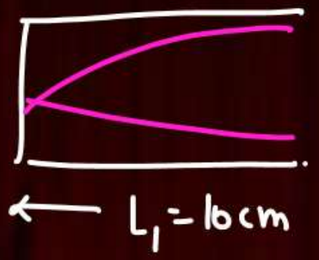
A closed organ pipe of length 10 cm is in 9^{th} harmonic resonates with 4^{th} harmonic of open organ pipe. Find the length of open organ pipe.

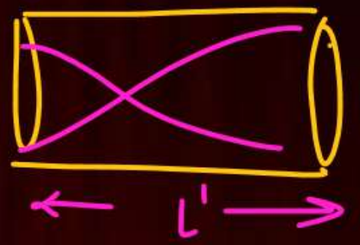
(A) $L_0 = 15$ cm

(B) $L_0 = \frac{100}{9}$ cm

(C) $L_0 = \frac{80}{9}$ cm ✓

(D) $L_0 = \frac{110}{7}$ cm





$9v_0 = 4v_0'$

$\frac{9v_s}{4L} = \frac{4v_s}{2L'}$

$L' = \frac{8}{9} \times L = \frac{80}{9}$.

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Combined Pdf →

JEE Wallah Telegram.
Manzil batch App.

Link in pinned Comments

Thank YOU

$\vec{r_1} = \alpha_1 \hat{i} + \alpha_2 t^2 \hat{j} + \alpha_3 t \hat{k}$

$\vec{r_2} = \beta_1 t \hat{i} + \beta_2 t^2 \hat{j} + \beta_3 t \hat{k}$

$v_1 = \frac{dr_1}{dt}$

$v_2 = \frac{dr_2}{dt}$

$|L_1| = |L_2|$ at $t = 1$

$r_1 = f(t)$

$r_2 = f(t)$

$\alpha_1 \beta = \_$

⊙ "t" $v_1 \perp v_2$ $\quad \vec{v_1} \cdot \vec{v_2} = 0$

⊙ $v_1 = v_2$ $t = 2\,sec$ $\quad \alpha = \beta$

$v_1 =$ _____ .

$v_2 =$ _____

JEE MAIN 2025

PAPER DISCUSSION

Attempt : 01
Date : 22nd Jan 2024
Shift : 01

LIVE STREAMING

LIVE STREAM

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Physical Chemistry

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Compare boiling point of given solutions

(i) 10^{-4} M NaCl

(ii) 10^{-3} M NaCl

(iii) 10^{-2} M NaCl

(iv) 10^{-4} M Urea

A) I > II > III > IV

B) III > II > I > IV

C) II > I > III > IV

D) II > I > II > IV

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$CO_2(g) + C(s) \rightleftharpoons 2CO(g)$

If initial pressure of CO_2 is 0.6 atm and after equilibrium is established, total pressure is 0.8 atm. Then, find K_p.

A 0.4

B 0.2

C 0.6

D 0.8

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Radius of electron in ground state for hydrogen is a_0, then radius of electron in He^+ ion in 3rd excited state is a. Then $\frac{a_0}{a}$ is:

A 1/2

B 1/4

C 1/16

D 1/8

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At 25°C a thermally insulated closed vessel containing liquid is stirred mechanically

A $\Delta U > 0 \quad q < 0 \quad u > 0$

B $\Delta U = 0 \quad q > 0 \quad u > 0$

C $\Delta U = 0 \quad q = 0 \quad u = 0$

D $\Delta U > 0 \quad q = 0 \quad u < 0$

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Which of the following is not true?

A. Decay constant does not depends on temperature

B. Decay constant increases with temperature

C. $t_{1/2} = \frac{\ln 2}{K}$

D. None of these

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Inorganic Chemistry

LIVE STREAM

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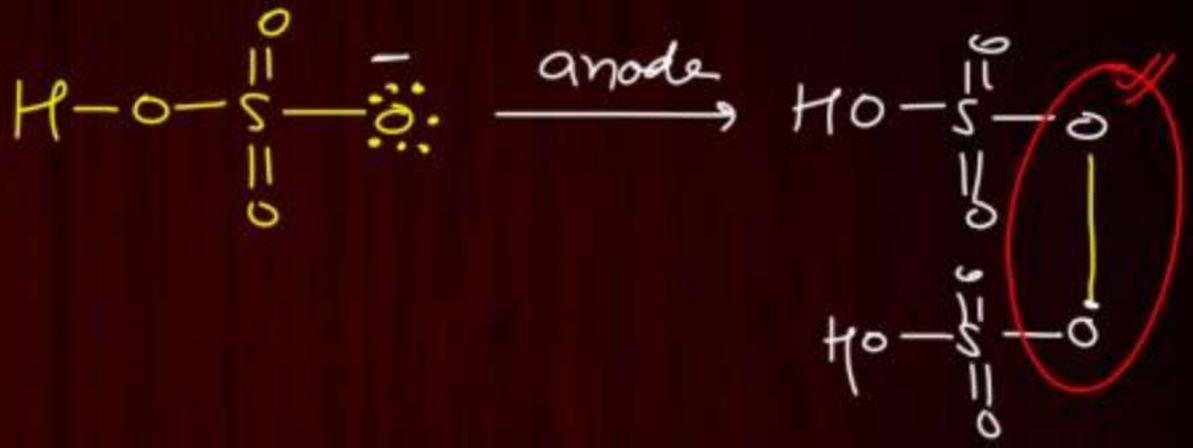
Electrolysis of which compound give $H_2S_2O_8$

A. Electrolysis of conc. Na_2SO_4

B. Electrolysis of dil. Na_2SO_4

C. Electrolysis of conc. H_2SO_4

D. Electrolysis of dil. H_2SO_4



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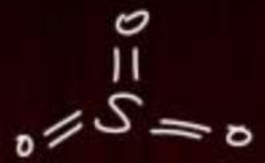
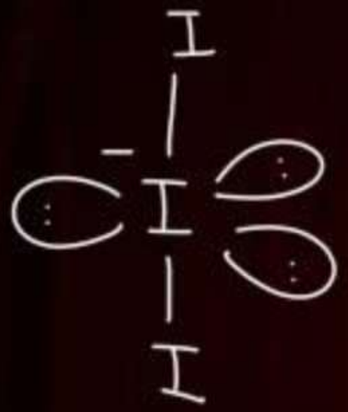
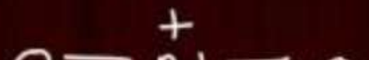
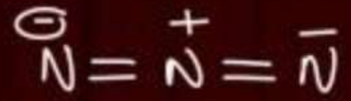
No. of linear compounds ?

I_3^-, NO_2^-, O_3, OF_2, NO_2^+, $BeCl_2$, N_3^-, SO_3









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Which of the following has maximum size out of Al^{3+}, Mg^{2+}, F^-, Na^+ ?

A Al^{3+}

B Mg^{2+}

C F^-

D Na^+

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For $[NiCl_4]^{2-}$ what is the charge on metal and shape of complex respectively?

A. +2 Tetrahedral

B. +2, square planar

C. +4, Tetrahedral

D. +4, square planar

$Ni^{2+} : 3d^8$ with Cl^- ligands $\longrightarrow$ Td (sp^3)

M^{2+} (d^8/d^9)

$I^- \longrightarrow H_2O$	$NH_3 \longrightarrow CO$
Td (sp^3)	Sq. planar (dsp^2)

LIVE STREAM

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The correct decreasing order of electronegativity is

A. $F > Cl > Br > I$

B. $Cl > F > Br > I$

C. $F < Cl < Br < I$

D. $Br > F > I > Cl$

LIVE STREAM

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Which of the following lanthanide ion as 7 electrons in the outer most shell?

A Eu^{+3}

B Gd^{+3}

C Sm^{2+}

D Gd^{2+}

1) $Ce^{+3} \longrightarrow f^1$

$Eu^{2+} \longrightarrow f^7$

7) $Gd^{3+} \longrightarrow f^7$

$Tb^{4+} \longrightarrow f^7$

$Yb^{3+} \longrightarrow f^{14}$

14) $Lu^{3+} \longrightarrow f^{14}$

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Which of the following electronegativity order is incorrect?

A. Mg < Be < B < N

B. Al < Si < C < N.

C. S < Cl < O < F

D. Al < Mg < B < N

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Which of the following has $\mu = 0$. BM

(A) $K_4[Fe(CN)_6]$ Fe^{2+} (d^6) SFL

(B) $K_3[Fe(SCN)_6]$ → Fe^{+3} (d^5)

(C) $K_3[Fe(NH_3)_6]$

(D) $K_2[Fe(NH_3)_5Br]$

LIVE STREAM

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Element not showing variable oxidation state

A Br

B I

C Cl

D F

$F^{\ominus}$

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LIVE STREAM

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Organic Chemistry

LIVE STREAM

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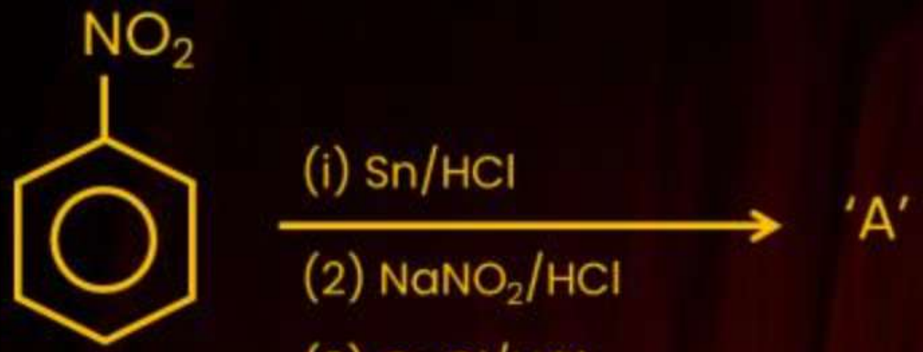

Molecular weight of 'A' = ?

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Calculate Number of stereoisomers of $CH_3 - CH = CH - \underset{\displaystyle OH}{\underset{|}{CH}} - CH_3$

LIVE STREAM

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Weight of the organic compound is 180 g and the weight of the AgCl precipitated 143.5 g. Calculate the estimation of Cl in _____ %

wt of Cl = 35.5 g

Wt of Ag = 180 g.

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Statement - I : $CH_3 - O - CH_2 - Cl$ will show nucleophilic substitution by SN1 mechanism in protic medium

Statement – II : $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - CH_2 - Cl$ will undergo nucleophilic substitution via SN2 mechanism easy

A. Statement- I and statement –II both are correct

B. Statement- I and statement –II both are incorrect

C. Statement- I is correct but statement –II is incorrect

D. Statement- I is incorrect but statement –II is correct

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Which of the following acid is present in Vitamin C?

A. Saccharic acid

B. Aspartic acid

C. Adipic acid

D. Ascorbic acid

LIVE STREAM

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Identify the incorrect statement

A. MP of Cis 2 butene is greater than tran 2-butene.

B. 2-methyl 2-butene can have two geometrical isomer

C. DP moment of cis 2 butene is greater than trans 2 butene

D. In trans isomer identical groups are opposite direction

LIVE STREAM

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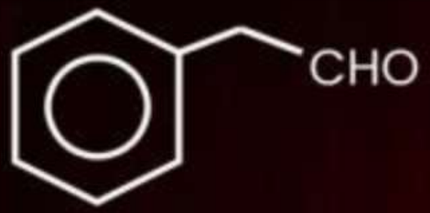
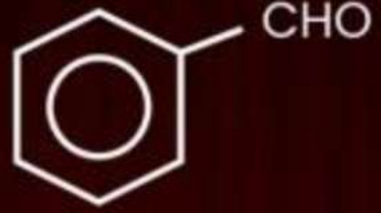
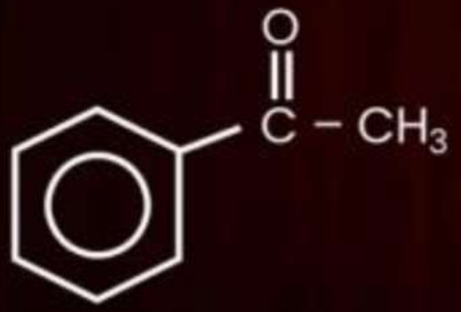
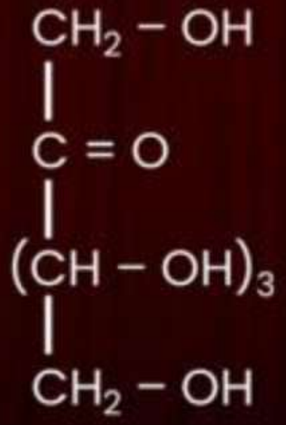
Which of the following gives positive test with Fehling's solution?

A 

B 

C 

D 

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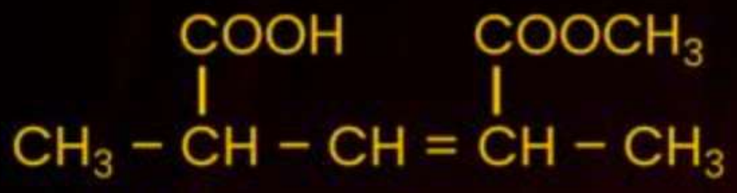

IUPAC Name ?

A. 4-methoxycarboxy-2-methylpentanoic acid

B. 3-methoxycarboxy-2-methylpentanoic acid

C. 5-methoxycarboxy-2-methylpentanoic acid

D. 2-methoxycarboxy-3-methylpentanoic acid

LIVE STREAM

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JEE MAIN 2025

PAPER DISCUSSION

Sub : Physics
Attempt : 01
Date : 12th Jan 2024
Shift : 01

LIVE STREAMING

LIVE STREAM

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JEE ULTIMATE CRASH COURSE 2025

Find the dimensions of $\frac{B}{\mu_0}$

A $[AL]$

B $[AL^{-1}]$

C $[MAL]$

D $[MALT^{-1}]$

Assertion: When YDSE set up is dipped in a denser medium than the fringe width decreases.

Reason: Speed of light decreases in denser medium but frequency of light remains same.

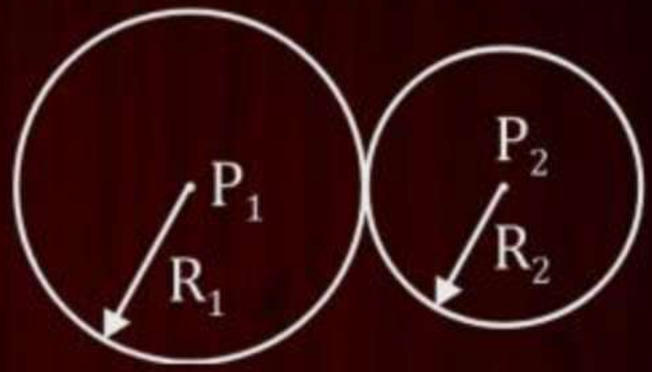
Find the radius of curvature of the common surface of two bubbles ($R_1 > R_2$)

A $R = \frac{R_1 R_2}{R_1 + R_2}$

B $R = \frac{2R_1 R_2}{R_1 - R_2}$

C $R = \frac{R_1 R_2}{R_1 - R_2}$

D $R = \frac{R_1 R_2}{(R_1 - R_2)}$



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An electron in the group state of the hydrogen atom has the orbit, radius of 5.0×10^{-10} m while that for the electron in third excited state is 8.48×10^{-10} m. The radio of the de-Broglie wavelength is electron om the ground state to that in the excited state is:

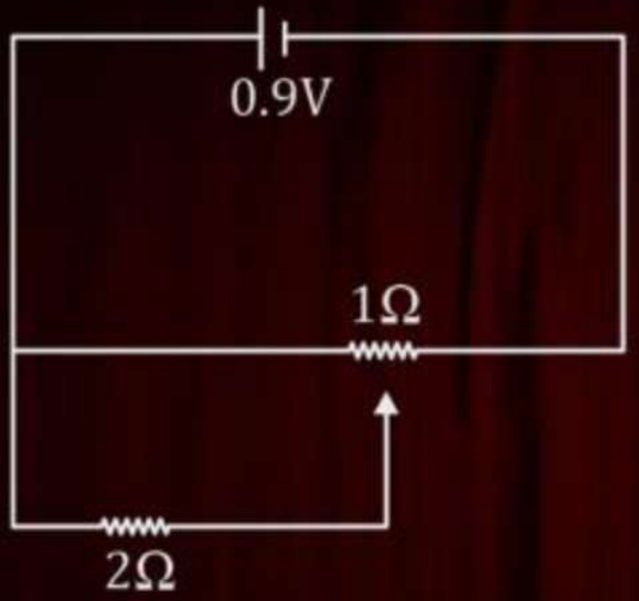
A 9

B 3

C 4

D 16

Find current in the circuit, Jockey is at middle point on 1Ω



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Statement I- In a vernier callipers, one vernier scale division is smaller than one main scale division.

Statement II- The vernier constant is given by one main scale division multiplied by the number of vernier scale divisions.

A. Statement I is true and Statement II is false.

B. Statement I is false and Statement II is true.

C. Both the statements are true.

D. Both the statements are false.

LIVE STREAM

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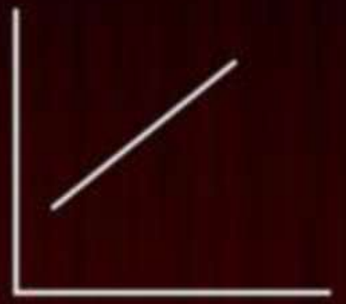
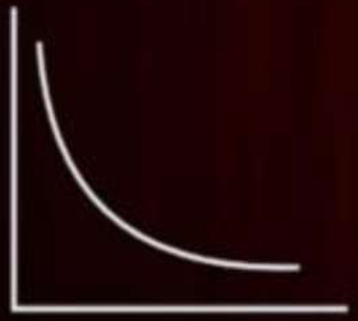
Identify the correct graph between the resistivity of conductor and temperature

A

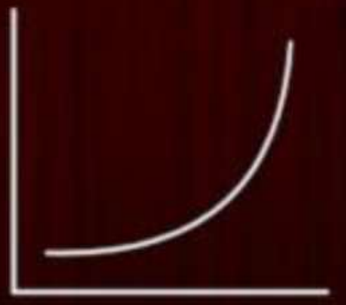
B



C



D



From a sphere of mass M and radius R, a cavity of radius R/2 is created. Find the moment of inertia about an axis passing through the centre of sphere.

LIVE STREAM

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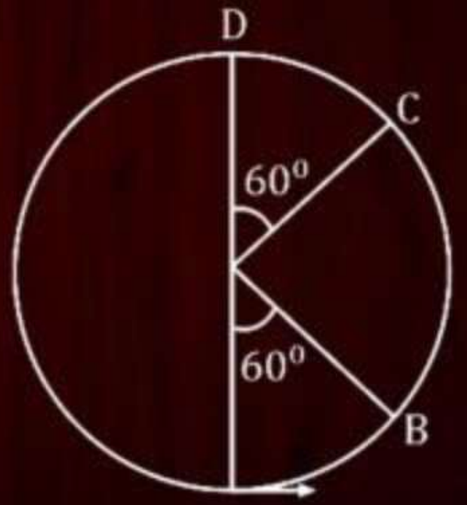
A bob of mass m is suspended at a point 'O' by a light string of length 'l' and left to perform vertical motion (circular) as shown in figure. Initially by applying horizontal velocity V_0 at the point 'A', the string becomes slack when the bob reaches at the point 'D'. The ratio of the K.E of the bob at the points B and C is

A 2

B 4

C 1

D 3



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A Parallel plate capacitor of capacitance 40 μF is connected to a 100 V power supply now the intermediate space between the plates is filled with a dielectric material of dielectric constant K = 2. So due to the introduction dielectric the extra charge and the change in electrostatic energy in the capacitor respectively is:

A 2 mc and 0.4 J

B 2 mc and 0.2 J

C 4 mc and 0.2 J

D 8 mc and 2 J

LIVE STREAM

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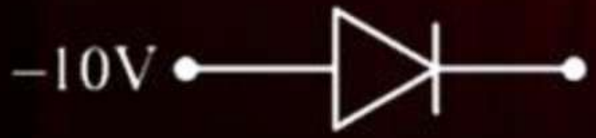
Identify the diode connected in forward bias

A 

B 

C 

D 

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What amount of heat is required to convert 1 gm of ice at –10°C into steam at 110°C?

A $\Delta Q = 730$ cal

B $\Delta Q = 1100$ cal

C $\Delta Q = 930$ cal

D $\Delta Q = 900$ cal

LIVE STREAM

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Statement I- When non – ideal batteries are connected in parallel then the resultant emf is lesser than either of the battery

Statement II- When non – ideal batteries are connected in parallel then the resultant resistance of their internal resistance is smaller than either of the resistance

A. I true , II false

B. I false, II true

C. Both true

D. Both false

LIVE STREAM

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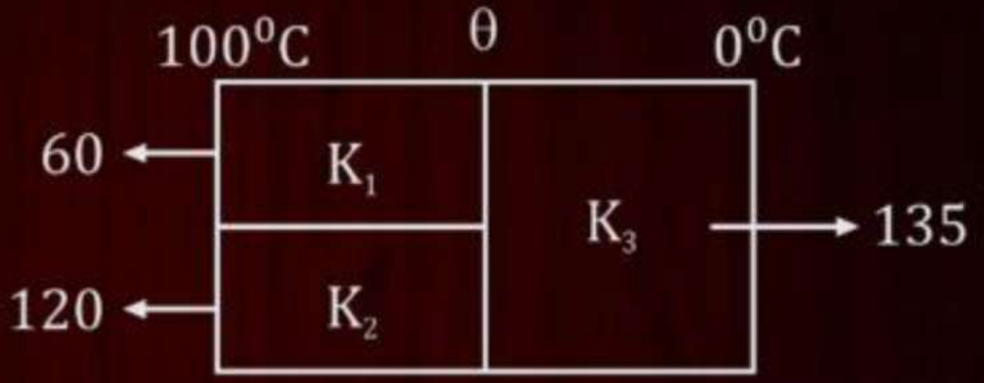
In the diagram given below, the value of coefficients of thermal conductivity, $K_1 = 60$, $K_2 = 120$ W/mC, $K_3 = 135$ W/mC. The temperature at the left most end is 100 °C and rightmost end is 0 °C find the temperature θ.



A 40°C

B 45°C

C 55°C

D 60°C

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A charge of value q is placed at the edge of a imaginary cube of side a as shown in figure. find the net flux through the cube.

A $q/6\varepsilon_0$

B $q/4\varepsilon_0$

C $q/8\varepsilon_0$

D $q/2\varepsilon_0$

LIVE STREAM

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Two spherical black bodies of radius 0.8 m and 0.2 m are at temperatures of 400 K and 800 K respectively. Find ratio of rate of heat loss.

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A solid sphere of uniform density and radius R exerts a gravitational force of attraction F_1 on the particle P, distant 2R from the centre of the sphere. A spherical cavity of radius R/3 is now formed in the sphere as shown in figure. The sphere with cavity now applies a gravitational force F_2 on the same particle P. Find the ratio F_2 / F_1.

A 7/9

B 9/7

C 11/12

D 3/4

LIVE STREAM

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A particle is projected with velocity 60 m/s at an angle 30° with respect to horizontal. It reaches height h_1 in 1st second and height h_2 in last second during its motion. Find the ratio of h_1/h_2

LIVE STREAM

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A closed organ pipe of length 10 cm is in 9^{th} harmonic resonates with 4^{th} harmonic of open organ pipe. Find the length of open organ pipe.

A $L_0 = 15$ cm

B $L_0 = \frac{100}{9}$ cm

C $L_0 = \frac{80}{9}$ cm

D $L_0 = \frac{110}{7}$ cm

LIVE STREAM

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LIVE STREAM

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JEE MAIN 2025

PAPER DISCUSSION

Sub : Mathematics
Attempt : 01
Date : 12th Jan 2024
Shift : 01

LIVE STREAM

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A 5-letter word is to be made using any distinct 5 alphabets such that middle alphabet is M and letters should be in increasing order.

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The shortest distance between the lines $\frac{x-1}{2}=\frac{y-2}{3}=\frac{z-1}{4}$ and $\frac{x+2}{7}=\frac{y-2}{8}=\frac{z+1}{2}$ is

A $\frac{88}{\sqrt{1277}}$

B $\frac{78}{\sqrt{1277}}$

C $\frac{66}{\sqrt{1277}}$

D $\frac{55}{\sqrt{1277}}$

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Two balls are selected at random one by one without replacement from the bag containing 4 white and 6 black balls. If the probability that the first selected ball is black given that the second selected is also black, is m/n when gcd(m, n) = 1, then m + n = ?

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If $s_n = \sum_{r=0}^{n} T_r = \frac{(2n-1)(2n+1)(2n+3)(2n+5)}{64}$ then find $\sum_{r=1}^{n} \frac{1}{T_r} =$

LIVE STREAM

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If $y^2 dx + \left(\frac{1}{y} - x\right) dy = 0$ and $x(1) = 1$ then find $x\left(\frac{1}{2}\right)$

LIVE STREAM

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If $f(x) = \begin{cases} -3ax^2 - 2 & x < 1 \\ a^2 + bx & x \geq 1 \end{cases}$ given f(x) is continuous 4 differentiate. Area enclosed by f(x) and line y = –20 is $\alpha + \beta\sqrt{3}$ then find $\alpha + \beta$.

LIVE STREAM

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$e^{5(\ln x)^2+3} = x^8$. Product of all real values of x.

LIVE STREAM

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If A be a 3 × 3 square matrix such that $\det(A) = -2$. If $\det(3\text{adj}(-6\text{adj}(3A))) = 2^{m+n}\,3^{mn}$ where m > n the n. Find 4m + 3n.

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Let the triangle PQR be the image of the triangle with vertices (1, 3), (3, 1) (2, 4) in the line x + 2y = 2. If the centroid ΔPQR is the point (α, β) then $15(\alpha - \beta)$ is equation

LIVE STREAM

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If A = {1, 2, 3}, find the number of non empty equivalence relation on set A

A 4

B 5

C 6

D 7

LIVE STREAM

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A coin tossed three times. Let x denote number of times tail follows a head. If μ and σ^2 denote the mean and variance of x the value of $64(\mu + \sigma^2)$.

$a_1, a_2, \ldots, a_n$ are in G.P.

$a_1 a_5 = 28$

$a_2 + a_4 = 29$

Find $a_6 = ?$

LIVE STREAM

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$$f(x) = 7(\tan x)^8 + 7(\tan x)^6 - 3(\tan x)^4 - 3(\tan^2 x)$$

$$I_1 = \int f(x)dx, I_2 \int xf(x)dx$$

$$7I_1 + 12I_2$$

LIVE STREAM

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Let f(x) be a real differentiable function such that f(0) = 1 and $f(x)f'(y) + f(y)f'(x)$ for all $x, y \in R$. Then $\sum_{n=1}^{100} \log_e f(n) =$

LIVE STREAM

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The Foci of hyperbola are (1, 14) and (1, –12) and passes through the point (1, 6) then its latus rectum is

LIVE STREAM

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$$\sum_{n=1}^{5} \frac{{}^{11}C_{2r+1}}{2r+2} = \frac{m}{n}, \gcd(m, n) = 1,$$

$m - n = ?$

LIVE STREAM

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$A = \{1,2,3,\ldots,10\}$,

$B = \left\{\frac{m}{n}, m > n, m, n \in A, \gcd(m, n) = 1\right\}$

Then no. of elements in B = ?

A 31

B 33

C 29

D 28

LIVE STREAM

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JEE ULTIMATE CRASH COURSE 2025

If $f(x) = 16(\sec^{-1}x)^2 + (cosec^{-1}x)^2$ then the max. and min. value of f(x) is respectively,

A $\frac{1001\pi^2}{33}$ and $\frac{2\pi^2}{9}$

B $\frac{1117\pi^2}{68}$ and $\frac{4\pi^2}{17}$

C $\frac{1105\pi^2}{68}$ and $\frac{4\pi^2}{17}$

D $\frac{1268\pi^2}{27}$ and $\frac{3\pi^2}{16}$

LIVE STREAM

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If $8 = 3 + \frac{1}{4}(3 + p) + \frac{1}{4^2}(3 + p^2) + \ldots \infty$, then the value of p is

A $\frac{14}{5}$

B $\frac{16}{5}$

C $\frac{3}{5}$

D $\frac{4}{5}$

Area outside the parabola and inside the circle $\left(x-2\sqrt{3}\right)^2+y^2=12$ and parabola $y^2=2\sqrt{3}x$.

LIVE STREAM

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Thank YOU