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22nd Jan. Shift–2

Memory Based Questions

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The number of elements in the relation

$R = \{(x, y): 4x^2 + y^2 < 52, x, y \in z\}$ **is**

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Memory Based Questions

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

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22nd Jan. Shift–2

Memory Based Questions

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Let $s = \{z \in c : 4z^2 + \bar{z} = 0\}$. Then $\sum_{z \in s} |z|^2$ is equal to.

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22nd Jan. Shift–2

Memory Based Questions

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In an open organ pipe f_3 and f_6 are 3rd and 6th harmonic frequencies respectively and if $f_6 - f_3 = 2200$Hz.

Then the length of pipe is (in mm)

a. 225

b. 200

c. 250

d. 275

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22nd Jan. Shift–2

Memory Based Questions

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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) $1:3^{1/3}$.

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22nd Jan. Shift–2

Memory Based Questions

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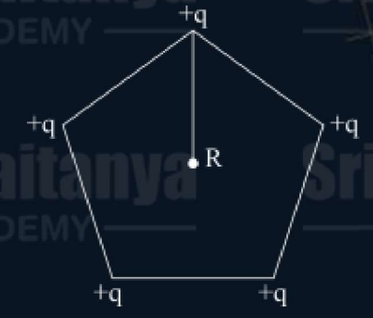
Five positive charges each having charge q are placed at the vertices of a pentagon as shown in the figure. The electric potential (V) & the electric field ($\vec{E}$) at the center O of the pentagon due to the 5 positive charges are:-



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

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22nd Jan. Shift–2

Memory Based Questions

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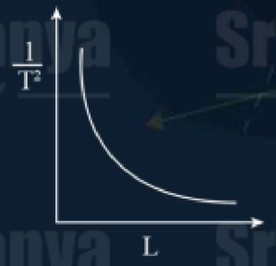
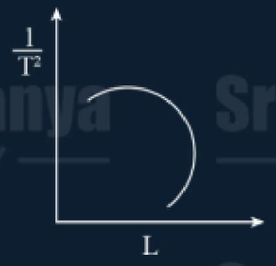
? using a simple pendulum experiment g is determined by measuring its time period T. Which of the following plots represent correct relation b/w the pendulum length ℓ & time period T.

(A)

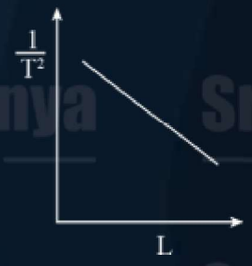


(B)

(C)



(D)



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22nd Jan. Shift–2

Memory Based Questions

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Which of the following mixture gives a buffer solution with pH=9.5 ? Given $PK_b(NH_4OH)=4.75$

a) 0.2M **NH_4OH**$(0.4l) + 0.1\text{M}\ HCl(1l)$

b) 0.4 M NH_4OH $(1l) + 0.1\text{M}\ HCl(1l)$

c) 0.5 M NH_4OH $(0.2l) + 0.2\text{M}\ HCl\ (0.5l)$

d) $0.2\ \text{M}$ **NH_4OH** $(0.5l) + 0.1\text{M}\ HCl(0.5l)$

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22nd Jan. Shift–2

Memory Based Questions

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S-1: $C < O < N < F$ is the correct order in terms of first ionization enthalpy values

S-II: $S > Se > Te > Po > O$ is the correct order in terms of the magnitude of electron gain enthalpy values.

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22nd Jan. Shift–2

Memory Based Questions

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When 1g of compound (X) is subjected to Kjeldahl's method for estimation of nitrogen, 15 mL 1M H_2SO_4 was neutralized by ammonia evolved. The % of nitrogen in compound (X) is

a) 21
b) 0.21
c) 42
d) 0.42

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22nd Jan. Shift–2

Memory Based Questions

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Name of IUPAC of the following

1. 2-Bromo-5-methyl propanoate
2. n-propyl-1-bromo-4methyl hexanoate
3. 2-Bromo-5-methyl hexyl propanoate
4. n-propyl-2-bromo-5-methyl heptanoate

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22nd Jan. Shift–2

Memory Based Questions

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? The dibromo compound $[P]$ of molecular formula $(C_9H_{10}Br_2)$ when heated with excess Sodamide followed by treatment with dilute HCl gives [Q]. On warming [Q] with mercuric sulphate dilute sulphuric acid yield (R) which gives positive iodoform test but negative tollen's test. The compound [P] is

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22nd Jan. Shift–2

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? 100 g of 98% H_2SO_4 of aqueous solution is mixed with 100 g of 49% H_2SO_4 of aqueous solution. The mole fraction of the H_2SO_4 is.

a) 0.667
b) 0.336
c) 0.1
d) 0.9

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22nd Jan. Shift–2

Memory Based Questions

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? If $\lim_{x\to 0} \frac{e^{(a-1)x}+2\cos bx+(c-2)e^{-x}}{x\cos x-\log_e(1+x)} = 2$, then $a^2 + b^2 + c^2$ is equal to?

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Memory Based Questions

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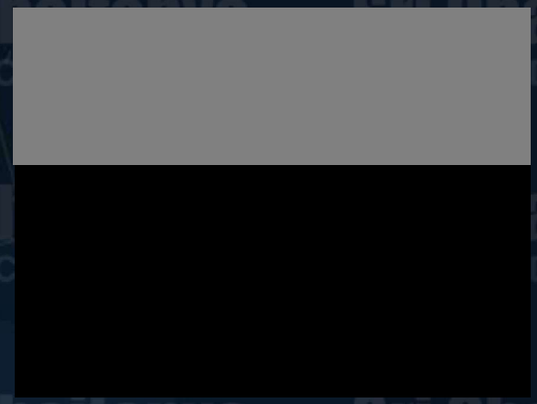
Let the domain of function $f(x) = \log_3 \log 5 \left(7 - \log_2(x^2 - 10x + 85) + \sin^{-1}\left(\left|\frac{3x-7}{17-x}\right|\right)\right)$ be (α, β)

Then $\alpha + \beta$ is equal



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Memory Based Questions

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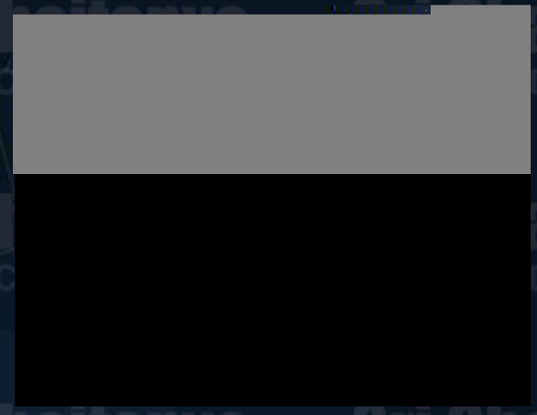
? $\cos(\alpha+\beta)=-\frac{1}{10}$ and $\sin(\alpha-\beta)=\frac{3}{8}$ where $0<\alpha<\frac{\pi}{3}$ & $0<\beta<\frac{\pi}{4}$

if $\tan 2\alpha=\frac{3(1-\gamma\sqrt{5})}{\sqrt{11}(s+\sqrt{5})}$, $\gamma, s \in N$, then $r+s$ is equal to ___



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Memory Based Questions

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? The area of the region $A = \{(x, y): 4x^2 + y^2 \leq 8 \text{ and } y^2 \leq 4x\}$ is

A) $\pi/2 + 2$

B) $\frac{\pi}{2} + \frac{1}{3}$

C) $\pi + \frac{2}{3}$

D) $\pi + 4$

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Memory Based Questions

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let $P(10,2\sqrt{15})$ be a point on the hyperbola $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$ whose foci are S and S'. If the length of its latus rectum is 8 then the square of the area of $\triangle PSS'$ is equal to

A) 900
B) 4200
C) 1462
D) 2700 .

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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22nd Jan. Shift–2

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