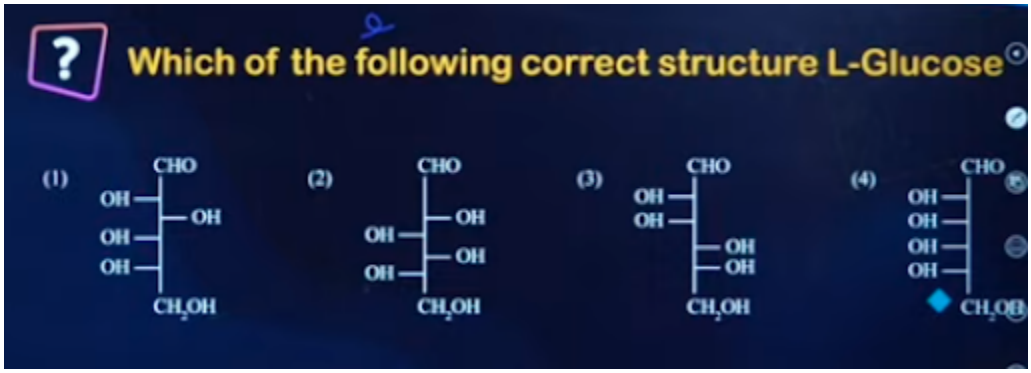
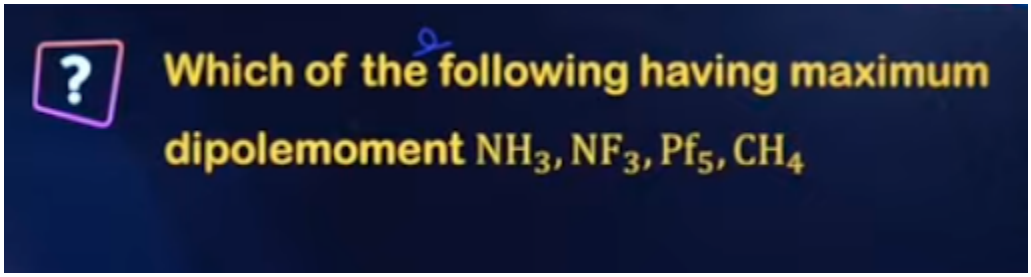
JEE Main Session 2 2024 Apr 4 Shift 1 Memory-Based Questions

1.



2.



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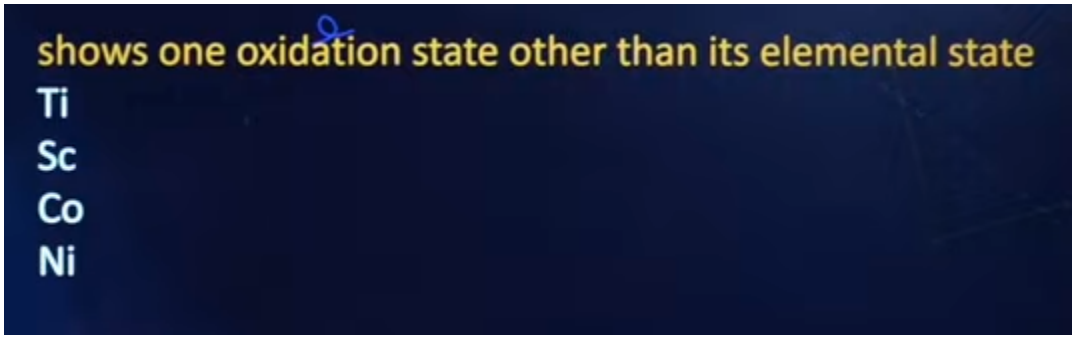
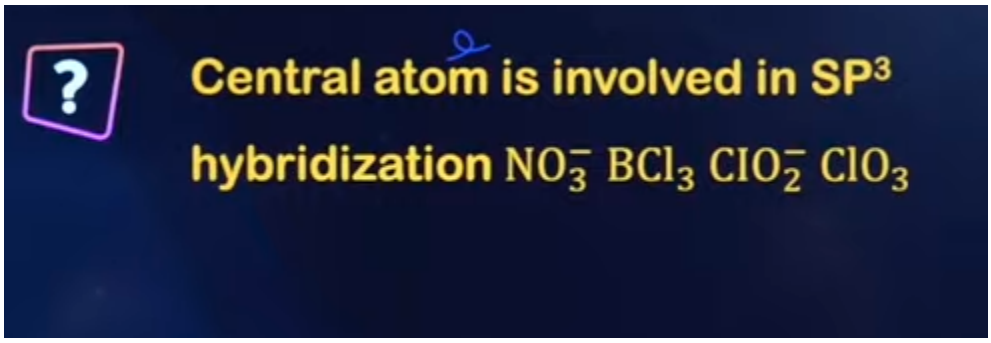
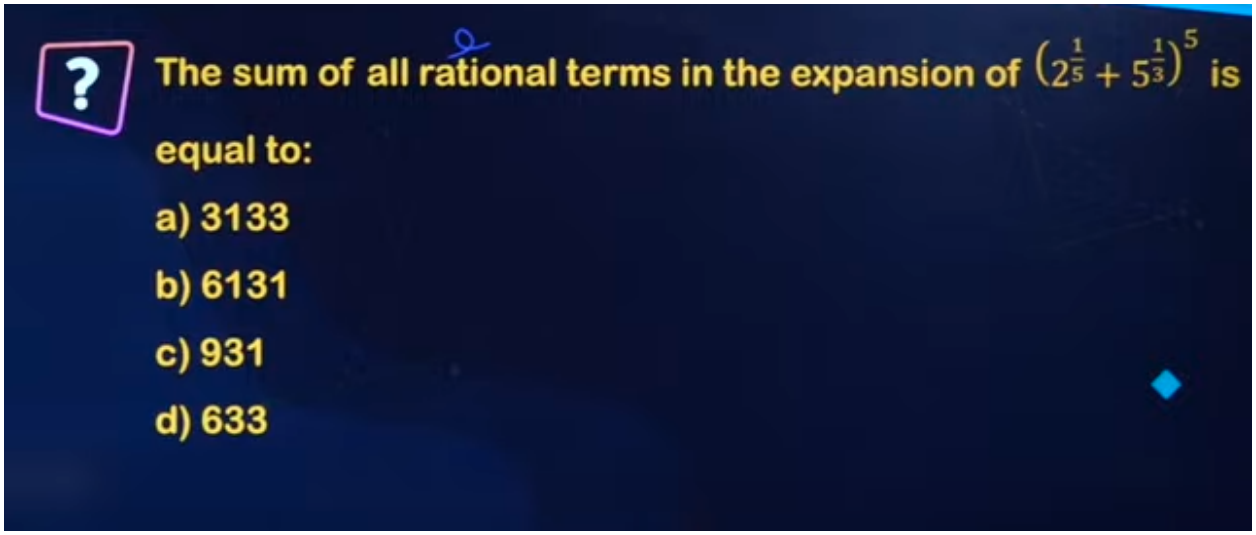


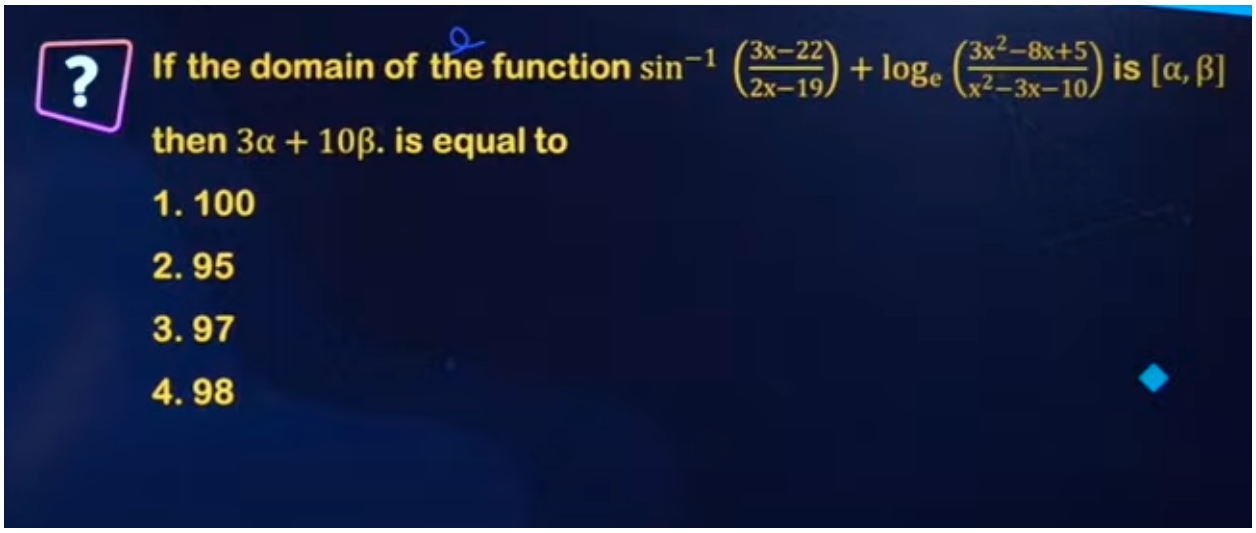
4.


Central atom is involved in SP3
hybridization NO3- BCl3 ClO2- ClO3

5.


The sum of all rational terms in the expansion of $(2^{\frac{1}{5}} + 5^{\frac{1}{3}})^5$ is
equal to:
a) 3133
b) 6131
c) 931
d) 633

6.


If the domain of the function $\sin^{-1}\left(\frac{3x-22}{2x-19}\right) + \log_e\left(\frac{3x^2-8x+5}{x^2-3x-10}\right)$ is $[\alpha, \beta]$
then $3\alpha + 10\beta$. is equal to
1. 100
2. 95
3. 97
4. 98

7.

If $f(x) = \begin{cases} x-2, & 0 \le x \le 2 \\ -2, & -2 \le x \le 0 \end{cases}$ and $h(x) = f(|x|) + |f(x)|$, then $\int_{-2}^{2} h(x)dx$ is equal to:

(a) 4

(b) 6

(C) 2

(d) 1

8.

let $f(x) = x^5 + 2e^{x/4}$ for all $x \in R$. consider a function $g(x)$ such that $(gof)(x)$ for all $x \in R$. Then the value of $8g'(2)$ is

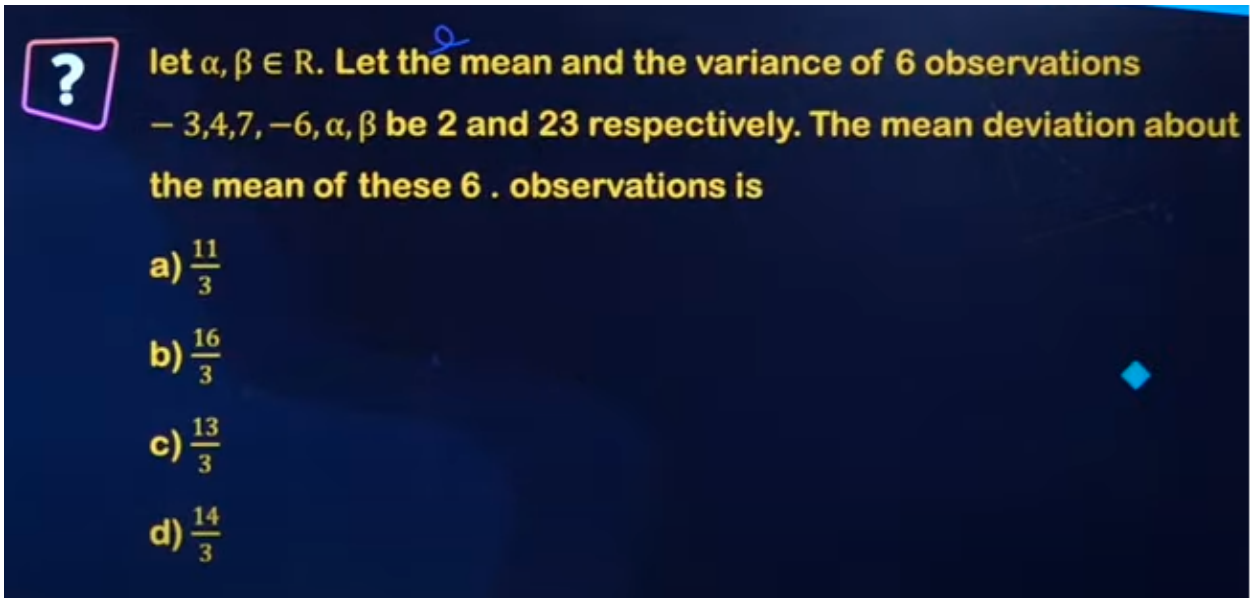
(1) 4

(2) 16

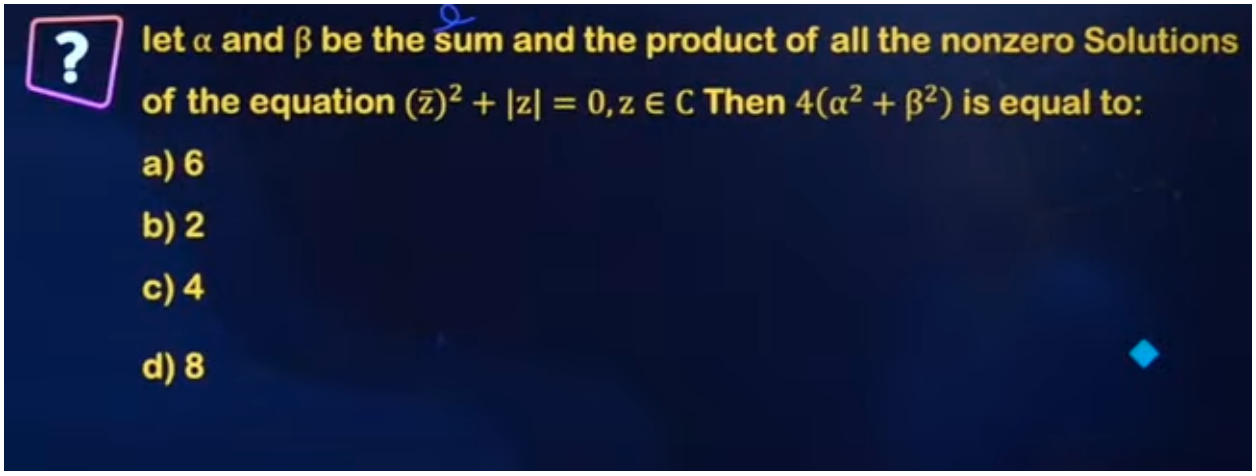
(3) 8

(4) 2

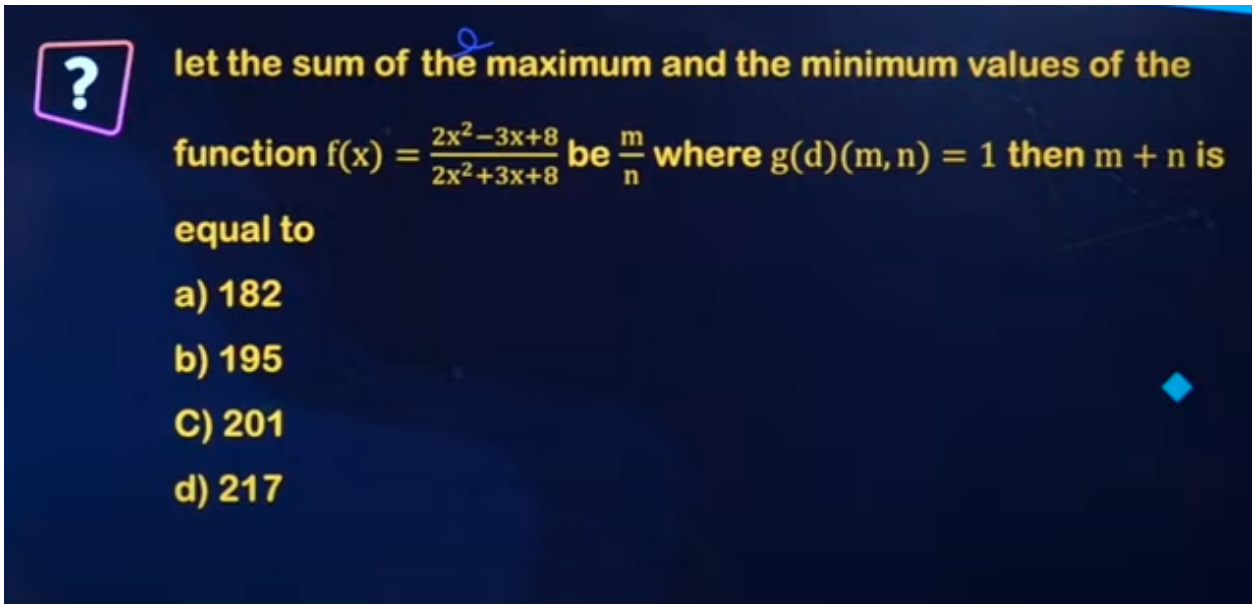
9.


let $\alpha, \beta \in R$. Let the mean and the variance of 6 observations $-3,4,7,-6,\alpha,\beta$ be 2 and 23 respectively. The mean deviation about the mean of these 6 . observations is
a) $\frac{11}{3}$
b) $\frac{16}{3}$
c) $\frac{13}{3}$
d) $\frac{14}{3}$

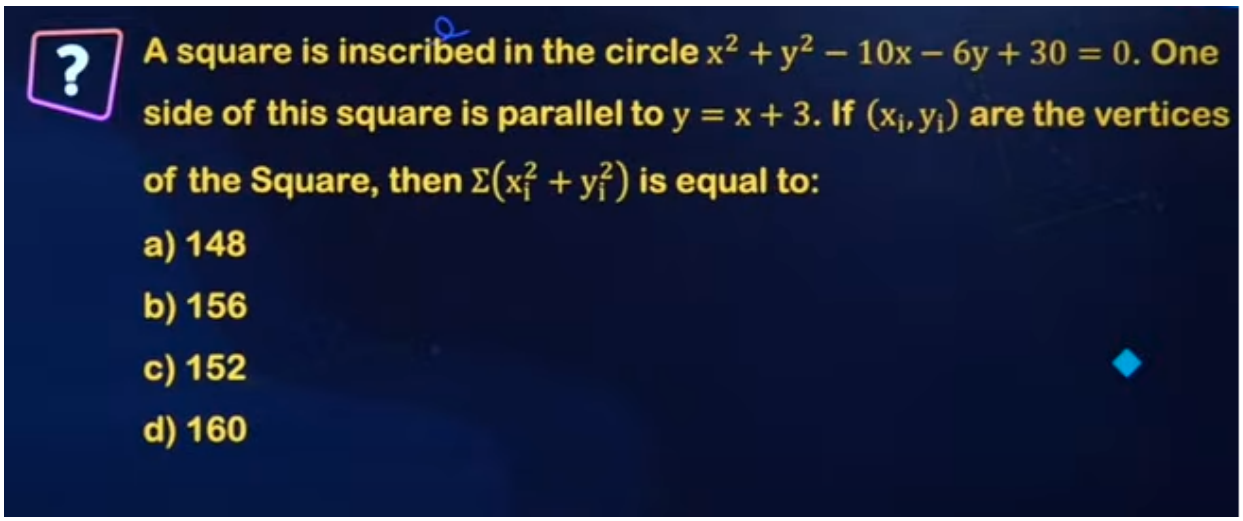
10.


let α and β be the sum and the product of all the nonzero Solutions of the equation $(\bar{z})^2 + |z| = 0, z \in C$ Then $4(\alpha^2 + \beta^2)$ is equal to:
a) 6
b) 2
c) 4
d) 8

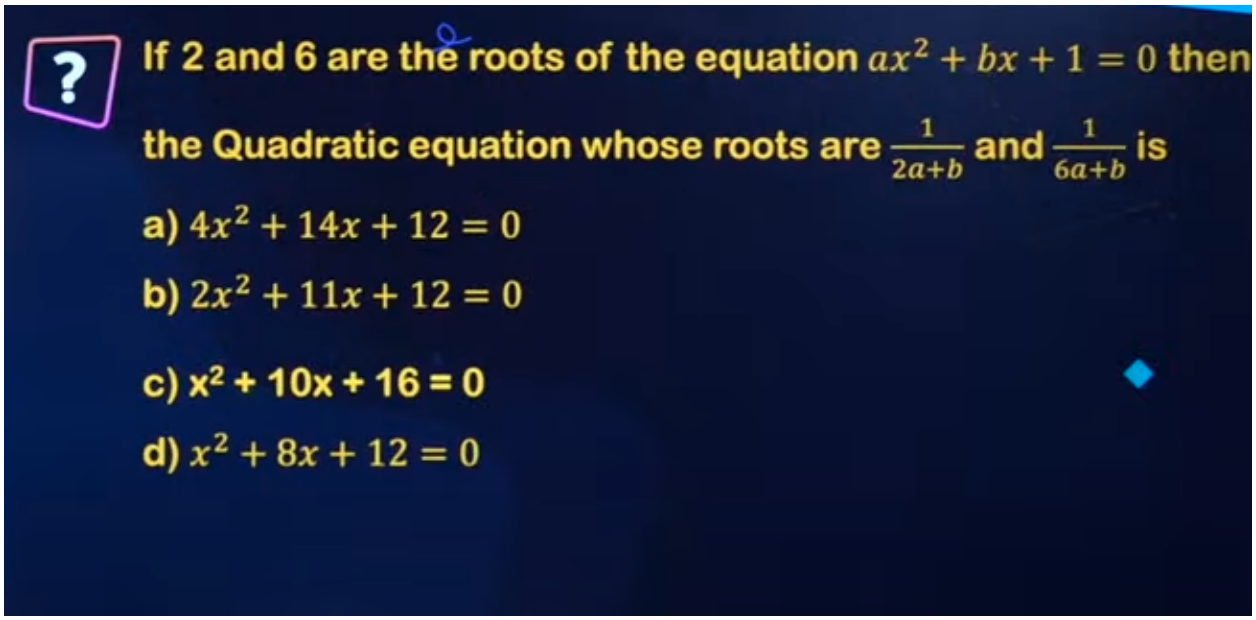
11.


let the sum of the maximum and the minimum values of the function $f(x) = \frac{2x^2-3x+8}{2x^2+3x+8}$ be $\frac{m}{n}$ where $g(d)(m,n) = 1$ then $m+n$ is equal to
a) 182
b) 195
C) 201
d) 217

12.


A square is inscribed in the circle $x^2 + y^2 - 10x - 6y + 30 = 0$. One side of this square is parallel to $y = x + 3$. If (x_i, y_i) are the vertices of the Square, then $\Sigma(x_i^2 + y_i^2)$ is equal to:
a) 148
b) 156
c) 152
d) 160

13.


If 2 and 6 are the roots of the equation $ax^2 + bx + 1 = 0$ then
the Quadratic equation whose roots are $\frac{1}{2a+b}$ and $\frac{1}{6a+b}$ is
a) $4x^2 + 14x + 12 = 0$
b) $2x^2 + 11x + 12 = 0$
c) $x^2 + 10x + 16 = 0$
d) $x^2 + 8x + 12 = 0$