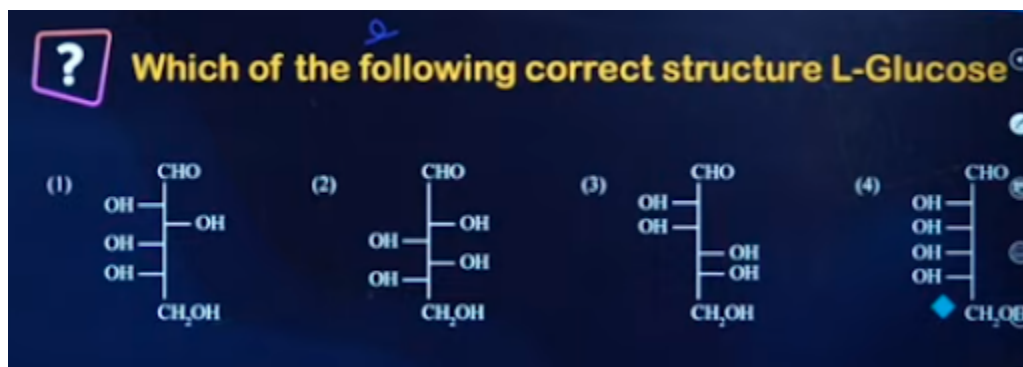


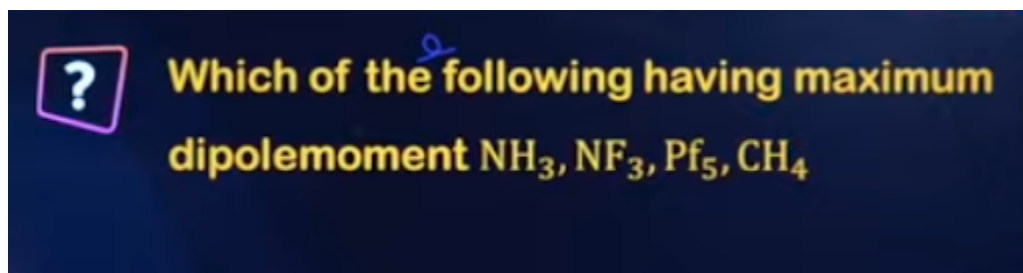
JEE Main Session 2 2024 Apr 4 Shift 1 Answer Key (Unofficial)

1.



Answer: 2

2.



Answer:  $\text{NH}_3$

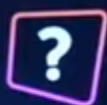
3.

shows one oxidation state other than its elemental state

Ti  
Sc  
Co  
Ni

Answer: Sc

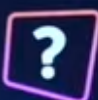
4.



Central atom is involved in  $sp^3$  hybridization  $NO_3^-$   $BCl_3$   $ClO_2^-$   $ClO_3$

Answer:  $ClO_2$

5.

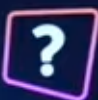


The sum of all rational terms in the expansion of  $(2^{\frac{1}{5}} + 5^{\frac{1}{3}})^5$  is equal to:

- a) 3133
- b) 6131
- c) 931
- d) 633

Answer: 3133

6.



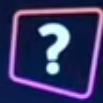
If the domain of the function  $\sin^{-1}\left(\frac{3x-22}{2x-19}\right) + \log_e\left(\frac{3x^2-8x+5}{x^2-3x-10}\right)$  is  $[\alpha, \beta]$

then  $3\alpha + 10\beta$  is equal to

- 1. 100
- 2. 95
- 3. 97
- 4. 98

**Answer: 97**

7.



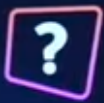
If  $f(x) = \begin{cases} x-2, & 0 \leq x \leq 2 \\ -2, & -2 \leq x \leq 0 \end{cases}$  and  $h(x) = f(|x|) + |f(x)|$ , then  $\int_{-2}^2 h(x) dx$  is

equal to:

- (a) 4
- (b) 6
- (c) 2
- (d) 1

**Answer: 1**

8.

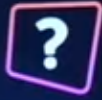


let  $f(x) = x^5 + 2e^{x/4}$  for all  $x \in \mathbb{R}$ . consider a function  $g(x)$  such that  $(g \circ f)(x)$  for all  $x \in \mathbb{R}$ . Then the value of  $8g'(2)$  is

- (1) 4
- (2) 16
- (3) 8
- (4) 2

**Answer: 16**

9.



let  $\alpha, \beta \in \mathbb{R}$ . 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)  $\frac{14}{3}$

Answer: 11/3

10.




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

- a) 6
- b) 2
- c) 4
- d) 8

Answer: 4


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  $\gcd(m, n) = 1$  then  $m + n$  is equal to

- a) 182
- b) 195
- c) 201
- d) 217

**Answer: 201**

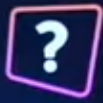
12.

 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  $\sum(x_i^2 + y_i^2)$  is equal to:

- a) 148
- b) 156
- c) 152
- d) 160

**Answer: 152**

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)  $x^2 + 8x + 12 = 0$

Answer: d