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JEE Mains :→

6(b) $2\pi\left(a_0 \frac{n^2}{Z}\right) = n\lambda$

(8)

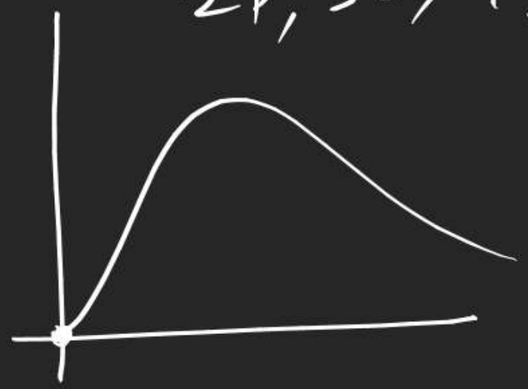
(A) l, m

(B) n, l, m, s

(C) n, l, m

(D) n, l

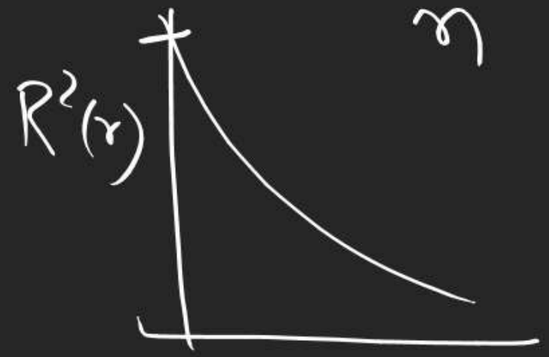
2p, 3d, 4f



$l = 1, 2, 3 \ldots\ldots$

Probability density at nucleus $= 0$

$l = 0$ (s orbital)



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Li^{2+} vs 2s

S_1

2s

1 radial

S_2

3P

$n-l-1$

$3-1-1$

$l=1$

4d

$4-2-1$

5f

$5-3-1$

$$E = -13.6 \times \frac{9}{4}$$

$$-13.6 \times 2.25$$

$$2\pi\left(a_0 \frac{n}{z}\right) = \lambda$$

$$2\pi (a_0) z = \lambda$$

$$KE = \frac{1}{2} m v^2$$

$$m v r = \frac{nh}{2\pi}$$

$$mv(4a_0) = \frac{2h}{2\pi}$$

$$v = \frac{h}{4\pi m a_0}$$

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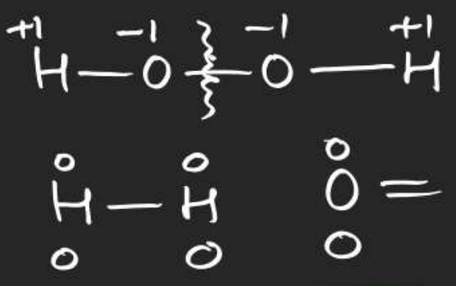
FIND OXIDATION NUMBER OF UNDERLINED ELEMENTS

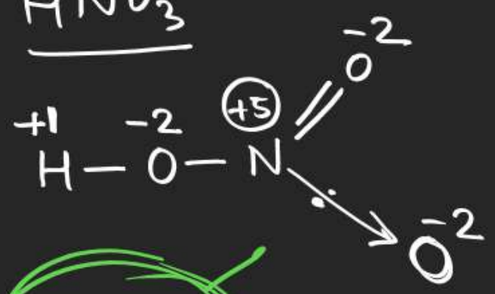
1. $\underline{C}O_2$
2. $H_2\underline{C}_2O_4$
3. $\underline{C}_2O_4^{\,2-}$
4. $H_2\underline{S}$
5. $H_2\underline{S}O_4$
6. $\underline{S}OCl_2$
7. $\underline{N}_2O_5$
8. $H\underline{N}O_3$
9. $Ba(\underline{N}O_2)_2$
10. $\underline{N}H_4^+$
11. $\underline{P}_4(s)$
12. $H_3\underline{P}O_4$
13. $\underline{P}H_3$
14. $\underline{Cl}^-$
15. $\underline{Cl}_2$
16. $H\underline{Cl}O_4$

H_2O , SO_2

H_2O_2



HNO_3



H_2SO_4

SO_4^{2-}

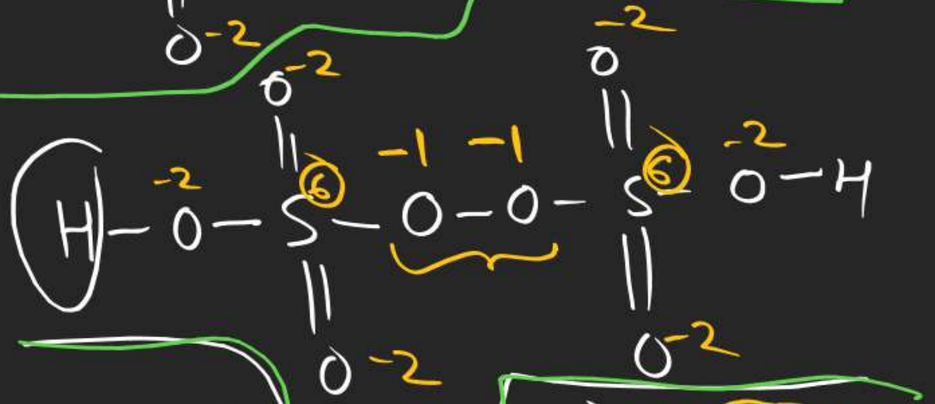
O.No

H_2SO_5

$2+x-10=0$

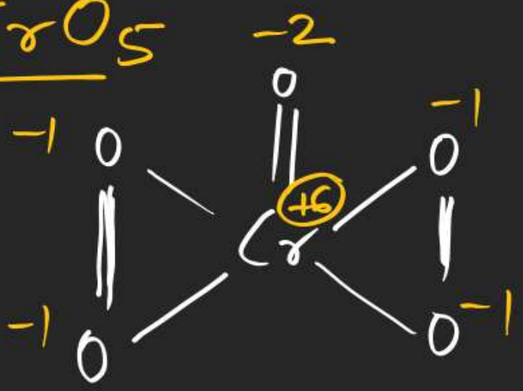
$x=8$

$H_2S_2O_8$



$S_2O_8^{2-}$

CrO_5



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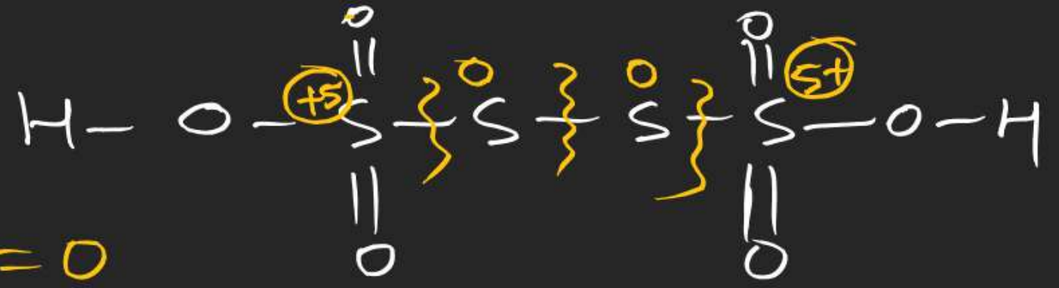
$H_2S_4O_6$



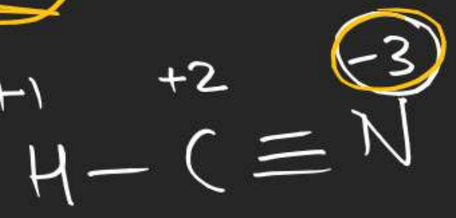
$2 + 4x - 12 = 0$

$x = 10/4$

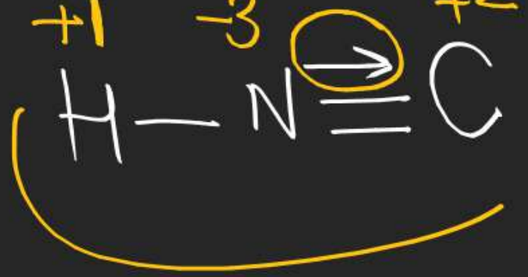
$\frac{5+0+0+5}{4} = 2.5$

6226
5005
−5005
6116

HCN

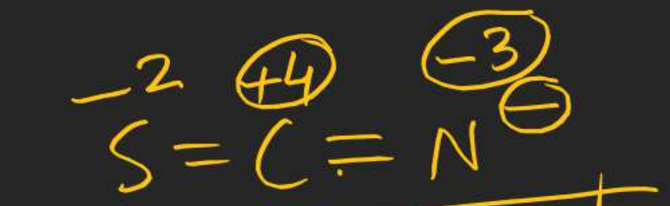


HNC



SCN^-

$C < S < N$



−2 +4 −3

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Cu_2O

CuO

Cu_3P

Cu_2S
CuS

As_2S_3
As_2S_5

Cu^+ Cu^{2+}

$\overset{+1}{Cu_2}\overset{-2}{O}$

$2x + y = 0$

$y = -2x$

$y = -2$

$\overset{+2}{Cu}\overset{-2}{O}$

$\overset{+1}{Cu_2}\overset{-2}{S}$

$\overset{+2}{Cu}\overset{-2}{S}$

As_2S_3 $(As^{3+}\ S^{2-})$

As_2S_5 $(As^{5+}\ S^{2-})$

A^{x+} B^{y-}

A_yB_x

$\overset{+1}{Cu_3}\overset{-3}{P}$

$\overset{+2}{Fe}\overset{-1}{S_2}$

Fe^{2+} Fe^{3+}

Iron pyrite
(fools gold)

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Complex compound

$K_4[Fe(CN)_6]$

↓ ligands

$4K^+ + [Fe(CN)_6]^{4-}$

$K_4[Fe(CN)_6]$

$4 + x - 6 = 0$

$x = +2$

Ligand	O.No
CN^-	-1
Cl^-	-1
NH_3	0
H_2O	0
$C_2O_4^{2-}$	-2
CO	0

$FeSO_4$

Fe^{2+} SO_4^{2-}

PO_4^{3-}

$C_2O_4^{2-}$

$[\underline{Co}(NH_3)_3(H_2O)_3]Cl_3$

$x + 0 + 0 - 3 = 0$

$x = 3$

O-I	1-10
S-I	1-3

Redox

$K_2[\underline{Co}(\underline{C_2O_4})_3]$

$2 + x - 6 = 0$

$x = 4$

$\underline{Ni}(CO)_4$

$x + 0 = 0$

$x = 0$

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(31)

$$\lambda = \frac{h}{\sqrt{2mKE}}$$

$KE = \frac{3}{2}kT$

$\lambda_{e^-} > \lambda_{proton} > \lambda_{Neutron}$

Visible photon

4000 — 7500 A°

$0.529 \times \frac{n^2}{Z}$

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$$\frac{1}{\lambda} = \bar{\nu} = R_H Z^2 \left[\frac{1}{n_f^2} - \frac{1}{8^2} \right] = R_H Z^2 \left[\frac{1}{n_1^2} - \frac{1}{n_2^2} \right]$$

(34) hold

k slope $= R_H$

$$KE = h\nu - \phi$$

(39) $\frac{1}{2}mv^2 = KE = \frac{hc}{\lambda} - \phi$

(c)

(23)

$$KE = h\nu - h\nu_0$$

$$\lambda = \frac{h}{\sqrt{2m(h\nu - h\nu_0)}}$$

(44)

(A) True

(B) $\lambda \uparrow$ T.E ↑ False

(C) $|T.E| = 2KE$

(D)

Atomic
JEE Adv

Nishant Jindal

FIND OXIDATION NUMBER OF UNDERLINED ELEMENTS

17. $\underline{Cl_2}O$

18. $\underline{Xe}O_6^{4-}$

19. $K\underline{Mn}O_4$

20. $K_3\underline{Mn}F_6$

21. $K_2\underline{Fe}O_4$

22. $\underline{Cr_2}O_7$

23. $\underline{Fe}_{0.9}O$ 20/9

24. $\underline{I_3^-}$

---

25. $K_3[\underline{Fe}(CN)_6]$

26. $K[\underline{Co}(C_2O_4)_2(NH_3)_2]$

27. $\underline{Ni}(CO)_4$

28. $\underline{Fe}(CO)_5$

29. $\underline{C_{12}}H_{22}O_{11}$

30. $\underline{Fe}SO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$

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FIND OXIDATION NUMBER OF UNDERLINED ELEMENTS

1. $H_2\underline{O}_2$
2. $H_2\underline{S}O_5$
3. $H_2\underline{S}_2O_8$
4. $CaO\underline{Cl}_2$
5. $\underline{N}H_4\underline{N}O_3$
6. $\underline{Fe}S_2$
7. $\underline{Cu}_3\underline{P}$
8. $\underline{As}_2\underline{S}_3$
9. $\underline{As}_2\underline{S}_5$
10. $H\underline{C}\,\underline{N}$

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FIND OXIDATION NUMBER OF UNDERLINED ELEMENTS

1. $\underline{C}H_4$
2. $\underline{C}$ (graphite)
3. $\underline{S}_8$
4. $\underline{N}H_3$
5. $Al\underline{N}$
6. $\underline{N}_2H_4$
7. $H\underline{P}O_3^{-}$
8. $\underline{P}_2O_7^{2-}$
9. $\underline{Cl}O_3^{-}$
10. $H\underline{Cl}$
11. $\underline{Xe}OF_4$
12. $\underline{Mn}^{2+}$

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FIND OXIDATION NUMBER OF UNDERLINED ELEMENTS

13. $\underline{Fe}C_2O_4$

14. $K_2\underline{Cr}_2O_7$

15. $\underline{I}O_4^-$

16. $K_4[\underline{Fe}(CN)_6]$

17. $[\underline{Cr}(H_2O)_6]Cl_3$

18. $[\underline{Co}(NH_3)_4]Cl_2$

19. $\underline{Ca}O_2Cl_2$

20. $Na_2\underline{Mo}O_4$

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FIND OXIDATION NUMBER OF UNDERLINED ELEMENTS

1. $\underline{Cr}O_5$
2. $H_2\underline{S}_4O$
3. $\underline{Fe}_3O_4$
4. $\underline{Cu}_2\underline{S}$
5. $\underline{Cr}\underline{I}_3$
6. $\underline{Fe}_{0.95}O$
7. $S\underline{CN}^-$
8. $Na_2\underline{S}_2\underline{O}_3$
9. $\underline{Sn}\underline{S}_3^{\,2-}$
10. $\underline{S}_2O_6^{\,2-}$