

**JEE-Main-29-01-2024 (Memory Based)
[MORNING SHIFT]****Chemistry**

Question: Which of the following pair will be formed by the decomposition of KMnO_4 ?

Options:

- (a) MnO_4 , MnO_2
- (b) $\text{K}_2 \text{MnO}_4$, MnO_2
- (c) KMnO_4 , MnO_2
- (d) MnO_2 , H_2O

Answer: (b) $\text{K}_2 \text{MnO}_4$, MnO_2

Solution:

Potassium permanganate forms dark purple (almost black) crystals which are isostructural with those of KClO_4 . The salt is not very soluble in water (6.4 g / 100 g of water at 293 K), but when heated it decomposes at 513 K.



Question: Interaction b/w π . Bond & lone pair l-s on adjacent atoms

Options:

- (a) Resonance
- (b) Hyper conjugation
- (c) Inductive Effect
- (d) Electronic Effect

Answer: (a) Resonance

Solution:

Question: Assertion. Electronegativity increase across a period
Reason. Effective increase in nuclear charge is more than effective shielding.

Options:

- (a) Step 1: Electronegativity increase down the group 14 is to pb
- (b) Step 2: Group 14 contains metals, non metals and also metalloids

Solution: Assertion true reason true

Step : 1 is incorrect but Step : 2 is correct

Question:

Column - I	Column - II
Ziegler Natta Catalyst	Rh
Blood Pigment	CO
Wilkinson Catalyst	Fe
Vitamin B12	Ti

Solution:

- 1 → Ti
 2 → Fe
 3 → Rh
 4 → Co

Question: Appearance of Red colour on treatment with Na fusion extract of an organic compound with FeSO_4 in presence of conc. H_2SO_4 indicate element

Options:

- (a) N
 (b) Br
 (c) S
 (d) N & S

Answer: (d) N & S

Solution:(d) N & S

Question: Cl^- shows disproportionation in alkaline meol :

**Options:**

- (a) 1 1 1 3
 (b) 3 6 2 4
 (c) 1 2 1 1
 (d) 2 4 1 3

Answer: (b)

Solution: $3\text{Cl}_2 + 6\text{OH}^- \rightarrow 2\text{ClO}_3^- + 4\text{Cl}^- + 3\text{H}_2\text{O}$

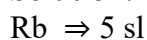
Question: The correct set of 4 Quantum numbers of Valence e^- of Rb(37)

Options:

- (a) $n = 5$., $l = 0$., $m = 1$.,
 (b) $n = 5$., $l = 0$., $m = 0$.,
 (c) $n = 5$., $l = 1$., $m = 0$.,
 (d) $n = 5$., $l = 1$., $m = 1$.,

Answer:

Solution:



↓

$$n = 5$$

$$l = 0$$

$$Ml = 0$$

$$Mg = +1/2 \text{ or } -1/2$$

The electronic configuration of rubidium atom ($Z = 37$) is given by



Hence, the quantum numbers for $5s^1$ electron is given by

$$n = 5, l = 0, m = 0, s = +1/2 \text{ or } -1/2$$

Question: Type of amino acids obtained on hydrolysis of proteins

Options:

- (a) α
 (b) β

(c) γ

(d) δ

Answer: (a)

Solution: Alpha amino acid

Question: CO forms a bridge b/w M atoms

Options:

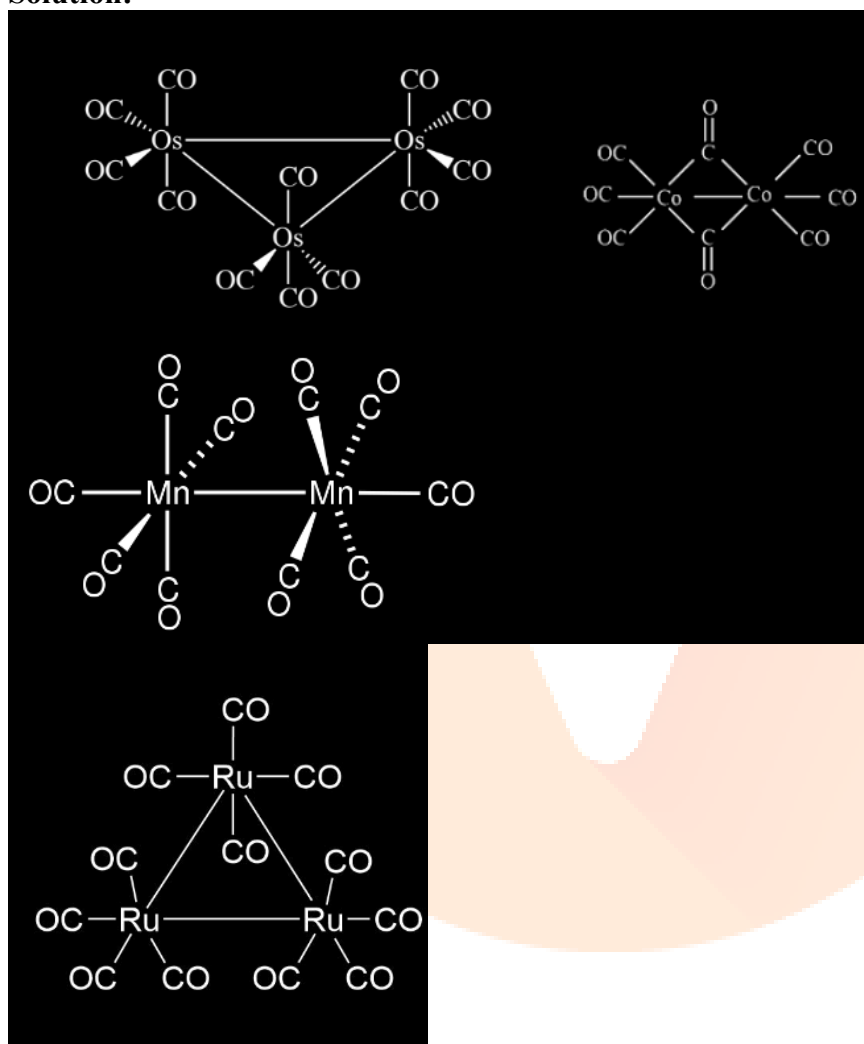
(a) $\text{Os}_3(\text{CO})_{12}$

(b) $\text{Co}_2(\text{CO})_8$

(c) $\text{Ru}_3(\text{CO})_{12}$

(d) $\text{Mn}_2(\text{CO})_{10}$

Solution:



Question: Calculate the Molarity of a Solution having density = 1.25 g/ml. % (w/w) of Solute is 31.4% of H_2SO_4 solution

Options:

(a) 4

(b) 9

(c) 8

(d) 6

Answer: (a)

Solution:

$$M = 10 \times \frac{w}{w} \% \times d$$

$$M = 10 \times \frac{M_{\text{solute}}}{98} \times 125 \times 100$$

$$= 4$$

Question: Find all quantum numbers $Z = 37$

Options:

- (a) $n = 5$., $l = 0$., $m = 1$.,
- (b) $n = 5$., $l = 0$., $m = 0$.,
- (c) $n = 5$., $l = 1$., $m = 0$.,
- (d) $n = 5$., $l = 1$., $m = 1$.,

Answer: (a)

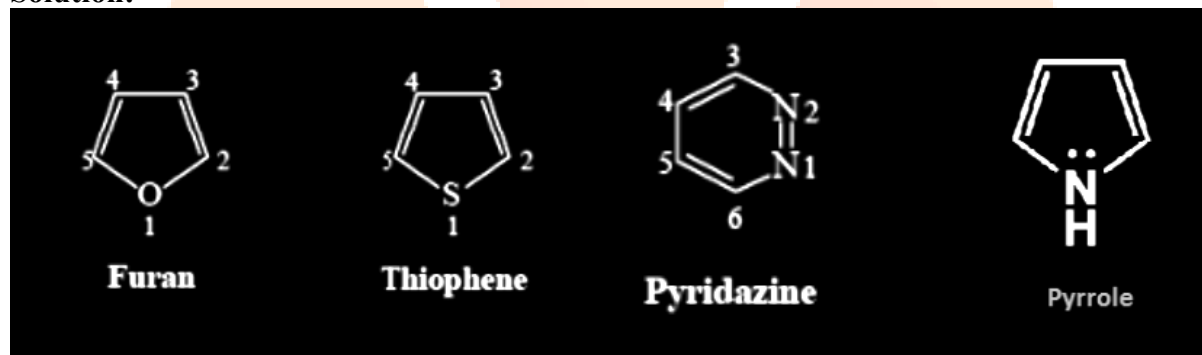
Question: Among the heterocyclic compound that contain Sulphur atom is :

Options:

- (a) Pyridazine
- (b) Furan
- (c) Thiophene
- (d) Pyrrole

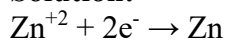
Answer: (c)

Solution:



Question: Find weight of Zinc in Zinc sulphate electrolysis $i = 0.015 \text{ A}$ $t = 15 \text{ minutes}$

Solution:



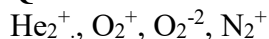
$$1 \text{ mol Zn} = 65.3 \text{ gm} = 2 \text{ F}$$

$$\text{Number of Faradays} = \frac{0.015 \times 15 \times 60}{965}$$

$$= 0.00013 \text{ g F}$$

$$= .0046$$

Question: Number of compound in which B.O = 1 and is paramagnetic



Answer: 0

Solution:

	B.O	Magnetic nature
He_2^+	0.5	Paramagnetic
O_2^+	1.5	Paramagnetic
O_2^{-2}	1	Diamagnetic

N_2^+

2.5

Paramagnetic

Question: Number of compounds that gives positive fehling test Benzaldehyde, acetophenone, methanal

Answer: 1

Solution: Aliphatic aldehyde group. Aromatic aldehydes and ketones do not a give Fehling's test.

