

PYQSide

NEET COORDINATION COMPOUNDS — METAL CARBONYLS AND SYNERGIC BONDING — PYQS

Max. Marks: 44

Questions: 11

Section A (MCQ)

- Q.1** $[\text{Mn}_2(\text{CO})_{10}]$ and $[\text{Co}_2(\text{CO})_8]$ structures have
 A. Metal-Metal linkage
 B. Terminal CO groups
 C. Bridging CO groups
 D. Metal in zero oxidation state
 Choose the correct answer from the options given below [RE-NEET (UG) 2024]

- (1) Only A, B, C (2) Only B, C, D
 (3) Only A, C, D (4) Only A, B, D

Scan or tap for the full solution



- Q.2** Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): The metal carbon bond in metal carbonyls possesses both σ and π character.

Reason (R): The ligand to metal bond is a π bond and metal to ligand bond is a σ bond.

In the light of the above statements, choose the most appropriate answer from the options given below.

[NEET (UG) 2022 (Phase 2)]

- (1) (A) is not correct but (R) is correct
 (2) Both (A) and (R) are correct and (R) is the correct explanation of (A)
 (3) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
 (4) (A) is correct but (R) is not correct

Scan or tap for the full solution



- Q.3** Iron carbonyl, $\text{Fe}(\text{CO})_5$ is [NEET 2018]
 (1) tetranuclear (2) mononuclear
 (3) trinuclear (4) dinuclear

Scan or tap for the full solution



- Q.4** An example of a sigma bonded organometallic compound is [NEET 2017]
 (1) Grignard's reagent (2) ferrocene
 (3) cobaltocene (4) ruthenocene.

Scan or tap for the full solution



- Q.5** Which of the following has longest C – O bond length? (Free C – O bond length in CO is 1.128 Å.) [NEET 2016 (Phase 1)]

- (1) $[\text{Fe}(\text{CO})_4]^{2-}$ (2) $[\text{Mn}(\text{CO})_6]^+$
 (3) $\text{Ni}(\text{CO})_4$ (4) $[\text{Co}(\text{CO})_4]^-$

Scan or tap for the full solution



- Q.6** Which of the following carbonyls will have the strongest C–O bond? [AIPMT 2011 (Mains)]

- (1) $\text{Cr}(\text{CO})_6$ (2) $\text{Fe}(\text{CO})_5$
 (3) $[\text{Mn}(\text{CO})_6]^+$ (4) $[\text{V}(\text{CO})_6]^-$

Scan or tap for the full solution



- Q.7** Which of the following carbonyls will have the strongest C–O bond? [AIPMT 2011 (Prelims)]

- (1) $\text{Mn}(\text{CO})_6^+$ (2) $\text{Cr}(\text{CO})_6$
 (3) $\text{V}(\text{CO})_6^-$ (4) $\text{Fe}(\text{CO})_5$

Scan or tap for the full solution



- Q.8** Which of the following does not have a metal carbon bond? [AIPMT 2004]

- (1) $\text{Al}(\text{OC}_2\text{H}_5)_3$ (2) $\text{C}_2\text{H}_5\text{MgBr}$
 (3) $[\text{Pt}(\text{C}_2\text{H}_4)\text{Cl}_3]$ (4) $\text{Ni}(\text{CO})_4$

Scan or tap for the full solution



- Q.9** Among the following which is not the π -bonded organometallic compound? [AIPMT 2003]

- (1) $[\text{PtCl}_3(\eta^2-\text{C}_2\text{H}_4)]$ (2) $\text{Fe}(\eta^5-\text{C}_5\text{H}_5)_2$
 (3) $\text{Cr}(\eta^6-\text{C}_6\text{H}_6)_2$ (4) $(\text{CH}_3)_4\text{Sn}$

Scan or tap for the full solution



- Q.10** Which of the following organometallic compounds is σ and π bonded? [AIPMT 2001]

- (1) $[\text{Fe}(\eta^5-\text{C}_5\text{H}_5)_2]$ (2) $[\text{PtCl}_3(\eta^2-\text{C}_2\text{H}_4)]$
 (3) $[\text{Co}(\text{CO})_5\text{NH}_3]^{2+}$ (4) $\text{Fe}(\text{CH}_3)_3$

Scan or tap for the full solution



Q.11 Shape of $\text{Fe}(\text{CO})_5$ is [AIPMT 2000]

- (1) octahedral (2) square planar
(3) trigonal bipyramidal (4) square pyramidal

Scan or tap for the
full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	4	4	2	1	1	3	1	1	4	3	3