



**VJ SIR'S BOOK  
TOPIC WISE  
QUESTION BANK FOR  
PRACTICE**

## (Inorganic Chemistry)

PROBLEM AND SOLUTIONS IN INORGANIC CHEMISTRY BY CENGAGE LEARNING PUBLICATION	
Chemical Bonding	
JEE MAIN EXERCISE	
TOPIC	Questions NO.
MOT	1,2,3,13,22,23,29,37,43,48,58,59,74,76,78,80,94,97,98,99,
IONIC BOND	4,39,41,49,57,62,71,82,89,90,
VSEPR	5,8,9,10,11,31,45,46,54,65,70,77,79,85,91,92,
DRAGO	6,66,
SILICATES	7,12,
ODD e <sup>-</sup>	14,15,42,83,
BENT'S RULE	16,17,18,19,20,26,
BRIDGE BONDING	21,28,36,44,93,
WEAK FORU	24,32,33,95,96,
HYBRIDISATION	25,52,53,61,69,
HYDROLYSIS	30,34,40,75,84,
DIPOLE MOMENT	38,50,60,67,72,87,103,104,
VBT	55,56,68,105,106,
Inert Pair Effect	100,101,102,
JEE ADVANCE EXERCISE	
VBT	SCQ TYPE - 1,22,23,51,70,86 MCQ TYPE- 58,94,112, A&R - 1,2,22,27,
HYBRIDISATION	SCQ TYPE - 3,36,37,68,75,76,89,90, MCQ TYPE- 9,33,62,63,68,98, A&R - 16 MATCH -9,21,
Inert Pair Effect	SCQ TYPE - 4,14,26, A&R - 3,29,
BACK BONDING	SCQ - 5,19, MCQ - 87,118, COM. - 8 A&R - 11,18,23,34 MATCH -3,4,15,20,24,
BENT RULE	SCQ -6,7,35,41,55,66,81, MCQ - 3,66, COM. - 12, A&R - 10,17 MATCH -6
VSEPR	SCQ - 8,16,17,20,24,34,38,39,43,53,56,57,59,60,72,82,91,92, MCQ - 2,8,10,11,75,84,93,96,97,99,117,127,131,132,136 COM. - 11, 14 A&R - 19,21 MATCH -7,8,18,22, INT - 2,3,4,8,10,12,38,39,40,41,42,44,45,57,58,59,60,61,63,

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BRIDGE BONDING	SCQ - 10,21,40,58,61,79,80,83,84,85, MCQ - 4,5,6,12,23,25,40,110,126, A&R - 7 MATCH - 5,11,16,17,19,23, INT - 18,
SILICATES	SCQ - 12,65, MCQ - 16, 17,70 MATCH - 1 INT - 5,9,13,49,
MOT	SCQ - 13,28,46,48,49,50,52,54,71,77,88,93,94,95, MCQ - 13,18,21,34,35,36,37,43,45,60,71,72,73,74,82,105,106, COM. - 6, 9 A&R - 14,20,33, MATCH - 13, INT - 15,17,21,22,23,24,25,26,28,29,30,31,36,47,50,51,53,54,64,65,66,71,
VBT	SCQ - 22,23,25,51,70,86, MCQ - 58,94, INT - 6,14,20,46,48,67,68,70,72,
IONIC BOND	SCQ - 27,31,32,33,73, MCQ - 32,46,49,50,51,53,54,55,65,76,78,86,89,90,101,109,119,121,122,123,134 COM. - 5,7 A&R - 25
DIPOLE MOMENT	SCQ - 29,45, MCQ - 69,85,95, A&R - 30 MATCH - 14
MISC.	SCQ - 42,62,63,96,97,98, MCQ - 15,24,26,39,52,64,67,77,79,80,81,83,103,104,111,113,114,115,116,124,125,128,133,135, COM. - 1,2,4,10, A&R - 4,5,9,13,26,31,32, MATCH - 2,10,25,
WEAK FORUS	SCQ - 47,67,74, MCQ - 102, A&R - 12,15 MATCH - 12,
H-BOND	SCQ - 87,
OVERKAPPING	MCQ - 19,
POLARIZATION	MCQ - 22,
OXIDES NATURE	MCQ - 27,28,29,57,92,
OCTET THEORY	MCQ - 38, COM. - 15

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HYDROLYSIS	SCQ - 44,78, MCQ - 48,48,59,88,130, A&R - 6 INT - 19,32,33,34,35,37,43,
OXYACID	MCQ - 41
LEWIS ACID	MCQ - 42
ALLOTROP	MCQ - 100,
SOLUBILITY	MCQ - 107,108
DRAGO RULE	MCQ - 129 COM. - 3,
<b>NCERT EXEMPLAR EXERCISE</b>	
<b>TOPIC</b>	<b>Q.NO.</b>
VSEPR	SCQ - 1,7,9, MCQ - 1,3, MATCH - 2, A&R - 2
DIPOLE MOMENT	SCQ - 2,
HYBRIDISATION	SCQ - 3,12, MATCH - 1,4,
WEAL FORU	SCQ - 4,10,
OCTET THEORY	SCQ - 5,6
MIX	SCQ - 8 COM.(Q. NO. 13,14,15,16,17,18) MCQ - 2,4,5 MATCH - 3 A&R - 1,3

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**PROBLEM AND SOLUTIONS IN INORGANIC CHEMISTRY BY CENGAGE LEARNING PUBLICATION****Coordination compounds**

TOPIC	JEE MAIN	JEE ADVANCE	NCERT
Introduction	18,30,31,54,58,	SCQ-12,13,33, MCQ -6,19, 55 Para. - 2, Match - 3, INT. - 13,14, 25,32,53,63,	SCQ - 4, MATCH - 5
Ligand	17,28,29,35,62,65,	SCQ -37,51, MCQ - 3,12,20,22, INT. - 5,6,7,23,28,47,48,65,66,67,	SCQ - 11,12 MCQ - 8
Synergic Bonding	21, 36,61,	SCQ -23,41,65,67,77,79,82, MCQ - 32,52,53, Para. - 7,8,12, A&R - 6,8 INT. - 85,	
Werner's theory		MCQ - 35,	
E.A.N (Sidgwick Rule)	6,10,32,63,74,77,	SCQ - 2,14,15,16,17,35,75,80, MCQ - 29,40, Para. - 6, A&R - 31,83,	
IUPAC Naming	7,8,9,13,15,43,50,57,68,81,82, 83,84,85,86,	SCQ - 1,38,42,43,44,45,46,47,48,66, MCQ - 4,5,8,13,27,28,29,42,44,45,46,47,48,49,	SCQ - 5,14
Isomerism	1,3,39,40,48,49,52,55,56,59,64,73, 76,	SCQ - 6,7,22,24,26,29,30,73, MCQ - 16,17,25,26,43, Para. - 3, A&R - 1,9 MATCH - 13,14,15,19,22,25,33,34,35, INT.- 8,9,10,11,12,20,21,22,37,42,43,44,49,50,54,56,61,62, 69,70,78,79,84,	SCQ - 7,9,10,13, MCQ - 7,9 MATCH - 4,
VBT	2,3,5,37,38,47,	SCQ - 25,76, MATCH - 4,7, INT. - 55,76,	
CFT	4,11,12,16,19,20,22,23,24,25,26,2 7,34,41, 42,44,45,46,51,60,66,69,70,71,72, 78,79,	SCQ - 3,4,5,8,9,10,18,19,20,27,31,32,34,36,39,40,49,50,53,5 4,55,56,57, 58,59,60,61,62,63,64,68,69,70,74,78,83, MCQ - 2,7,9,10,11,14,15,18,23,24,31,33,36,37,38,40,50,51,5 6,57,58,59, Para. - 1,4,5,9,10,13,14, A&R - 3,4,5,7, MATCH - 1,2,5,6,9,10,17,18,20,26,27,29,32,36, INT. - 1,3,4,15,16,17,18,19,29,34,45,46,51,52,58,60,71,72,7 3,74,81	SCQ - 1,2,6,8, MCQ - 1,2,3,4, MATCH - 1,3,
Miscellaneous		SCQ - 71,72,81, MCQ - 1,34 Comp. - 11 MATCH - 11,12,16,21,23,24,28,30, INT. - 35,36,86,	SCQ - 3, MATCH - 2

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Archives			
TOPIC	JEE MAIN	JEE ADVANCE	
Introduction	9	SCQ - 5,	
Ligand	23,	SCQ - 16,	
Synergic Bonding	3,22,	SCQ - 11,12	
IUPAC Naming	15,19,36	SCQ - 21 Para. - 1	
Isomerism	2,12,16,28,29,31,35,37,42,43,	SCQ - 10,17, MCQ - 1, MATCH - 2	
VBT	7,14,26,	SCQ - 7,	
CFT	1,4,13,17,18,21,24,25,27,32,33,34, 38,40,41,44	SCQ - 2,4,6,8,9,13,15,18,19,20,22,23 Para. - 2,3 A&R - 1	
Miscellaneous	5,6,8,11,20,30,39	SCQ - 3, MATCH - 2,	

PROBLEM AND SOLUTIONS IN INORGANIC CHEMISTRY BY CENGAGE LEARNING PUBLICATION			
General Principles of Extraction of Metals			
TOPIC	JEE MAIN	JEE ADVANCE	NCERT
Introduction	6, 7, 17, 18, 27, 28, 35, 51, 55, 63, 66	SCQ-12, 19, 28, 32, 37, 48, 49, 64, 65 MCQ-2, 6, 31, 44, 54, 57, 64 Para-12 Integer-1, 3, 4	SCQ-4
Type of Metallurgy	8, 10, 25, 47, 67	MCQ-8, 56, Integer-10, 15, 16	SCQ-9 A & R-5
Concentration	1, 2, 12, 24, 54,	SCQ-25, 26, 30, 43, 44 MCQ-3, 10, 45 Integer-8	MCQ-4, 5, 7 A & R-3
Ellingham Diagram	30,	SCQ-17, 68 MCQ-28, 49, 62 Para-9, 14	SCQ-11, 12, 13
Calcination/ Roasting	5, 15, 19, 41, 45, 56, 64	SCQ-10, 46, 59 MCQ-30, 32, 34, Para-2, 7 Integer-6, 7	MCQ-8
Reduction	13, 26, 31, 32, 46, 48, 50,	SCQ-5, 9, 11, 18, 36, 40, 41, 45, 54, 55, 60, 63, 67 MCQ-4, 5, 27, 29, 35, 38, 53, 55, 61, 63 A & R-1, 3, 4 Integer-12, 13, 14	SCQ-3 MCQ-9
Refining	3, 9, 37, 39, 44, 49, 53, 59,	SCQ-1, 2, 8, 16, 23, 47, 53 MCQ-14, 15, 22, 37 Integer-4, 5, 9	SCQ-5 MCQ-11 A & R-1, 2, 4
Extraction of Metals (Al/Ag/Sn/Fe/Cu/Zn/ Au/Mg/Na/Pb/)	11, 14, 20, 21, 22, 23, 33, 34, 36, 38, 42, 43, 52, 57, 61, 62, 65	SCQ-3, 6, 7, 13, 14, 15, 20, 21, 22, 24, 27, 29, 31, 33, 34, 35, 38, 39, 49, 50, 51, 52, 62 MCQ-9, 11, 12, 13, 17, 21, 23, 24, 25, 26, 39, 40, 41, 42, 43, 46, 47, 48, 58, 59, 60 Para-1, 3, 4, 6, 8, 13, 15 A & R-2 Integer-2	SCQ-2, 6, 8, 10 MCQ-1, 3, 6, 10
Mixed	4, 29, 40, 58, 60,	SCQ-56, 57, 58, 61, 66 MCQ-1, 7, 20, 33, 36, 50, 52, 54, 65 Para-5, 10, 11, 16 Integer-11, 17	SCQ-1, 7 MCQ-2, 12, 13

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Archives			
TOPIC	JEE MAIN	JEE ADVANCE	
Introduction		Fill in the blank-3 SCQ-10 MCQ-4	
Types of Metallurgy		MCQ-2	
Concentration	3, 10	Subjective-2	
Calcination/Roasting	5		
Reduction		Fill in the blank-2 SCQ-1, 5 MCQ-5	
Refining	4, 6		
Extraction of Metals (Al/Ag/Sn/Fe/Cu/Zn/ Au/Mg/Na/Pb/)	1, 2, 8,	Fill in the blank-1 SCQ-2, 3, 4, 7, 8, 11, 12, 13 MCQ-1, 6, Subjective-1, 6, 7, 8, 9	
Mixed	9	SCQ-6, 9 MCQ-3 Subjective-3, 4, 5	

## (Inorganic Chemistry)

**PROBLEM AND SOLUTIONS IN INORGANIC CHEMISTRY BY CENGAGE  
LEARNING PUBLICATION**
**Qualitative Inorganic Analysis**

TOPIC	JEE MAIN	JEE ADVANCE
Introduction	1,4,6,7,8,9,13,36,37,43,63,136	SCQ-62, 66, 67, 79, 80,97, 98, 106, MCQ-1, 2, 4, 13, 19, 22, 23, 26, 37, 38, 39, 40, 41, 42, 43, 45, 48, 52, 54, 67, 68, 78, 81, 84, 90, 94, Matrix Match-2, 4, 14, 29 Integer-20
Type of reaction	42,15,15,	
$\text{CO}_3^{-2}$	11,16,18,20,25	SCQ-11, 25, 31, 35, 40, 118 MCQ-108
$\text{HCO}_3^-$	16,25,22,26,48,	
$\text{SO}_3^{-2}$	17,22,28,30,97	SCQ-25, 31, 35, MCQ-77
$\text{S}^{-2}$	10,32,42,45,65,135	SCQ-1, 3, 7, 13, 25 MCQ-20, 33, 53 Integer-6, 14, 15, 26
$\text{I}^-$	2,31,44,89,	SCQ-4, 84, 113 MCQ-100
$\text{CrO}_4^{2-}$	5,27	SCQ-38, 50, 52, 53, MCQ-27 Integer-5
$\text{C}_2\text{O}_4^{-2}$	23,	SCQ-23, 36, 39
$\text{S}_2\text{O}_3^{-2}$	17,24,28,30,	SCQ-40 MCQ-89
$\text{Cr}_2\text{O}_4^{-2}$	27	SCQ-38 Integer-12
$\text{Cr}_2\text{O}_7^{-2}$	27, 117	SCQ-12, 43, 44, 99, 110 MCQ-63, 69 Integer-2, 17, 24
$\text{NO}_2^-$	29,41,46,49,	SCQ-95 MCQ-12, 64
$\text{CH}_3\text{COO}^-$	34,35,	SCQ-68,125 MCQ-24
$\text{SO}_4^{-2}$	39,96,	SCQ-32, 116,
$\text{NO}_3^-$	41,46,47,49,123,	SCQ-2, 24, 41, 95 MCQ-12, 25, 64 Integer-23
$\text{Cl}^-$	92,	SCQ-91, MCQ-32
$\text{PO}_4^{-3}$	94,	
$\text{BO}_3^{-3}$	1,19,128	SCQ-140 MCQ-18 Integer-18
$\text{Br}^-$	127	SCQ-87, 89, 90, 123, 130 Integer-32
$\text{MnO}_4^-$		SCQ-117 MCQ-70

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GROUP-I	59,60,73,74,75,79,80,87, 88,125,131,133,138	SCQ-10, 37, 45, 47, 48, 54, 73, 85, 108, 122, 124, 138 MCQ-8, 16, 29, 30, 34, 35, 50, 66, Para-2, 21, 23, 25 A & R-1 Integer-10, 13, 25
GROUP II	33,51,52,53,54,61,64,72, 85,86,90,112,114,115,121, 129,139,140	SCQ-5, 8, 9, 34, 69, 76, 82, 83, 88, 95, 100, 126, 131, MCQ-5, 17, 28, 80, 104, Para-10, 13, 14, 15, 16, 22 Integer-21
GROUP II-B		SCQ-59, 75, 114,
GROUP-III	67,68,69,70,71,91,100,101, 108,134,	SCQ-20, 28, 29, 58, 78, 86, 105, 107, 109, 120, 127, 128, 129, 132, 139 MCQ-51, 73, 76, Para-3, 4, 6, 9, 18, 27 Integer-16, 33, 34
GROUP-IV	6,26,67,77,88,39,59,91	SCQ-14, 17, 27, 46, 61, 65, 70, 77, 119 Para-7, 17, 33 Integer-29, 35, 36
GROUP-V	98, 120	SCQ-6, 16, 51, 57, 72, 74, 81,
GROUP-VI	78, 95, 99, 111,	SCQ-42, 55, 56, 63, 94 MCQ-3, 11, 15, 21,
GROUP-ZERO	81,82,106,137	SCQ-33, 94, 111, MCQ-72
MIXED	38,55,57,58,76,93,84	SCQ-19, 21, 22, 26, 49, 93, 96, 102, 104, 112, 115, 121, 133, 134, 135, 137 MCQ-6, 9, 10, 31, 36, 44, 45, 46, 47, 19, 56, 57, 58, 59, 60, 62, 65, 71, 74, 75, 79, 82, 83, 85, 86, 87, 88, 91, 92, 93, 95, 96, 97, 98, 99, 101, 102, 103, 105, 106, 107, 109, 110, 111 Para-1, 5, 8, 11, 12, 19, 20, 26, 28, 29, 30, 31, 34 A & R-2 Matrix Match-1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 Integer-1, 4, 7, 8, 9, 19, 22, 27, 28, 30, 31, 37,

## Archives

TOPIC	JEE MAIN	JEE ADVANCE
INTRODUCTION	6	SCQ-14,
$\text{CH}_3\text{COO}^-$		SCQ-3
$\text{Cr}_2\text{O}_7^{2-}$		SCQ-9
$\text{HCO}_3^-$		SCQ-10,
GROUP-I	1	SCQ-7, 15
GROUP-II		SCQ-1, 4, 5, 11, 12
GROUP-III	2, 4	Fill in the blank-1 SCQ-13 MCQ-2, 4
GROUP-IV		SCQ-16
MIXED	3, 5	SCQ-2, 6, 8, 17 MCQ-1, 3, 5 Para-1 A & R-1 Integer-1