Course Code: BCHY101L **Duration** : 90 Minutes **Slot:** D1+TD1

Max. Marks: 50

Course Name: Engineering Chemistry

Class Numbers: VL2024250106754, VL2024250106758, VL2024250106761, VL2024250106765, VL2024250106769, VL2024250106772, VL2024250106774 VL2024250106778, VL2024250106783, VL2024250106785, VL2024250106787 VL2024250106789

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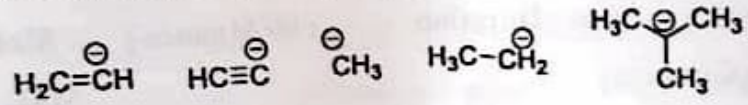
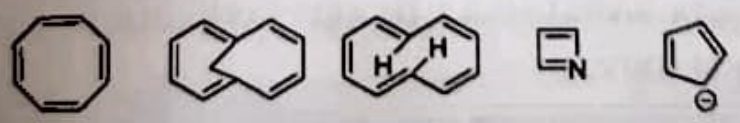
Q N	Answer ALL the questions (5 x 10 = 50 Marks)	Marks	CO	
1	Discuss any five different applications of co-ordination chemistry.	10	CO1	B
2	a) Applying VB theory, find the orbital hybridization, geometry and magnetic properties for $[CoX_6]^{3-}$ complex where X = CN and X = F b) Applying 18 e rule mention the stability of the compounds. $Co(\eta^5Cp)_2$, $[Rh(PPh_3)_3Cl]$ and $Fe_2(CO)_9$	(5 + 5)	CO1	B
3	a) Explain the function of Chlorophyll and the role of Mg in chlorophyll. b) Mention the structural features of hemoglobin and their role in biological system.	(5 + 5)	CO1	BI

4	a) Arrange the following carbocation's (I-V) in the order of increasing stability and justify your answer.  I II III IV V b) Arrange the following carbanions (I-V) in the order of increasing stability and justify your answer.  I II III IV V	(5+5)	CO1	BL3
5	State the Huckel's rule of aromaticity. Classify the molecules (I-V) as aromatic, non-aromatic, or anti-aromatic compounds with explanation. Write its stability order.  I III III IV V	10	CO1	BL2