VIT

Vellore Institute of Technology

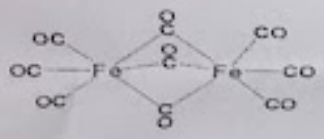
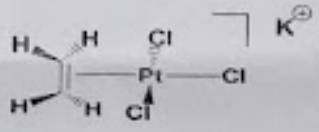
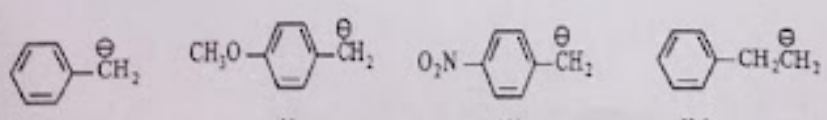
SCHOOL OF ADVANCED SCIENCES
Department of Chemistry
Winter Semester 2022-23

Continuous Assessment Test – I

Course Code: BCHY101L **Duration :** 90 Minutes **Slot** : B2+TB2
Course Name: Engineering Chemistry **Max. Marks :** 50

Class Numbers: VL2022230504479; VL2022230504481; VL2022230504617; VL2022230504619; VL2022230504622; VL2022230504549; VL2022230504551; VL2022230504553

Faculty Names: Dr.Buvaneswari G; Dr.Mary Saral A; Dr.Sangeetha D; Dr.Madhumitha G; Dr.Akhila Maheswari M; Dr.Asharani I.V; Dr.U. Vijayalakshmi; Dr.Thenmozhi K

Q. No.	Answer ALL the questions (5 X 10 = 50 Marks)	Marks	CO	BL
1	$[Fe(CN_6)]^{4-}$ is diamagnetic while $[Fe(CN)_6]^{3-}$ is paramagnetic. Analyse and justify by using the electronic configurations of the complexes and illustrate their hybridization, geometry and magnetic moments.	10	CO2	L1
2	(a) Predict the stability of the following compounds using EAN Rule:  and  (b) How could analysis of Ni^{2+} and Mg^{2+} be done using coordination complex formation?	(5 + 5)	CO2	L3
3	(a) How does the nature fix gaseous carbon dioxide and liquid water into solid starch using light source through a coordination compound? (b) Discuss the synthetic procedure with mechanism of a drug that helps in the treatment of cardiovascular disease.	(5 + 5)	CO2	L2
4	(a) Explain how to achieve aromaticity, non-aromaticity and anti-aromaticity from a cyclic seven membered hydrocarbon using suitable oxidation/reduction? (b) How a water insoluble dye has been used wisely to impart blue colour to jeans? Explain the chemistry involved in colouring procedure along with synthetic route for the dye.	(5 + 5)	CO2	L4
5	Interpret the order of stability of the following carbanions in right sequence along with suitable rationale. Further, discuss two factors influencing the carbanion stability in general with suitable examples.  I II III IV	10	CO2	L5