

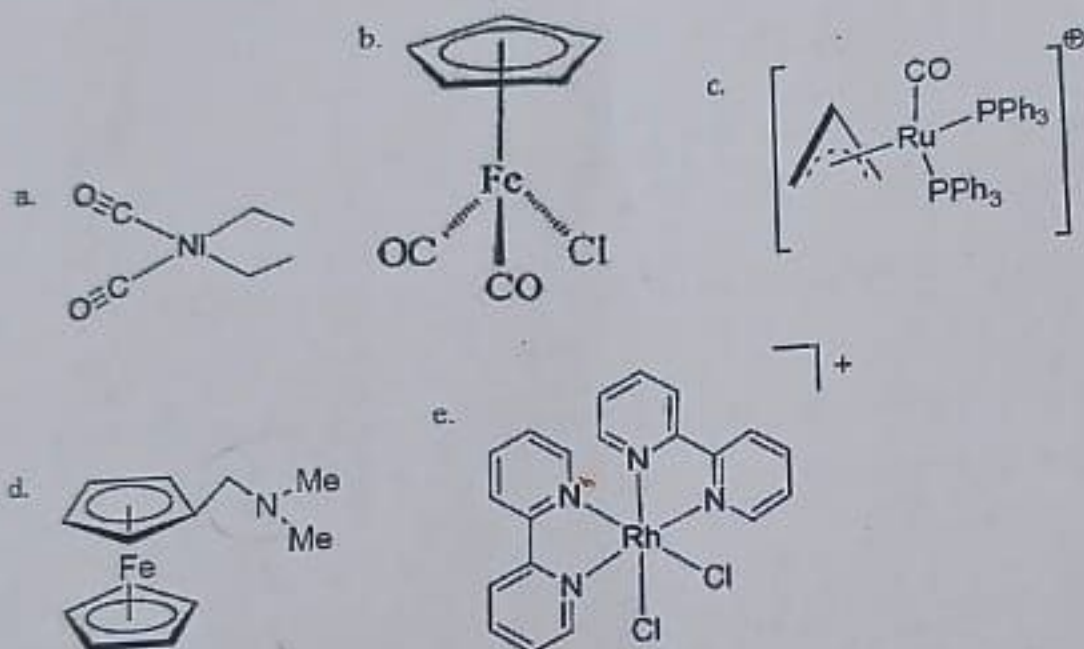


**VIT**  
Vellore Institute of Technology

**Final Assessment Test – Jan/Feb 2023**  
Course: BCHY101L - Engineering Chemistry  
Class NBR(s): 5231 / 5233 / 5235 / 5237 / 5244 / 5246 /  
5247 / 6080 / 7340  
Time: Three Hours  
Slot: B2+TB2  
Max. Marks: 100

KEEPING MOBILE PHONE/SMART WATCH, EVEN IN 'OFF' POSITION, IS TREATED AS EXAM MALPRACTICE  
Answer any TEN Questions  
(10 X 10 = 100 Marks)

1. Describe in detail how the Carnot reversible cycle converts the maximum amount of heat into work with the appropriate graph. [10]
2. Compare the stability of the complex based on the EAN rule. [10]



3. Describe the mechanistic pathway of formation of 4-(N-acetyl) aminophenol and its applications. [10]
4. Explain, in detail, how the addition of dye molecule improves the efficiency of a photoelectrochemical cell. Discuss the working mechanism with a neat diagram. [10]
5. Classify conducting polymers. Explain the methods to improve the conductivity of polyacetylene with a suitable mechanism. [10]
6. Describe Beer-Lambert's law. Illustrate the possible electronic transitions in UV-Visible spectroscopy with suitable applications. [10]
7. Describe the working, regeneration, merits, and demerits of the water softening process by ion exchange resin with a neat diagram. [10]
8. a) Explain the synthesis of nano silica by sol-gel method b) Give any two advantages and disadvantages of the bottom-up approach. [6+4]