



Three - .....

Chemistry (SRM Institute of Science and Technology)



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**PART - B (5 x 8 = 40 Marks)**  
Answer ALL the Questions

21 a. i) Write a short note on spectrochemical series? Explain the impact of ligands in the formation of high and low spin complexes with suitable examples. [6] 8 2 1 4

ii) What is Pairing energy (P)? Give the relation between crystal field splitting in octahedral complexes ( $\Delta_O$ ) and pairing energy (P). [2]

(OR)

b. i) Write a note on the geometrical isomerism exhibited by octahedral complexes. 8 2 1 1

ii) Aluminium occurs in nature as an oxide, whereas Platinum occurs as sulfide. Explain it on the basis of HSAB principle..

22 a. Derive Nernst equation and give its application towards emf determination by potentiometric titration. 8 2 2 1

(OR)

b. Explain in detail the mechanism with equations involved in dry corrosion. 8 2 2 2

23 a. Sketch the potential diagram and discuss in detail the conformational analysis of n-butane. 8 3 3 3

(OR)

b. Discuss elements of symmetry with an example for each. 8 3 3 4

24 a. i) Give the differences between addition and condensation reactions. 8 1 4 1

ii) Compare isotactic and syndiotactic polymers

(OR)

b. Explain in detail n and p doping in conducting polymers. 8 1 4 1

25 a. Explain the various regions in stress-strain graph with a neat diagram. 8 2 5 1

(OR)

b. Discuss on ceramic and metal matrix composites with examples. 8 2 5 3

**PART - C (1 x 15 = 15 Marks)**  
Answer ANY ONE Questions

Marks BL CO PO

26 Discuss in detail Pourbaix diagram of Iron system with a neat sketch. 15 4 2 3

27 a. What is the principle underlying in XPS? Give the merits and demerits of XPS analysis [8] 15 2 5 5

b. What is Bragg's Law? Prove  $n\lambda = 2d \sin\theta$ . [7]

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