

- (b) (i) Discuss the properties, refractoriness under load and thermal-spalling, of refractory materials. (8)
- (ii) With a phase diagram explain the characteristics of a two component eutectic alloy system. (8)
12. (a) (i) How are polypropylene, polyvinyl acetate, nylon 6 and teflon made?(8)
- (ii) Discuss the preparation, composition and application of any two molding compounds. (8)

Or

- (b) (i) What are polymer blends and polymer alloys? How do they differ? Mention their uses? (8)
- (ii) What are composite materials? Discuss the composition, fabrication and application of any one composite material. (8)
13. (a) (i) With a diagram explain the process of electrochemical machining. (8)
- (ii) Mention at least eight ways of controlling corrosion. (8)

Or

- (b) (i) Explain how an electrochemical sensor senses a signal and converts it to a electrical signal. (8)
- (ii) How is aluminum extracted by Electro-Winning process? (8)
14. (a) (i) Discuss any two methods of preparing pure metal by refining. (8)
- (ii) Mention the composition and uses of any four special alloys. (8)

Or

- (b) (i) Explain the gravity separation and magnetic concentration of ores. (8)
- (ii) How are the properties of metals / alloys improved by various Physical and chemical treatments. (8)

15. (a) (i) How are metal powders prepared for powder metallurgy. (8)
(ii) Discuss various compacting techniques involved in powder metallurgy. (8)

Or

- (b) (i) List the advantages of powder metallurgy. (8)
(ii) What are the final finishing operations given to articles made by powder metallurgy? (8)