

PART - B (5 × 16 = 80 Marks)

11. (a) Explain with a neat sketch of iron-iron carbide equilibrium diagram and indicate all the phases. Also write the three important invariant reactions. (16)

OR

- (b) Explain the various classification of steels and Cast Iron with microstructure, properties and applications. (16)

12. (a) What is hardenability ? How is Jominy end quench test used to measure hardenability ? (16)

OR

- (b) Explain TTT diagram with neat sketch and indicate all the phases with microstructure. (16)

13. (a) Discuss the properties and the applications of the following :
(i) Tool steels (ii) HSLA (8 + 8)

OR

- (b) Explain age hardening of Al-Cu with the help of phase diagram. (16)

14. (a) What is polymerization ? Explain addition polymerization and condensation polymerization with examples. (16)

OR

- (b) What is strengthening mechanism ? Explain the strengthening mechanism of fiber-reinforced composites. (16)

15. (a) Define hardness. Explain Brinell and Rockwell hardness test with neat sketches. (16)

OR

- (b) Explain the mechanism of plastic deformation by slip and twinning with neat sketches. (16)