



11. a) i) What are the steps involved in designing and manufacturing a product ? (6)
ii) What are the components of CIM ? (10)
(OR)
- b) Explain the following automation
i) Programmable (8)
ii) Flexible (8)
12. a) Write short notes on the following :
i) Aggregate production planning. (6)
ii) Master production planning. (5)
iii) Capacity planning. (5)
(OR)
- b) Explain the inputs to MRP and various MRP outputs. Also list the various benefits of MRP. (16)
13. a) i) List out the methods for part family formation. (12)
ii) Enumerate the role of GT in CAD/CAM integration. (4)
(OR)
- b) Discuss D CLASS and OPTIZ coding systems with suitable examples. (16)
14. a) i) What are the components of FMS ? (8)
ii) List and explain the various types of machines used in FMS. (8)
(OR)
- b) Discuss the functions, application, advantage and disadvantages of a FMS. (16)
15. a) Explain in details Robot Anatomy and its related attributes. (16)
(OR)
- b) i) Name some industrial Robot Applications. (6)
ii) Write short notes on Robot Programming and Lead through Programming. (10)
-