



Time: 3 Hours

Marks: 80

**Instructions:**

- (1) Question No.1 is compulsory and Answer 3 Questions remaining 5 Questions.
- (2) Assume suitable data wherever necessary
- (3) Concepts explanation with suitable case study justification
- (4) Diagram and sketches explanations are right to reserve full marks

**Q1 Answer Any Four Questions**

- A. Introduction of Flexible Manufacturing System (FMS) 20
- B. Write short note on Die and Punch of press tool design with neat sketches
- C. Transfer line machines
- D. Stripper and stock guide
- E. Selection of press tool machine

- Q2**
- a. A 100mm diameter hole is to be punched in a 6mm thickness steel plate, The material is cold rolled C40 steel for which the maximum shear strength can be taken as 550 MPa. With normal clearance on the tools, cutting is complete at 40% penetration of the punch. Give suitable diameters for the punch and die, shear angle on the punch in order to bring the work within the capacity of a 200KN press available in the shop 10
  - b. Define Jigs device and explain any three with sketches each 10
    - a) Clamping devices
    - b) Guiding devices
    - c) Draw any two locating elements of Jigs

- Q3**
- 1. Explain principle, construction, working, applications, advantageous and limitations of Electric Discharge Machining (EDM) 10
  - 2. Explain basics system of plastic molding feeding, cooling and ejection system 10

- Q4**
- 1. Design of skill, knowledge and computer control of Agile manufacturing systems 10
  - 2. Explain stock strip layout inner and outer diameter of washer 30mm and 50mm is to be cut and thickness of sheet metal was 2mm with sketches 10

- Q5**
- a) Explain principle, construction, working, applications, advantageous and limitations of Laser Beam Machining (LBM) 10
  - b) Explain Agile supply chain management principles, procedures, implementation in Production Process 10

**Q6 Answer Any Two Questions**

- A. A symmetrical cup of circular cross section with a 50mm diameter and 100mm having a corner radius of 2mm is to be obtained in C20 steel of 1mm thickness. Assume trim allowance 4mm Determine (i) Blank diameter (ii) Number of draws required to produce the cup (iii) Drawing pressure 10
- B. Explain Flexible Manufacturing System (FMS) with sketches 10
- C. Explain principle, construction, working, applications, advantageous and limitations of Abrasive Jet Machining (AJM) 10