

T.E. (Mechanical) (Sem-V) CBCS GS) (R-2012)

(3 Hours)

[Total marks: 80]

- N.B.:**
- (1) Question No.1 is **compulsory**.
  - (2) Attempt **any three** questions from remaining **six** questions
  - (3) Assume **suitable** data if **required**.
  - (4) Figures to the right indicate **full** marks

- Q.1 Explain **any five**:- 20
- (a) Feeding systems used in injection molds
  - (b) Plasma Arc Machining
  - (c) Drill bushes used in Jigs and Fixtures
  - (d) Role of IT/IS in Agile Manufacturing
  - (e) Differentiate between blanking and piercing with diagram
  - (f) Special Purpose Machines
- Q.2 (a) Find the total pressure and dimensions of die & punch sets to produce a washer of 5 cm outside diameter with 2.6 cm diameter hole, from material 3 mm thick, having shear strength 400 N/mm<sup>2</sup>. Take clearance 8% of stock thickness. 6
- (b) What is Oxy-fuel cutting process? Explain in detail with the help of diagram. 6
- (c) Discuss any 8 sheet metal operations with help of diagrams 8
- Q.3 (a) Write about different types of transfer machines using neat sketches. 10
- (b) Explain about Indexing mechanisms used in Jigs and Fixtures. Also explain Milling and Turning Fixtures with diagrams in detail. 10
- Q.4 (a) Write short notes on the following: 10
- (i) 6 Point Location principle for Jigs and Fixtures
  - (ii) Distinguish between Compound and Progressive die.
- (b) What is agile manufacturing? Explain its need. 10
- Q.5 (a) Explain the following: 10
- (i) Ultrasonic Machining
  - (ii) Different types of cooling systems used in plastic injection molds.
- (b) What are the different elements of a Sheet metal cutting press tool? Explain with the help of neat sketch. 10
- Q.6 (a) Write in detail about any five types of Jigs with neat sketches 10
- (b) Explain the following: 10
- (i) Design principles of clamping elements and any 3 types of clamps
  - (ii) Electro-chemical Machining