

22565

23124

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.

**Marks**

**1. Attempt any FIVE of the following :**

**10**

- (a) State the importance of shear angle in cutting.
- (b) List the applications of press working process.
- (c) List the cutting tool material with its application.
- (d) Define locating and clamping.
- (e) Define jig and fixture.
- (f) State the applications of stock stop and knockouts.
- (g) State the functions of bending die.

**2. Attempt any THREE of the following :**

**12**

- (a) Explain with neat sketch different types of chips formed in metal cutting.
- (b) Explain tool sharpening method for single point cutting tool.
- (c) Explain fool proofing with neat sketch.
- (d) Compare jig and fixture (any four points).



- 3. Attempt any THREE of the following : 12**
- (a) Describe spring loaded strippers with neat sketch.
  - (b) Describe metal forging dies.
  - (c) Explain the concept of die clearance in detail.
  - (d) Explain bush as locating device with neat sketch.
  - (e) Describe the following drawing operations :
    - (i) Embossing
    - (ii) Coining
- 4. Attempt any TWO of the following : 12**
- (a) Distinguish between orthogonal cutting and oblique cutting.
  - (b) Explain with neat sketch tool holder used in milling machine for spur gear manufacturing.
  - (c) Suggest and draw clamping devices for following :
    - (i) Drilling machine table
    - (ii) Milling machine table
- 5. Attempt any TWO of the following : 12**
- (a) Explain with neat sketch jig used in drilling machine.
  - (b) A steel component 20 mm × 60 mm is to be made from 2 mm thick sheet. Sketch the scrap strip layout. Also determine percentage of stock used.
  - (c) Explain the following with neat sketch for forging die :
    - (i) Draft
    - (ii) Corner radii
    - (iii) Fillet
- 6. Attempt any TWO of the following : 12**
- (a) Explain with neat sketch fixture used in milling machine.
  - (b) A washer is to be made from press tool. Suggest the relevant die and explain with neat sketch.
  - (c) Explain procedure for calculation of centre of pressure with suitable example.
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