

22565

12425

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.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define term 'Chip Thickness Ratio'.
- (b) State any four applications of ceramics.
- (c) State the function of clamping device.
- (d) Define term Jigs and Fixtures.
- (e) State the importance of centre of pressure.
- (f) Name the various types of drawing dies.

2. Attempt any THREE of the following :

12

- (a) Differentiate between orthogonal and oblique metal cutting process (any 4 points).
- (b) Enlist the properties of cutting tool material.



- (c) Explain the construction of solid heel clamp with neat sketch.
- (d) Explain with neat sketch the importance of “Scrap Strip Layout”.

3. Attempt any THREE of the following :

12

- (a) Explain 3-2-1 principle of location with neat sketch.
- (b) Classify Jigs.
- (c) List different types of strippers. Draw any one stripper with neat sketch.
- (d) Describe the following drawing operations :
 - (i) Embossing
 - (ii) Bulging

4. Attempt any TWO of the following :

12

- (a) Draw cutting tool geometry of single point cutting tool. Write the standard values of single point cutting ‘Tool Signature’.
- (b) Explain in detail ‘Tool Sharpening method for single point cutting tool’.
- (c) Explain following terms :
 - (i) Centre of pressure
 - (ii) Die block
 - (iii) Die shoe

5. Attempt any TWO of the following :

12

- (a) Explain term degree of freedom. State its importance while selecting, locating and clamping devices.
- (b) Draw neat sketch of boring jig. State the principles considered in designing boring jigs.

- (c) Calculate the press tonnage for given figure (1). Strip thickness is 2 mm and shear stress of the material is 400 N/mm^2 .

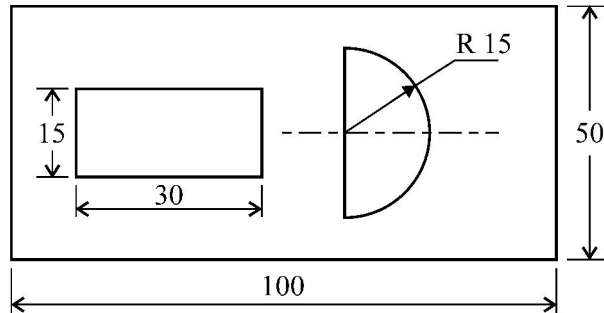


Figure – 1

All dimensions are in mm.

6. Attempt any TWO of the following :

12

- Explain the design considerations and procedure for Jigs and Fixtures.
- Draw general assembly sketch of 'Progressive die', showing all components.
- Determine developed length of part showing in figure (2). Assume $K = t/3$.

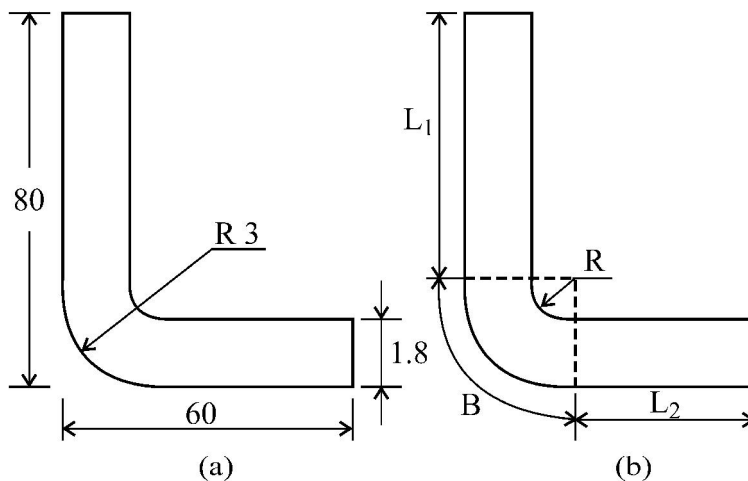


Figure – 2

All dimensions are in mm.

