

17403

11920

3 Hours / 100 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. a) Attempt any SIX of the following: **12****
- (i) List four hand tools used in forging.
- (ii) Enlist four press components used in automobiles.
- (iii) State four advantages of welding.
- (iv) List four mechanical and chemical cleaning processes.
- (v) List application of seam welding.
- (v) State functions of the programming codes:
- (1) G 01
- (2) G 90
- (vi) State four advantages of CNC machines over conventional machines.
- (vii) Explain the term 'Draft' related to forging.

P.T.O.

b) Attempt any TWO of the following:

- (i) State four advantages and limitations of forging.
- (ii) Compare drop forging and press forging.
- (iii) Draw simple labeled sketch showing forging sequence for manufacturing crank shaft.

2. Attempt any FOUR of the following:**16**

- a) Classify forging processes.
- b) Draw simple labeled sketches showing forging sequence for manufacturing Gears.
- c) Explain construction and working of combination die with neat sketch.
- d) Name four die accessories and write their functions.
- e) Specify a press size required for sheet metal work.
- f) Explain Drawing operation on press with neat sketch.

3. Attempt any FOUR of the following:**16**

- a) Explain Blanking operation on press with neat sketch.
- b) Compare Brazing and Soldering on basis of :
 - (i) Temperatures used
 - (ii) Filler material
 - (iii) Joint strength
 - (iv) Applications.
- c) Explain with neat sketch method of welding used in manufacturing sheet metal roofs and doors of automobiles.
- d) Classify welding processes.
- e) List types of gas flames used in Oxy-acetylene welding. Write their characteristics and applications.
- f) Sketch and explain a progressive die used to make a washer.

- 4. Attempt any FOUR of the following:** **16**
- a) Explain TIG (GTAW) welding process with neat sketch.
 - b) Compare Electroplating and Galvanizing.
 - c) Describe Abrasive blast cleaning process with neat sketch.
 - d) Explain micro finishing process used to correct hole geometry in component.
 - e) Name four components of CNC machine and write their functions.
 - f) Classify CNC machines.
- 5. Attempt any FOUR of the following:** **16**
- a) Differentiate between CNC and DNC machines.
 - b) Describe incremental programming method with suitable example.
 - c) Name the various tools used on CNC turning centre. Explain any one in detail.
 - d) Explain any four reference position used on CNC machines.
 - e) Draw and explain axis configuration as per ISO, for horizontal spindle CNC machines.
 - f) State the principle used in lapping. List four applications of lapping.
- 6. Attempt any TWO of the following:** **16**
- a) (i) Compare open die forging and close die forging.
(ii) Explain with neat sketch process of drop forging.

- b) Write part program for a component shown in Figure No.1 on a CNC milling machine. Use feed rate=0.2mm/rev, Speed=600rpm. Assume the suitable data if necessary.

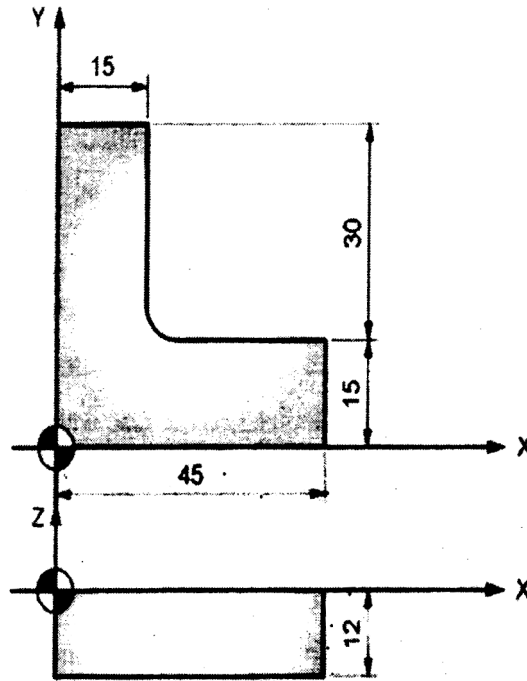


Fig. No. 1

- c) Write a part program for component shown in Figure No. 2 on CNC lathe machine. Use feed rate=0.2mm/rev, Speed=1500rpm. Assume the suitable data if necessary.

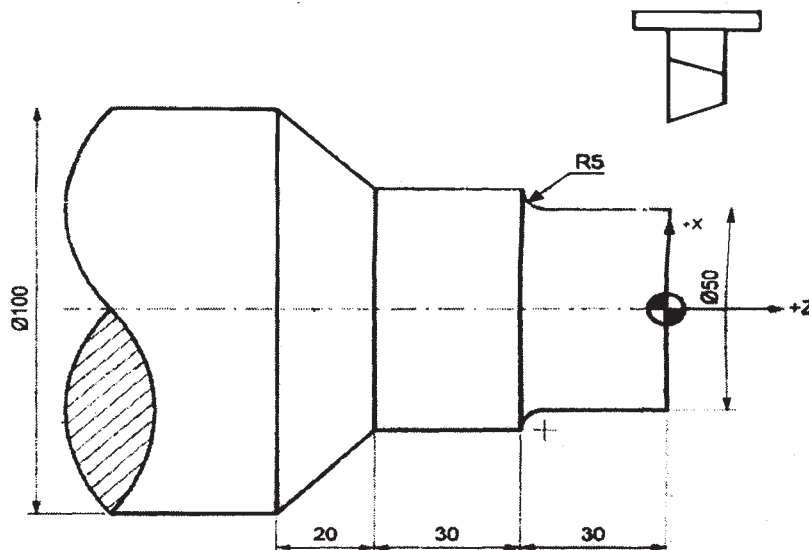


Fig. No. 2