

12100

11122

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) 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. a) Attempt any **SIX** of the following: **12**
- (i) Name two parts manufactured by forging.
- (ii) Name four parts of standard die set.
- (iii) Name and sketch the types of flames in gas welding.
- (iv) List any four surface finishing processes.
- (v) Give any four applications of seam welding.
- (vi) State the meaning of following CNC codes:
G41 G94 G00 G17
- (vii) Classify CNC based on coordinate system.
- (viii) State any four modal G codes.

P.T.O.

b) Attempt any **TWO** of the following:

8

- (i) Draw a simple cutting die and label all the parts.
- (ii) State the need of surface finishing operations.
- (iii) Explain the various programming formats.

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

16

- a) What are the advantages of press forging over drop forging?
- b) A washer with a 12.7mm internal hole and an outside diameter of 25.4 mm is to be made from 1.5 mm thick strip of 0.2% carbon steel. Consider an elastic recovery of 0.05 mm, find:
 - (i) the clearance
 - (ii) blanking die opening size
 - (iii) blanking punch size
 - (iv) punch size.
- c) Explain the forging operations in sequence to forge a spanner.
- d) Explain the following press operations with sketches:
 - (i) Piercing
 - (ii) Perforating
- e) Compare between fixed and spring loaded stripper.

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

16

- a) What are pilots? State the types of pilots.
- b) Explain with sketch how clearance is provided on punch and die.
- c) Sketch and explain a progressive die to make a washer.
- d) Give the detailed classification of presses.
- e) Explain electroplating as surface treatment process.
- f) Compare between open loop and closed loop control system.

4. Attempt any **FOUR** of the following: 16
- Give advantages of CNC over NC machines.
 - Explain the process of honing with sketch.
 - With the help of a sketch explain the use of absolute and incremental system.
 - Give the classification of welding process.
 - Explain TIG welding process with sketch.
 - Explain the sequence of operation for forging of a connecting rod with sketches.
5. Attempt any **FOUR** of the following: 16
- What are the benefits of resistance welding over arc welding?
 - Differentiate between brazing and soldering.
 - Explain axis identification on CNC milling machine.
 - What are the limitations of forging?
 - List the various processes used for surface cleaning. Explain any one.
6. Attempt any **TWO** of the following: 16
- Write a part program to drill the holes shown in Fig. No. 1.

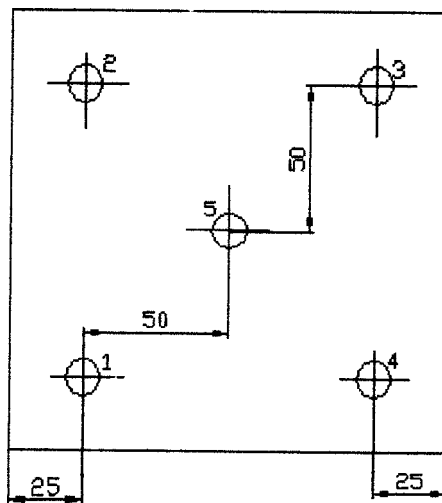


Fig. No. 1

- b) Compare between the following codes in brief:
- (i) G02 and G03
 - (ii) G94 and G95
 - (iii) G41 and G42
 - (iv) M02 and M30
- c) Write a part program for the component shown in Fig. No. 2. on a CNC lathe.

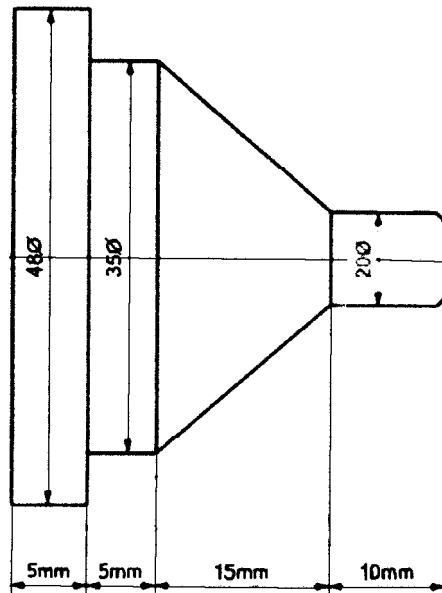


Fig. No. 2

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