

17403

21819

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (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) State different methods by which forged components can be made.
- (ii) Enlist the different materials used in press work for automobile application.
- (iii) State any four applications of resistance welding.
- (iv) List various types of flames used in gas welding.
- (v) List various surface cleaning processes.
- (vi) List any four G codes, give their meaning.
- (vii) Give the classification of CNC machines according to number of axes.
- (viii) Define forgeability. Name any two materials that are used in forging.

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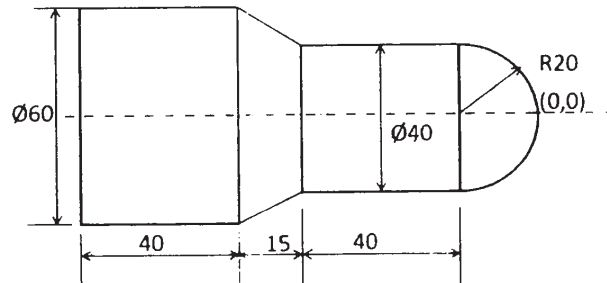
- b) **Attempt any TWO of the following:** **8**
- (i) State various advantages and limitations of forging processes.
 - (ii) Explain forging process used to manufacture the spanners.
 - (iii) Differentiate between open die forging and close die forging.
2. **Attempt any FOUR of the following:** **16**
- a) Give detail classification of forging processes.
 - b) Explain press forging with neat sketch.
 - c) Draw the neat sketch of fly press. Give the functions of important parts of it.
 - d) Explain blanking and piercing operation performed by press.
 - e) State the functions of the following die accessories pilots, stops, strippers, pressure pad.
 - f) Give detail classification of presses.
3. **Attempt any FOUR of the following:** **16**
- a) Draw neat sketch of compound die, showing various parts of it.
 - b) Give detail classification of welding. State important factors upon which selection of welding process depends.
 - c) Differentiate between brazing and soldering.
 - d) Explain the working principle of MIG welding with neat sketch.
 - e) With neat sketch explain the features of oxidizing flame and carburizing flame.
 - f) Draw neat sketch showing various parts of die set.

- 4. Attempt any FOUR of the following: 16**
- a) Explain the working principle of resistance welding, with neat sketch.
 - b) State the advantages and limitations of honing process.
 - c) Explain the working principle of galvanizing process. Give its application also.
 - d) Explain how tumbling process is used to clean the surfaces.
 - e) State the various advantages and limitations of CNC machines.
 - f) Differentiate between conventional machines and CNC machine (minimum four points each).
- 5. Attempt any FOUR of the following: 16**
- a) With neat sketch explain the working principle of CNC machines.
 - b) Explain absolute and incremental co-ordinate system, with suitable example.
 - c) State the significance of 'M' codes in CNC part programming. State any four 'M' codes and give their functions.
 - d) Describe procedural steps for developing CNC part programme.
 - e) What are the 'canned cycle' in CNC part programming? How they are useful? Give suitable example of canned cycle.
 - f) Differentiate between Lapping and Buffing processes.

6. Attempt any TWO of the following:

16

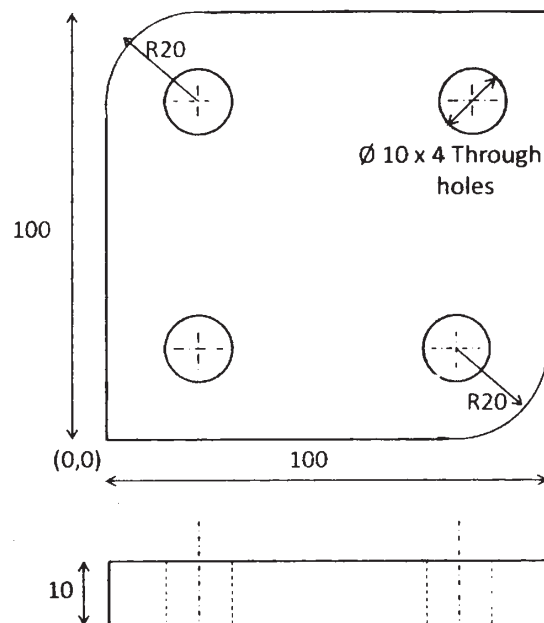
- a) Write the CNC part programme for turning the component as shown in Fig. No. 1. Assume suitable data required.



All dimensions are in mm;
Assume Suitable Data

Fig. No. 1

- b) Write the CNC part programme for matching the holes in the components, as well as for finishing its all sides by CNC milling machine. Assume suitable data.



All dimensions are in mm;
Assume Suitable Data

Fig. No. 2

- c) Explain constructional features, and working of progressive die. Also state the functions of any four parts of progressive die.