

22439

**11920**

**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.

**Marks**

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

**10**

- (a) Define forging.
- (b) List four automotive components manufactured by Press Work.
- (c) State any four names of die accessories.
- (d) List four advantages of Welding.
- (e) Enlist four factors affecting selection of cleaning process.
- (f) Sketch axis orientation for VMC.
- (g) Sketch axis orientation for CNC lathe.

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

**12**

- (a) Draw flatter and fuller. State its use in forging.
- (b) Draw a neat labelled sketch of fly press.
- (c) Explain the resistance spot welding process with neat sketch. State its two advantages and disadvantages.
- (d) Describe Absolute and Incremental co-ordinate system with suitable example.

- 3. Attempt any THREE of the following :** **12**
- (a) Compare drop forging and press forging process.
  - (b) Explain with sketch construction and application of progressive die.
  - (c) Classify press and give their application.
  - (d) Discuss functions of flux used in welding. Identify properties of material suitable for flux and state two materials used as flux.
- 4. Attempt any THREE of the following :** **12**
- (a) Select and sketch the forging sequence for manufacturing connecting rod.
  - (b) Explain the Shielded Metal Arc Welding (SMAW) process with neat sketch. State its two advantages and disadvantages.
  - (c) Compare Brazing and soldering processes on basis of (i) Working temperature, (ii) filler material, (iii) flux used and (iv) applications.
  - (d) Describe with sketch the surface treatment process used to built-up worn-out metal components of automotive engines.
  - (e) Explain any four reference positions used on CNC machines with suitable example.
- 5. Attempt any TWO of the following :** **12**
- (a) Sketch and describe the following press operations :
    - (i) Punching
    - (ii) Shearing and
    - (iii) trimming
  - (b) List microfinishing process. Select and explain the microfinishing process to obtain correct hole geometry.
  - (c) Justify use of tool inserts. State the materials used for inserts. Identify the parameters of insert designated as  
C – N – M – G – 12 – 04 – 08 as per ISO.

6. Attempt any TWO of the following :

12

- (a) Develop a part program to manufacture a component as shown in Fig. 1 on a CNC lathe machine

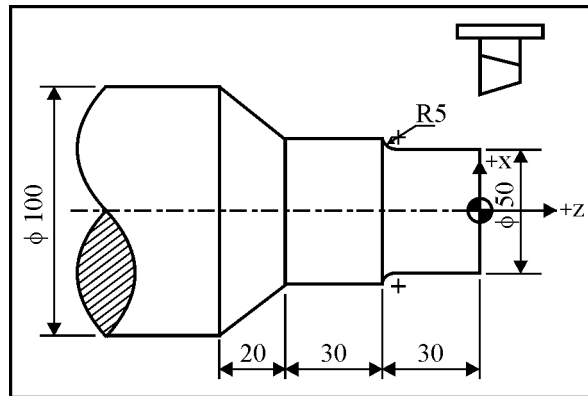


Fig. 1

- (b) Develop a part program to manufacture a component as shown in Fig. 2 on a CNC milling machine.

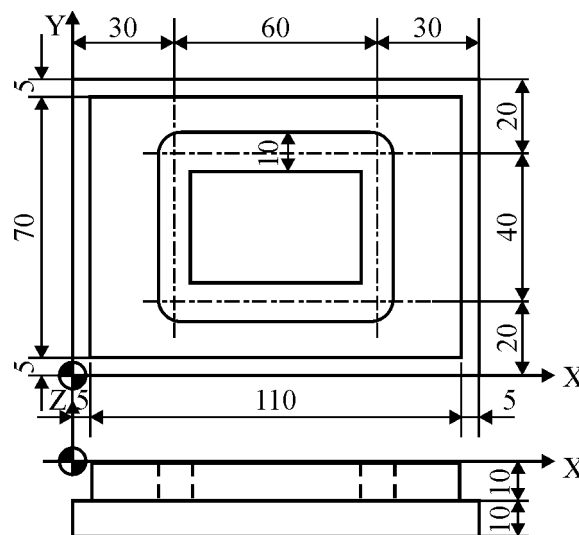
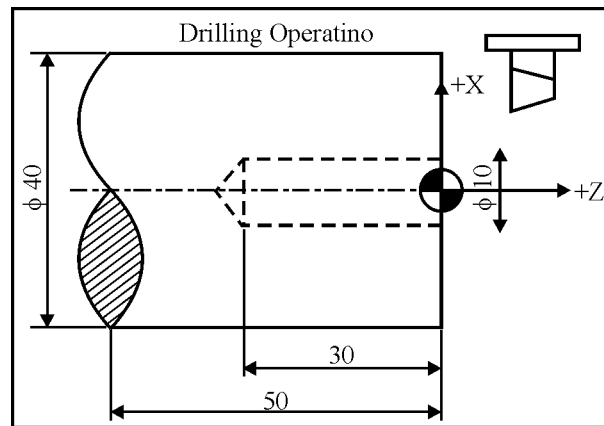


Fig. 2

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- (c) State functions of ATC. Develop a part program to manufacture a component as shown in Fig. 3 on CNC lathe machine.



**Fig. 3**

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