

312313

25226

3 Hours / 70 Marks

Seat No.

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|

- 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 lip angle & clearance angle for a single point cutting tool.
- (b) State any four operations that can be performed on the lathe.
- (c) State the function of dividing head of a milling machine.
- (d) Give classification of milling machines.
- (e) State any four materials used for pattern making.
- (f) Define welding process.
- (g) State any four common defects found in welding joints.



**2. Attempt any THREE of the following : 12**

- (a) Explain thread cutting operation on lathe machine with neat sketch.
- (b) Compare hot rolling with cold rolling process. State any four points.
- (c) Explain the difference between Up-milling and Down-milling with neat sketch.
- (d) Explain the upset forging operation with neat sketch.

**3. Attempt any THREE of the following : 12**

- (a) Explain any four properties of Moulding sand.
- (b) Explain centrifugal casting method with neat sketch.
- (c) Calculate the machining time required for drilling 4 holes of 16 mm diameter each on a flange of 30 mm thickness.
- (d) Explain in brief the principle of compound indexing. When is it used ?

**4. Attempt any THREE of the following : 12**

- (a) Explain investment casting process with neat sketch.
- (b) State any four casting defects with their causes & remedies.
- (c) Explain Bending Forging operation with neat sketch.
- (d) Explain three high rolling mill with neat sketch.
- (e) State advantages and disadvantages of brazing process (any 4 points).

**5. Attempt any TWO of the following :****12**

- (a) Calculate the time required for one complete cut on a workpiece of 50 mm diameter and having a length of 350 mm. The cutting speed is 35 mm/minute and the feed is 0.5 mm per revolution.
- (b) Explain the plain milling, straddle milling and gang milling operations carried out on milling machine with neat sketch.
- (c) Explain the Gas shielded metal arc welding with neat sketch & state its advantages.

**6. Attempt any TWO of the following :****12**

- (a) Draw a neat labelled sketch of sensitive drilling machine and state functions of its different parts.
  - (b) Draw a neat sketch of plain horizontal column & knee type milling machine & label the following components & also state their functions :
    - (i) Column                      (ii) Spindle
    - (iii) Knee                      (iv) Saddle
  - (c) Differentiate between MIG and TIG welding (any six points).
-

