

22456

12425

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) Abbreviations used convey usual meaning.
 - (6) Assume suitable data, if necessary.

Marks

1. Answer any FIVE :

10

- (a) State the function of register ring in injection mould.
- (b) Name any four non-ferrous metals.
- (c) Enlist the components of lathe machine.
- (d) Enlist any four operations performed on milling machine.
- (e) State the necessity of heat treatment.
- (f) Define "Case hardening".
- (g) State the necessity of inspection of all mould components.

2. Answer any THREE :

12

- (a) Describe the construction and state function of guide pillar and guide bush in injection mould with a diagram.



- (b) (i) Describe medium carbon steel. 3
- (ii) List out any two important properties of medium carbon steel. 1
- (c) Explain up milling and down milling process with a diagram.
- (d) Describe nitriding as a case hardening process.
- 3. Answer any THREE : 12**
- (a) Describe construction and working of surface grinding machine.
- (b) Write constructional features of jig boring machine.
- (c) Explain the heat treatment process for improving the hardness of a guide bush.
- (d) Explain direct bolting method for attachment of mould to platen with a diagram.
- 4. Answer any THREE : 12**
- (a) Explain two types of runner cross sections with a labelled diagram.
- (b) State any four properties and applications of sheet metal.
- (c) Suggest the material for following mould components :
- (i) Guide pillar
- (ii) Core plate
- (iii) Register ring
- (iv) Sprue bush
- (d) Differentiate between conventional machining and modern machining giving at least four points.
- (e) Describe emery polishing for core plate finishing.

- 5. Answer any TWO :** **12**
- (a) (i) Enlist types of bolsters **2**
 - (a) (ii) Describe the construction of any one bolster with a labelled diagram. **4**
 - (b) (i) Explain beryllium – copper alloy for mould making. **4**
 - (b) (ii) Write its limitations. **2**
 - (c) Describe construction and working of EDM wire cut machine with a diagram.
- 6. Answer any TWO :** **12**
- (a) Describe construction and working of column and knee type vertical milling machine with a diagram.
 - (b) Describe the heat treatment process where carbon and nitrogen gases are used for surface hardening.
 - (c) Explain the step wise bench fitting process with a diagram.
-

