

17306

21718

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. Attempt any TEN of the following :

20

- (a) Define elasticity and malleability of materials.
- (b) Name any two corrosive metals which are added in any metals.
- (c) State the meaning of 35 Mn 6 Mo 3.
- (d) What are the types of cutting tools ? Give two examples of each.
- (e) State the purpose of normalizing.
- (f) Give the four applications of ABS.
- (g) Define the term casting.
- (h) What are the different types of foundries ?
- (i) Write any four types of drilling machine.

- (j) List the different polymeric materials.
- (k) List the various operations performed on lathe machine.
- (l) State the classification of milling machine.

2. Attempt any FOUR of the following :

16

- (a) Name the various alloys of copper and comment on their importance in industry.
- (b) What is thermosetting plastics ? List the various four non-metals used in industry with their applications.
- (c) What is heat treatment ? What is the purpose of heat treatments on steel ?
- (d) Explain with neat sketch hot chamber die casting.
- (e) With neat sketch, show the single point cutting tool nomenclature.
- (f) Differentiate between end milling and face milling with neat sketch.

3. Attempt any FOUR of the following :

16

- (a) State the compositions and properties of tool steel.
- (b) Draw the iron carbon equilibrium diagram showing various phases and critical temperatures.
- (c) Explain with suitable sketch gang milling operation.
- (d) State the different properties required in moulding sand.
- (e) Write the procedure of heat treatment used for gears.
- (f) What is composite materials ? State its properties.

4. Attempt any FOUR of the following :**16**

- (a) State the advantages and disadvantages of centrifugal casting.
- (b) Differentiate between orthogonal and oblique cutting with neat sketch.
- (c) State the common defects in casting. State their causes and remedies of any one of them.
- (d) Explain the green sand moulding process used for making mould.
- (e) Write the standard accepted colour codes used for pattern.
- (f) What are different pattern materials ? State any four factors for the selection of pattern materials.

5. Attempt any FOUR of the following :**16**

- (a) What is the working principle of milling machine ? Explain with neat sketch.
- (b) Explain with neat sketch the straddle milling operation.
- (c) What are the different allowances provided on pattern ?
- (d) Write the compositions and applications of babbit materials.
- (e) Explain the mechanism of chip formation during metal cutting.
- (f) State any four accessories used on lathe. Explain with neat sketch the use of face plate.

P.T.O.

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

16

- (a) What is the purpose of tempering and how it is done ?
 - (b) What is alloy steel ? Classify it broadly.
 - (c) What is the purpose of gating system in case of casting ? Explain with neat sketch.
 - (d) What is the working principle of lathe ? How lathe machine is specified ?
 - (e) What is case carburizing ? Give four applications of case carburizing.
 - (f) Explain the taper turning method by swivelling the compound rest method.
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