

17402

16172

3 Hours / 100 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.
(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. a) **Attempt any SIX of the following:** **12**
- (i) State the working principle of closed die forging.
 - (ii) State any four applications of rolling.
 - (iii) Name any four operations that are performed on press.
 - (iv) What is forming? Name any two forming operations.
 - (v) Name any four types of patterns.
 - (vi) Enlist the different tools used to manufacture the patterns.
 - (vii) State the working principle of casting.
 - (viii) What are the important properties of moulding sand?
- b) **Attempt any TWO of the following:** **8**
- (i) Differentiate between soldering and brazing.
 - (ii) State the various important parts of a lathe and give their functions.
 - (iii) State any four important properties of plastics.

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- 2. Attempt any FOUR of the following:** **16**
- a) Enlist the factors which should be considered while selecting an appropriate press for a given job.
 - b) Explain construction of compound die with neat sketch.
 - c) With neat sketch explain drawing process.
 - d) Explain colour coding system used in pattern making.
 - e) List the various types of moulding sand and explain the important characteristics of any one type of moulding sand.
 - f) With neat sketch, explain the working of electric arc furnace used in casting.
- 3. Attempt any FOUR of the following:** **16**
- a) Differentiate between direct extrusion and indirect extrusion.
 - b) With neat sketch explain upset forging operation.
 - c) Draw neat sketch showing various elements of gating system and state the functions of various elements on it.
 - d) Explain submerged arc welding with neat sketch.
 - e) Draw the neat sketch showing important parts of radial drilling machine and state the function of any four parts.
 - f) Explain the terms cutting speed, feed and depth of cut as related to drilling operation.
- 4. Attempt any FOUR of the following:** **16**
- a) Explain the working principle of cluster rolling mill with neat sketch.
 - b) Explain direct extrusion with neat sketch. State any two benefits of direct extrusion.
 - c) Enlist the various steps involved in soldering operation.
 - d) State the advantages and limitations of brazing.
 - e) With neat sketch explain the working principle of TIG welding.
 - f) Explain the working principle of compression moulding used for the forming of plastics.

- 5. Attempt any FOUR of the following:** **16**
- a) State various forging operations and explain any one with sketch.
 - b) Differentiate between hot rolling and cold rolling processes.
 - c) Draw a neat sketch of simple cutting die, showing various dieset components.
 - d) Give detail classification of presses.
 - e) State the possible causes and remedies for the following casting defects:
 - (i) Blow holes
 - (ii) Shifts
 - f) State and explain any two die casting defects with their causes and remedies.
- 6. Attempt any TWO of the following:** **16**
- a) Define Taper. List the various taper turning methods and explain the working principle of any one taper turning method with neat sketch.
 - b) Explain following welding defects with their causes:
 - (i) Insufficient fusion
 - (ii) Porosity
 - (iii) Spatter
 - (iv) Undercut
 - c) Explain blow moulding process with neat sketch. State its advantages, limitations and applications also.
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