



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 140409**

Roll No.

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## B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15  
MANUFACTURING SCIENCE & TECHNOLOGY - I

Time : 3 Hours]

[Total Marks : 100

**Note :** Attempt all questions as per instructions.

1 Attempt any four questions : **5×4=20**

- (a) What is manufacturing ? How will you classify manufacturing processes ? Give suitable example of products being made by manufacturing process.
- (b) Describe the importance of manufacturing for economic and technological considerations.
- (c) List various types of presses used in forging. Explain any one of them with neat sketch.
- (d) Derive the expression for pressure distribution in forging of a rectangular block under sliding friction condition.

- (e) Explain Tresca's and Von Mises yield criteria. Derive the relation for shear yield stress and tensile yield stress and for Tresca and Von–Mises criteria.
- (f) What is cold working and hot working processes ? Indicate advantages and disadvantages of each. Also compare cold working and hot working process.

**2** Attempt any two questions : **10×2=20**

- (a) Obtain in expression (relation between drawing stress and tensile yield stress) for wire drawing with friction.
- (b) List and explain different defects in rolling process. Also list their causes and remedies.
- (c) Describe briefly hot and cold extrusion processes. List some common defects in extrusion process and how are they caused ?

**3** Attempt any two questions : **10×2=20**

- (a) Describe in detail the classification of presses. Elaborate any one type in detail with neat sketches.
- (b) How does compound die differ from progressive die ? Giving a neat sketch, describe constructional features and working of a compound die.
- (c) What is deep drawing ? Discuss deep drawing operation in detail. Also list and explain different defects in deep drawing operation.

**4** Attempt any two questions : **10×2=20**

- (a) What is a centrifugal casting ? Explain different types of centrifugal casting methods.
- (b) What are the common casting defects ? What causes of them and what are the measures that can be taken to avoid them ?
- (c) Explain all the type of moulding sand and discuss briefly additives added to moulding sand to improve its moulding properties.

**5** Attempt any two questions : **10×2=20**

- (a) How are powder-metallurgy components manufactured ? Discuss various steps involved.
  - (b) Differentiate between jigs and fixtures. Discuss the principle of locating and clamping a work piece with neat sketches.
  - (c) Explain the process of Electromagnetic forming. What are its advantages ? Indicate some typical applications.
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