Printed Pages : 3

NME402

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

PAPER ID : 140409

Roll No.

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.
