Printed Pages : 1 **Roll No.** | | | | | | | | | | | **EME405**

B.TECH.
THEORY EXAMINATION (SEM–IV) 2016-17
MANUFACURING TECHNOLOGY

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Explain the following: **10 x 2 = 20**

(a) What is manufacturing? How it classify?

(b) Explain elastic and plastic deformation. What Factor affects plastic deformation?

(c) What are the advantages of open die and closed die process? OR Hot working V/S Cold working.

(d) Write short notes on Wire drawing and Deep drawing.

(e) What is extrusion?

(f) Explain rolling process with their types.

(g) Draw a sketch of die and punch assembly. What is the function of stripper plate?

(h) State the function of lubricant in metal forming process.

(i) Differentiate between jigs and fixture.

(j) Differentiate between thermoplastic and thermosetting plastic.

SECTION – B

2. Attempt any five of the following questions: **5 x 10 = 50**

(a) Derive an expression for pressure distribution in forging of rectangular block under sliding friction condition.

(b) Derive an expression for pressure distribution in forging of rectangular block under sticking friction condition.

(c) What are yield criteria? Explain with their expression. Also describe are relationship between shear yield stress and tensile yield stress.

(d) Derive an expression of drawing stress for wire drawing. OR Derive an expression for wire extrusion

(e) Derive an expression of radial stress during deep drawing of a cup and also give an expression in case prevent tensile facture at the bottom of the cup.

(f) What is centrifugal casting? What are the common casting defects occurs in casting process?

(g) State advantages and limitations of die casting and investment casting.

(h) What is pattern? Name the various allowances given on the pattern and why they are provided?

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3. (a) Describe properties of molding sand and explain elements of gating system.

(b) Briefly explain the Steps of powder metallurgy process and sintering,

4. (a) Show that exit to inlet area ratio of adown delivery sprue for avoiding aspiration is given by $R=A_3/A_2=\sqrt{(h2/h3)}$

(b) Prove that h/d ratio of the most compact economical riser for side placed riser is 1 and that for top placed riser is ½ and that in both cases ratio of volume/area is d/6.

5. (a) What do you mean by charging cupola? Explain with neat and clean sketch.

(b) Discuss CAINE's method for design of riser also describes some non destructive inspection method for casting.