USN | | | | | | | | | | 10MA54

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Manufacturing Process - III

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Give the broad classification of metal working process. List the advantages and limitations of metal working processes. **(10 Marks)**

b. Describe the characteristics of wrought products. **(04 Marks)**

c. Explain Tresca and Von – mises yield criteria. **(06 Marks)**

2 a. What is Deformation zone geometry? Explain the concept of true stress and true strain. **(10 Marks)**

b. Write a note on the effect of following parameters during metal working :
i) Temperature ii) Friction iii) Strain rate iv) Residual stresses
v) Lubrication. **(10 Marks)**

3 a. Classify forging processes. List the defects in forging **(10 Marks)**

b. Derive an expression for forging pressure and load in open die forging. **(10 Marks)**

4 a. List and explain different types of roll mills. **(10 Marks)**

b. Derive an expression for rolling load. **(06 Marks)**

c. List the defects in rolled products. **(04 Marks)**

PART – B

5 a. What is dead zone formation in extrusion process? Derive an expression for drawing load by slab analysis method. **(10 Marks)**

b. What are the different types of extrusion processes? With the help of neat sketch, explain seamless tube extrusion. **(10 Marks)**

6 a. Sketch and explain progressive die and open back inclined press in sheet metal forming. **(10 Marks)**

b. Differentiate between Piercing and Blanking. Sketch and explain rubber forming. **(10 Marks)**

7 a. Describe Die and Punch design parameters in deep drawing. List the defects in deep drawn products. **(10 Marks)**

b. With the help of neat sketch, explain explosive forming process. **(06 Marks)**

c. List the advantages and disadvantages of high energy rate forming. **(04 Marks)**

8 a. With the help of flow chart, explain the steps involved in making powder metallurgy parts. **(08 Marks)**

b. Explain the different methods used for the production of metal powders in powder metallurgy. **(08 Marks)**

c. List the application of powder metallurgy components. **(04 Marks)**

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