

B. MET. ENGG. SUPPLEMENTARY EXAMINATION, 2017
(4 th Year, 1 st Semester)

METAL WORKING PROCESS

Full Marks: 100

Time: Three Hours

The figures in the margin indicate full marks
(Answer any five questions)

1. How do you classify the forming processes? Give example in each case. Discuss the various factors which influence the metal forming process. 10+ 10=20

2. a) State the Yield criteria and its importance in metal working. Which criterion is more often used in design?
b) What are the characteristics of any manufacturing process and when metal forming process becomes attractive? 10+10=20

3. a) What do you understand by 'Fibre structure'? Explain with example the usefulness of such structure in forged m/c parts.
b) Discuss in brief the different types of equipments used in forging stating their advantages, limitations and applications. 5+15=20

4. Define 'Forgeability'. How 'Forgeability' is evaluated? Discuss the metallurgical factors affecting forgeability. How forgeability can be improved? 20

5. a) Discuss the mechanism of bite and comment on the role of friction in rolling.
b) The upper and lower limit of hot working temperature should be selected judiciously - Explain.
c) It is not possible to reduce thickness of a strip below a certain limit - Justify. 8+7+5=20

6. Describe with neat sketches the classification of rolling mill. State their advantages, limitations and applications. 20

7. Distinguish between: 5x4=20
 - a) Hot working and cold working
 - b) Drawability and Forgeability
 - c) Direct extrusion and Indirect extrusion
 - d) Front Tension and Back tension

8. Write notes on (any four) 5x4=20
 - a) Orange peel effect
 - b) Rolling Defects
 - c) Extrusion Ratio
 - d) Variables in wire drawing
 - e) Stamping in Rotary swaging machine
 - f) Manufacture of Seamless Pipes and Tubes