

B.E. Mechanical Engineering (Model Curriculum) Sem-V
PCCME303 : Manufacturing Processes

P. Pages : 2

Time : Three Hours



GUG/W/22/14070

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
 3. Assume suitable data wherever necessary.
 4. Due credit will be given to neatness and adequate dimensions.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. Diagrams and Chemicals equation should be given wherever necessary.

1. a) Define Metal Cutting. What are the important characteristics of materials used for cutting tools? How do you define tool life? 8
- b) Write the factors affecting the tool life or write the Taylor's tool life equation. What are the differences between orthogonal cutting and oblique cutting. 8

OR

2. a) List out the types of chips? What is the function of chip breakers? What are the sources of heat generation in machining? 8
- b) Explain the action of cutting fluids. Enumerate the types of cutting fluids and mention the composition and applications any three types. 8
3. a) What is shrinkage? What are the causes of defects in a casting? How the defects can be eliminated? Explain any five defects in brief. 8
- b) What is a 'Sprue'? Why it is required? Explain elements of gating system with a simple casting design. 8

OR

4. a) Give a detailed classification of casting processes. 8
- b) Enlist properties of molding sand and describe the green sand molding process in detail. 8
5. a) Explain in detail, how cold working differs from hot working. 8
- b) Explain the terms 'Mechanical working' and 'Plastic flow' of metals. What do you understand by 'recrystallisation' and recrystallisation temperature? 8

OR

6. a) Explain the following cold working processes: 8
- i) Cold rolling ii) Cold hobbing iii) Stretch forming.
- b) How direct extrusion differs from indirect extrusion? Discuss their relative merits and demerits. 8

7. a) Explain different welding defects, their causes and remedies. 8
- b) What are the advantages and disadvantages of welding over other manufacturing processes? 8

OR

8. a) Differentiate between Soldering and Brazing? List out merits, demerits and application of these two processes. 8
- b) Explain the following with neat sketches 8
- i) Submerged arc welding ii) Oxy-acetylene Gas welding.
9. a) Explain Electro discharge Machining process with a neat sketch. 8
- b) Explain the abrasive water jet machining process with a schematic diagram. 8

OR

10. a) With the help of graph explain how the MRR changes with the grit size of abrasives? 8
- What the functions of dielectric fluid in EDM process?
- b) Explain Ultrasonic Machining process with a neat sketch. 8
