

B.E. Mechanical Engineering (Model Curriculum) Semester - V
PCC-ME303 - Manufacturing Processes

P. Pages : 2

Time : Three Hours



GUG/S/23/14070

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Answer 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 given to neatness and adequate dimensions.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. Diagrams and Chemical equation should be given wherever necessary.

1. a) What are the different types of Cutting tool materials? Explain the design and selection of materials for cutting tool application? **8**
- b) What are various force components in metal cutting operation? Explain Merchant circle force diagram in detail. **8**

OR

2. a) Define Metal Cutting. What are the important characteristics of materials used for cutting tools? How do you define tool life? **8**
- b) Explain the action of cutting fluids. Enumerate the types of cutting fluids and mention the composition and applications any three types in brief. **8**
3. a) List out the factors for selecting pattern material. What are the different types of pattern? What are the pattern making allowances? **8**
- b) Explain the working of a Cupola furnace. **8**

OR

4. a) What is a backing sand? How molding sand is prepared? Which are the additives and binders used in preparing molding sand? **8**
- b) Enlist properties of molding sand and describe the green sand molding process in detail. **8**
5. a) Compare and contrast between Hot working and Cold working in detail. **8**
- b) Explain how direct extrusion differs from indirect extrusion? Discuss their relative merits and demerits. **8**

OR

6. a) Explain the following process: **8**
- i) Cold extrusion
 - ii) Cold hobbing
 - iii) Roll bending.
- b) Explain flat strip rolling with a neat sketch. **8**

7. a) Differentiate between Soldering and Brazing? List out merits, demerits and application of these two processes. 8
- b) Explain TIG welding process with a neat sketch. 8

OR

8. a) Explain different welding defects , their causes and remedies. 8
- b) Give the advantages and limitations of gas welding. Explain the flame characteristics of gas welding process with a neat sketch. 8
9. a) Explain the reasons for the development of Unconventional Machining Process. Discuss about the criteria recommended in selection of these processes. 8
- b) Explain the abrasive water jet machining process with a schematic diagram. 8

OR

10. a) Explain Electro discharge Machining process with a neat sketch. 8
- b) Make a comparison between traditional and unconventional machining processes in terms of cost, application scope machining time, advantages and limitations. 8
