B.E. Mechanical Engineering (Model Curriculum) Sem-VI

PCCME307 : Manufacturing Technology

P. Pages : 2 **GUG/W/22/14075**

Time : Three Hours * 3 3 0 4 * Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.
5. 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.

1. a) Define "Forging process" Name and discuss the various equipments used. **8**

b) What are the materials used for forging die block? How the impressions are sunk in a die block? **8**

OR

2. a) Enlist and discuss the pants which should be kept in mind for the proper maintenance of the discs. **8**

b) How are the sizes of various forging equipments selected? What are the advantages & limitations of using die inserts? **8**

3. a) Discuss the various types of dies used in press working operation. **8**

b) Explain the principle of metal cutting operation with suitable sketch. **8**

OR

4. a) Sketch the various frames used for press Operation. What are various ways in which presses can be classified? **8**

b) Sketch the various mechanical press drives. What is meant by 'Clearance'? Why it is important in shearing operation? **8**

5. a) Describe the design principle for drilling jigs. **8**

b) What are the main types of jigs? Discuss these with the help of suitable sketches. **8**

OR

6. a) With the help of suitable sketches, explain the principles of jigs & fixture design. **8**

b) Describe the various grinding fixtures. **8**

7. a) Explain working, construction and principles of sigma comparator also give its advantages and limitations. **8**

b) Explain the following terms: **8**
i) Line standard
ii) End standard
iii) Wavelength standard.

OR

8. a) What do you mean by 'shaft basis system' and 'hole basis system'? Explain it with neat sketches. **8**

b) With the help of neat sketch, explain Taylor's principle for design of limit gauges. **8**

9. a) Explain control charts for variables and attributes. **8**

b) What is the significance of Quality of design and quality of conformance? Describe the factors controlling them. **8**

OR

10. a) Control charts for $\bar{x}$ and R are maintained for the tensile strength of a component. Subgroup size is 5. The values of $\bar{x}$ and R computed for 25 subgroups are $\Sigma \bar{x} = 514.80$ and $\Sigma R = 120$. Compute the values of 3 sigma limits for $\bar{x}$ and R charts. Considering the process is under control, find the process capability. **8**

b) Define 'Quality'. Give brief on historical review of quality control. What are the obstacles associated with the implementation of TQM? **8**

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