

00415

**BACHELOR OF TECHNOLOGY IN
MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)**

Term-End Examination

December, 2012

**BME-011 : COMPUTER AIDED PROCESS
PLANNING**

Time : 3 hours

Maximum Marks : 70

*Note : Attempt **any seven** questions. Assume any data if missing/required. Use of calculator is **allowed**.*

1. (a) Explain significance of computer aided process planning in computer integrated manufacturing. 5
- (b) With suitable assumption make a process plan for any manufacturing system. 5
2. (a) Briefly explain the types of CAPP system. 5
- (b) Describe the role of CAPP in CAD/CAM integration. 5
3. (a) Briefly explain the guidelines for implementing group technology. 5
- (b) List the six things to determine by a process engineer to extract more information from the part print. 5

4. (a) How the functional surfaces on the workpiece can be identified ? 5

(b) List at least five factors influencing the selection of cutting tool. 5

5. (a) Describe a standard tool specification in turning. 5

(b) In a normal turning operation the tool life varies with the cutting speed as shown as following table. 5

Cutting speed, V_m/s	Tool life $T(\text{min})$
25	30
70	02

Estimate the tool life for this operation at a speed of 50m/s.

6. (a) Compare the applications of hot chamber and cold chamber die casting. 5

(b) Distinguish between drop forging and press forging processes with reference to the process and products obtained. 5

7. (a) List and discuss the main factors to be considered when selecting a material to satisfy a particular design requirement. 5

- (b) Choose the appropriate material and manufacturing process for each of the five component given below. 5
- (i) Cam shaft for a passenger car
 - (ii) domestic window latches
 - (iii) surgical implants
 - (iv) Partico door frames
 - (v) Photographic slide container
8. (a) Explain the tolerance-cost relationship with respect to various production process to manufacture the components. 5
- (b) With a neat graph explain the relation between the machining cost and the cutting speed. 5
9. (a) Define process capability. What are the steps involved for the study of process capability. 5
- (b) Describe the need and objectives for developing a CAPP system for sheet metal forming. 5
10. (a) Describe the purpose of product flow analysis(PFA) . 5
- (b) How the Rank order clustering algorithm is used? Describe the steps of ROC using suitable example. 5