BME-011

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

00442

Term-End Examination

December, 2017

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 permitted.*

1. (a) Explain the significance of Computer Aided Process Planning in Computer Integrated Manufacturing.   *5*

   (b) What are the factors considered while preparing the process plan ? Discuss its advantages.   *5*

2. (a) Explain the working of Generative CAPP.   *5*

   (b) Describe the guidelines for implementing group technology.   *5*

3. (a) Give a brief description of the retrieval type of computer aided process planning method. 5

   (b) Explain the guidelines for selecting surfaces for holding the work place. 5

4. (a) Explain the various properties of cutting tool materials. 5

   (b) When operating with roughing cuts on mild steel at 18 m/min a certain tool gave a life of 3 hours between regrinds. Estimate the life of this tool on similar cuts at a speed of 24 m/min. Take $n = \dfrac{1}{8}$. 5

5. (a) List the advantages of forging metals. Why is press forging preferred over hammer forging process ? 5

   (b) Give a brief outline of engineering materials and explain the steps involved in selection of materials. 5

6. (a) Explain the tolerance-cost relationship with respect to various production processes to manufacture the components. 5

   (b) Define process capability. What are the steps involved for the study of process capability ? 5

7. (a) Describe the purpose of product flow analysis with suitable examples. 5

(b) Describe the knowledge based process planning strategy to follow CAPP system. Also describe its features. 5

8. Write short notes on the following : $4 \times 2\frac{1}{2} = 10$

(a) Break-Even Chart

(b) Statistical Process Control

(c) CAD/CAM Integration

(d) Geometrical Tolerances