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BME-011

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

00303 **Term-End Examination**

December, 2016

BME-011 : COMPUTER AIDED PROCESS PLANNING

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***seven*** *questions. Assume suitable value for any missing data. Use of calculator is permitted.*

1. (a) Explain the significance of Computer Aided Process Planning in computer integrated manufacturing. *5*

(b) Describe the advantages and disadvantages of process planning. *5*

2. (a) Differentiate between manual process planning and computer aided process planning. *5*

(b) Explain the criteria for selecting CAPP system. *5*

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

(b) Briefly explain the factors affecting the tool life. 5

4. (a) Explain the principles to be used for selecting cutting tools in the case of CNC turning centre. 5

(b) A carbide tool while machining a mild steel work piece was found to have a life of 1 hour and 40 minutes when cutting at 50 m/minute. Find the tool life if it operates at a speed 30% higher than the previous one. Also calculate the cutting speed if the tool is required to have a life of 2 hours and 45 minutes. Assume Taylor's Exponent N = 0·28. 5

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

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

6. (a) Explain the use of CAPP in Drawing and Extrusion process. 5

(b) Give a brief description of the retriever type of computer aided process planning. 5

7. (a) Describe the need and objectives for developing a CAPP system for sheet metal forming. 5

(b) Describe the purpose of Product Flow Analysis (PFA). 5

8. (a) List down the activities carried out by the planning engineers in a foundry environment based on CAPP system. 5

(b) Briefly give an outline of the variant process planning approach. 5

9. (a) What do you understand from the process capability of a manufacturing process ? List the different parameters to determine the process capability. 5

(b) Briefly explain the guidelines for implementing group technology. 5

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

(a) Break-Even Analysis

(b) CAD/CAM Integration

(c) Allowance

(d) Spot Welding