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BME-011

B. TECH. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING) (BTME)

Term-End Examination

December, 2019

BME-011 : COMPUTER AIDED PROCESS PLANNING

Time : 3 Hours *Maximum Marks : 70*

Note : *Attempt any* ***seven*** *questions. All questions carry* ***equal*** *marks. Use of scientific calculator is allowed.*

1. (a) Explain production planning system with the help of a neat sketch. 5

(b) What are the informations required to decide the operation sequence ? Explain with the help of an example. 5

2. (a) Describe various steps involved in process planning. 5

(b) What is route sheet ? Discuss the guidelines to prepare it. 5

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

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

4. (a) Enlist the various factors influencing the selection of tools. 5

(b) A machine tool cutting at 24 m/min. gave a life of 1 hour when operating on roughness cuts with mild steel. What will be the tool life when engaged on light finishing cuts ?

(Take $n = \frac{1}{8}$ for roughing and $n = \frac{1}{10}$ for finishing). 5

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

(b) What are the inputs and outputs of a CAPP system for machined parts ? Show with the help of input and output diagrams. 5

6. (a) Explain tool nomenclature for single point cutting tool with a neat sketch. 5

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

7. (a) Enlist the broad objectives in developing CAPP system for sheet metal forming process. 5

(b) Explain the relation between the machining cost and cutting speed with the help of a graph. 5

8. Write short notes on any ***four*** of the following :

$2\frac{1}{2} \times 4 = 10$

(a) Knowledge based expert system

(b) Statistical quality control

(c) Retrieval type CAPP

(d) Process mapping

(e) Product flow analysis

(f) Material requirement planning