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BME-011

01177

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

June, 2013

BME-011 : COMPUTER AIDED PROCESS PLANNING

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt **any seven** questions. Assume any data if missing/required.*

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

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

2. (a) Describe the advantages and disadvantages of CAPP. 5

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

3. (a) Explain the guidelines for selecting surfaces for holding the workpiece. 5

(b) With the help of suitable graph, plot the graph of hardness Vs temperature of following cutting tool material : 5

(i) Ceramics

(ii) Carbides

(iii) HSS

(iv) Carbon tool steel

(v) Cast cobalt tools

4. (a) Define cutting speed, feed and depth of cut in a typical machining process. 5

(b) Find the maximum allowable size of the milling cutter if it is to rotate at 65 rpm while the cutting speed is 20m/min. 5

5. (a) Explain the advantages of coated carbide tools over the uncoated carbide tools. 5

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

6. (a) Give a brief outline of engineering materials with help of a suitable chart. 5

(b) Briefly explain the steps involved in selection of materials. 5

7. (a) Define tolerance. Compare the relative merits and demerits of unilateral and bilateral tolerances. 5

(b) Define the following with examples. 5

(i) Allowance

(ii) Clearance

(iii) Interference

8. (a) Define manufacturing lead time with the help of suitable mathematical expressions and respective meaning of each term used. 5

(b) A hollow workpiece of 60mm outside diameter and 150mm length is held on a mandrel between centres and turned all over in 4 passes. If the approach length=30mm, over travel=10mm, average feed =0.8mm/rev, cutting speed is 50m/min estimate m/c ing time. 5

9. (a) Explain why process capability is not a good measure of quality. 5

(b) Describe what is meant by statistical process control ? 5

10. (a) Mention the attributes used for part representation in a typical variant process planning (VPP) for casting. 5

(b) Bring out the fundamental difference between a blank layout and strip layout for a progressive die. 5