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BME-008

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

Term-End Examination

December, 2012

BME-008 : MACHINING TECHNOLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any five** of the following. Assume any missing data suitable. Use of calculator permitted.*

1. (a) Explain the deformation in metal machining with suitable diagram. 7

   (b) Describe the mechanics of chip formation. 7

2. (a) Explain the role of cutting fluid in machining and discuss its effect on tool life. 7

   (b) Calculate the cutting speed at which the tool would work satisfactorily for 3 hours. The following data is available for the tool work combination. Tool life=2hours, V=45m/min n=0.2 7

3. (a) Explain various bonding materials used in a grinding wheel. Discuss the guide lines useful in its selection for different type of work materials. 7

(b) During surface grinding the table speed is kept as 25m/min and grinding wheel peripheral speed is 1600m/min. The depth of cut is 0.04 mm and active grains density is 3 per mm^2. The wheel diameter is 150 mm. Find out the : 7

(i) Spindle speed of the grinding wheel

(ii) Chip length (in mm) and

(iii) Chip thickness in microns.

4. (a) Explain the working principle of super finishing with suitable diagrams. 7

(b) What do you mean by the term "tribology"? Explain with suitable Examples. 7

5. (a) Discuss the factors responsible for producing better surface Finish (lower Ka value) in lapping compared to honing ? 7

(b) How do you classify the surface improvement techniques? Explain any one of them in brief. 7

6. (a) Explain the working principle of Electron Beam Machining (EBM) process with neat sketch. 7

(b) What is 'Cascade type effect ? Explain with the help of diagram. 7

7. (a) Write the applications of different types of abrasives used in Abrasive Jet Machining (AJM) 7

(b) Explain the mechanism of material removal in Electric discharge Machining (EDM) with neat sketch. 7

8. (a) Explain the working of Electro chemical (ECM) process with neat sketch. 7

(b) Differentiate the conventional machining process with Ultra Sonic Machining (USM) process. 7