01691

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

Term-End Examination

December, 2013

BME-008 : MACHINING TECHNOLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any five** questions. All question carry **equal** marks. Use of scientific **calculator** is permitted.*

1. (a) Define orthogonal cutting. Draw Merchant's force circle diagram for the orthogonal cutting. 2+5

   (b) Name different types of chips formed in metal machining. Which type of chip is suitable to enhance tool life ? Give the function of chip breaker. 2+2+3

2. (a) List and briefly explain the factors affecting tool life. 7

   (b) Explain the role of cutting fluid in machining. What are the desirable properties of good cutting tool material ? 3½+3½

3. (a) How will you specify a grinding wheel ? Explain the specification in detail. 3+4

(b) Give a brief classification of grinding operation. With suitable sketch explain internal and external cylindrical grinding. 7

4. (a) How advanced finishing operations are different from traditional finishing operations ? Describe a method to achieve a surface finish as good as the size of an atom or molecule. 3+4

(b) Explain the working principles of honing and superfinishing. 3½ + 3½

5. (a) What do you mean by the term "tribology"? Explain. 3

(b) Write a detailed note on wear. 4

(c) With the help of suitable sketches, explain the working of ultrasonic machining process with its applications. 7

6. (a) Explain the working principle of EBM process. Can You make 10mm diameter hole using EBM ? Justify your answer. 4+3

(b) Classify advanced machining processes on the basis of the type of energy employed and material removal. 7

7. (a) Draw a schematic diagram of AJM system and explain the working principle of AJM. 7

(b) Explain the process parameters of AJM process. 7

8. Answer **any four** of the following : $3\frac{1}{2} \times 4 = 14$

(a) Grinding wheel defects

(b) Lapping process

(c) Electroplating

(d) Types of forces in cutting

(e) Assumption in Merchant theory of cutting

(f) Applications of EDM.