

**B.Tech. MECHANICAL ENGINEERING  
(COMPUTER INTEGRATED  
MANUFACTURING)**

00950

**BTMEVI**

**Term-End Examination**

**June, 2014**

**BME-008 : MACHINING TECHNOLOGY**

*Time : 3 hours*

*Maximum Marks : 70*

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

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1. (a) Explain the mechanics of chip formation. 4
- (b) Describe the sources of heat generation in metal cutting. 5
- (c) List and briefly explain the factors affecting tool life. 5
  
2. (a) Write an equation that can express the effect of cutting speed, feed and depth of cut on tool life. 4
- (b) Differentiate between abrasion wear and adhesion wear. 5
- (c) Name different mechanisms of tool wear, and write the conditions under which each will be dominant. 5

3. (a) A grinding wheel carries the following marking : 39-C-120-K-4-V. What does this signify ? 4
- (b) Explain the bonding materials used in a grinding wheel. 5
- (c) What do you understand by dressing of a grinding wheel ? Also explain truing and balancing of a grinding wheel. 5
4. (a) Briefly explain the special features of the creep feed grinding. 5
- (b) Write some applications of centreless external grinding. 4
- (c) During surface grinding the table speed is kept as 30 m/min, and grinding wheel peripheral speed is 1800 m/min. The depth of cut is 0.05 mm and the active grains density is 2 per  $\text{mm}^2$ . The wheel diameter is 200 mm. Find out the spindle speed of the grinding wheel and chip length in mm. 5
5. (a) What are the factors responsible for producing better surface finish in lapping as compared to honing ? Explain in brief. 7
- (b) Define the term 'burr', and sketch it along with the finished surface of part. 7

6. (a) Classify the surface improvement techniques and explain any one. 4+3
- (b) Write the type and size of the abrasive and magnetic particles used in Magnetic Abrasive Finishing. 4
- (c) Define 'Magnetic Flux Density' used in micro-machining. 3
7. (a) Explain the Electron Beam Machining (EBM) with the help of suitable schematic diagram. 7
- (b) Explain the mechanics of metal removal in EDM with the help of neat sketch. 7
8. (a) Give a brief classification of advanced machining processes on the basis of energy used in the metal removing. 7
- (b) Sketch the effects of following parameters on metal removal rate (MRR) during EDM using RC-circuit : 3
- (i) Resistance
- (ii) Capacitance
- (iii) Current density
- (c) Explain how the stratified wire works in wire EDM. 4