

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

Term-End Examination

June, 2013

BME-008 : MACHINING TECHNOLOGY

Time : 3 hours

Maximum Marks : 70

Note : Answer any five of the following questions. Assume any missing data suitably. Use of calculator permitted.

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1. (a) Define orthogonal cutting. Draw merchant's force circle diagram for the orthogonal cutting. 7
 - (b) Mild steel rod is being turned at the speed of 27.3m/min. Feed rate used is 0.25 mm/rev. and deformed chip thickness is equal to 0.30 mm. Rake angle and shear angle of the tool are 20° and 30° respectively. Calculate the shear flow velocity. 7
 2. (a) Why hot hardness of a cutting tool material is an important property ? Explain. 7
 - (b) In a tool wear test, the tool life obtained was 30 min and 1.5 min while cutting at 25 m/min and 70 m/min, respectively. Calculate the values of exponent 'n' and constant 'c' in Taylor's tool life. 7

3. (a) What are the grinding processes ? Explain the centreless grinding process with neat sketch. 7
- (b) Describe a method of lapping with neat sketch. 7
4. A steel workpiece of 100 mm width and 300 mm length is being ground on a horizontal grinder having a grinding wheel of diameter as 300 mm and width as 20 mm. The table speed on which the workpiece is mounted is 20 mm/min and the grinding wheel RPM is 1528. Find out the time required to finish the workpiece. Take the infeed rate at 5 mm per pass. 14
5. (a) Discuss the merits and limitations of honing, lapping and super finishing in table form. 7
- (b) Explain the mechanism of material removal in ION Beam Machining (IBM) Process with neat sketch. 7
6. (a) Write the applicators of Electron Beam Process. 7
- (b) Explain the working of abrasive Jet Machining Process with neat sketch. 7

7. (a) Write properties of different types of abrasives used in Ultrasonic Machining (USM) 7
- (b) Describe the working of Laser Beam Machine Process with neat sketch. 7
8. (a) Discuss the advantages, limitation and applications of Electro Chemical Machining (ECH) Process. 7
- (b) Explain how the stratified wire works in Wire Electric Discharge Machining (EDM) Process with neat sketch ? 7
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