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**BME-008**

# B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING) / (BTMEVI)

00735

## Term-End Examination

## June, 2015

## BME-008 : MACHINING TECHNOLOGY

*Time : 3 hours* *Maximum Marks : 70*

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

**1.** (a) What are the different types of chips in machining operation ? Explain the formation of Built-Up Edge (BUE). 7

(b) With the help of a suitable diagram and notation, explain the force circle diagram to analyse the forces acting on the chip in orthogonal cutting. 7

2. (a) Explain the various sources of heat generation during metal cutting. 7

(b) With the help of a suitable diagram, show the typical temperature distribution in workpiece and chip during orthogonal cutting for free cutting mild steel, where cutting speed is 0·38 m/s, the width of cut is 6·35 mm, working normal rake is 30° and the workpiece temperature is 611°C. 7

3. (a) Define machinability. Explain the Taylor's tool life equation with suitable notations. 7

(b) Discuss the variables affecting tool life in metal cutting. 7

4. (a) Describe the working principle of grinding. 7

(b) Explain the following in terms of grinding wheel : 7

(i) Grit Size

(ii) Grades

(iii) Structure

5. (a) With the help of suitable sketches compare external and internal centreless grinding. 7

(b) Describe the honing operation with its mechanics of metal removal. 7

6. (a) Enlist different advanced machining processes. Explain any one. 7

(b) Describe the surface characteristics of metal with the help of a suitable sketch. 7

7. (a) Classify the surface improvement techniques and explain each one of them in brief. 7

(b) Compare LASER Beam Machining with Electron Beam Machining in terms of process capabilities and applications. 7

8. Write short notes on any ***two*** of the following : *2×7=14*

(a) Ultrasonic Machining

(b) Abrasive Flow Machining

(c) Wire Electric Discharge Machining