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

00522 (BTMEVI)

Term-End Examination

June, 2019

BME-008 : MACHINING TECHNOLOGY

Time : 3 hours   *Maximum Marks : 70*

Note : *Answer any **seven** questions. All questions carry equal marks.*

1. (a) With neat sketch, write the differences between orthogonal cutting and oblique cutting. 5

   (b) What is cermet ? Is it better in comparison to its competitive tool material, cemented carbide ? 5

2. (a) Differentiate between abrasion wear and adhesion wear. 4

   (b) How will you specify a grinding wheel ? Explain the individual elements of information given in the specifications. 6

3. (a) What do you understand by dressing, truing and balancing of a grinding wheel ? *5*

(b) With neat sketch, explain Centreless grinding process. *5*

4. With neat sketch, explain Magneto-rheological Finishing process (MRF). *10*

5. What do you understand by residual stresses, Heat Affected Zone (HAZ), intergranular attack, corrosion and micro-cracks ? Explain. *10*

6. (a) Define the term "burr", and sketch it along with the finished surface of part. *5*

(b) Explain the mechanism of material removal in IBM. *5*

7. (a) With neat sketch, explain the working principle of EBM process. *7*

(b) What do you understand by "sputtering yield" ? *3*

8. (a) "LBM and EDM both are thermal processes. However, it is found that first one results in more thermal damage to the machined component than the second one." Is it true ? Justify your answer. *5*

(b) With the help of a neat sketch, explain the mechanism of material removal in EDM. *5*

9. Sketch the effects of the following parameters on MRR during EDM using RC circuit :

    (a)   Resistance

    (b)   Current density

    (c)   Pulse energy

    (d)   Capacitance   *10*

10. Derive an equation for the maximum permissible feed rate during ECM. Also deduce the relationship for electrolyte temperature change for a given feed rate of tool.   *10*