No. of Printed Pages : 3

BME-010

02733

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

December, 2012

BME-010 : TOOL ENGINEERING AND MANAGEMENT

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any five questions. Use of calculator is allowed. Assume suitable data if any missing.*

1. (a) State the factors responsible for the development of newer tool materials. 4

   (b) In orthogonal turning of a 50mm diameter mild steel bar on a lathe the following data were obtained; Rake angle=15°, cutting speed=100m/min. Feed=0.2mm/rev, cutting force=180kg, feed force=60kg. Calculate the shear plane angle, coefficient of friction, cutting power, the chip flow velocity and shear force, if the chip thickness =0.3mm. 10

2. (a) Describe the tool represented 10, 10, 6, 6, 8, 8, 1mm in ASA system 4

(b) Describe in brief the different indexing devices that can be incorporated in designing a jig. Write the difference between indexing jig and an indexing fixture. **10**

3. (a) Describe the various types of stripper plates. **4**

(b) Discuss the difference between compound die and progressive die with figure. **10**

4. (a) Explain various types of containers used in foundry. **4**

(b) Give a systematic procedure for designing a Flat form tool. Explain each step with an example. **10**

5. (a) Explain the Angular Layout by using a Ruler with Figure. **4**

(b) What are various causes of accident ? How it can be prevented ? **5**

(c) List various layout accessories with their uses. Explain with figure. **5**

6. (a) Name the materials commonly used for slideways. Explain briefly. **4**

(b) What are the various objectives and constraints in setup planning ? **5**

(c) Differentiate between bidirectional information flows with unidirectional information flow. Explain. 5

7. Write short notes on **any four :** $3\frac{1}{2}x4=14$

(a) Wear resistance of guides

(b) Methods of reducing cutting forces

(c) Multipoint cutting Tools

(d) Properties of tool materials

(e) Sheet metal operations.