Roll No ....

IP/ME/IEM - 603
B.E. VI Semester
Examination, December 2012
Metal Cutting and CNC Machine

Time : Three Hours

Maximum Marks : 100   *Minimum Pass Marks :35*

Note: Attempt *One* question from each unit
All questions carry equal marks.

Unit - I

1. (a) How is lathe specified? Explain with a neat sketch the relevance of each of the specification points?   10

   (b) What is the purpose of a mandrel? How many types of mandrels are there in common use : Enlist in brief.   10

OR

2. (a) What is the difference between a Capstan and a turret lathe? Explain with the help of suitable sketches?   10

   (b) Calculate the amount of tail stock set over for turning taper on full length of a job 3000cm long to have its two diameters as 50mm and 40mm.   10

Unit - II

3. (a) What is the difference between wheel dressing and wheel turning?   10

(b) Describe the various types of abrasives used in Grinding wheels? Explain Grinding wheel balancing?   10

OR

4. (a) Briefly explain what is Surface Grinding?   10

(b) With the help of neat sketch explain centreless grinding operation?   10

Unit - III

5. (a) Sketch a twist drill and describe its various elements.   10

(b) Calculate the power required to drill 20mm diameter hole in mild steel at a feed of 0.25mm/rev and at a drill speed 300R.P.M. Determine also the volume of metal removed per unit of energy.   10

OR

6. (a) Explain how to calculate machining time in   10

   (i) Plain milling

   (ii) Face milling

(b) Sketch and explain Up milling and Down milling.   10

Unit - IV

7. (a) What is the difference between a push cut shaper and a pull cut shaper?   10

(b) What do you understand by surface finish? Explain the factors for surface irregularities.   10

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OR

8. Write short notes on (any two)   20

    (a) Methods of forming gears

    (b) Gear shaping and gear shaving

    (c) Gear grinding and gear testing

Unit - V

9. (a) What are the types of control system ? Explain with examples.   10

    (b) Explain the procedure for writing transfer function?   10

OR

10. (a) What is PLC? Explain the operating cycle of PLC?   10

    (b) Give the classification of CNC machines ? What are the various types of tools used in CNC machines?   10

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