Registration No. : | | | | | | | | | | |

Total number of printed pages – 2

B. Tech

PCME 4304

Fifth Semester Back Examination – 2014

MACHINING SCIENCE AND TECHNOLOGY

BRANCH : MECH

QUESTION CODE : L 259

Full Marks – 70

Time – 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10

   (a) Define tool life.

   (b) Name the factors that contribute to formation of discontinuous chip.

   (c) Explain basic machining operation with help of a neat diagram.

   (d) What is difference between plain shaper and universal shaper ?

   (e) What is multi-spindle drilling press ?

   (f) What is meant by "multiple cut" and "combined cut".

   (g) Differentiate automatic and semi-automatic lathe.

   (h) Name the abrasives and carrier gases used in AJM.

   (i) What are the different types of thread cutting mechanisms ?

   (j) Write the principle of LBM.

2. A mild steel bar of 100mm is being turned with a tool having ASA tool signature as : 6^0 -10^0 -5^0 -7^0 -10^0 -30^0 -0.5 mm. Determine various components of the machining force and the power consumption. Consider: Depth of cut = 2.5mm, feed = 0.125mm/rev, turning speed of job= 300 rev/min, co-efficient of friction at tool- work interface = 0.6, ultimate shear stress of the work material=400Mpa. 10

P.T.O.

3. (a) Define machinability and explain how machinability be evaluated. 5

(b) Discuss various types of tool wears with their associated cause and remedy. 5

4. (a) Sketch and describe the direct indexing method. 5

(b) Define grinding wheel. What is meant by "grade" and "structure" of a grinding wheel ? Explain the process of dressing an truing of grinding wheel. 5

5. (a) Describe the different tool and job holding methods of milling machine. 5

(b) Draw the block diagram of a drilling machine and explain its major parts. 5

6. Explain in detail with neat diagram the working of electro discharge machining process. 10

7. (a) What is the function of electrolyte in ECM ? Discuss the properties of electrolyte use in ECM. 5

(b) Explain the principle of USM with neat diagram. 5

8. Write short notes on any **two** : 5×2

(a) Plasma arc machining

(b) Copying lathe

(c) Gear hobbing machines.