Reg. No. | | | | | | | | | | | | |

Question Paper Code : 91642

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Fourth Semester

Mechanical Engineering

ME 2252/ME 43/ME 1252 A/080120016/10122 ME 403 — MANUFACTURING TECHNOLOGY – II

(Common to Industrial Engineering, Industrial Engineering and Management and Mechanical and Automation Engineering)

(Regulation 2008/2010)

(Common to PTME 2252/10122 ME 403 Manufacturing Technology II for B.E. (Part–Time) Third Semester Mechanical Engineering – Regulation 2009/2010)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Classify the types of metal cutting process.

2. How is tool life estimated?

3. State the various feed mechanisms used for obtaining automatic feed.

4. What is the use of mandrels?

5. Draw the nomenclatures of drill.

6. Differentiate between up milling and down milling.

7. What is need of honing process?

8. What are the various types of gear generating process?

9. State any four advantages of N.C. machines.

10. Define subroutine.

PART B — ($5 \times 16 = 80$ marks)

11. (a) (i) Briefly differentiate between orthogonal cutting and oblique cutting. (8)

(ii) What are the functions of cutting fluid? (8)

Or

(b) (i) Explain the various types of chip formation with neat sketches. (8)

(ii) The useful tool life of a HSS tool machining mild steel at 18 m/min is 3 hours. Calculate the tool life when the tool operates at 24 m/min (Assume $\eta = 0.125$). (8)

12. (a) Explain the working principle of capstan and turret lathe. (16)

Or

(b) (i) Name the various types of taper turning methods and explain any one of them. (8)

(ii) Describe the working principle of Swiss type automatic lathes. (8)

13. (a) (i) Explain the principle and operation of horizontal broaching machine. (8)

(ii) Sketch and explain the working of a slotter. (8)

Or

(b) (i) Write the applications of shapers. (4)

(ii) Describe the working principle of column and knee type milling machine with a neat sketch. (12)

14. (a) (i) Explain the working principle of centreless grinding process. (8)

(ii) How the grinding wheels are designated? And explain with a suitable example. (8)

Or

(b) (i) Explain the gear shaping process with sketches. (12)

(ii) What are the advantages of gear hobbing process? (4)

15. (a) List the various drive systems in a CNC machine tool. Explain the principle of any two drive systems. (4 + 6 + 6)

Or

(b) (i) State the different types of CNC machines. (4)

(ii) What is meant by machining centre? Explain in detail. (12)