

T 8244

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Third Semester

Mechanical Engineering

ME 1203 — MANUFACTURING TECHNOLOGY – II

(Common to B.E. (Part-Time) Second Semester Regulation 2005)

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is orthogonal cutting?
2. What are the functions of cutting fluids?
3. Calculate the power required for cutting a steel rod of 50 mm in diameter at 200 rpm. Assume cutting force of 160 kg.
4. What are advantages of automatic lathes?
5. Compare hydraulic shaper with mechanical shaper.
6. What is meant by up-milling and down-milling?
7. What are the types of surfaces that could be produced using plain cylindrical grinders?
8. What are the advantages of honing process?
9. What is point-to-point (PTP) system?
10. What are G-codes and M-codes? Give examples.

PART B — (5 × 16 = 80 marks)

11. (a) Discuss about the following with neat sketch and with suitable example.
- (i) Closed loop system. (4)
 - (ii) Open loop system. (4)
 - (iii) Straight line system. (4)
 - (iv) Continuous system. (4)

Or

- (b) (i) Describe with neat sketch various steps in computer assisted part programming. (8)
 - (ii) Explain APT geometry and motion statements. (8)
12. (a) (i) Explain the types of chip formed during machining process. (8)
- (ii) Using Merchant's circle diagram derive the expression for estimating the cutting force during machining. Mention the assumptions made. (8)

Or

- (b) (i) What is tool life? (4)
 - (ii) Describe the forms of wears on the cutting tool with neat sketches. (12)
13. (a) (i) Calculate the time taken for one complete cut on a work piece of 500 mm long and 50 mm diameter. The cutting speed is 30 m/min and the feed rate is 0.5 mm/rev. (4)
- (ii) Describe the working principle of multi-spindle automatics. Give its advantages and application. (12)

Or

- (b) Explain the construction and working principle of a lathe with sketch. (16)
14. (a) (i) With neat sketch describe the construction and working of a slotter. (10)
- (ii) List the difference between shaper and planner. (6)

Or

- (b) (i) Sketch and explain the working principle of upright drilling machine. (10)
- (ii) Write short notes on expanding hand reamers and adjustable machine reamers. (3 + 3)

15. (a) (i) Explain the barrel finishing process with neat diagram. (8)
(ii) Explain the abrasive jet grinding with diagram. (8)

Or

- (b) (i) Explain the construction and working principle of continuous broaching machine. (8)
(ii) With neat diagram explain the gear hobbing process. (8)
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