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**Question Paper Code : P 1408**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Third Semester

(Regulation 2004)

Mechanical Engineering

ME 1203 — MANUFACTURING TECHNOLOGY — II

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

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How can built up edge formed during machining be avoided?
2. In an experiment on orthogonal cutting, a chip length of 85 mm was obtained from an uncut chip length of 202 mm while cutting with a tool of 20° rake angle using a depth of cut of 0.5 mm. Determine the shear plane angle.
3. Why is hollow spindle used in Lathe?
4. How is the size of a turret lathe specified?
5. What is the difference between face milling and end milling?
6. List the types of driving mechanisms used in slotter for driving the ram.
7. What is meant by dressing and truing of grinding wheels?
8. How is a broaching machine specified?
9. Compare a closed loop NC system with open loop NC system.
10. What is a preparatory function? How is it important in CNC programming?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Sketch a single point cutting tool under ASA system. Define various tool angles for machining mild steel and justify. (8)
- (ii) List various types of tool wear and discuss the factors affecting them. (8)

Or

- (b) (i) The following equation for tool life is given for a turning operation;

$$VT^{0.13} f^{0.77} d^{0.37} = C$$

A 60 minute tool life was obtained while cutting at  $V = 30$  m/min,  $f = 0.3$  mm/rev and  $d = 2.5$  mm.

Determine the change in tool life if the cutting speed, feed and depth of cut are increased by 20% individually and also taken together. (10)

- (ii) List the essential characteristics of a cutting fluid. (6)
12. (a) (i) Explain with a sketch how movement of the carriage of a Lathe is reversed. (8)
- (ii) Explain with a neat sketch how a face plate is used for machining asymmetrical components. (8)

Or

- (b) (i) Explain the types of possible machining operation on a turret lathe. (8)
- (ii) Describe a single spindle cutting off automatic machine. (8)
13. (a) (i) Sketch and explain the mechanical feed drive of a horizontal shaper. (8)
- (ii) Distinguish between climb and conventional milling. Explain their characteristics. (8)

Or

- (b) (i) Name and describe any four work holding devices or methods used in drilling machines. (8)
- (ii) Classify the various boring tools and explain how they are used for boring operations. (8)

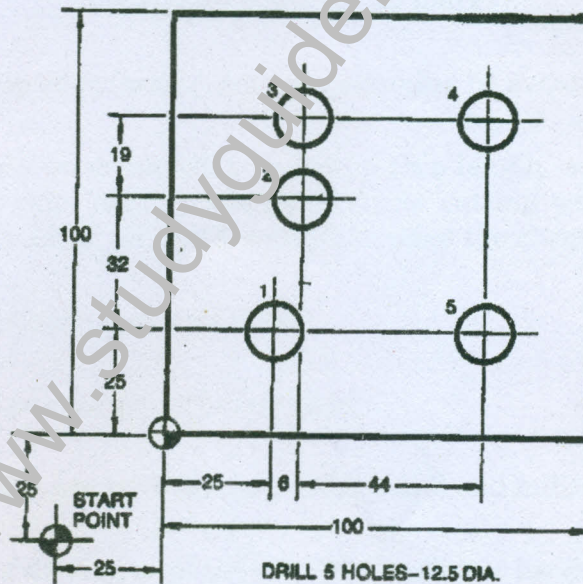
14. (a) (i) Discuss the various bonding materials used for making grinding wheels. (8)
- (ii) Sketch and explain the three methods of external cylindrical centreless grinding. (8)

Or

- (b) (i) Sketch a broaching tool and explain the different nomenclature. (8)
- (ii) Explain how a spur gear is machined in a gear shaping machine. (8)
15. (a) (i) Explain the basic components of an NC system. (8)
- (ii) List down the various features of CNC machines. (8)

Or

- (b) (i) Explain point to point and contour path programming with simple program statements. (8)
- (ii) Write a program (manual part program) to drill five hole in the locations shown in Fig. 1 and pause at each location where a hole should be drilled. (8)



All Dimensions are in mm.

Fig. 1