

Reg. No. :

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K 4388

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Third Semester

Mechanical Engineering

ME 1203 — MANUFACTURING TECHNOLOGY — II

(Regulation 2004)

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

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the factors responsible for built-up edge in cutting tools?
2. What is electro chemical wear in tools?
3. Mention four different types of chucks used in a machine shop.
4. What is rake angle? What is the effect of nose radius in tools?
5. What do you know about straight fluted drill and fluted drill?
6. What is up milling and down milling operations?
7. Mention four important factors that influences the selection of grinding wheels.
8. What is roller burnishing process?
9. Define NC.
10. Mention the major elements of NC machines.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the geometry of a single point tool with suitable sketches (16)
- Or
- (b) (i) Explain the basic actions of cutting fluids. (6)
- (ii) During orthogonal machining test, the following data were recorded
- | | | |
|--------------------------|---|-----------------------|
| Back rake angle | = | 25 deg |
| Chip thickness | = | 0.15 mm/rev |
| Length of chip | = | 40 mm |
| Length of chip | = | 100 mm |
| Width of chip | = | 4 mm |
| Width of chip before cut | = | 3.5 mm |
| Coefficient of friction | = | 0.75 |
| Cutting speed V_c | = | 250 m/min |
| Average shear stress | = | 250 N/mm ² |
- Determine power consumption. (10)
12. (a) Explain the thread cutting operation in a lathe with a neat sketch. Also make a note on knurling, grooving and forming operations in a lathe. (16)
- Or
- (b) (i) Discuss the features of ram type and saddle type turret. (8)
- (ii) Explain the features of multi spindle automatics. (8)
13. (a) (i) With simple sketches explain the features of the major elements of a twist drill. (8)
- (ii) Explain different types of milling cutters. (8)
- Or
- (b) (i) Make a note on different types of work holding devices used in a slotting machine. (8)
- (ii) Explain the different types of table drive and feed mechanisms in a planing machine. (8)
14. (a) Explain the salient features of a centreless grinding machine and discuss the different operations that can be carried out in it. Mention some advantages. (16)

Or

- (b) (i) Briefly discuss about the different types of abrasives used in a grinding wheel. (8)
- (ii) Explain the gear shaving, gear honing and gear lapping processes. (8)

15. (a) Discuss the important design features of a cnc machine tools. (16)

Or

- (b) Write short notes on : (4 × 4 = 16)
- (i) NC machine tool classification
- (ii) APT programming structure
- (iii) G and M codes
- (iv) CNC machine Vs Conventional machine.