

ME2252 MANUFACTURING TECHNOLOGY-II

Important Questions

PART-A

1. Give two examples of orthogonal cutting
2. What are the four important characteristics of materials used for cutting tools?
3. Why is it essential that the cutting point of the tool should be level with the spindle center while machining taper on a work-piece
4. What is the difference between a ram type turret lathe and saddle type turret lathe?
5. Under what conditions planning operation would be preferred over other machining processes like milling, broching, shapping, etc
6. What are the common work holding devices used on milling machines?
7. What for lapping is used?
8. State the abrasives used in the manufacture of grinding wheels.
9. What is the difference between incremental and absolute system?
10. What is the role of computer for NC machine tool?
11. What are the factors responsible for built –up edge in cutting tools?
12. What is electro chemical wear in tools?
13. Mention four different types of chucks used in a machine shop.
14. What is rake angle? What is the effect of nose radius in tools?
15. What is up milling and down milling operations?
16. Mention four important factors that influences the selection of grinding wheels.
17. What is roller burnishing process?
18. Define NC
19. Mention the major elements of NC machines.
20. What you know about straight fluted drill and fluted drill?

PART-B

1. Explain the geometry of single point cutting tool with suitable sketches
2. Explain the basic actions of cutting fluids.
3. During the orthogonal cutting, 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 before cut = 3.5 mm

Coefficient of friction = 0.75

Cutting speed $V_c = 250$ m/min

Average shear stress = 250 N/mm²

Determine power consumption.

4. 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.
5. Discuss the features of ram type and saddle type turret
6. Explain the features of multi spindle automatics.
7. With the sketches explain the features of the major elements of a twist drill
8. Explain different types of milling cutters
9. Make a note on different types of work holding devices used in a slotting machine.
10. Explain the different types of table drive and feed mechanisms in a planing machine.
11. Explain the salient features of a centre less grinding machine and discuss the different operations that can be carried out in it. Mention some advantages.
12. Briefly discuss about different types of abrasives used in a grinding wheel.
13. Explain the gear shaving, gear honing and gear lapping processes.
14. Discuss the important design features of CNC machine tools.

15. Write Short notes on:
 - i NC machine tool classification
 - ii. APT programming structure
 - iii G and M codes
 - iv CNC machine Vs Conventional machine
16. Explain the conditions that promote the formation of the following types of chip
 - i. Continuous chips without built up edge
 - ii. Continuous chips with built up edge
 - iii. Discontinuous chip
17. Define the Various tool parts of a single point cutting tool with a neat sketch.
18. What are the slanted angles of cutting tool? Illustrate with an example.
19. Describe some of the methods and equipment for holding work on a lathe.
20. Explain any four commonly used attachments on lathe.
21. Briefly explain the principle of working of the sliding head type single spindle automatic machine.
22. Describe with neat sketch a turret automatic screw machine.
23. State the advantages of Ward-Leonard drive.
24. Explain with a sketch “Fast and Loose pulley” quick return mechanism of a planer table.
25. State the methods of holding milling cutters.
26. Explain simple indexing, compound indexing and differential indexing with suitable example.
27. State the advantages and limitations of broaching.
28. Compare gear hobbing with gear shaping.
29. Explain self-sharpening characteristics of grinding wheel.
30. Describe the use of cutting fluids in grinding.
31. Explain wheel truing and dressing.
32. State a few typical applications where the use of numerical control would be justified.
33. Describe in brief the basic components of a tape-operated NC machine tool.
34. Discuss the advantages of computer numerical control system.

35. What is the difference between positioning machines and contouring machines?