



**VELAMMAL**  
**INSTITUTE OF TECHNOLOGY**  
**CHENNAI-601204**

**QUESTION BANK**  
**ME 2252-MANUFACTURING TECHNOLOGY-II**  
**UNIT 2- CENTER LATHE & SPECIAL PURPOSE LATHE**

**PART-A**

1. Give the expression to estimate the power required in machining.  
(May/June 2006)
2. Differentiate capstan and turret lathe. (May/June 2006), (April/May 2008), (April/May 2010), (April/May 2011)
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. (Nov/Dec 2007)
4. What is the difference between a ram type turret lathe and saddle type turret lathe? (Nov/Dec 2007)
5. State the need for tumbler gear mechanism. (April/May 2008)
6. What is the purpose of a mandrel? How many types of mandrels is there in common use? (Nov/Dec 2008)
7. What are the advantages of using a collect chuck? (Nov/Dec 2008)
8. Why is hollow spindle used in lathe? (Nov/Dec 2009)
9. How is the size of a turret lathe specified? (Nov/Dec 2009)
10. Mention four different types of chucks used in a machine shop. (May/June 2009)
11. What is rake angle? What is the effect of nose radius in tools? (May/June 2009)
12. Explain the following parts of lathe? (a) Lathe bed (b) Carriage (Nov/Dec 2010)
13. What is an apron? (Nov/Dec 2010)
14. State the different methods of taper turning. (April/May 2010), (April/May 2011), (Nov/Dec 2011)

15. Draw a neat sketch of 'Geneva mechanism' used in turret lathe or automatic indexing. *(April/May 2011)*
16. What is the difference between up milling and down milling? *(April/May 2011)*
17. Mention any two limitations of a center lathe. *(Nov/Dec 2011)*
18. What is the purpose of tumbler gear mechanism of a lathe? *(May/June 2012)*
19. What are the limitations of centre lathe when compared to automatic lathes? *(May/June 2012)*
20. What are the functions of feed rod and lead screw? *(Nov/Dec 2005)*
21. Why was power chucks developed? *(Nov/Dec 2005)*
22. State the various parts mounted on a carriage. *(May/June 2013)*
23. What are the types of single spindle automatic lathe? *(May/June 2013)*
24. What are the various thread cutting methods? *(April/May 2011)*
25. What is SWISS type automat? *(April/May 2011)*
26. Calculate the power required for cutting a steel rod of 50mm in diameter at 200rpm. Assume cutting force of 160kg. *(Nov/Dec 2006)*
27. What are the advantages of automatic lathes? *(Nov/Dec 2006)*
28. Give the expression to estimate the power required in machining. *(May/June 2006)*

## **PART-B**

1. With suitable line diagram explain the tail-stock set over method of taper turning on a lathe. *(May/June 2006)*
2. With a neat line diagram, explain the working of a turret lathe. *(May/June 2006)*
3. With a neat sketch, explain the working of a multi-spindle automatic lathe. *(May/June 2006)*
4. Describe some of the methods and equipments for holding work on a lathe. *(Nov/Dec 2007)*
5. Explain any four commonly used attachments on lathe. *(Nov/Dec 2007 )*
6. Briefly explain the principle of working of the sliding head type single spindle automatic machine. *(Nov/Dec 2007)*
7. Describe with a neat sketch a turret automatic screw machine. *(Nov/Dec 2007)*
8. Describe the holding devices in a lathe. *(April/May 2008)*
9. Describe the turret indexing mechanism and bar feed mechanism. *(April/May 2008), (April/May 2011), (Nov/Dec 2011)*
10. Explain with neat sketch the various methods of turning a taper. *(Nov/Dec 2008)*
11. Write down the difference between a capstan and a turret lathe. *(Nov/Dec 2008)*
12. Explain with a neat sketch the working of a 'Swiss' type automatic lathe *(Nov/Dec 2008)*
13. Explain with a sketch how movement of the carriage of a lathe is reversed. *(Nov/Dec 2009)*
14. Explain with a neat sketch how a face plate used for machining asymmetrical components. *(Nov/Dec 2009)*
15. Explain the types of possible machining operation on a turret lathe. *(Nov/Dec 2009)*
16. Describe a single spindle cutting of automatic machine. *(Nov/Dec 2009)*

17. 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 *(May/June 2009)*
  18. Discuss the features of ram type and saddle type Turret. *(May/June 2009)*
  19. Explain the feature of metal spindle automatics *(May/June 2009)*
  20. Explain the following with a neat sketch (i) Taper turning by swivelling the compound rest (ii) Taper turning attachment method (iii) Taper turning with tail stock set over method. *(Nov/Dec 2010)*
  21. Describe the holding devices in a lathe. *(Nov/Dec 2010)*
  22. Mention the specifications of lathe with a neat sketch. *(Nov/Dec 2010)*
  23. Discuss the main parts of a turret lathe. *(April/May 2010)*
  24. Explain the working of 'swiss' type auto lathe with a neat sketch. *(April/May 2010), (Nov/Dec 2011)*
  25. What is meant by "Tool layout" of a turret lathe? *(April/May 2010)*
  26. Name the various lathe accessories. How does a four jaw chuck differ from a three jaw chuck? *(April/May 2010)*
- Calculate the change gears to cut a single start thread M16 of 2mm pitch on a Centre lathe, having a lead screw of 6mm pitch. Calculate the depth of cut and number of passes preferred. (A typical set contains the following change gears with number of teeth : 20,25,30,35,40,45,50,55,60,65 and 70) . *(April/May 2011)*
27. Draw neat sketches of steady and follower rests and brief their applications. *(April/May 2011)*
  28. Describe the constructional features of Swiss type automatic screw machine. *(April/May 2011)*
  29. Describe the special features of a turret lathe, with a line sketch. Also mention any two advantages of it. *(Nov/Dec 2011)*
  30. Sketch and describe the thread cutting operation in an engine lathe using compound slide. *(Nov/Dec 2011)*

31. Sketch the following work holding devices used in a lathe and state when they are used:
- (1) Self centering three-jaw chuck
  - (2) Collet Chuck
  - (3) Angle plate with face plate *(May/June 2012)*
32. A blank 180 mm long and 70 mm diameter is to be machined in a lathe to 175 mm long and 60 mm diameter. The work piece rotates at 450 rpm , the feed is 0.3 mm/rev and the maximum depth of cut is 2 mm. For turning operation, the approach plus over travel distance is 6 mm. Assuming that the facing operation is done after the turning, Calculate the machining time *(May/June 2012)*
33. Sketch a line diagram of a single spindle automatic lathe and briefly describe its features. *(May/June 2012)*
34. Make a comparison of operational and other features of single spindle and multi spindle automatic lathes. *(May/June 2012)*
35. What is lathe carriage? Explain the various parts of a lathe carriage with a neat diagram. *(Nov/Dec 2005)*
36. Enumerate the purpose of various attachments used on a centre lathe. *(Nov/Dec 2005)*
37. What is a Swiss- type automatic screw machine? How it functions and what are its main applications? *(Nov/Dec 2005)*
38. Explain the various taper turning methods. *(May/June 2011)*
39. Discuss about special attachments of lathe. *(May/June 2011)*
40. Describe the turret indexing mechanism. *(May/June 2011)*
41. Calculate the time required for one complete cut on a work piece of 500mm long and 50mm diameter. The cutting speed is 30m/min and the feed rate is 0.5mm/rev *(Nov/Dec 2006)*
42. Describe the working of multi spindle automatics; give its advantages and applications. *(Nov/Dec 2006)*
43. Explain the construction and working principal of lathe with sketch. *(Nov/Dec 2006)*

