

GOVERNMENT POLYTECHNIC SHEOHAR
BRANCH: MECHANICAL ENGINEERING | 3RD SEMESTER
SUBJECT: MANUFACTURING ENGINEERING

100 Important Questions Bank

1. Define manufacturing and explain its importance in the engineering industry.
2. Differentiate between orthogonal and oblique cutting.
3. What is a single-point cutting tool? Sketch and label its various angles.
4. Explain the concept of tool signature.
5. What are the common materials used for making cutting tools?
6. Describe the properties required for a good cutting tool material.
7. Explain the function of cutting fluids in machining operations.
8. State the working principle of a lathe machine.
9. List the main parts of a center lathe and state their functions.
10. Differentiate between a capstan and a turret lathe.
11. Explain the mechanism of a lathe bed and the materials used for it.
12. Describe the various operations that can be performed on a lathe.
13. What is taper turning? Explain the tailstock set-over method.
14. Explain the compound rest method of taper turning.
15. How is thread cutting performed on a lathe machine?
16. What is the function of a lead screw and half nut in a lathe?
17. Define cutting speed, feed, and depth of cut for lathe operations.
18. Write the formula for calculating machining time on a lathe.
19. What are lathe accessories? Name any four.
20. Explain the use of a steady rest and follower rest.
21. State the working principle of a drilling machine.
22. Classify the different types of drilling machines.
23. Explain the construction and working of a radial drilling machine.
24. Sketch a twist drill and label its parts.
25. What is the difference between drilling and boring?
26. Explain the operations: reaming, tapping, and counterboring.
27. Define cutting speed and feed in a drilling operation.
28. What is a boring machine? Classify them.
29. Explain the working of a horizontal boring machine.
30. What are the common tools used in boring operations?
31. State the working principle of a shaper machine.

32. List the principal parts of a shaper and their functions.
33. Explain the quick return mechanism (Crank and Slotted Link) used in a shaper.
34. Describe the Whitworth quick return mechanism.
35. What are the various operations performed on a shaper?
36. Compare a shaper and a planer.
37. Explain the working principle of a planer machine.
38. Describe the construction of a double housing planer.
39. What is a slotter machine? How does it differ from a shaper?
40. Explain the driving mechanism of a slotting machine.
41. State the working principle of a milling machine.
42. Classify milling machines.
43. Explain the construction of a column and knee type milling machine.
44. Differentiate between up milling (conventional) and down milling (climb).
45. List the various types of milling cutters.
46. Explain the operations: face milling, end milling, and straddle milling.
47. What is an indexing head? Explain its purpose.
48. Describe direct indexing and simple indexing methods.
49. Calculate the indexing for cutting a gear with 30 teeth.
50. Explain compound and differential indexing.
51. State the working principle of grinding.
52. What are the abrasives used in grinding wheels? Differentiate between natural and artificial abrasives.
53. Explain the specification (marking system) of a grinding wheel.
54. What do you mean by grade and structure of a grinding wheel?
55. Explain the terms: glazing and loading of a grinding wheel.
56. Describe the process of dressing and truing of a grinding wheel.
57. Explain the working of a cylindrical grinding machine.
58. Describe the working of a surface grinding machine.
59. What is centerless grinding? Explain its principle.
60. Compare internal and external grinding operations.
61. Define welding. Classify the different welding processes.
62. Explain the principle of arc welding.
63. Describe the types of welding joints and welding positions.
64. What is the function of flux in arc welding?
65. Explain the differences between AC and DC arc welding.
66. Define the term 'arc blow' and how it can be prevented.
67. Explain the principle of gas welding (Oxy-acetylene welding).

68. Describe the different types of flames in gas welding and their applications.
69. What are the safety precautions to be taken during gas welding?
70. Compare gas welding and arc welding.
71. Explain the principle of resistance welding.
72. Describe the working of spot welding and its applications.
73. Explain seam welding and projection welding.
74. What is TIG (Tungsten Inert Gas) welding? Explain its working.
75. What is MIG (Metal Inert Gas) welding? Explain its advantages.
76. Differentiate between TIG and MIG welding.
77. Explain Submerged Arc Welding (SAW).
78. What is soldering? Explain its procedure and applications.
79. What is brazing? How does it differ from soldering?
80. List the common welding defects, their causes, and remedies.
81. Define casting. What are its main advantages and limitations?
82. Explain the steps involved in making a casting.
83. What is a pattern? List the materials used for making patterns.
84. Explain the various types of pattern allowances.
85. Classify the different types of patterns with sketches.
86. What is a core? Explain its function and types.
87. Describe the properties of good molding sand.
88. What are the ingredients of molding sand?
89. Explain the different types of molding sand (e.g., green sand, dry sand, loam sand).
90. Describe the hand molding tools used in a foundry.
91. What is a gating system? Sketch and label its elements.
92. Explain the function of a sprue, runner, and gate in casting.
93. What is the purpose of a riser in a casting mold?
94. Explain the working of a cupola furnace with a neat sketch.
95. Describe the different zones of a cupola furnace.
96. What is die casting? Differentiate between hot chamber and cold chamber die casting.
97. Explain centrifugal casting and its applications.
98. Describe investment casting (lost-wax process).
99. List the common casting defects, their causes, and remedies.
100. Discuss the safety precautions required in a foundry shop.