

Department of Mechanical Engineering

MANUFACTURING TECHNOLOGY – 1 (QUESTION BANK)

- 1.Name any four types of commonly used patterns
- 2.What is the merit of CO₂ process?
- 3.State the essential properties of moulding sand
4. Give any two merits and demerits of investment casting process
5. Mention any two merits and demerits of die casting
7. List out any four defects in casting
8. What is meant by split pattern
9. Define the term mould
10. What are the defects caused by low pouring temperature?
11. What is meant by match plate pattern making?
12. How will you calculate grain fineness number?
13. How patterns differ from casting?
14. What are the tests carried out to determine the quality of casting?
15. What are the functions of riser?
16. What are core prints?
17. What are the functions of gating and risering?
18. What is the composition of moulding sand?
19. What is the function of core?
20. Which process is called “Lost wax process”?Why?
21. Discuss the properties of moulding sand
22. What are the various moulding methods, explain them
23. Explain the working principle of investment casting
- 24.Discuss the casting defects and their inspection methods
25. What are the pattern making allowances and briefly explain them
26. Describe centrifugal casting process
27. Describe the shell moulding process
28. Explain the ceramic moulding process and state its merits and demerits
29. What are the factors which govern the selection of a proper material for pattern making?
30. What are the specific advantages of match plate patterns? Explain how they are used for making mould
31. Classify the types of patterns and sketch any three of them
- 32.What is core and explain how to make a core?
33. Explain the construction and operation of Cupola furnace with diagram
- 34Write a short note on “Chills”
35. Describe various materials used for making patterns. What are its merits and demerits
- 36.What are the basic requirements of core sand? How does it differ from the moulding sand?
37. What are the different types of furnace used in foundry? Describe in detail with neat sketches any one of them
- 38.Describe the steps involved in the preparation of green sand mould with cope and drag pattern
- 39 Briefly explain cold-chamber die casting process with a neat sketch

40. What is the principle of resistance welding?
41. What is the role of fluxes in welding? Or function of flux in welding?
42. List out any four arc welding equipment.
43. What is the principle of Thermit welding?
44. What are the different types of gas flames? How are they formed?
45. Differentiate soldering and brazing .
46. What is the chemical reaction occurs in thermit welding?
47. What are the advantages of carbon arc welding?
48. Differentiate between oxy-acetylene and air-acetylene welding
49. What are the advantages of a.c. arc welding?
50. What is the principle cause of cracks in weld metals?
51. How do you specify an electrode?
52. What is the function of shielding gas in welding?
53. Why laser welding is used only for micro-welding applications?
54. Define resistance welding
55. What is flux? Why is it essential to use it in some welding situations?
56. What are the defects that are generally found in welding?
57. List any four applications of TIG Welding process.
58. Is flux necessary in Brazing process? If yes why?
59. How slag inclusions in welding be avoided?
60.
 - i. Distinguish between gas and arc welding
 - ii. What are the advantages of welding?
 - iii. Explain percussion welding
61.
 - i. Describe Electro slag welding
 - ii. Distinguish between soldering and brazing
62.
 - i. Explain spot welding
 - ii. Explain submerged arc welding
63.
 - i. Explain the electron beam welding process with a neat sketch
 - ii. Write a brief note on "Welding defects"

64. i. Sketch the three types of Oxy-acetylene flames and state their characteristics and applications.
 - ii. Describe the electro-slag welding process with a neat sketch.
65. i. What is the principle of resistance welding and explain the seam welding?
 - ii. Describe plasma arc welding
66. i. What are the different types of electrode? What are the functions of flux coating?
 - ii. What is the principle of friction welding?
67. i. Describe metal inert Gas arc welding process with a neat sketch.
 - ii. Briefly explain on butt welding process
68. i. Give a brief account of classification of welding processes?
 - ii. Explain TIG welding process variables and enumerate its advantages
69. i. Describe shielded metal arc welding process with suitable diagram. What are its applications?
 - ii. What is the difference between welding, brazing and soldering process?

70. List out the types of forging machines

71. What are the types of rolling mills?

72. What are the four major draw backs of hot working?

73. Classify the types of extrusion

74. State any two effects produced by Cold-working

75. What are the two basic types of forging process?

76. What do you understand by forging? What are the advantages?

77. List out the forging defects

78. Classify the types of forging machines

79. State the defects in rolled parts.

80. What are the advantages of cold forming?

81. What is the purpose of piercing operation?

82. Name any four limitations of hot forging

83. Write the limitations of hot working process

84. What is the difference between stretch forming and bending?

85. What do you understand by recrystallisation and recrystallisation temperature?

86. What are the general advantages of forging as a manufacturing process?

87. List the functions of Back-up rollers in rolling operation?

88. Discuss in brief open die and closed die forging

89. What is the principle of impact forging?
90. Classify the types of forging machines and explain any one
91. Explain the forward and back extrusion process
92. i. Classify the types of rolling mills and sketch them
ii. List out various forging defects
93. i. Describe hydrostatic extrusion process.
ii. Compare press forging and hammer forging
94. i. Explain the tube piercing process
ii. Distinguish hot and cold extrusion process and briefly explain one in each.
95. i. Describe the principle of rolling. Write the various kinds of rolling mills along with their applications
ii. What are the types of power hammers available and explain the pneumatic hammer with a neat sketch
96. i. Describe the difference between a bloom, a slab and a billet. Explain the features of different types of rolling process.
ii. Discuss the effects of temperature, strain rate and friction on metal forming process
97. i. Explain with a sketch, what is meant by flat strip rolling.
ii. Explain the procedure for making the head of Bolt by forging operation
98. i. Name the hand forging operation and explain briefly about them.
ii. Explain with a neat sketch of roll forging process.
99. Describe the following processes
a. Roll die forging b. Skew rolling c. Ring rolling
100. What is blanking?
101. What is punching operation?
102. What are the different types of metals used in sheet metal work?
103. Mention any four products produced by spinning process?
104. In which member the clearance should be given for blanking and piercing?
105. What is the difference between stretch forming and bending?
106. List various operations generally performed in a sheet metal shop
107. Show the details of punching process with the help of a simple sketch
108. Give the difference between punching and blanking
109. List the various sheet metal that can be formed in press working
110. Define the term spring back
111. What are the advantages of stretch forming operation?
112. What are the types of special forming processes?
113. What are the advantages of hydro forming process?

114. State the limitations and applications of rubber pad forming process
115. What is metal spinning process?
116. State the advantages and applications of explosive forming process
117. What is peen forming process?
118. What are the advantages and disadvantages of peen forming process
119. What are the applications of super plastic forming process?
120. i. Explain any one stretch forming operation
 ii. Define formability and how it is tested?
 iii. What is drawing operation?
121. i. Explain the metal spinning operation
 ii. Describe the magnetic pulse forming process
122. What is deep drawing operation? Explain with a neat sketch.
123. i. Explain rubber pad forming process
 ii. Describe the electro hydraulic forming process
124. i. Describe the explosive forming process
 ii. How are aluminium kitchen utensils produced?
125. i. Describe the process of hydro forming
 ii. Describe the various methods of rubber forming. Where are these processes used?
126. i. What is super plastic forming?
 ii. Describe the hydro forming process with the help of neat diagram
127. i. Explain the characteristic features of sheet metal used in forming process
 ii. Explain peen forming process
128. i. Find the total pressure, dimensions of tools to produce a washer 5cm outside dia with a 2.4 cm diameter hole, from a material 4 mm thick, having a shear strength of 360 N/mm²
 ii. Determine a) blank diameter b) Least no. drawing operations c) force and energy for the first draw with 40% reduction to produce a cup of 5 cm in diameter and 7.5cm deep to be drawn from 1.5mm thick drawing steel with a tensile strength of 315 N/mm²
- 129) Define tool life.
- 130) Describe the mechanism of chips formation
- 131) What are the different types of chips forms during machining?
- 132) Explain about the different types of tool wear?
- 133) What are the main cutting tool materials? Describe each in brief stating its principal characteristics and applications?
- 134) With the help of neat sketches, indicate the different parts and angles of a single point tool
- 135) What is tool signature? Explain with an example the tool signature used in ASA system.

136) Give two examples each of orthogonal cutting and oblique cutting.

137) With a suitable diagram find out an expression for shear strain in orthogonal metal cutting.

138) In orthogonal turning of a 50 mm diameter mild steel bar on a lathe the following data were

Obtained: Rake angle = 15° , cutting speed = 100 m/min, feed 0.2 mm/rev, cutting force = 1800 N. Feed force = 600 N. Calculate the chip thickness ratio, shear plane angle, coefficient of friction, cutting power, the chip flow velocity and shear force, if the chip thickness is 0.3 mm.

139) Why are chip breakers necessary? Discuss. What are the common methods of chip breaking?

140) While machining a mild steel work-piece with HSS tool the following data were recorded:

cutting speed 32 m/min, tool life 50 minutes. If the cutting speed is increased by 50%, how tool life will be affected? Assume exponent 'n' of Taylor's equation = 0.2.

141) How do you classify the cutting fluid?

142) Distinguish rough and finish turning.

143) What are the advantages of Turret lathe over engine lathe?

144) Define Knurling, Thread cutting, Taper turning, Facing and Polishing.