DEPARTMENT OF MECHANICAL ENGINEERING

UBMC303 – MANUFACTURING TECHNOLOGY – I

QUESTION BANK

UNIT 1 – METAL CASTING PROCESS

PART – A (2 Marks)

1. Define casting.
2. Define mould.
3. Define pattern.
4. Name any two pattern materials
5. Give any two types of pattern
6. Define pattern allowances.
7. What are the requirements of core sand?
8. What is gating?
9. What are the different types of core?
10. What are the properties of moulding sand?
11. What are the different types of moulding sand?
12. Write down the ingredients of moulding sand?
13. What are the different types of moulding processes?
14. Write down the different types of furnaces used for casting.
15. Write down the different zones in cupola furnace.
16. What is Centrifugal casting?
17. Define Lost wax Pattern?
18. Give the advantages of green sand mould.
19. Mention the merits and Demerits of investment casting.
20. What are the different types of defects found in casting process?

Part-B (6 Marks)

1. Explain any four types of patterns used in foundry with a neat sketch
2. What are pattern allowances? Explain any two pattern allowances with a neat sketch.
3. Explain the constituents of moulding sand.
4. What are the types of moulding sand and explain any two type of moulding sand.
5. Explain the properties of moulding sand.
6. Explain sand slinger with neat sketch..
7. Explain the three types of core binders.
8. Explain any three types of core.
9. What is sand testing? Explain the tools used in sand testing?
10. Explain the squeeze jolting machine with sketch.
11. Explain ceramic mould casting with a neat sketch.
12. Explain the shell moulding process with a neat sketch..
13. Explain hot chamber die casting and also with a neat sketch.
14. Explain gravity die casting and also write its applications.
15. Explain the different types of defects in casting with a neat sketch?

Part-C (10 Marks)

1. Explain the steps involved in sand moulding process with a neat sketch?
2. Explain the working principles of investment casting process with a neat sketch?
3. Explain the construction and operation of Cupola furnace with a neat sketch?
4. Explain the pressure die casting process with a neat sketch? Also write its advantages and disadvantages.
5. Describe the centrifugal casting process with a neat sketch?
6. Explain the different core making process with a neat sketch?

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QUESTION BANK

UNIT 2 – JOINING PROCESS

PART – A (2 Marks)

1. Define Welding.
2. What is arc welding?
3. Write the types of welding joints.
4. What are the types of welding?
5. Classify the types of electrodes?
6. What are the types of gas welding?
7. What are the types of flame characteristics?
8. Give any two advantages of gas welding.
9. Define Soldering.
10. Define Brazing.
11. Give the advantages of MIG welding.
12. Give the advantages of SAW welding.
13. Write down the advantages of TIG welding.
14. What is the working principle of plasma arc welding?
15. Write the applications of plasma arc welding.
16. Write the working principle of laser beam welding.
17. Write the working principle of electron beam welding.
18. Give the applications of electron beam welding.
19. Write the working principle of friction welding.
20. List out the defects in welding process.

Part-B(6Marks)

1. Explain the flame characteristics of gas welding process with a neat sketch.
2. Give the advantages and limitations of gas welding.
3. Differentiate arc welding and gas welding.
4. Explain the Shielded Metal Arc welding with a neat sketch.

5. Write the advantages and disadvantages and applications of submerged arc welding.
6. Explain the seam welding process and discuss its advantages.
7. Write the advantages and disadvantages, Applications of laser beam welding.
8. Advantages and applications of electron beam welding
9. Explain friction welding with a neat sketch?
10. Explain Brazing and its types.
11. Explain Soldering and its types.
12. Explain cracks and distortion with a sketch.
13. Write down the properties of adhesives.
14. Explain Metal Inert Gas Welding with a neat sketch?
15. Explain Plasma Arc welding and also write its advantages?

Part-C (10 Marks)

1. Explain TIG welding process with a neat sketch.
2. Explain Thermite welding process with a neat sketch.
3. Explain resistance welding with a neat sketch.
4. Explain Laser Beam welding with a neat sketch.
5. Explain Electron Beam welding with a neat sketch. .
6. Explain submerged arc welding with a neat sketch.

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QUESTION BANK

UNIT 3 – BULK DEFORMATION PROCESSES

PART – A (2 Marks)

1. Define hot working.
2. Define cold working
3. Give any two advantages of hot working.
4. Give any two advantages of cold working.
5. List out the materials used for cold working.
6. Define cold drawing.
7. List out the types of cold drawing.
8. Define forging.
9. List out the types of open die forging.
10. List out the types of closed type forging.
11. Give any two applications of drop forging.
12. Difference between press and drop forging.
13. List out the types of forging operations.
14. Define rolling of metals.
15. What is recrystallization temperature?
16. Define tube piercing.
17. Define tube extrusion
18. List out the defects in extrusion.
19. List out the types of extrusion.
20. Define drawing process.

Part-B (6 Marks)

1. What is hot working and what are the advantages and disadvantage of hot working?
2. What is cold working and explain any three cold working processes.
3. Comparison between hot working and cold working.
4. What is forging and explain open die forging with a neat sketch.
5. Explain upset forging with a neat sketch.
6. Explain roll forging with a neat sketch.
7. Comparison between press and drop forging.
8. Explain rolling of metals with a neat sketch.

9. Advantages and Limitations of tube extrusion.
10. Explain the defects in rolled parts?
11. Explain forward extrusion with a sketch.
12. Explain backward extrusion with a sketch.
13. Explain impact extrusion with a sketch.
14. Explain wire drawing with a sketch.
15. Explain the defects in rolled parts.

Part-C (10 Marks)

1. Explain hot working of metals with a neat sketch.
2. Explain cold working of metals with a neat sketch.
3. Define forging and explain drop forging with a neat sketch.
4. Define tube piercing and explain it with a neat sketch.
5. Explain hot extrusion and its types with a neat sketch.
6. Explain flat strip rolling with a neat sketch.

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QUESTION BANK

UNIT 4 – SHEET METAL PROCESSES

PART – A (2 Marks)

1. Define sheet metal process.
2. What are the characteristics of sheet metal?
3. Define forming.
4. Give any four sheet metal hand tools.
5. Define shearing.
6. List out the classifications of sheet metal operations.
7. Write down the factors that have to be considered for the selection of presses.
8. Write down the classification of shearing operation.
9. Define perforating.
10. Write down the classification of forming operation.
11. Write down the classification of bending operations.
12. Define seaming.
13. List out the classification of drawing operations.
14. What is stretch forming?
15. List out the various formability testing methods.
16. What are the various types of special forming operations?
17. Write any two advantages of hydro mechanical forming.
18. What is metal spinning process?
19. Write the applications of explosive forming process.
20. What is peen forming?

Part-B(6Marks)

1. Explain any four sheet metal characteristics.
2. Explain electro hydraulic forming process with a neat sketch
3. Explain peen forming process.
4. Applications of magnetic pulse forming process.
5. Explain squeezing with a neat sketch.
6. Explain form block method of stretch forming.
7. Explain mating die method.
8. Explain formability of sheet metal.
9. Explain formability tests for bulk deformation

10. Advantages of hydro chemical forming.
11. Explain the working principles of rubber pad forming.
12. Applications and Advantages of super plastic forming.
13. Explain the hydro mechanical forming with a neat sketch.
14. Explain peen forming with a neat sketch.
15. Explain explosive forming with a neat sketch.

Part-C (10 Marks)

1. Explain the process characteristics of sheet metal forming process.
2. Explain the cutting operation in sheet metal operations with a neat sketch.
3. Explain the forming operations in sheet metal operations with a neat sketch.
4. Explain bending operation and types of bending operations.
5. Explain magnetic pulse forming process with a neat sketch.
6. Explain super plastic forming process with a neat sketch.

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QUESTION BANK

UNIT 5 – MANUFACTURING OF PLASTIC COMPONENTS

PART – A (2 Marks)

1. What are polymers?
2. What is polymerization process?
3. What are the types of polymerization process?
4. What are elastomers?
5. How are plastics classified?
6. What are thermo plastics?
7. What are thermosetting plastics?
8. What are the kinds of thermosetting resins?
9. What are the different types of thermosetting mouldings?
10. On what principle does injection moulding works?
11. On what principle does blow moulding works?
12. Give any two applications of blow moulding.
13. Give any two applications of rotational moulding.
14. Write the working principle of film blowing.
15. Write the working principle of extrusion process. .
16. Write the different types of compression moulding.
17. Give any two applications of compression moulding.
18. Write the working principle of transfer moulding.
19. Give any two applications of transfer moulding.
20. What is meant by bonding of thermo plastics?

Part-B (6Marks)

1. What are polymers and what is polymerization process?
2. Explain condensation polymerization process
3. Explain addition polymerization process.
4. Explain thermoplastics with some examples.
5. Explain thermo setting plastics with some examples.
6. What is the difference between thermoplastics and thermo setting plastics?

7. Explain ram type injection moulding with a neat sketch.
8. Explain film blowing with a neat sketch
9. Write the advantages and applications of rotational moulding.
10. Write short notes on any three plastic processing methods.
11. Explain the materials used for processing of plastics.
12. Difference between thermo plastics and thermo setting plastics.
13. Explain the different types of plastics.
14. Explain thermo forming process with a neat sketch.
15. Explain bonding of thermo plastics with a neat sketch.

Part-C (10 Marks)

1. What are polymers and explain the types of polymerization process.
2. Explain ram type injection moulding with a neat sketch.
3. Explain blow moulding with a neat sketch.
4. Explain rotational moulding with a neat sketch.
5. Explain compression moulding with a neat sketch.
6. Explain transfer moulding with a neat sketch.