

**AKSHEYAA COLLEGE OF ENGG.
DEPT. OF MECHANICAL ENGG.
ME6302/MANUFACTURING TECH-I
IV Yr / VII Sem
16 Marks question Banks**

UNIT - I METAL CASTING PROCESSES

1. With reference to metal casting, explain the following types of patterns, with suitable sketches of examples: (i) Solid pattern (ii) Split pattern (iii) Loose piece pattern (iv) Sweep pattern
2. Explain the CO₂ process of core making. State its advantages and applications.
3. With suitable sketches, explain the various steps of investment casting Process. What are its advantages?
4. Sketch the various sand casting defects. Give their cause and remedies?
5. List out various pattern allowances. Explain them in detail.
6. Discuss any four sand testing methods.
7. Enumerate with neat sketches various steps involved in making investment castings.
8. Explain any four casting defects with causes and their remedies.
9. Explain the properties of moulding sands.
10. What is core? Describe the different types of core used.
11. Describe the procedure of making castings by investment castings.
12. Name the pattern allowances which can be quantitatively specified.
13. Which properties are desirable for moulding sand for sound casting?
14. Compare precision investment casting and shell moulding form the point of process, product and applications.
15. Describe the operation of cupola furnace for melting cast iron?
16. Explain in detail the working principle of centrifugal casting.
17. Explain in detail the "The Lost Wax "method.

UNIT - II JOINING PROCESSES

1. Sketch the overall setup of submerged welding process and explain the working principle. Mention its applications.
2. Sketch the three types flames in oxy acetylene welding and state their characteristics.
3. Explain plasma arc welding process with neat sketch and explain its advantages.
4. Sketch the different types of weld defects and mention how they occur?
5. Explain TIG and MIG welding processes with a neat sketch.
6. Explain submerged arc welding with neat sketch.
7. Explain resistance spot welding with sketch.
8. Discuss various filler and flux materials used in welding.
9. Describe electron beam welding process with neat sketch.
10. Describe with neat sketch the components of oxy acetylene gas welding equipment.
11. Discuss the principle of adhesive bonding. List out any four types of adhesives.
12. Describe with neat sketches, various steps in friction welding.
13. Describe with a neat sketch the principle of percussion welding. State its advantages and limitations
14. List out the different types of welding process. Briefly explain the working of any two welding process.
15. What is meant by welding defect? Explain any five welding defects.
16. Explain the resistance welding process giving the equipment, parameters controlled and applications.
17. Explain the features of reducing, neutral and oxidizing flames. Why is a reducing flame so called?
18. Explain the gas metal arc welding process with neat sketch.

UNIT - III BULK DEFORMATION PROCESSES

1. What is smith forging operation? With neat sketches, explain upsetting, bending & swaging operations.
2. Distinguish between forging hammers and forging presses. Explain the working of drop hammer with neat sketch.
3. (a) With neat sketches, explain different types of roll stand arrangements used in rolling mills. (b) State clearly for what purpose each arrangement is used. (c)With a neat sketch, explain the principle used in tube drawing process.
4. Describe the principle of Hot and cold working process. Compare them
5. Explain the working principle of wire and tube drawing processes with neat sketches.
6. Distinguish between open die forging and closed die forging.
7. What are the defects in parts produced by rolling? Explain any 4 defects.
8. Distinguish between wire drawing and tube drawing with sketches.
9. Describe the principle of hydrostatic extrusion.
10. How do you compare forged components with cast components?
11. Explain the types of rolling mills with a neat sketch.
12. Distinguish between wire drawing and tube drawing.
13. Explain with neat sketches, upsetting and drawing down operations.
14. What is shape rolling? Mention the product of shape rolling and explain production of anyone of the product with neat sketches.
15. Why has cold extrusion become an important manufacturing process? Explain.
16. Describe the difference between a bloom, a slab and a billet. Explain the features of different types of rolling process.

UNIT - IV SHEET METAL PROCESSES

1. Describe metal spinning process with a neat sketch and state its advantages and specific uses.
2. Explain hydro forming process with neat sketches. Make a brief comparison of this process with conventional deep drawing.
3. Distinguish between blanking and punching operations .sketch and explain the elastic phase , plastic phase and fracture phase that takes place in blanking operation.
4. Briefly explain what are compound dies and progressive dies, with suitable sketches.
5. Explain the three bending methods with suitable sketches.
6. Sketch and explain the following explosive forming methods: (a) Confined system (b) Un confined system.
7. Enumerate with neat sketches three phases in shearing.
8. What are the various bending operations? Explain any four.
9. Write short notes on: (a) Hydro forming (b) Magnetic pulse forming (c) Super plastic forming.
10. Write a note on sheet metal characteristics.
11. Describe the shearing and bending operations with suitable examples.
12. Explain the explosive and super plastic forming with neat sketches.
13. Explain with a sketch the principle of stretch forming.
14. Washers of 10mm inside diameter and 2mm outside diameter are to be obtained from 1mm thick sheet metal .Sketch the tools required.
15. What is high energy forming and in what form is the principle applied? Sketch an example of one application.
16. Explain the principle of metal spinning process with a neat sketch.

UNIT - V MANUFACTURING OF PLASTIC COMPONENTS

1. Briefly explain the following methods of bonding of thermoplastics (i) Fusion bonding (ii) Vibration welding (iii) Solvent bonding (iv) Induction welding
2. Describe the following plastic processing methods , with help of neat sketches: (i) Blow moulding (ii) Compression moulding
3. Explain injection moulding process with a neat sketch?
4. What are the differences between thermoplastics and thermosetting plastics?
5. Describe the various steps involved in rotational moulding. State its applications
6. What are methods of bonding thermoplastics? Explain any one method.
7. Write down the characteristics of shaping processes of plastics.
8. Describe the working principle of film blowing and thermoforming.
9. Discuss the various properties of plastics.
10. Discuss the processing of thermo setting plastics.
11. Why is screw injection moulding machine better than a ram type injection moulding machine?
12. Illustrate with suitable sketch, the blow moulding process for producing plastic beverage bottles.
13. Give the sequence of operations in transfer moulding for thermosetting process.
14. Describe the thermoforming process