G.S.MANDAL'S

MARATHWADA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2017-18PART-I

SUBJECT: PRODUCTION PROCESSES -I

QUESTION BANK

Unit1: FOUNDRY

(2 Marks)

1. Identify few application of centrifugal casting. (BT -1)
2. List the different types of patterns. (BT- 1)
3. Write the application of core prints. (BT- 2)
4. Identify the ideal profile of a sprue. (BT- 1)
5. Define core print. (BT- 1)
6. Point out the factors to be considered in calculating the shrinkage allowance.(BT- 4)
7. Describe the essential requirements of a core sand.(BT- 2)
8. Explain the advantages of shell moulding briefly.(BT- 4)
9. List out the casting defects occur due to improper ramming.(BT -1)
10. Point out any four casting defects.(BT- 1)
11. Point out the Materials used for making Patterns.(BT- 2)
12. Define Casting.(BT- 1)
13. Explain Pattern briefly. (BT -2)
14. Differentiate Shrinkage and Porosity.(BT- 4)
15. Compare the advantages of metal moulds over sand (expendable) moulds.(BT- 4)
16. Point out the function of flux in melting metals and alloys.(BT- 4)
17. State any four properties of moulding sand. (BT -1)
18. Point out the types of furnace used for melting ferrous material and why.(BT -4)
19. Examine the causes for the formation of blow holes in the sand casting. (BT -3)

Long Answer Questions

1. (i) Describe the preparation of sand moulding process (BT-2) (ii) Explain the various types of pattern used in Mould Making. (BT-4)
2. (i) Classify the materials used for pattern making and write about them. (BT-4) (ii) What are the allowances given while making Pattern? Explain (BT-4)
3. (i) classify the different types of moulding sand and explain. (BT-4) (ii) Explain the method of moulding sand testing (BT-5)
4. (i) Describe the various properties required for the moulding sand. (BT-1) (ii) Explain types of cores and its application. (BT-4)
5. Identify and Explain the various steps involved in sand core manufacturing. (BT-1)
6. (i) Explain squeeze Jolting machine with neat sketch. (BT-4) (ii) Explain sand Slinger machine with neat sketch. (BT-4)
7. (i) Explain the Jolting Machine with neat sketch. (BT-4) (ii) Explain construction and operation of Blast furnace with necessary sketch. (BT-4)
8. (i) Describe the constructional feature of cupola furnace. (BT-1) (ii) Describe the operation of Cupola furnace with necessary sketch. (BT-2)
9. (i) Enumerate the steps in sequence for producing Shell Moulding. (BT-4) (ii) Explain lost wax - Investment casting processes with neat sketch. (BT-4)
10. (i) Explain ceramic moulding with a sketch. (BT-4) (ii) With the help of neat Sketch, describe in detail, the process of producing components by pressure die casting. (BT-1)
11. (i) Describe with a neat sketch of cold chamber die casting machine. (BT-2) (ii) Describe the procedure of making castings by the true centrifugal casting and write it advantages and disadvantages. (BT-2)
12. (i) Briefly describe hot chamber die casting process. (BT-2) (ii) Describe any one type of Centrifugal casting with neat diagram. (BT-1)
13. (i) Explain how the pipes and cylinder liners are made by centrifugal casting process. (BT-4)
14. (i) Name any five casting defects and explain the remedies for those defects. (BT-4)

Unit2: MECHANICAL WORKING OF METALS

(2 Marks)

1. Define hot working of metals (BT- 1)

2. Define cold working of metals (BT-1)

3. Analyze why surface finish of a rolled products better in cold rolling than in hot rolling. (BT-4

4. Define angle of bite in rolling (BT- 1)

5. Define lateral Extrusion (BT- 1)

6. Classify the various forming processes (BT-3)

7. Identify various defects in rolled parts (BT-1)

8. Summarize the effects of cold working. (BT-4)

9. Define forging(BT- 1)

10. Differentiate between compound dies and progressive dies. (BT-4)

11. List out some common applications where extrusion is used. (BT- 1)

12. Point out the advantage of cold extrusion. (BT- 4)

13. Name the types of forging machines. (BT- 1)

14. Define upsetting and Drawing down in forging operation. (BT-1)

15. Sketch the different types of rolling mills. (BT-3)

16. Differentiate between hot and cold forging. (BT-4)

17. Differentiate extrusion and forging. (BT-4)

18. Define fullering. (BT-1)

19. Explain recrystalisation. (BT-4)

20. List out any four parts that can be manufactured by shape rolling operations (BT-1)

Long Answer Questions

1. (i) Explain hot working and cold working processes. (BT-4) (ii) Explain various forging operation (BT-4)
2. (i) Explain the steps involved in drop forging with neat sketches (BT-4) (ii) With suitable sketches describe open die forging. (BT-1)
3. (i) Formulate the advantages and limitations of closed die forging. (BT-6) (ii) Explain the Precision forging Process with neat sketch and also compare with Closed Die Forging process. (BT-4)
4. (i) Explain fleshless forging operation. (BT-4) (ii) Explain about Impression die forging. (BT-4)

5. (i) Explain in detail about the defects occurred in forging operations. (BT-4) (ii) Draw a simple sketch showing rolling process and make a short note on deformation of grains in rolling (BT-1)
6. (i) Describe the ring rolling and thread rolling process (BT-1) (ii) Classify and write notes on various Rolling Stand Arrangement in detail. (BT-3)
7. (i) Discuss the types of Rolling mills. (BT-2) (ii) Discuss the types defects in rolled parts.
8. (i) Explain in detail about wire drawing (BT-4) (ii) Explain with neat sketches the process of tube drawing of metals. (BT-4)
9. (i) Explain with a neat sketch the process of Rod Drawing. (BT-5) (ii) Explain about Hot and Cold Extrusion. (BT-5)
10. Explain the forward and backward extrusion process (BT-4)
11. Analyse and Sketch variation in pressure during the Extrusion process by direct and indirect methods. (BT-4)
12. (i) Compare direct and indirect Extrusion process (BT-5) (ii) Write short notes on impact extrusion and hydro static extrusion. (BT-4)
13. With neat diagram explain the process of forward extrusion. Explain also how hollow sections can be produced in this process.
14. How hot working differs from cold working?
15. Define Extrusion and explain any two types.
16. Classify the method of forging process and explain any one in detail.

Unit3: SHEET METAL WORKING:

1. What is sheet metal work?
2. Write down any four sheet metal characteristics
3. What is meant by clearance?
4. Define the term “spring back”
5. What is metal spinning process?
6. What is sheet metal?

Long Answer Questions

1. What are Punching, Nibbling, Blanking, Piercing, tools/machines are needed for these processes?

2. What is deep drawing? Provide a few examples of products/parts made using deep drawing operations.
3. What is progressive die stamping?
4. Describe shearing operations in a sheet metal work with a neat sketch
5. Describe various types of bending operations with its neat sketches
6. Explain any one method of stretch forming operation with a neat sketch

Unit4: PROCESSING OF PLASTICS:

1. Explain in brief compression moulding of plastics.
2. What is FRP? Where can this are used.
3. What is the difference between thermoplastics and thermo setting plastics?
4. What are the desirable properties of polymers?
5. Explain the classification of plastics with their applications.
6. Explain injection moulding and extrusion moulding process.
7. Distinguish between thermoforming process and extrusion process for plastics.
8. Explain blow moulding process stating its advantages, limitation and application.
9. Explain Injection moulding process stating its principle of operation, different aspects, advantages, limitation and applications.
10. What are different types of plastics?
11. Name the different plastic forming processes
12. With neat sketch explain the construction of a plastic moulding die with ejection mechanism.

Unit5: JOINING PROCESSES:

(2 Marks)

1. Explain why shielding of weld area during welding is required(BT- 4)
2. Show that the seam welding is an application of spot welding(BT- 3)
3. Give the meaning of Nugget in Electric Resistance Welding(BT- 2)
4. Point out the different types of Oxyacetylene flame by sketches. (BT-4)
5. List out the various types of welding. (BT-1)

6. List out the flame characteristics. (BT-1)
7. Define the role flux in welding operation(BT-1)
8. Explain the principle of manual metal arc welding. (BT- 4)
9. List the advantages of AC equipment over DC equipment in arc welding. (BT-1)
10. List any four welding defects. (BT- 1)
11. Explain the difference between soldering and brazing. (BT- 5)
12. Define Brazing process. (BT-1)
15. Define Soldering Process. (BT-1)
16. 15. Define Friction welding.(BT-1)
17. Examine the causes of Welding defects(BT- 3)
18. Explain thermit welding briefly. (BT-3)
19. Differentiate between transferred and non-transferred plasma arc welding. (BT-3)
20. List out the arc welding equipment. (BT-1)

Long Answer Questions

1. (i) Describe various types of welding joints with neat sketch and (BT-1) (ii) list out the types of edge preparation before Welding Process. (BT-1)
2. (i) Distinguish between Gas Welding and Arc Welding. Distinguish between MIG and TIG Welding (BT-4) (BT-4)
3. (i) List out the types of arc welding process and list out the arc welding Equipments and selection factors for power sources. (BT-1) (ii) Describe with neat sketch the various components of OxyAcetylene gas welding equipment. (BT-1)
4. (i) Explain the various types of oxy-acetylene flames with sketches. (BT-4) (ii) Explain the Manual Metal Arc Welding Process with neat sketch. (BT-4)
5. (i) Explain about the equipment and operation of GTAW process. (BT-5) (ii) Explain about the Advantages and Disadvantages of GTAW. (BT-5)
6. (i) Explain Gas metal Arc Welding Process with Neat diagram (BT-4) (ii) Explain the Advantages, Disadvantages and Application of Gas Metal Arc Welding Process (BT-4)
7. (i) Describe the submerged arc welding process with neat diagram (BT-1) (ii) State its advantages and application of submerged arc welding process. (BT-1)
8. (i) Describe the process of Electro Slag Welding and mention their major application. (BT-1) (ii) Explain the Resistance spot welding Process with a neat sketch (BT-4)

9. (i) Explain with neat sketch the principle of resistance welding. Differentiate between upset welding and flash welding. (BT-4)
10. (i) Explain the Advantages, Disadvantages and limitation of Resistance Welding Process. (BT-4) (ii) Explain in detail the Plasma Arc Welding process and write its applications and demerits. (BT-4)
11. (i) Explain Thermit welding Process with neat sketch. (BT-4) (ii) Briefly explain the principle of operation advantages and (BT-4)
12. Classify welding process.
13. Explain with the schematic diagram of oxy acetylene gas welding and its application.
14. Explain the working principle of MIG with neat sketches and application.
15. Describe the welding Defects and its Remedies.
16. Explain the construction, working principle and limitations of following process with neat sketchesi) TIGii) Carbon arc welding

Unit6: SURFACE TREATMENT:

1. Briefly explain the need of surface treatment.
2. What is anodizing?
3. Explain in detail the chemical cleaning process used in surface coating process
4. With neat sketch explain the methods of metal spraying
5. What is Galvanizing?
6. How the surface treatment process is decided for, the given product.
7. What are the benefitsobtained by doing surface coating tothe product?
8. What are the cleaning methods for surface treatment? Explainany one type of cleaning method.
9. What is metal coating? Name a few applications.
10. What are the methods of metal spraying? Explain in detail one metal spraying process.