**SWARNANDHRA**

**COLLEGE OF ENGINEERING AND TECHNOLOGY**

**(AUTONOMOUS)**

Approved by AICTE, Autonomous with JNTUK, Kakinada

Accredited by NBA and NAAC with ‘A’ Grade (CGPA 3.32/4)

 Seetharampuram, Narsapuram-534 280, W-G-Dist.,

**Department of Mechanical Engineering**

B.Tech III Semester Question Bank

**PRODUCTION TECHNOLOGY – (UNIT WISE)**

 **R19 (A.Y:2020-21)**

**UNIT-1- CASTING PROCESS**

1. What is casting? What are the advantages and disadvantages of casting?
2. Explain the steps involved in making a casting with neat diagram. And explain its applications in industrial wide?
3. What is pattern? What are the patterns making materials explain them?
4. Describe different types of patterns used in casting process?
5. What are the pattern making allowances explain about different types of pattern allowances.
6. If the allowances are not given to the pattern, what are the various consequences in this discuss.
7. Explain the terminology of casting with the help of neat sketches. (or) explain about the elements in the gating system (or) suggest some methods to reduce the turbulences in liquid metal flow in mould.
8. What are the materials used for the preparation of the pattern?
9. Write the requirements of the good pattern?
10. What is gating system and write about the design of the gating system?
11. What is gate ratio? Explain in brief.
12. What is choke? Discuss the pressurized and non pressurized gating system.
13. Discuss the types of the sand moulds used in the casting procedure.
14. Compare different types of sand moulds?
15. What are the properties of the moulding sand? Discuss.
16. Define core? What is purpose of the core and explain the different types of cores used in sand moulding.
17. What is the different moulding materials used in sand casting? (Or) write about the basic and auxiliary moulding materials used in casting?
18. Explain about chaplets and where it is used in the casting process. What are its types
19. What is gate? What are the different types of gates? What is the main function of gate?
20. What are the requirements of gating system?
21. Write about the sand casting defects?
22. Explain about the core making process with the help of neat sketch?
23. Explain the important factors to be considered in selecting sand in preparation of moulds?
24. Why casting is preferred over other manufacturing methods?
25. What are composite molds? Why are they used?
26. What are the undesirable effects that could result from turbulence of metal in gating system and mould cavity?

**UNIT-2- MELTING AND SOLIDIFICATION**

1. What is melting? What are the methods of melting? Explain them in brief with neat sketches?
2. Explain about steel making process?
3. What is solidification and explain about in casting? or explain about nucleation grain growth (or) the solidification of pure metal and alloys, short and long freezing range alloys
4. What is riser? What are its main functions in solidification process?
5. Explain about design of riser or shape of riser?
6. Explain about design considerations in casting
7. Explain about the centrifugal casting?
8. Explain about advantages, disadvantages of die casting?
9. What are the different types of riser used in casting process?
10. Explain about permanent mould casting process?
11. Explain about open hearth, crucible and pit furnaces?
12. Explain about semi-centrifugal, de-laurd process/
13. Explain about investment casting (or) wax method (or) lost wax method (or) precision method?
14. What are important considerations in design of riser in casting? And its placement?
15. Explain the method of insulating riser and using exothermic reactions to increase efficiency of riser (or) how efficiency of riser can be improved
16. Suggest some methods to reduce turbulence in liquid metal flow in mould?
17. What factors that governs the shape and size of riser (or) explain the design (or) shape of riser?
18. What is fettling (or) cleaning of casting?
19. Explain about semi-centrifugal (or) profiled centrifugal casting?
20. Explain about centrifugal (or) pressure casting
21. Explain about permanent mould (or) gravity die casting
22. List differences and similarities between sand casting, die casting and permanent mould casting?
23. Make the list of safety considerations and precautions that should be taken concerning all aspects of melting and casting of metals including equipment involved?
24. Explain the different zones in cupola? Explain them?
25. Explain with help of neat sketches, construction working of following
	1. Coke red pit furnace
	2. A gas red crucible furnace
	3. An oil red tilting furnace
26. Write advantages, limitations and applications of centrifugal casting?
27. Explain shell moulding process? With help of neat sketches and write its advantages disadvantages, applications?

**UNIT- 3 WELDING PROCESSES**

1. What are the difference between TIG and MIG welding process?
2. Explain destructive and nondestructive welding tests?
3. Explain with the help of neat sketches the induction welding and explosive welding process and their applications?
4. Describe the types of defects occurring in various welding process explain the cause and remedies.
5. List and explain the destructive tests applied in welding?
6. What are essential steps in brazing operation?
7. Why is brazing an appropriate method for joining dissimilar metals with widely different melting points?
8. What are the low temperature joining process explain brief?
9. Describe the difference between brazing and soldering methods.
10. Explain about the electron beam welding?
11. Explain about the induction welding and its advantages?
12. Explain about the electro slag welding with neat sketch?
13. What is friction welding and what are its applications?
14. Explain the heat affected zones in welding. how do you reduce the heat affected zones in welding?
15. Describe with the neat sketch the CO2 –MIG welding process and give its application
16. Describe the types of fluxes used in the soldering and their applications
17. What are the characteristics of heat affected zone in welding?
18. Describe the difference between brazing and soldering?
19. Describe with the help of a neat sketch the principle of spot welding.
20. Describe the types of defects occurring in various welding processes. Explain

 the causes and remedies.

1. Explain the principle of operation of laser & electron beam welding. Mention its applications.
2. Explain the principle of operation of laser welding. Mention its applications.
3. What is Weld ability? What factors influence it?
4. Describe the applications of 1) neutral flame 2) reducing flame 3) oxidizing flame
5. Explain about the Submerged arc welding? And give it applications.
6. How does straight polarity differ from reverse polarity? Give their applications.
7. Explain the process of Thermit Welding ?state and explain the controlling parameters that influence the Thermit welding.
8. How to carry out the manual arc Welding ?explain the procedure

**Unit -4 MECHANICAL WORKING OF METALS - EXTRUSION OF METALS**

1. Explain the effect of rolling variables on rolling load and rolling process.
2. Describe classification of rolling process and mills.
3. Sketch and explain the types of rolling mills and mention their specific applications.
4. How do you estimate torque and power in rolling? Explain.
5. Explain the Bending operations with neat sketches.
6. What is forming? Explain Any five forming process with neat sketch’s.
7. Give the difference between Punching and Blanking.
8. What are the types of Rolling mills Explain any three Rolling mills with a neat sketch’s.
9. Explain the drawing and deep drawing operations with neat sketches.
10. Sketch and explain the types of rolling mills and mention their specific applications.
11. Differentiate between piercing and blanking. How and where do you give clearances in each type?
12. What is spinning? Explain briefly with a neat sketch’s of hot and cold spinning.
13. What is stamping? Explain briefly with a neat sketch’s of stamping.
14. What are the types of presses? Explain briefly with a neat sketch of hydraulic press.
15. What is strain hardening? Explain recovery and Recrystallization.
16. What is coining? Explain the process with the help of a neat sketch.

**UNIT-5: PLASTIC PROCESS & RAPID PROTOTYPING**

1. Distinguish between thermosetting plastics and thermoplastics. Give their applications.
2. List few components manufactured by the injection moulding and justify why they are manufactured by this process.
3. With the help of suitable figures explain the blow moulding process. Mention its

Application’s and advantages.

1. Discuss the types of forging and mention their applications.
2. Explain compression moulding process.What are the Disadvantage’s of this process?
3. What is extrusion? List the advantages, limitation and application of extrusion process?
4. Briefly describe the drop forging and roll forging process.
5. Write short notes on i. Thermo plastics ii. Thermo setting plastics.
6. Describe the injection moulding process with a neat sketch and write advantages and limitation of the process.
7. Describe hot extrusion and cold extrusion and its applications.
8. What are the types of forging Defect’s.
9. Explain briefly with a neat sketch of hydrostatic extrusion process?
10. What is impact extrusion explain briefly with a neat sketch?
11. Distinguish between hydrostatic extrusion impact extrusion process.
12. What is extrusion process and its characteristic’s.