

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FOURTH SEMESTER B.TECH DEGREE EXAMINATION (S), SEPT 2022

MECHANICAL ENGINEERING
(2020 SCHEME)

Course Code : 20MET204

Course Name: Manufacturing Process

Max. Marks : 100

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

1. What are the various defects observed in cast components?
2. Explain the importance of Chvorinov's rule in casting.
3. List the difference between transferred and non-transferred plasma arc welding processes?
4. Explain the weld zone with a neat sketch.
5. What are the advantages of thread rolling process?
6. State the von Mises yield criterion for metallic materials.
7. How open die forging is different from closed die forging.
8. Explain the common defects observed in deep-drawing operations.
9. What is nibbling in sheet metal operation?
10. Explain the advantages and disadvantages of progressive die.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. Explain the various types of patterns used in the casting process. (14)

OR

12. Describe the die casting process with neat sketches. List the advantages, limitations and applications of die casting. (14)

MODULE II

13. With neat diagrams, write short notes on the following welding processes (14)
- (i) Electro slag welding
 - (ii) Electro gas welding
- List the advantages, limitations and typical applications of both the processes

OR

14. With neat diagrams, write short notes on the following welding processes
(i) Electron beam welding (14)
(ii) laser beam welding
List the advantages of laser beam welding over electron beam welding.

MODULE III

15. What are the various types of rolling mills? List the common defects observed in rolling operation. (14)

OR

16. Explain the steps involved in shape rolling process. Illustrate the roll pass design with appropriate sketches. (14)

MODULE IV

17. a) What are the common defects observed in forged components? (8)
b) Calculate the drawing force required for drawing a cup with 50 mm diameter and 25 mm height from a mild steel blank of 2 mm thickness. The yield strength of mild steel is 250 MPa. (6)

OR

18. Describe the wire, rod and tube drawing processes with neat sketches. (14)

MODULE V

19. Explain the different locating methods and the locating devices used in manufacturing processes. (14)

OR

20. List the basic principles of clamping and write short notes on the various clamping methods. (14)
