

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B. TECH DEGREE EXAMINATION (R), MAY 2023

MECHANICAL ENGINEERING

Course Code: 20MET306

Course Name: Advanced Manufacturing Engineering

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

1. State some advantages of powder metallurgy.
2. List and explain any three characteristics of fine powder.
3. Define the three types of motion commands used in APT language with syntax examples.
4. Mention the purpose of miscellaneous functions in part programming. Write any two M codes with their applications.
5. Explain the functions of dielectric fluid used in Electric Discharge Machining.
6. What are the applications of laser beam machining?
7. Write down the advantages of High Velocity Forming.
8. What is Slip and Twinning?
9. List any three advantages of rapid prototyping process.
10. Name any three material addition techniques.

PART B

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

MODULE I

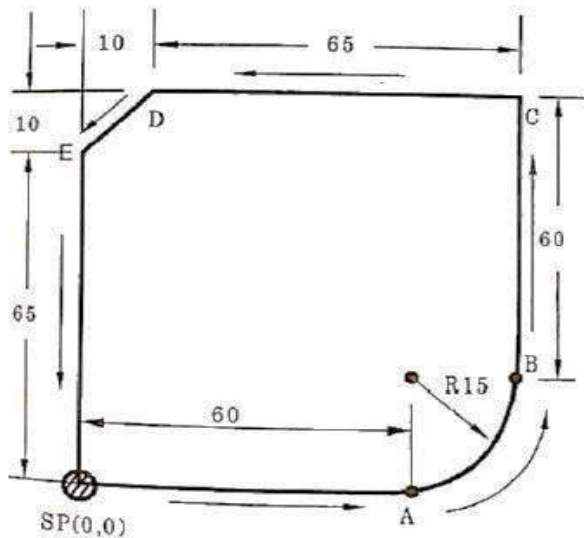
11. a) With neat sketches explain any two methods used to produce metallic powders in powder metallurgy. (10)
- b) Explain the need and comparison between traditional and non-traditional manufacturing processes. (4)

OR

12. a) Explain Merchant's theory with neat sketches. (10)
- b) Differentiate the impregnation and infiltration process in powder metallurgy. (4)

MODULE II

13. Write a part program for the given work shown in figure.
(Speed= 1200 rpm, Feed= 125 mm/min, Depth of cut= 3 mm,
Thickness of plate = 3 mm)



(14)

OR

14. a) Mention the purpose of preparatory functions in manual part programming. Write any five G codes with their applications. (7)
b) What are the features of PLC? Draw the logic ladder diagram for AND gate and OR gate. (7)

MODULE III

15. a) Describe the working of Electron Beam Machining with neat diagrams. (7)
b) What are the variables that affects the cutting phenomena in Abrasive Jet Machining? (7)

OR

16. a) Explain Laser Beam Machining with neat figures. (7)
b) Explain Ultrasonic machining with neat diagrams. (7)

MODULE IV

17. a) Compare Conventional and High Velocity Forming methods. (7)
b) Explain Explosive Forming with a neat sketch. (7)

OR

18. a) Write down the advantages, disadvantages and applications of Electromagnetic forming. (7)
b) Explain Electro Hydraulic Forming with a neat sketch. (7)

MODULE V

19. a) With a neat sketch explain Selective Laser Sintering. (7)
b) What is LIGA process? Explain it with neat sketches. (7)

OR

20. a) Describe Laminated Object Manufacturing with a neat sketch. (7)
b) Explain Magnetic Float Polishing with a neat sketch. (7)
