

Register No:

Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FRESHER ODD (SEMESTER 1) B.TECH DEGREE EXAMINATION (R), NOVEMBER 2024**Common to Chemical Engineering, Electronics and Communication Engineering, Electronics Engineering (VLSI Design and Technology) & Robotics and Automation
(2024 SCHEME)****Course Code : 24EST1005-A****Course Name : Basics of Mechanical and Civil Engineering****Max. Marks : 60****Duration: 2.5 Hours****PART I: MECHANICAL ENGINEERING***Part I to be answered in pages 1 to 15***PART A***(Answer all questions. Each question carries 3 marks)*

1. Differentiate two stroke and four stroke engines.
2. Define the terms mass density and weight density.
3. Elucidate rolling process in manufacturing.
4. List the advantages of additive manufacturing techniques.

PART B*(Answer one full question from each module, each question carries 6 marks)***MODULE I**

5. With a neat sketch explain the working of a two stroke petrol engine. 6

OR

6. List the different types of air conditioners. Explain the working of any one type. 6

MODULE II

7. With neat block diagram, explain the air system of a petrol engine. 6

OR

8. Explain the different types of gears used for power transmission. 6

MODULE III

9. Explain open and closed die forging process with neat sketch. 6

OR

10. Explain the steps involved in sand casting process. 6

PART II: CIVIL ENGINEERING*Part II to be answered in pages 16 to 30***PART A***(Answer all questions. Each question carries 3 marks)*

11. List any three safety measures employed in the construction of infrastructure projects.
12. Enlist and describe any two types of surveying.

13. Enlist any three benefits of using AI in energy management within smart buildings.
14. List the benefits of rating systems for green buildings.

PART B

(Answer one full question from each module, each question carries 6 marks)

MODULE IV

15. Describe any three low-cost materials suitable for sustainable construction. 6

OR

16. Illustrate the main components of a building. 6

MODULE V

17. Explain the significance of Coastal Regulation Zone (CRZ) rules in construction projects near coastal areas. List the restrictions imposed under CRZ regulations. 6

OR

18. A levelling survey was conducted, and the following readings were recorded at various points: Back Sight (BS) = 1.250 m Intermediate Sight (IS) = 0.850 m, Fore Sight (FS) = 1.600 m, Reduced Level (RL) of Benchmark (BM) = 100.000 m. Find the Reduced Level (RL) of the last station. 6

MODULE VI

19. Explain how AI can be used to improve waste segregation and recycling processes. 6

OR

20. Describe any three popular rating systems used for evaluating green buildings. 6
