

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

B.Tech. I Year I Semester Regular & Supplementary Examinations December/January-2025/2026  
**BASIC CIVIL & MECHANICAL ENGINEERING**  
 (Common to CE, ME, CSM, CIC, CAD, CCC, CAI & CIA)

Time: 3 Hours

Max. Marks: 70

\*Note: Answer **PART-A** from pages 2 to 20 and **PART-B** from 21 to 39.

**PART-A (CIVIL)**

(Answer all the Questions 5 x 1 = 5 Marks)

- 1 a What are different forms of steel? CO1 L1 1M
- b List out various sources of water.. CO1 L1 1M
- c Define Benchmark. CO2 L1 1M
- d What are the uses of contour mapping? CO2 L1 1M
- e What are the reasons to build a tunnel? CO3 L1 1M

(Answer all Three Units 3 x 10 = 30 Marks) (CIVIL)

**UNIT-I**

Write briefly about classification of aggregates.

CO1 L1 10M

**OR**

- 3 a Explain the classification, qualities and constituents of a brick. CO1 L2 5M
- b List out various uses of bricks in construction. CO1 L1 5M

**UNIT-II**

- 4 Explain briefly various methods of horizontal measurement. CO2 L2 10M

**OR**

- 5 Explain briefly the various types of levelling instruments. CO2 L2 10M

**UNIT-III**

- 6 Explain briefly about Flexible and Rigid Pavements with neat sketches. CO3 L2 10M

**OR**

- 7 Draw a Layout of an Airport and briefly explain about components of an airport. CO3 L1 10M

**PART-B(MECHANICAL)**

(Answer all the Questions 5 x 1 = 5 Marks)

- f Define Strength & Brittleness of a material. CO1 L1 1M
- g What are smart materials and mention examples. CO1 L1 1M
- h What are the factors on which machining depends? CO2 L1 1M
- i How do you classify the heat engines? CO2 L1 1M
- j List out the basic components of Robot. CO3 L1 1M

(Answer all Three Units 3 x 10 = 30 Marks) (MECHANICAL)

**UNIT-IV**

- 8 Explain about various essential mechanical properties for the materials. CO1 L2 10M

**OR**

- 9 a List out various properties of the metals. CO1 L1 5M
- b Distinguish between ferrous and Nonferrous materials CO1 L2 5M

**UNIT-V**

- 10 a How do you classify the forming process and explain them. CO2 L2 5M
- b Mention the merits and demerits of forming process CO2 L2 5M

**OR**

- 11 a Illustrate the functions of Additive manufacturing CO2 L2 5M
- b Differentiate between traditional Manufacturing and smart manufacturing CO2 L2 5M

**UNIT-VI**

- 12 Sketch the general layout of hydroelectric power plant and brief it. Also mention its advantages and disadvantages. CO3 L2 10M

**OR**

- 13 a Describe in detail about Robot Anatomy. CO3 L4 5M
- b Explain various types of joints used in Robots. CO3 L2 5M

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