

I B. Tech II Semester Regular/Supplementary Examinations, July/August-2023
BASIC CIVIL AND MECHANICAL ENGINEERING

(Only Electrical and Electronic Engineering)

Time: 3 hours

Max. Marks: 70

Answer any five Questions one Question from Each Unit

All Questions Carry Equal Marks

UNIT - I

- 1 Calculate the Shear force and Bending moment for Cantilever and Simply Supported Beams which is carrying a uniform load 25kN/m² and concentrated load 25kN at the center of the beam and Beam Length is 10mts. [14M]

(OR)

- 2 a) Define Stress and Strain. Derive the relationship between Stress and Strain. [7M]
 b) Calculate the Shear force and Bending moment for Cantilever and Simply Supported Beams which is carrying a uniform load 25 KN/m² of length 15mts. [7M]

UNIT - II

- 3 Derive the Rosette Analysis for Triangular and Rectangular strain rosettes. [14M]

(OR)

- 4 Explain Electrical Capacitance and Resistance Strain Gauges with neat sketches. [14M]

UNIT - III

- 5 a) What is the classification of Timber and what are the seasonal defects of Timber? Explain. [7M]
 b) Write down the different materials that are used in construction of a building. And it uses. [7M]

(OR)

- 6 What is the Classification of Glass and Steels. Write down the applications of Steel and Glass in Construction. [14M]

UNIT IV

- 7 a) Discuss the factors to be considered in selecting right type of hydraulic turbine. [7M]
 b) Explain the construction of reaction turbine. Discuss how it differs from impulse turbine. [7M]

(OR)

- 8 a) Write the advantages and disadvantages centrifugal pumps when compared with reciprocating pumps. [7M]
 b) List out the main components of centrifugal pump and explain their function. [7M]

UNIT V

- 9 a) Classify IC engines. [4M]
 b) Explain the construction and working of Water level indicator and low off cock. [10M]

(OR)

- 10 a) With a neat sketch explain the working of battery ignition system of petrol engine. [7M]
 b) Explain the working of any one Boiler accessories. [7M]

