

I B. Tech II Semester Supplementary Examinations, January/February - 2023**BASIC CIVIL AND MECHANICAL ENGINEERING**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

*Answer any FIVE Questions ONE Question from Each Unit**All Questions Carry Equal Marks***UNIT - I**

1. a) Write the types of strain gauges and explain any one type with sketch. [7M]
 b) Write the uses of strain gauges. [7M]

(OR)

2. a) Write the characteristics of strain gauge. [7M]
 b) Explain about Rectangular strain rosettes. [7M]

UNIT - II

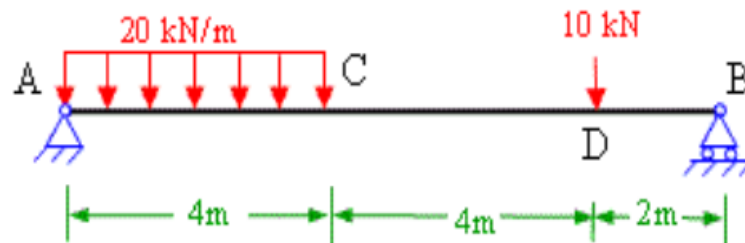
3. a) Write in detail about the process of seasoning of timber. [7M]
 b) Discuss the criteria for selection of stones as a building material. [7M]

(OR)

4. a) Explain in detail the classification of various types of woods used in buildings. [7M]
 b) List out the types of special bricks? Briefly explain any four of them. [7M]

UNIT III

5. a) Define the terms stress, strain, modulus of elasticity, modulus of rigidity, and bulk Modulus. [4M]
 b) Determine the values and draw the diagrams for shear force and bending moment due to the imposed load on simply supported beam shown in the figure. [10M]

**(OR)**

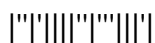
6. a) Define Torsion. Discuss the behavior of a member under torsion. [7M]
 b) A shaft is subjected to a torque of 16,000 Nm. If the maximum permissible stress in the material of the shaft is 65 N/mm^2 , find (i) the diameter of a solid shaft and (ii) the dimensions of a hollow circular shaft if the thickness is 10% of the internal diameter. [7M]

UNIT IV

7. a) Differentiate between reciprocating pumps and centrifugal pumps. [7M]
 b) With a neat sketch explain the construction and working of pelton wheel turbine. [7M]

(OR)

8. a) Classify pumps and explain their usage. [7M]
 b) Explain the construction and working of centrifugal pump. [7M]



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SET - 1

UNIT V

9. a) Compare 4S and 2S engines. [7M]
b) Explain the construction and working of simple vertical boiler. [7M]
- (OR)**
10. a) With a neat sketch explain the working of 4S petrol engine. [7M]
b) Explain the working of air pre heater and super heater. [7M]

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