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Reg. No……
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2025

BASIC MECHANICAL ENGINEERING

[Maximum Marks: **100**] [Time: **3** Hours]

PART-A

[Maximum Marks: **10**]

I. (Answer ***all*** questions in one or two sentences. Each question carries ***2*** marks)

1. List the names of any four non-destructive tests.
2. Write down the name of any two boiler mountings.
3. Classify internal combustion engines.
4. List any two advantages of solar power plants.
5. Identify the chemical composition of low carbon, medium carbon and high carbon steel. (5 x 2 = 10)

PART-B

[Maximum Marks: **30**]

II. (Answer ***any five*** of the following questions. Each question carries ***6*** marks)

1. Illustrate and explain the stress - strain diagram for mild steel
2. Compare fire tube boilers with water tube boilers.
3. Describe the working of four stroke petrol engine with a neat figure
4. Explain the function and working of economizer.
5. Illustrate the working of steam power plant
6. Explain the working of tidal power plant with a neat sketch
7. Illustrate the classification of engineering materials. (5 x 6 = 30)

PART-C

[Maximum Marks: **60**]

(Answer ***one*** full question from each Unit. Each full question carries **15** marks)

UNIT – I

III. a. Illustrate and explain the manufacturing of pig iron using Blast Furnace. (8)

b. Explain liquid penetrant test and radiographic test. (7)

OR

IV. a. Explain the following mechanical properties.

(i) Ductility (ii) Malleability (iii) Hardness (iv) Elasticity (8)

b. Illustrate the manufacturing of cast iron using Cupola Furnace. (7)

UNIT – II

V. a. Illustrate the working of Cochran boiler. (8)

b. Explain the working of double acting steam engine with neat sketch. (7)

OR

VI. a. Explain the functions and working of superheater with neat sketch. (8)

b. Explain briefly the classification of steam boilers. (7)

UNIT- III

VII. a. Explain the working of 2 stroke petrol engine with neat sketch. (8)

b. Compare spark ignition engine with compression ignition engine. (7)

OR

VIII. a. Describe the functions of various parts of an IC engine with a neat sketch. (8)

b. Differentiate between external combustion and internal combustion engine.

Also mention advantages and disadvantages of IC engines over EC engines. (7)

UNIT - IV

IX. a. Explain the working of a low temperature solar power plant with a neat sketch. (8)

b. Describe the advantages and limitations of wind power plant. (7)

OR

X. a. Explain the working of nuclear power plant with neat sketch. (8)

b. Illustrate the working of hydro electric power plant. (7)

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