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Reg. No……
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2020

BASIC MECHANICAL ENGINEERING

[Maximum Marks: 75] [Time: 2.15 Hours]

PART-A

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

I. 1. List any four physical properties of materials.

2. Define the term ductility.

3. Name any four boiler accessories.

4. Define internal combustion engines.

5. List four components of wind mill. (3 x 2 = 6)

PART-B

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

II 1. Write short notes on following copper alloys Brass, Bronze, Gun metals.

2. Write the reasons for alloying various elements in steel.

3. Compare between fire tube and water tube boiler.

4. Differentiate between Boiler mountings and Boiler accessories.

5. Explain the functions of piston, piston rings and fly wheel in an IC engine.

6. Differentiate between SI engines and CI engines.

7. List out the advantages and disadvantages of solar energy. (4 x 6 = 24)

PART-C

(Answer ***any of the three units*** from the following. Each full question carries 15 marks)

UNIT – I

III (a) Explain the working of Blast furnace with neat sketch. (8)

(b) Sketch and explain Ultrasonic testing of materials. (7)

OR

IV (a) Draw and explain the working of Cupola furnace. (8)

(b) Explain the Impact test of materials. (7)

UNIT - II

V (a) Explain the working of LaMont boiler with neat sketch. (8)

(b) Write classification of steam engines. (7)

OR

VI (a) With a neat sketch explain the working of Double acting steam engine. (8)

(b) Describe the energy conservation methods to improve boiler efficiency. (7)

UNIT- III

VII (a) Explain the working of 4 stroke diesel engine with neat sketch. (8)

(b) Compare four stroke engines and two stroke engines. (7)

OR

VIII (a) Explain the functions of important components of an IC Engine. (8)

(b) Describe the classification of IC Engines. (7)

UNIT - IV

IX (a) Explain the working of Steam power plants with a schematic diagram. (8)

(b) Illustrate the classification of power plants. (7)

OR

X (a) Explain the working of nuclear power plant with a schematic diagram. (8)

(b) Write advantages and disadvantages of Hydroelectric power plants. (7)
