

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANGEMENT/  
COMMERCIAL PRACTICE, NOVEMBER 2021**

**BASIC MECHANICAL ENGINEERING**

(Maximum Marks:75)

(Time: 2¼ hours)

**PART - A**

**Marks**

- I. Answer **any three** questions in one or two sentences. Each question carries 2 marks.
1. List any four mechanical properties of material.
  2. What is meant by super heated steam?
  3. Name the thermodynamic cycle for petrol engine and diesel engine.
  4. What is geothermal energy?
  5. Name any two types of solar collectors ( 3 x 2 = 6 )

**PART - B**

- II Answer **any four** of the following. Each question carries 6 marks.
1. Draw and explain stress strain curve for ductile material.
  2. Explain Rockwell hardness test with the help of a diagram.
  3. Explain dry saturated steam, wet steam and dryness fraction.
  4. What is boiler mountings? List any five boiler mountings.
  5. Compare S.I engine and C.I engine.
  6. What are the classifications of IC engine based on working cycle, Number of strokes and Arrangement of cylinder?
  7. What are the advantages and disadvantages of wind power plants? ( 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 manufacturing of cast iron with the help of a neat sketch of Cupola furnace. (9)
- (b) Explain Liquid Penetrant Test. (6)

**OR**

- IV (a) Explain manufacturing of pig iron with the help of a neat sketch of Blast furnace. (9)
- (b) Explain Radiography Test (6)

**UNIT – II**

- V (a) Draw and explain La Mont Boiler (9)
- (b) Write a short note on Stuffing box, D slide valve and flywheel. (6)

**OR**

- VI (a) With the help of a neat sketch explain the working of double acting steam Engine. (9)
- (b) Make a comparison between fire tube and water tube boiler (6)

**UNIT – III**

- VII (a) With the help of a neat sketch explain the working of 4 stroke diesel engine (9)
- (b) What are the advantages and disadvantages of IC engines? (6)

**OR**

- VIII (a) With the help of a neat sketch explain the working of 4 stroke petrol engine (9)
- (b) Make a comparison of four stroke and two stroke engine. (6)

**UNIT – IV**

- IX (a) With the help of a neat sketch explain the working of hydroelectric power plant (9)
- (b) Lists the advantages and disadvantages of solar power plant. (6)

**OR**

- X (a) With the help of a neat sketch explain the working of steam power plant. (9)
- (b) List the advantages and disadvantages of tidal power plant (6)

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