

TED (15) – 2021

(REVISION — 2015)

Reg. No.....

Signature .....

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019**

**BASIC MECHANICAL ENGINEERING**

[Time : 3 hours

(Maximum marks : 100)

**PART — A**

(Maximum marks : 10)

Marks

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

1. List any four thermal properties of material.
2. Define dryness fraction of steam.
3. Define external combustion engine.
4. Name any four nonconventional energy power plants.
5. Define geothermal energy.

(5×2 = 10)

**PART — B**

(Maximum marks : 30)

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

1. Write short notes on :  
(a) Hardness      (b) Ductility      (c) Plasticity
2. Draw stress-strain diagram for mild steel and explain important points marked on it.
3. Illustrate the classification of steam boilers.
4. Describe the functions of fusible plug and blow off cock.
5. Compare SI engine and CI engine.
6. Mention the advantage of IC engine over EC engine.
7. Write the advantages and disadvantages of tidal power plants.

(5×6 = 30)

## PART — C

(Maximum marks : 60)

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

## UNIT — I

- III (a) Draw and explain the working of Cupola Furnace. 9  
 (b) Define creep. Draw and explain creep curve. 6

OR

- IV (a) Explain Ultrasonic test with sketch and applications. 9  
 (b) What are the characteristics of adding various alloying elements to the steel. 6

## UNIT — II

- V (a) Explain the working of Cochran boiler with sketch. 9  
 (b) With the help of sketch, explain Bourdon's tube pressure gauge for boiler. 6

OR

- VI (a) Explain the working of a simple double acting steam engine with neat sketch. 9  
 (b) Explain the working and use of economiser in a boiler with sketch. 6

## UNIT — III

- VII (a) Explain the working of four stroke petrol engine with sketch. 9  
 (b) Shows with sketch, the important component of IC engine. 6

OR

- VIII (a) Explain the working of two stroke diesel engine with sketch. 9  
 (b) Compare four stroke and two stroke engines. 6

## UNIT — IV

- IX (a) Describe the working of diesel power plant with line diagram. 9  
 (b) Write the advantages and disadvantages of hydroelectric power plant. 6

OR

- X (a) Explain the working of nuclear power plant with line diagram. 9  
 (b) Write the advantages and disadvantages of wind power plant. 6