

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017**

**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. Define alloy steel.
2. What do you understand by fire tube & water tube boilers ?
3. Define internal combustion engine.
4. Write any two boiler accessories.
5. List out any two types of conventional power plants.

(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 nonferrous metals.
2. List any six important physical properties of materials.
3. Write the functions of an Economiser used with boilers.
4. Write any two basic differences between water tube boiler and fire tube boiler.
5. How internal combustion engine differ from external combustion engine ?
6. Briefly explain the sequence of operations in a four stroke diesel engine.
7. Name any three types of conventional and non-conventional 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) Sketch and explain manufacturing of Pig iron in a blast furnace. | 9 |
| (b) Illustrate X-ray radiographic test.                                  | 6 |

OR

- IV (a) Draw stress strain curve for mild steel and mark salient points. 8  
 (b) Illustrate liquid penetrant test. 7

## UNIT — II

- V (a) Sketch and explain the working of a La-Mont boiler. 8  
 (b) With the help of neat sketch explain a Bourdon's tube pressure gauge for boilers. 7

OR

- VI (a) Explain with neat diagram, the working of a simple double acting steam engine. 8  
 (b) Explain with sketch the super heater used in boilers. 7

## UNIT — III

- VII (a) Illustrate the working of a four stroke petrol engine. 8  
 (b) Write the classifications of Internal Combustion engines. 7

OR

- VIII (a) Show with simple sketch the important components of an Internal combustion engine. 6  
 (b) Write any six comparisons between petrol engine and Diesel engine. 9

## UNIT — IV

- IX (a) Draw the block diagram and show the important components of a wind power plant. 6  
 (b) Explain with sketch, the working of a nuclear power plant. 9

OR

- X (a) Illustrate the working of a tidal power plant. 9  
 (b) Write any three advantages and limitations of geothermal power plants. 6

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Madin POLYTECHNIC College