

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

POWER PLANT ENGINEERING

[Time : 3 hours

(Maximum marks : 100)

[Note :— Use of steam table and Mollier chart are permitted.]

PART — A

(Maximum marks : 10)

Marks

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

1. Define condenser efficiency.
2. What is boiler draught ?
3. Write short notes on HCV of fuels.
4. Define jet propulsion.
5. What are the functions of reactor control rods ? (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. State the merits and demerits of various types of fuels.
2. Explain different types of draught used in power plant.
3. State the functions of steam condenser. What are the different types of condensers ?
4. Explain the functions of cooling tower, list out different types of cooling towers.
5. With the help of sketch, explain the working of tidal power plant.
6. What are the advantages and disadvantages of Jet Propulsion ?
7. Classify the nuclear reactors with examples. (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) Explain the method used to determine the higher calorific value of the liquid fuel. 8
 (b) Distinguish between impulse turbine and reaction turbine and compare impulse turbine with reaction turbine. 7

OR

- IV (a) Explain the working of a De-Laval turbine with a sketch. 8
 (b) List the advantages of steam turbines over steam engines. 7

UNIT — II

- V (a) Explain the working of barometric jet condenser with sketch. 8
 (b) Calculate the vacuum efficiency of a condenser from the following data. Vacuum at steam inlet to condenser-700mm of Hg Barometer reading-760mm of Hg hot well temperature-30°C. 7

OR

- VI (a) Explain the working of surface condenser. 8
 (b) The inlet and outlet temperatures of cooling water in a condenser are 27°C and 35°C respectively. If the vacuum in the condenser is 700mm of Hg against barometric pressure of 760mm of Hg., calculate the efficiency of the condenser. 7

UNIT — III

- VII (a) Explain the working of diesel electric power plant with a sketch. 8
 (b) List the applications and limitations of gas turbine. 7

OR

- VIII (a) Explain the working of Turbo Propeller jet engine with a sketch. 8
 (b) Compare gas turbine with steam turbine. 7

UNIT — IV

- IX (a) Explain the working of a nuclear power reactor. 8
 (b) Explain the working of geothermal station with sketch. 7

OR

- X (a) Explain the following with sketches. 8
 (i) Solar Cooker (ii) Flat Plate Collector.
 (b) What is Fission and Fusion reaction ? 7