



C20-EE-303

7247

**BOARD DIPLOMA EXAMINATION, (C-20)
OCTOBER/NOVEMBER—2024**

DEEE – THIRD SEMESTER EXAMINATION

POWER SYSTEM—I (GENERATION)

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State the limitations of non-conventional energy sources.
2. List different parts of wind power station.
3. State the function of superheater.
4. What is the necessity of condenser in a thermal power plant?
5. What are the causes of air pollution in thermal power plant?
6. State any three factors required for selection of site for hydro-electric power plant.
7. State the function of forebay in a hydro-electric power plant.
8. Write any specific example of fission reaction.
9. List the advantages of gas power plant.
10. Differentiate between isolated operation and integrated operation in any three aspects.

PART—B

8×5=40

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Explain the working of thermal power station with a line diagram.

(OR)

(b) Explain the various centralized controls at control room of thermal power plant.

12. (a) Explain the need and working of surge tank with a neat diagram.

(OR)

(b) Derive the water power equation in a hydro-electric power station.

13. (a) Explain the function of each component in a nuclear reactor with a neat diagram.

(OR)

(b) Explain the working of gas power plant with a neat diagram.

14. (a) Explain isolated operation and integrated operation of power stations.

(OR)

(b) A three-phase 50 Hz, 400 V motor develops 100 H.P., the power factor being 0.75 lagging and efficiency 93%. A bank of capacitors is connected in delta across the supply terminals and power factor raised to 0.95 lagging. Determine the capacitance of each capacitor. Assume any missing data.

15. (a) Explain various types of consumer tariffs.

(OR)

(b) Explain the terms load curve, load factor, diversity factor and maximum demand.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 16.** Explain the main controls at boilers, turbines, condensers and alternators in thermal power station.

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