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18EE42

**Fourth Semester B.E. Degree Examination, July/August 2022**  
**Power Generation and Economics**

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, choosing ONE full question from each module.**

**Module-1**

- 1 a. Define the following :  
i) Hydrograph  
ii) Mass curve  
iii) Flow duration curve. (06 Marks)  
b. With neat Schematic diagram, explain the working of hydro electric power plant. (08 Marks)  
c. List out the merits and demerits of Hydro electric power plant. (06 Marks)

**OR**

- 2 a. How the Hydro electric power plants are classified? Explain in details. (08 Marks)  
b. Mention the factors should be consider for selection of site for hydro power plant. (06 Marks)  
c. With neat sketch, explain the working of Pelton wheel turbine. (06 Marks)

**Module-2**

- 3 a. With the sketch, explain block diagram of diesel power plant. (08 Marks)  
b. With neat sketch, explain the working of gas turbine station. (06 Marks)  
c. Mention the factors to be consider for selection of site for steam power plant. (06 Marks)

**OR**

- 4 a. Explain the working of steam power plant with neat schematic diagram. (08 Marks)  
b. Explain the factors to be considered for selection coal for steam power plant. (06 Marks)  
c. Give the comparison of hydro power plant with steam power plant. (06 Marks)

**Module-3**

- 5 a. Explain the nuclear reactor with diagram. (06 Marks)  
b. Mention the factors to be considered for the selection of site for nuclear power plant. (06 Marks)  
c. With the neat layout diagram, explain the working of nuclear power plant. (08 Marks)

**OR**

- 6 a. List the merits and demerits of nuclear power plant. (06 Marks)  
b. Write briefly about Nuclear waste disposal. (06 Marks)  
c. Describe construction and working of a pressurized water reactor. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

**Module-4**

- 7 a. Define substation and mention types of substation. (06 Marks)  
b. Explain the factors are considered for substation side selection. (06 Marks)  
c. Explain gas insulated substation and mention its advantages. (08 Marks)

**OR**

- 8 a. List out the advantages and disadvantages of outdoor substation over indoor substation. (06 Marks)  
b. Write short note on :  
i) Resistance Grounding (08 Marks)  
ii) Reactance Grounding. (06 Marks)  
c. Explain earthing of transformer with neat diagram.

**Module-5**

- 9 a. Define the following terms :  
i) Load factor  
ii) Diversity factor (06 Marks)  
iii) Plant use factor (06 Marks)  
b. Explain the factors affecting tariff.  
c. Define Tariff? Explain :  
i) Step rate tariff  
ii) Black rate tariff (08 Marks)  
iii) Two part tariff

**OR**

- 10 a. Mention the disadvantages of low power factor. (06 Marks)  
b. Explain the methods of power factor improvement. (10 Marks)  
c. Discuss the economics of power factor correction. (04 Marks)

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