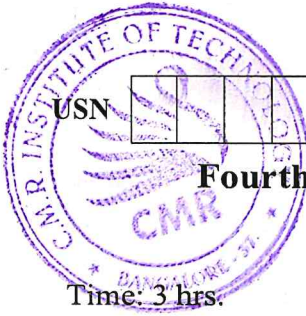


# CBCS SCHEME

17EE42



Fourth Semester B.E. Degree Examination, Jan./Feb. 2021

## 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 : i) Hydrograph ii) Flow duration and Mass curve. (06 Marks)
- b. Describe the merits and demerits of Hydro electric power plants. (08 Marks)
- c. What are the main considerations for selection of site for a Hydro electric power station? (06 Marks)

OR

- 2 a. Explain components of Hydro Electric Power plant, with neat diagram. (08 Marks)
- b. Explain governing mechanism of Hydraulic Impulse turbine and Reaction turbine, with neat sketches. (08 Marks)
- c. Give the classification of Hydro Power Plant. (04 Marks)

### Module-2

- 3 a. Explain briefly the functions of :  
i) Reheaters ii) Condensers. (06 Marks)
- b. Explain the working of Stoker furnace and Pulverized fuel firing. (06 Marks)
- c. Define the term Ash handling. Why ash handling is important? Explain any three Ash handling systems. (08 Marks)

OR

- 4 a. Discuss the advantages and disadvantages of a Diesel power plant. (06 Marks)
- b. Give the comparison of hydro power plant, with steam power plant. (06 Marks)
- c. Describe the working of closed cycle gas turbine power plant, with a neat schematic diagram. (08 Marks)

### Module-3

- 5 a. Describe the operation of nuclear power plant with the help of block diagram showing basic components. (08 Marks)
- b. Explain the operation of Pressurized water reactor with its advantages and disadvantages. (08 Marks)
- c. Explain Nuclear fission and Nuclear chain reaction. (04 Marks)

OR

- 6 a. Explain the function of Moderator , Coolant , Control rod and Shielding in a Nuclear reactor. (08 Marks)
- b. Explain with respect to Nuclear plant :  
i) Nuclear Waste disposal. (08 Marks)
- ii) Shielding. (08 Marks)
- c. Discuss the various classifications of Nuclear reactors. (04 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 different types of substation. (06 Marks)  
 b. With a neat diagram, explain resonant grounding and resistance grounding. (08 Marks)  
 c. Explain the function of : (06 Marks)  
 i) Switch gear ii) Protective relay iii) High voltage Insulator.

**OR**

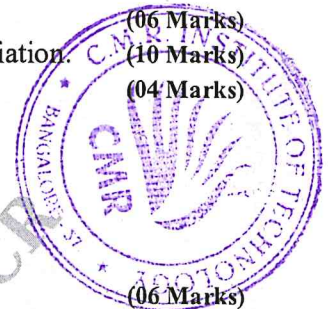
- 8 a. Draw a Single line diagram of Substation and explain it. What is the role of Earthing Transformer? Explain. (08 Marks)  
 b. Explain Double BUS with sectionilisation. (06 Marks)  
 c. List out the advantages and disadvantages of Outdoor substation over Indoor substation. (06 Marks)

**Module-5**

- 9 a. Define the terms : (06 Marks)  
 i) Load factor ii) Diversity factor iii) Plant operating factor.  
 b. What is Depreciation? Explain the methods of Determination of Depreciation. (10 Marks)  
 c. Explain factors affecting Tariff. (04 Marks)

**OR**

- 10 a. Explain : (06 Marks)  
 i) Two Part Tariff.  
 ii) Power Factor Tariff.  
 iii) Maximum Demand Tariff.  
 b. State the causes and effects of a Low power factor. Also explain methods of Power Factor Improvement. (10 Marks)  
 c. Explain the concept of Choice of size and Number of Generating Units. (04 Marks)



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