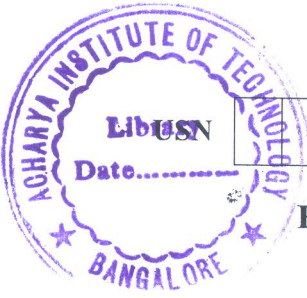


CBCS SCHEME



17EE42

Fourth Semester B.E. Degree Examination, Aug./Sept.2020 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. Mention the factors to be considered for the selection of site for a hydroelectric power plant. (06 Marks)
- b. Explain the working of pumped storage power plant stating its advantages with a neat diagram. (08 Marks)
- c. Classify the hydro-electric turbines. With a neat sketch, explain the working of a reaction turbine. (06 Marks)

OR

- 2 a. Explain how hydro electric power plants are classified. (06 Marks)
- b. Explain the general arrangements and operation of a hydro – electric plant with neat schematic diagram. (08 Marks)
- c. With a neat diagram explain the working of the turbine governing. (06 Marks)

Module-2

- 3 a. Explain briefly the fuel combustion in a thermal power plant. (04 Marks)
- b. Write a short note on : (08 Marks)
 - i) Economiser
 - ii) Cooling towers
 - iii) Air preheater
 - iv) Condenser.
- c. Describe the auxiliary equipments of diesel engine power plant. (08 Marks)

OR

- 4 a. Mention the applications of diesel electric power plant. (06 Marks)
- b. With a neat diagram explain the schematic arrangement of a thermal power station. (08 Marks)
- c. How the use of regenerator and reheater in gas turbine plants help in improvement in thermal efficiency? Explain briefly. (06 Marks)

Module-3

- 5 a. What are nuclear fuels? Classify the nuclear reactors and explain briefly boiling water reactor(BWR). (08 Marks)
- b. List out the advantages of nuclear power plant. (06 Marks)
- c. Explain the following with reference to a nuclear power plant (06 Marks)
 - i) nuclear waste disposal
 - ii) shielding.

OR

- 6 a. Discuss some of the safety measures incorporated nuclear plant. (06 Marks)
- b. Explain the operation of fast breeder reactor with a neat diagram. (06 Marks)
- c. With a neat sketch explain the major parts of a nuclear power plant. (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. Why grounding is required in an electric installations? Explain resonant grounding and earthing transformer briefly. (08 Marks)
- b. Draw a single line diagram of a substation and explain it. (06 Marks)
- c. Compare the indoor and outdoor substations with their functions. (06 Marks)

OR

- 8 a. What are the functions of substations? (06 Marks)
- b. Explain with a diagram double bus bar scheme with single breaker and also list out the main drawbacks of this scheme. (08 Marks)
- c. Differentiate the functions of an isolator and a circuit breaker. (06 Marks)

Module-5

- 9 a. Define power factor. What are the effects of low power factors? Discuss the various methods for p.f. improvements. (08 Marks)
- b. Mention the main objectives in framing a tariff. (06 Marks)
- c. Explain the demand factor, diversity factor and load factor for a power station. (06 Marks)

OR

- 10 a. What are the different types of tariffs? Explain them briefly. (08 Marks)
- b. List out the factors to be considered while deciding the number of generating units. (06 Marks)
- c. A power station is to supply three regions of load whose peak loads are 20MW, 15MW and 25MW. The annual load is 50% and the diversity factor of the load at station is 1.5, determine the following :
- Max. demand on station
 - Installed capacity suggesting member of units
 - Annual energy supplied. (06 Marks)
