

4E4174

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B.Tech. IV Semester (Main/Back) Examination, June/July - 2015

Electrical Engg.

4EE4A Generation of Electrical Power

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 26

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Unit - I

1. a) What are the factors to be considered for selection of site for a thermal power station? (8)
- b) How pumped storage plant is advantageous during peak loads? (8)

OR

1. a) Discuss main parts of a nuclear reactor and their functions. (8)
- b) Explain the components of a gas turbine plant. What are the applications of gas turbine plant. (8)

Unit - II

2. a) Differentiate renewable and non-renewable energy sources with suitable examples. (8)
- b) Explain the sustainable energy system with its applications. (8)

OR

2. a) Write short note on Global warming. (8)
b) Explain the impact of thermal and hydro power stations on environment. (8)

Unit - III

3. a) A generating station supplied the following loads. 150 MW, 120 MW, 85 MW, 60 MW and 5 MW. The station has a maximum demand of 220 MW. The annual load factor of the station is 48%. Calculate
i) the number of units supplied annually
ii) the diversity factor and
iii) demand factor (8)
b) Discuss causes and effects of low power factor. (8)

OR

3. a) How power factor can be improved using synchronous condensers? (8)
b) A 1000 MW power station delivers 1000 MW for 2 hours, 500 MW for 6 hours and is shut down for rest of each day. It is also shut down for maintenance for 60 days annually. Calculate its annual load factor. (8)

Unit - IV

4. a) Discuss the effect of load factor on unit energy cost. (8)
b) How most economic power factor is calculated when KW demand is constant. (8)

OR

4. a) Define the term diversity factor and prove that load factor of supply system is improved by an increase in diversity of load. (8)
b) Write short note on energy conservation. (8)

Unit - V

5. a) Illustrate general tariff form. Also throw light on objectives of tariffs. (8)
b) Describe the term spot (time differentiated) pricing. (8)

OR

5. a) Give comparative chart of thermal, hydro, nuclear and gas power plants. (8)
b) Differentiate between peak load and base load plants. (8)
