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EE51

Fifth Semester B.E Degree Examination, Dec. 07 / Jan. 08
Electrical Power Generation

Time: 3 hrs. Max. Marks:100

Note : ***1. Answer any FIVE full questions.***
2. Missing data may be assumed suitably.

1 a. Explain Solar Energy. **(06 Marks)**
b. Clearly mention, what are detailed basic classification of hydroelectric power plants. **(06 Marks)**
c. Sketch properly and explain pumped storage plants for peak load. **(08 Marks)**

2 a. With schematic sketch, explain any one method of coal handling method. **(06 Marks)**
b. Draw the layout of boiler used in thermal power plant and explain in detail. **(08 Marks)**
c. Explain one method of ash handling system equipment. **(06 Marks)**

3 a. Describe nuclear chain reaction, along with a sketch. **(08 Marks)**
b. With a neat diagram, explain any one type of Reactor. **(06 Marks)**
c. Brief about types of nuclear waste disposal methods. **(06 Marks)**

4 a. Show the schematic arrangement and describe main components of diesel engine power plant. **(12 Marks)**
b. Along with a neat sketch, explain any one method to improve thermal efficiency of Gas turbine plant. **(08 Marks)**

5 a. Define : i) Diversity factor ii) Load factor iii) Plant capacity factor. **(06 Marks)**
b. What is Tariff? Explain Flat rate tariff. **(06 Marks)**
c. A base load power station and a stand by power station share a common load as follows : **(08 Marks)**

Base load station annual output	$= 150 \times 10^6$ kWh.
Base load station capacity	= 35 MW
Maximum demand on base load station	= 30 MW
Stand by station capacity	= 18 MW
Stand by station annual output	$= 14 \times 10^6$ kWh
Maximum demand on stand by station	= 15 MW

Determine the following for both power station : i) Load factor ii) Plant capacity factor.

6 a. What is Power factor? Explain the causes for low power factor and the methods to improve it. **(10 Marks)**
b. A single phase motor takes a current of 12A at 0.75 lagging from 220V, 50 Hz supply. Find the capacitance of the capacitor to improve the power factor to 0.9 lagging by connecting across the motor. Draw the necessary vector diagram. **(10 Marks)**

7 a. What are the advantages of a power system earthing? Explain i) Resistance earthing. ii) Solid earthing. **(12 Marks)**
b. Describe earthing of a transformer. **(08 Marks)**

8 a. What is a current limiting reactor? Explain any two methods of current limiting reactors depending on the location. **(12 Marks)**
b. With a neat sketch, explain Ring Bus – bar system. **(08 Marks)**

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