G 1402   (Pages : 2)   Reg. No.................................

Name.................................

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Electrical and Electronics Engineering

EE 010 601—POWER GENERATION AND DISTRIBUTION (EE)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours   Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 marks.

1. Draw the schematic diagram of a fast breeder reactor.

2. Define the load factor.

3. What is primary distribution system and what is its normal operating voltage ?

4. What are the advantages of DC 3 wire distribution system compared to DC 2 wire system ?

5. Briefly state about the need for energy management.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 marks.

6. Differentiate between open and closed gas turbine cycles.

7. What is diversity factor and how does it influence the cost of generation ?

8. Give the reasons why the voltage drop is of primary importance in the design of the distribution systems.

9. Explain the principle of shunt capacitors used in distribution systems and their locations.

10. Explain how the maximum demand control will reduce energy consumption.

(5 × 5 = 25 marks)

Turn over

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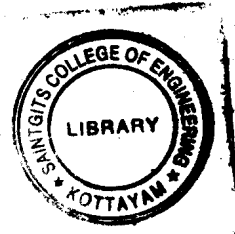
Part C

*Answer **all** questions.*
Each question carries 12 marks.

11. With the help of a neat sketch explain the working of a hydroelectric power plant station.

Or

12. Draw the schematic diagram of a steam power and explain its operation with its important components.

13. Explain different factors related to plants and consumer for power plant economics.

Or

14. Calculate the number of units to be consumed so that the annual bill on the basis of two part tariff is same as that on the basis of flat rate tariff for the following data :

Maximum demand = 10 kW

Two part tariff – Rs. 1,200 per annum per kW of maximum demand + Rs. 1.80 per unit consumed.

Flat rate tariff – Rs. 2.40 per unit.

15. A d.c. two wire distributor cable AG 1200 meters long is fed at A at 250V. Loads of 80, 70, 100, 90 and 60A are tapped from points B, C, D, E and F whose distances from A are 200, 400, 600, and 1100 meters respectively. If the voltage at G is 210V, find the resistance per meter of the distributor.

Or

16. With a neat sketch, explain the operation of ring and radial distribution systems.

17. A 400V, 50Hz, three-phase line delivers 200 kW at 0.8 p.f. lagging. It is desired to raise the line power factor to unity by installing shunt capacitors. Calculate the capacitance of each unit if they are connected in : (i) Star and ; (ii) Delta.

Or

18. Explain the AC three-phase four-wire distribution system.

19. Explain different losses in a transformer. How does the location of the transformer influence the distribution losses ?

Or

20. Explain good practices to be adopted in designing and selecting lighting systems.

(5 × 12 = 60 marks)