

**II B.Tech II Semester Supplementary Examinations,
November/December 2005**

**POWER SYSTEMS-I
(Electrical & Electronic Engineering)**

Time: 3 hours**Max Marks: 80**

**Answer any FIVE Questions
All Questions carry equal marks**

1. (a) What are the factors, which should be considered while selecting a site for a hydro-electric power plant?
(b) With a neat sketch, explain the schematic arrangement of Hydro-electric power plant. [8+8]
2. Explain the basic principle of working of pumped storage plants. Mention the advantages and disadvantages of the scheme. [16]
3. Write notes on auxiliaries of boilers. [16]
4. (a) Mention the advantages and disadvantages of Nuclear power plants.
(b) Name the different types of radiants. Explain any two of them in detail? [8+8]
5. Explain the following:
(a) Economic choice of conductor size
(b) Kelvins law and its limitations [8+8]
6. (a) What is distribution system? How will you classify it?
(b) Explain the following: [7]
 - i. Feeder
 - ii. Distributor
 - iii. Service mains [3X3]
7. (a) Discuss the different classifications of costs of electrical energy.
(b) An electric supply undertaking has to cater to demands of 4 consumers A, B, C and D each having MD of 5 kW. Variation of loads for these consumers is given below:
Consumer A: From midnight to 7 am, 200 W; from 7 am to 7 pm, 1500 W; from 7 pm to 9 pm, 5000 W; from 9 pm to midnight 800 W.
Consumer B: From midnight to 9 am, 600 W; from 9 am to 12 noon, 2500 W; from 12 noon to 5 pm, 800 W; from 5 pm to 6 pm, 5000 W; from 7 pm to midnight, 4000 W.
Consumer C: From midnight to 6 am, 400 W; from 6 am to 12 noon, 1600 W; from 12 noon to 2 pm, 5000 W; from 2 pm to 7 pm, 600 W; from 7 pm to 11 pm, 3600 W; from 11 pm to midnight, 600 W.

Consumer D: From midnight to 8 am, 800 W; from 8 am to 1 pm, 5000 W; from 1 pm to 2 pm, 800 W; from 2 pm to 5 pm, 5000 W; from 5 pm to midnight, 800 W. Draw separate load curves for each consumer and the system load curve. Find the maximum demand on the system. Also calculate

- i. load factor and
 - ii. diversity factor for the supply system. [8+8]
8. (a) Explain the terms load factor and diversity factor. How do these factors influence the cost of generation?
- (b) Describe some of the important types of tariff commonly used. [8+8]
