

II B. Tech I Semester Regular Examinations, November 2015

POWER SYSTEMS - I

(Electrical and Electronics Engineering)

Time: 3 Hours**Max. Marks: 60****Note:** All Questions from **PART-A** are to be answered at one place.Answer any **FOUR** questions from **Part-B**. All Questions carry equal Marks.**PART-A****6 x 2 = 12M**

1. Explain the function of economizer in thermal power stations?
2. What are the various control rods used in Nuclear power plant?
3. Why hydro-electric stations have high transmission and distribution costs?
4. What are the effects of high primary voltage on the distribution system?
5. Explain the Classification of substations?
6. Define capacity factor and utilization factor?

PART-B**4×12=48M**

1. a) Draw the schematic diagram of modern steam power station and explain its operation. (8M)
b) Briefly explain about boiler and super heater. (4M)
2. a) What is a nuclear reactor? What are the main parts of reactor? Explain them in detail, with a neat sketch. (8M)
b) What are the advantages and disadvantages of nuclear power station? (4M)
3. a) Draw a neat schematic diagram of a hydro-electric plant and explain the functions of various components. (8M)
b) What are the advantages and disadvantages of a Gas power station? (4M)
4. a) What are the advantages of double fed distributor over single fed distributor? (6M)
b) A 600m distributor fed from both ends A and B is loaded uniformly at the rate of 1.0A per meter run, the resistance of each conductor being 0.05ohms per km. The distributor is fed at both ends A and B at 235V and 230V respectively. Determine current supplied from feeding points A and B? (6M)
5. a) Explain the role of substations in power systems. (6M)
b) Compare Indoor and Outdoor substations. (6M)

6. a) A generating station has a maximum demand of 25 MW, a load factor of 60%, a plant capacity factor of 50% and plant use factor of 72%. Find (i) the reserve capacity of the plant (ii) the daily energy produced and (iii) Maximum energy that could be produced daily if the plant while running as per schedule, were fully loaded. (6M)
- b) Discuss the different classifications of costs of electrical energy. (6M)
