

II B. Tech II Semester Supplementary Examinations, Dec - 2015**POWER SYSTEMS - I**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**

PART -A

1. a) List the advantages of pulverized fuel firing in thermal power station. (4M)
- b) What is the importance of reflector in nuclear reactor (4M)
- c) What do you mean by inter connected distribution system (4M)
- d) How the substations are classified broadly (4M)
- e) What do you mean by Armouring of a cable and give its necessity? (3M)
- f) What is the significance of load curves in Power system (3M)

PART -B

2. Explain the working of Thermal power station with a neat layout diagram. (16M)
3. a) List the advantages and disadvantages of Nuclear Power Stations (8M)
- b) Explain the working of Boiled Water Reactor(BWR) with a neat diagram (8M)
4. a) Explain in detail about primary and secondary Distribution system (8M)
- b) A two-conductor street main AB,500 meters in length is fed from both ends at 250 V. Loads of 50A,60A,40A and 30A are tapped at distance of 100m,250m,350m and 400m from A respectively. If the cross-section of the conductor be 1cm^2 and specific resistance of the material of the conductors is $1.7\mu\Omega\text{-cm}$, determine the minimum consumer voltage. (8M)
5. a) State the advantages of Outdoor substations over indoor substations (8M)
- b) Explain with a neat layout diagram of a single Bus Bar arrangement and also give their merits and demerits (8M)
6. a) Derive the equation for calculating the insulation resistance of a single core cable (8M)
- b) A single core cable used on 33 KV,50 Hz has conductor diameter 10mm and inner diameter of sheath 25 mm. The relative permittivity of insulating material used is 3.5. Find i) Capacitance of the cable per Km ii)maximum and minimum electrostatic stress in the cable, and iii)Charging current per Km. (8M)
7. Explain the following terms in connection with the Power supply system: (16M)
 - i)Maximum Demand ii)Load Factor iii)Plant Use factor iv)Station demand Factor
 - v)Effect of load factor on the cost of generation in a power system

