Code No: RT22024   R13   SET - 1

II B. Tech II Semester Supplementary Examinations, November - 2018
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**

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PART –A

1. a) What is the function of super heaters in thermal power plants
    b) What are the factors to be consider for selection of site for a nuclear power plants
    c) Contrast between DC and AC distribution systems.
    d) How the substations are classified.
    e) What are the various types of cables?
    f) What is the significance of load factor and diversity factor

PART –B

2. a) What is mean by water tube boiler and what are the types as well as merits of water tube boilers.
    b) Explain the function of super heater and where it is located

3. a) What are the types of radiation hazards and clearly explain each type.
    b) Distinguish between thermal and fast reactors. Classify each according to moderator, coolant and fuel utilized.

4. a) What is an inter connector? Discuss its advantages in distribution system.
    b) A single phase distributor PQR fed at P. The power factors are lagging and expressed relative to the voltage at the far end. The impedances between the sections PQ and QR is (0.1 + j 0.15) Ω. If the voltage at the far end is 230 V, calculate the voltage at the supply end and also its phase angle with respect to the far end.

5. a) Explain the construction aspects of gas insulated substations
    b) Briefly discuss the equipments of substations

6. a) What are sheath eddied in a cable? Why are sheaths bounded? How are sheath losses controlled in a cable.
    b) A 3 phase 3 core 8 km long belted cable tested for capacitance between a pair of cores with the third is earthed gave a result of 0.6μ F/km. Calculate the charging current of the cable when connected to 33 kV, 3-phase, 50 Hz supply.

7. a) Explain how a load duration curve is plotted. What is its period?
    b) A generating station has the following data: Installed capacity =300 MW, capacity factor =50%, Annual load factor =60%. Annual cost of fuel, oil etc. = Rs. 9 x 10^7, capital cost = Rs. 10^9, annual interest and depreciation 10%. Calculate (i) the minimum reserve capacity of the station and (ii) the cost per KWh generated.