R15

Code No: 124AD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, July/August - 2021
POWER SYSTEMS-I
(Electrical and Electronics Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Explain the principle of operation of Gas power Station with a neat line diagram.
b) What are the types of nuclear reactors and describe briefly. [8+7]

2. Describe briefly the components of thermal power station. [15]

3.a) Explain in detail about the distribution feeder fed from both ends with equal voltages and derive the expression for voltage drop of each section.
b) Four lines A,B,C and D are connected to a common point O. Resistance of AO, BO, CO, DO are respectively 1,2,3 and 4 ohms(both going and return) and feeding points A,B,C,D are maintained at 230, 250, 240 and 220V respectively. Find the potential of common point O. Assuming no load to be tapped from there. [8+7]

4. A three wire D.C system with 400V between outers supplies lighting loads of 1200 A and 1040 A on the positive and negative sides and a motor load of 400 kW across the outers. Calculate the load on the main generators and on each of the balancer machine assuming that at this load each balancer machine has a loss of 6 kW. [15]

5. Describe main and transfer bus bar scheme with neat diagram. [15]

6. Draw the substation layout showing the location of equipments and explain the Operation of the substation. [15]

7.a) Explain about the power factor correction equipment.
b) A single phase 50 Hz Induction motor takes 20 A at 0.75 p.f lagging from a 230 V AC supply. Calculate the KVAR and capacitance of the capacitor to be connect in parallel to raise the PF to 0.9 lagging. What is the new supply current? [8+7]

8. Discuss briefly about flat tariff and blocked rate tariff methods. [15]

---ooOoo---