

Code No: 54008

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, November/December - 2020

POWER SYSTEMS-I

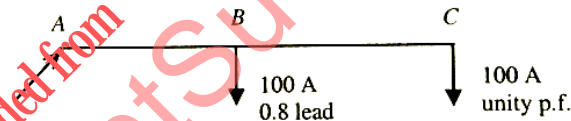
(Electrical and Electronics Engineering)

Time: 2 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

1. Draw the Line diagram of Thermal Power Station showing paths of coal, steam, water, air, ash and flue gasses and explain the function of each element briefly. [15]
- 2.a) Explain the basic principle of operation of Nuclear Power Plant and the functionalities of various reactor components with the help of neat sketches.
b) Briefly discuss about the Radiation hazards, method of Shielding and Safety precautions must be taken in nuclear power plant. [8+7]
3. Classify and compare the various distribution systems in practice. [15]
4. Figure shown below is a single-phase line having resistance and reactance (go and return) as 0.06 and 0.1 Ohms/km respectively. The lengths of section AB and BC are 1.0km each. The voltage at the farther end is 220V. Find the voltage at the sending end and phase angle difference between the voltages of two ends, if power factors of the loads are with reference to farther-end voltage. [15]



- 5.a) Explain in detail about various types of bus bar arrangements in the sub-stations with a neat diagrams.
b) What is Gas insulated substation (GIS)? List out various advantages of GIS over outdoor substations. [8+7]
6. Explain the methods of voltage control by using:
a) Shunt Capacitors
b) Series Capacitors
c) Synchronous Capacitors
d) Tap changing and Booster Transformers. [15]
- 7.a) Describe the various costs associated with power plants.
b) Describe the factors affecting economics of generation and distribution of power. [8+7]
8. Explain in detail the important types of tariff commonly used in practice. [15]

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