

**Code No: 138BT****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year II Semester Examinations, July - 2021****ELECTRICAL DISTRIBUTION SYSTEMS****(Electrical and Electronics Engineering)****Time: 3 hours****Max. Marks: 75**

**Answer any Five Questions.  
All Questions Carry Equal Marks**

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- 1.a) What are the various factors that influence the voltage levels in the design and operation of the distribution system?  
b) Explain different types of loads. [8+7]
- 2.a) Draw a single line schematic of a 33-kV/11-kV substation and describe each component's function.  
b) Discuss the various aspects that should be considered while deciding on an ideal location for a substation. [7+8]
3. What are the different types of faults that can occur in a distribution system? Explain them with line diagram. [15]
- 4.a) How can a shunt capacitors and reactors control the voltage? List the disadvantages of using a shunt capacitor for voltage control.  
b) What are the necessities of Voltage control and p.f. correction in power systems? What are the disadvantages of low voltage and low p.f. of the system? [7+8]
- 5.a) How an AVB can control voltage? With the aid of suitable diagram explain its function.  
b) What does the need of line drop compensation? Explain how it is done in the distribution systems. [7+8]
6. The annual peak load of substation is 3500kW. The annual energy supplied to the primary feeder circuit is  $20 \times 10^6$  kWh. Find:  
i) The annual average power demand  
ii) The annual load factor.  
b) Explain different factors that effects the distribution system planning. [8+7]
- 7.a) Explain the coordination procedure between recloser and fuse.  
b) What do you understand by sizing of the capacitors? And how do you justify economically the connection of capacitors for the improvement of power factor? [7+8]
8. Explain how series capacitors control the voltage in the distribution systems. [15]

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