

8E4109

B.Tech. (Sem. VIII) (Main/Back) Examination, 2013

Electrical Engineering

8EE1 EHV AC/DC TRANSMISSION

(Common for 8EE1, 8EX1)

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks: 24

Instructions of Candidates:

Attempt any five questions. Selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

Unit-I

Q.1 (a) Give the reasons in detail for using bundled conductors in EHV AC transmission. Briefly explain the properties of the bundled conductors. [5+3]

(b) Describe in brief the Surge impedance loading of a transmission line. [8]

OR

Q.1 (a) Explain in details the problem associated with EHV transmission. [8]

(b) Describe the following in short:

(i) Corona loss

(ii) Power handling capacity of EHV lines. [4+4]

Unit-II

- Q.2 (a) Explain in detail the load sharing by parallel generators with the help of drooping governor characteristics. [8]
- (b) A power system has a total load of 1260 MW at 50 Hz. The load varies 1.5% for every 1% change in frequency with damping constant $D = 1.5$. Find the steady state frequency deviation when a 60 MW load is suddenly tripped, if there is no speed control. [8]

OR

- Q.2 (a) With the help of Block diagram explain the working of Automatics Generation Control (AGC). [8]
- (b) Explain the two-area load frequency control with the help of block diagrams. [8]

Unit-III

- Q.3 (a) With the help of characteristics and necessary equations explain how voltage control is done through TCR. [8]
- (b) Briefly explain the various types of shunt reactors used to limit voltage rise. [8]

OR

- Q.3 (a) Explain the objectives for the control of voltage and reactive power in the Power system. [8]
- (b) Explain the V-I characteristics and voltage reactive power characteristics of a TCR-TSC type Static Var System. [4+4]

Unit-IV

- Q.4 (a) Make a comparative analysis between series and shunt FACTS Controllers. [8]
- (b) With the help of characteristic curves explain the operation of TCSC. [8]

OR

- Q.4 (a) Explain the operation of Unified Power Flow Controller (UPFC). [8]
- (b) Draw and explain the V-I characteristics of the STATCOM. [8]

Unit-V

- Q.5 (a) Explain briefly the various types of DC link used for HVDC transmission. [8]

(b) Given in detail the advantages and disadvantages of HVDC system. [8]

OR

Q.5 (a) Draw and explain the converter control steady state characteristics. [8]

(b) Briefly explain the various components of HVDC transmission system. [8]



RTUPAPER.COM

RTUPAPER.COM