28/04/2016

8E8041

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B.Tech. VIII Semester (Main) Examination, April 2016

Electrical and Electronics Engineering

8EX1A EHV AC/DC Transmission

Common with 8EE1A

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 24

Instructions to 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

1. a) Explain the technical and economical reasons for adopting EHV transmission system for transfer of bulk power over long distance **(8)**

   b) What is meant by power handling capacity of a transmission line? Write is the equation from power handling capacity and percentage transfer loss in the line and explain how the higher transmission voltages are important for bulk power transmission **(8)**

OR

1. a) Give the reasons in detail for using bundled conductor in EHV AC transmission. Briefly explain the properties of bundled conductor **(8)**

   b) Describe the effect of electrostatic field on

   i) Humans

   ii) Animals

   iii) Plants **(8)**

Unit - II

2. a) Two generator rated 250MW and 500MW are operating in parallel. The drop characteristics of the governors are 4% and 5% respectively. How would a load of 750 MW be shared between them? What will be the system frequency? Take nominal frequency is 60 Hz **(8)**

   b) Explain the automatic generation control along with the block diagram **(8)**

OR

2. a) Explain the flat frequency, flat tie line and tie line load bias control method of load frequency control **(8)**

   b) Draw schematic diagram of a speed governing system to control the real power flow in power system and explain in brief **(8)**

Unit - III

3. a) What do you mean by reactive power? Give various sources of reactive power **(8)**

   b) What are the types of tap changing transformer? Describe their function to control the voltage **(8)**

OR

3. a) What do you mean by shunt compensation? How it is different from series compensation. **(8)**

   b) Write short notes on

      i) FC-TCR

      ii) Booster transformer **(8)**

Unit - IV

4. a) Explain the working of UPFC used for power system **(8)**

   b) Explain how the STATCOM is used as a FACT controller **(8)**

OR

4. a) Explain types of FACTS controllers **(8)**

   b) Explain briefly how voltage control and reactive power control can be achieved using a TCSC-TCR **(8)**

Unit - V

5. a) What is ground return? What are the problems associated with the use of ground as the return conductor **(8)**

   b) Explain in details the different types of DC links **(8)**

OR

5. a) Discuss the advantages and disadvantages of HVDC transmission **(8)**

   b) With a neat schematic diagram state the various apparatus required for HVDC station and explain purpose of each **(8)**
