

8E4109

Roll No. \_\_\_\_\_

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**8E4109**

**B. Tech. VIII Sem. (Main/Back) Exam., April, 2015**

**Electrical Engineering**

**8EE1 EHV AC/DC Transmission**

**Common for 8EE1 & 8EX1**

**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.*

*Use of following supporting material is permitted during examination.*

1. NIL

2. NIL

**UNIT - I**

- Q.1 (a) Describe the relative merits of AC & DC modes of transmission. What is the need of EHV transmission? [8]
- (b) Describe the problems posed in Extra High Voltage (EHV) AC transmission. [8]

**OR**

- Q.1 (a) Explain the properties of the bundled conductors. How electrostatic field of EHV lines effects human, animals and plants. [8]
- (b) Define & Explain: [8]
- (i) Geometric mean radius of bundle.
- (ii) Corona effects.

## **UNIT – II**

- Q.2 (a) Obtain the mathematical model of the speed governing system and turbine. [8]
- (b) Define the concept of load sharing between parallel operating generators. [8]

**OR**

- Q.2 (a) Describe the Automatic generation control along with the block diagram. [8]
- (b) Explain Flat Frequency, Flat Tie Line and Tie Line load bias control methods of Load Frequency control. [8]

## **UNIT – III**

- Q.3 (a) Explain the various conventional methods of voltage control along with advantages & disadvantages. [8]
- (b) Explain voltage collapse problem in brief. [8]

**OR**

- Q.3 (a) Describe thyristorised static VAR compensators- TCR, FC-TCR and TSC-TCR in detail. [8]
- (b) Why thyristorised static VAR compensators are better to control Transient stability, Dynamic stability & Power Oscillations developed in power system? [8]

## **UNIT – IV**

- Q.4 (a) How FACTS controllers are useful to control interrelated parameters of transmission line. [8]
- (b) Describe the various types of FACTS controllers. [8]

**OR**

- Q.4 Describe in brief- [16]
- (a) STATCOM
- (b) TCSC
- (c) UPFC.

## **UNIT – V**

- Q.5 (a) Discuss the advantages & disadvantages of HVDC transmission. [8]
- (b) Draw a simple scheme of HVDC converter station and describe briefly main components of the converter station. [8]

**OR**

- Q.5 (a) Describe types of HVDC links with the help of diagrams. Discuss the applications of each of these links. [8]
- (b) Explain & draw the basic converters control characteristics for negative current margin. [8]
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