Total No. of Questions :5] *[Total No. of Printed Pages :2*

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EX - 7102

B.E. VII Semester

Examination, December 2015

EHV AC and DC Transmission

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Write approximate expression for the calculation of transmission loss in EHV AC line.
   b) State the advantages of HVDC links.
   c) What are the advantages of HVDC power transmission for bulk power over EHV AC transmission?
   d) Why reactive power control is required for HVDC station? Discuss about conventional control strategies for reactive power control in HVDC link.

OR

With the help of a neat schematic diagram of typical HVDC converter station explain the function of various components available.

Unit - II

2. a) What is the need for FACTS controllers?
   b) Enlist the type of FACTS controllers.
   c) What is the function of a STATCOM?
   d) Distinguish between HVDC and FACTS operations.

OR

Explain the operation of unified power flow controller with relevant diagram.

Unit - III

3. a) Where are high frequency filters connected in a HVDC system?
   b) What is ground return?
   c) List the HVDC system present and which are in operation in India.
   d) What are the adverse effects of harmonics introduced by HVDC converters.

OR

Explain the configuration of a parallel lapping multiterminal HVDC system and its switching arrangement.

Unit - IV

4. a) Define Delay angle and extinction angle.
   b) What is the current in HVDC system control calculated?
   c) Show the effect of delay angle α and extinction angle γ on reactive power.
   d) With a block schematic, explain the current control system with equidistant pulse control.

OR

Explain the parallel operation of HVAC and DC system.

Unit - V

5. a) Explain back flash over.
   b) What are the characteristic of lightning strokes?
   c) What are the major draw backs of rod gaps when used as a surge diverter?
   d) Why does switching operation produces over voltage? Define over voltage factor. Find its value for 400 kV system.

OR

What is travelling waves? Discuss how it gets attenuated along the transmission line?

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