(DEE 416 B)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS AND ELECTRONICS ENGINEERING

Paper - VI : HVDC Transmission

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15 x 1 = 15)***

Answer any ONE question from each unit ***(4 x 15 = 60)***

1) a) Write in brief about economics of dc transmission.

b) Write in brief about types of links available in dc transmission.

c) Explain about voltage control in dc transmission line.

d) Explain about selection of voltage in dc transmission.

e) Different kinds of arrangements in converter station.

f) Explain about how the rectifier acts as an inverter and vice versa.

g) Explain in brief different types of faults in converter.

h) How over currents will be minimized in converter.

i) How the converter is protected from over voltages.

j) Write down necessity of dc link control.

k) Explain about constant extinction angle control.

l) Write dc power flow algorithm.

m) Write about effects of harmonics on converter performance.

n) Draw the impedance loci diagram.

o) Write about TIF, THFF, and IT product.

UNIT - I

2) What is the need for Interconnection of systems? Explain the merit of connecting HVDC system by HVDC tie lines.

OR

3) Explain modern Trends in DC Transmission.

UNIT – II

4) Derive the expression for averge DC voltage of a six pulse bridge converter considering gate control and the source reactance.

OR

5) a) With the help of circuit diagram and relevant wave forms. Explain principle of operation of a 3-phase, 6 pulse uncontrolled bridge rectifier feeding DC motor load.

b) For the above circuit, derive the expressions for average dc voltage, total VA rating of valves and transformer.

UNIT – III

6) Explain the basic principle of DC link control in HVDC system.

OR

7) Explain firing angle control schemes with their relative merits and demerits.

UNIT – IV

8) Draw the flow chart for AC/DC load flow.

OR

9) Compare simultaneous and sequential methods of power flow analysis.

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