PVP 14

Code: EE7T2

IV B.Tech - I Semester – Regular/Supplementary Examinations
October - 2018

HVDC TRANSMISSION
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22 M

1.

a) Write Disadvantages of HVDC transmission.
b) Define energy availability of HVDC system.
c) Define PIV rating of converter.
d) Write importance of harmonic study of HVDC converter.
e) Define firing angle of converter.
f) List factors affecting power control in HVDC system.
g) Define misfire HVDC converter fault.
h) Write importance of reactive power in HVDC system.
i) Define characteristic harmonic of HVDC converter.
j) Classify filters in HVDC converters.
k) Write sequence of operational procedure of HVDC link.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain Modern trends in DC Transmission. 8 M

   b) Compare different kinds of DC links. 8 M

3. Develop an equivalent circuit of converter working as rectifier with delay angle 'α' and overlap angle 'μ' and hence show that the equivalent resistance of converter is $\frac{3\omega L_c}{\pi}$, where 'ω' is the angular frequency and 'L_c' is the series effective inductance per phase. 16 M

4. Explain about power reversal action in HVDC System. 16 M

5. a) Explain the over voltage protection scheme employed in HVDC systems. 8 M

   b) Explain the necessity of DC reactor in a HVDC line. 8 M

6. a) Explain the design of single tuned A.C Filter. 8 M

   b) What do you understand by characteristic harmonics in HVDC systems? Using Fourier analysis, show that current harmonics generated for p-pulse operation is given by PK± 1. 8 M