PVP 12

Code: **EEPC1T2**

I M.Tech-I Semester-Regular Examinations-April 2013

HVDC TRANSMISSION

(POWER SYSTEM CONTROL & AUTOMATION)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1 (a) Explain the economic aspects of AC and DC transmission systems. What is the reason for having huge variations in break-even distances? 7 M

(b) Describe the power handling capabilities and reliability aspects of HVDC transmission. 7 M

2) With the help of a circuit diagram and waveforms, obtain the equivalent circuit of a three phase six pulse converter circuit. 14 M

3 (a) Explain the objectives in designing the size and branches of harmonic filters and dc harmonic filters in a HVDC substation. 7 M

(b) What are harmonics? Obtain the expression for harmonic impedance using Fourier series. 7 M

4 (a) Explain the various control principles involved in HVDC converters. 7 M

(b) Explain the constant ignition angle control scheme. 7 M

5 (a) Explain the importance and configurations of interconnection of transmission lines. 7 M

(b) What are the harmonic instabilities in dc transmission systems? Explain the methods of reducing them. 7 M

6 (a) Explain the typical arrangements, merits and demerits of various MTDC systems. 7 M

(b) Explain the control schemes employed in series MTDC lines. 7 M

7 (a) What are the causes of DC disturbances? Explain the over voltages due to the dc side disturbances. 7 M

(b) What are smoothing reactors? Explain the protection scheme employed in surge arrestors on dc side. 7 M

8 (a) Classify converter faults due to their misoperation. 7 M

(b) Explain over voltage protection in converter circuits. 7 M