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Total Number of Pages: 01

M.TECH
EEPE201

2nd Sem Regular / Back Examination – 2015-16
HVDC TRANSMISSION & FACTS

Q.CODE:W766

Time: 3 Hours

Max marks: 70

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions: (2 x 10)
- What is breakeven distance?
 - Define transient reliability as applied to transmission line.
 - What is commutating emf?
 - What is the function of smoothing reactor?
 - Draw the equivalent circuit of a Bridge rectifier.
 - Distinguish between delay in firing angle(α) and extinction angle(μ) of a HVDC converter.
 - How can disturbances due to harmonics be eliminated in a converter?
 - Give the basic TCSC scheme.
 - Give the V-I characteristic of SVC and STATCOM.
 - What is Sub-synchronous oscillation?
- Q2 Compare AC and DC Transmission based on following factor (5+5)
- Economics of transmission
 - Technical performances
- Q3 Explain the operation of 12 pulse converter. Show the waveforms of output voltage. (10)
- Q4 Show that the harmonics contain in the current waveform of converter transformer is of the order of $np \pm 1$. (10)
- Q5
- Analyze Graetz Circuit when it is operating with overlap. (5)
 - Compare power transfer capability of a Bipolar DC line with a 3-Phase AC line. (5)
- Q6
- The midpoint shunt compensation can increase the transmittable power. Justify. (5)
 - Explain the operation of TCR and TSR. (5)
- Q7 Explain the operation of UPFC. How real and reactive power can be controlled by UPFC ? (10)
- Q8 Write short notes on any two: (5 x 2)
- MTDC
 - Voltage Dependent Current Order Limit (VDCOL)
 - TSSC
 - SVC