

MODEL QUESTION PAPER

MFE4

I Semester M.TECH Examination, August 2011 EHV TRANSMISSION

Time: 3 Hours

Max. Marks: 75

GROUP A : Answer any three questions.

- Q.1 Explain why HVDC circuit breaker has not been used in MTDC system.
- Q.2 Explain Delay Angle, Angle of Advance, Extinction Angle and Angle of Overlap and relation between Extinction angle, angle of Overlap and Angle of Advance.
- Q.3 Explain the commutation and overlap angle for a 6-pulse rectifier bridge.
- Q.4 Write down the significance of clearance and creepage distance of A.C. insulator?
- Q.5 What is relationship between corona and interferences in communication systems?

GROUP B : Answer any three questions.

- Q.6 Explain the factors influencing flashover strength of air gaps.
- Q.7 A bridge-connected rectifier is fed from 400 KV/220 KV transformer with primary connected to 400 KV. Determine the DC output voltage when commutation angle is 120 and delay angle is 240.
- Q.8 Explain p_d versus i_d characteristics of an HVDC link for various values of short circuit ratio.
- Q.9 Explain clearly, what do you mean by compensation of line. Write its objectives.
- Q.10 What is relationship between corona and interferences in communication systems.

GROUP C: All Questions are Compulsory.

Q.11 Fill in the blanks

- (i) Air comprise about _____% Nitrogen.
- (ii) Earth wire on EHV overhead transmission line is provided to protect the line against _____.
- (iii) The main circuit of converters in HVDC terminal station are made up of series Connected _____ Valves.
- (iv) The insulation of modern EHV lines is designed based on _____ voltage.
- (v) The highest transmission voltage in the world is _____ kV.

Q.12 Multiple choice question.

- (i) What is the distance between the EHV lines and earth?
 - (a) 8m
 - (b) 11m
 - (c) 18m
 - (d) 15m
- (ii) Bundled conductors in the EHV transmission system provides
 - (a) Reduced capacitance
 - (b) Increased capacitance
 - (c) Increased inductance
 - (d) Increased voltage gradients
- (iii) HVDC converts _____.
 - (a) DC to AC
 - (b) AC to AC
 - (c) AC HV to DC HV
 - (d) DC HV to AC HV
- (iv) With 100% series compensation of lines
 - (a) Circuit is series resonance at power frequency
 - (b) Low transient voltage
 - (c) High transient current
 - (d) (a) and (c) both
- (v) What will a UPS be used for in a building?
 - (a) To provide power to essential equipment
 - (b) To monitor building electricity use
 - (c) To carry messages between departments
 - (d) To control lighting and power systems

Q.13 True or false

- (i) The electric field strength E is the negative of potential gradient.
- (ii) Carrier current protection scheme is not normally used for HV transmission lines
- (iii) In long transmission lines incident and reflected waves travel in opposite directions.
- (iv) Series compensation in an EHV line is resorted to Reduce the fault level
- (v) The value of restriking voltage depends on inductance of line.
