

**B.Tech Sem – VIII (2007 Course) (Electrical Engg.) : WINTER
- 2017**

SUBJECT: Elective-II: a) HIGH VOLTAGE POWER TRANSMISSION

Day: **Wednesday**
Date: **22/11/2017**

Time: **02.30 PM TO 05.30 PM**
Max Marks: **80**

W-2017-2669

N.B:

- 1) **Q. No 1 and Q.No.5 are COMPULSORY.** Out of remaining attempt any **TWO** Questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer book.
- 3) Figures to the right indicate **FULL** marks.
- 4) Assume suitable data, if necessary.
- 5) Use of non-programmable **CALCULATOR is allowed.**

SECTION-I

- Q.1**
- a) Explain the causes of Radio Interference generation in transmission line. (05)
 - b) State different types of line termination. (05)
 - c) Write a short note on shunt reactors used for voltage control. (04)
- Q.2**
- a) What are factors to be considered while designing clearances in tower design? (07)
 - b) Describe the reactive power compensation. What are adverse effects of reactive power on transmission line? (06)
- Q.3**
- a) Enumerate the phenomenon of travelling waves. State wave equation. (07)
 - b) What is insulation coordination? Write statistical aspects of insulation coordination. (06)
- Q.4**
- a) Explain special tools and procedure for transmission line live maintenance. (07)
 - b) State and explain biological effects of electric field. (06)

SECTION-II

- Q.5**
- a) Describe how the reversal of power flow is possible in HVDC system? (05)
 - b) What are the different types of multiterminal HVDC system? Sketch and explain. (05)
 - c) Describe different zones of protection in HVDC. (04)
- Q.6**
- a) Describe the effect of overlap angle on output voltage of inverter with neat waveform and mathematical equation. (05)
 - b) Describe operation of 3 phase, 12 pulse converter with neat diagram. Write down the equation of output voltage. (08)
- Q.7**
- a) In a monopolar transmission system, the rectifier DC voltage is 600 KV DC. The inverter DC voltage is 595KV DC. The line resistance is 30 ohm. Calculate sending end power, receiving and power and line loss. (06)
 - b) Explain the function of metallic return transfer breaker and its switching sequence from monopolar mode with earth return to metallic return. (07)
- Q.8**
- a) What are the objectives of power flow control in HVDC system? What are the methods to satisfy the objectives? (07)
 - b) What is the sequence of fault clearing in HVDC system? (06)

* * * *