SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : HVDC TRANSMISSION(16EE4311) **Course & Branch**: M.Tech - PE

Year & Sem: I-M.Tech & II-Sem **Regulation:** R16

UNIT –I

1. (a) Write the Comparison between AC and DC transmission? [L3][5M]

   (b) Explain the types of DC Links? [L2][5M]

2. Give detailed comparison between HVDC and AC transmission. [L3][10M]

3. Explain the power handling capabilities of HVDC lines? [L2][10M]

4. Explain the basic conversion principles with neat circuit diagrams? [L2][10M]

5. With the help of neat schematic diagram explain the operation of 3-Phase, 6 Pulse Graetz's Circuit? [L2][10M]

6. Explain the typical HVDC converter station with a neat schematic diagram? [L2][10M]

7. Explain the operation of a 12 pulse converter with a neat circuit diagram? [L2][10M]

8. (a) Write the special features of converter transformers? [L3][5M]

   (b) Explain the operation of a 6 pulse converter with a neat circuit diagram? [L2][5M]

9. Explain the Basic conversion principles of a HVDC Transmission system? [L1][10M]

10. Explain the static converter configuration of a HVDC system? [L2][10M]

UNIT –II

1. Explain the generation of Harmonics in detail with suitable waveforms? [L2][10M]

2. Explain the elimination of Harmonics in detail? [L3][10M]

3. Explain all the types of AC Filters with their design? [L2][10M]

4. Explain all the types of DC Filters with their design? [L1][10M]

5. Explain the DC Power flow control of HVDC system? [L2][10M]

6. What is meant by individual phase control and what are the draw backs of this control and explain how these drawbacks can be eliminated? [L1][10M]

7. Explain the constant extinction angle control and constant ignition angle control? [L2][10M]

8. Explain the constant extinction angle control and constant current control? [L2][10M]

9. Explain the harmonics elimination in a HVDC Transmission system? [L3][10M]

10. Explain the constant ignition angle control and constant current control? [L2][10M]

UNIT –III

1. Explain about voltage interaction? [L2][10M]

2. What is meant by DC Power modulation? Explain it in detail. [L1][10M]

3. Briefly explain what are the different harmonic instability problems? [L2][10M]

4. Explain the DC power modulation scheme used in interconnected operations of AC and DC Systems. [L1][10M]

5. Explain the interaction between HVAC & DC systems? [L3][10M]

6. List out different types of multi-terminal DC links with suitable diagrams. [L1][10M]

7. Explain parallel connected multi terminal DC link with suitable diagram. [L2][10M]

8. Explain series parallel connected multi terminal DC link with suitable diagram. [L2][10M]

9. Explain series connected multi terminal DC link with suitable diagram. [L2][10M]

10. Write a short note on the following [L1] [10M]
    (a) Voltage interaction
    (b) DC Power modulation

UNIT –IV

1. Explain how transient over voltages are produced due to faults on DC side [L2] [10M]

2. What are the over voltages due to disturbances on AC system side? Explain. [L1] [10M]

3. Briefly explain over current protection scheme in the HVDC system. [L3] [10M]

4. Briefly explain over voltage protection scheme in the HVDC system. [L3] [10M]

5. What are transient over voltages due to disturbances on DC and AC system side line faults? Explain them. [L2] [10M]

6. Explain the over voltages due to DC side line faults. [L1] [10M]

7. Explain the over voltages due to AC side line faults. [L1] [10M]

8. Explain the over voltages due to DC & AC side line faults. [L1] [10M]

9. Write a short note on the following [L2] [10M]
   a) Over Voltages
   b) Over Currents

10. Explain how transient over voltages are produced due to faults on AC side [L2] [10M]

UNIT –V

1. Discuss the various faults exist in converter station. Explain. [L2] [10M]

2. Write a short note on the following [L1] [10M]
   a) Commutation failure
   b) Surge arresters
   c) Transient over voltages

3. Write state notes on the following [L1] [10M]
   (a) Over current protection
   (b) Surge arresters

4. (a) What are the different causes of converter faults? [L2] [5M]

(b) Explain how the dc line is protected? Explain over voltage protection methods Converters. [L2] [5M]

5. Briefly explain over current protection scheme in the HVDC system. [L2] [10M]

6. Briefly describe the various faults that occur in converter station? Explain. [L2] [10M]

7. Explain the function of smoothing reactor in a HVDC Transmission system. [L1] [10M]

8. Explain the importance of Valve group in the HVDC Transmission system. [L1] [10M]

9. Briefly explain the DC line protection with suitable diagram. [L2] [10M]

10. Write a short note on the following [L1] [10M]
a) Smoothing reactor
b) Surge arresters
c) Transient over voltages

.

Prepared by:

M.SUBRAMANYAM
ASSISTANT PROFESSOR
DEPT.OF EEE
SIETK