Code: EE7T2

IV B.Tech - I Semester – Regular / Supplementary Examinations MARCH - 2021

HVDC TRANSMISSION
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours   Max. Marks: 70

PART – A

Answer **all** the questions.   All questions carry equal marks

$$11 \times 2 = 22 \text{ M}$$

1.
   a) Write advantages of HVDC transmission.
   b) Define transient reliability of HVDC system.
   c) Define pulse number of converter.
   d) Write importance of PIV calculation of HVDC converter.
   e) Define extinction angle of converter.
   f) List factors affecting converter control.
   g) Classify different HVDC converter faults.
   h) Write different sources of reactive power in HVDC system.
   i) Define Non-characteristic harmonic of HVDC converter.
   j) What is the purpose of filters in HVDC converters?
   k) List out startup procedure of HVDC link.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

$$3 \text{ x } 16 = 48 \text{ M}$$

2. a) Compare AC and DC transmission in Economical point of view.   8 M

   b) Explain planning for HVDC transmission.   8 M

3. Derive the expressions for output voltage and current of convertor by considering the effect of grid control and overlap less than 60^0 and obtain equivalent circuit.   16 M

4. List and describe about different firing angle schemes.

                                      16 M

5. a) Explain the over current scheme employed in HVDC systems.   8 M

   b) Explain in detail about Misfire fault in HVDC.   8 M

6. a) Discuss the effect of increase in pulse number on current and voltage harmonics in HVDC converters.   8 M

   b) What are non-characteristic harmonics in HVDC systems? How are they generated?   8 M