

Code No: G5602/R13

M. Tech. I Semester Supplementary Examinations, January-2017

H.V.D.C. TRANSMISSION

(Common to HVE, HVPS, PS, PSC&A, EPE, EPS, PE, P&ID, PE&ED,  
PE&D, EM&D, PE&PS and APS)

Time: 3 hours

Max. Marks: 60

---

*Answer any FIVE Questions  
All Questions Carry Equal Marks*

---

- |    |   |   |      |
|----|---|---|------|
| 1. | a | Explain the types of HVDC links and its purpose with neat diagrams.   | 6 M  |
|    | b | Draw the typical layout of HVDC transmission system and explain each part.  | 6 M  |
| 2. |   | Explain the individual characteristics of rectifier and inverter operation with neat sketch.  | 12 M |
| 3. | a | Draw the schematic diagram of a typical HVDC converter station with 2 six pulse converter units and explain the function of each component. | 6 M  |
|    | b | Explain the constructional features of a converter transformer.   | 6 M  |
| 4. | a | Explain in detail about equidistance firing angle scheme. Also list the draw backs of this scheme.  | 6 M  |
|    | b | What are the factors responsible for generation of harmonic voltage and current?  | 6 M  |
| 5. | a | Explain the objective of DC power modulation in detail.   | 6 M  |
|    | b | Discuss constructional difference of DC circuit breaker with AC circuit breaker.  | 6 M  |
| 6. | a | Discuss the list of dominant harmonics present in the various types of HVDC converters.   | 6 M  |
|    | b | Discuss series-parallel multi-terminal HVDC system and its control.   | 6 M  |
| 7. | a | Discuss the operation of surge arrestors for overvoltage protection of HVDC Systems.  | 6 M  |
|    | b | Explain the basic principles of over current protection.  | 6 M  |
| 8. | a | Explain the nature of transient over voltages due to disturbances on DC side.   | 6 M  |
|    | b | Write a short note on   | 6 M  |
|    |   | i. Over voltages on the HVDC system   |      |
|    |   | ii. By-pass valve and its use.  |      |

\*\*\*\*\*

WWW.MANARESULTS.CO.IN

|||||