

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

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| 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 drawbacks 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. | |
