

Code: EE7T2

IV B.Tech - I Semester – Regular Examinations - November 2015

**HIGH VOLTAGE DIRECT CURRENT TRANSMISSION
(ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

- 1 a) Briefly explain the different types of dc links and their relative merits. 7 M

- b) Draw a schematic diagram of typical HVDC converter station and describe the various components of the station. 7 M

- 2 a) Show that rating of the valve used in Graetz circuit is $2.094 P_d$, where P_d is d.c power transmitted. 8 M

- b) Define the following in terms of pulse number, commutation group 6 M
 - i) Valve rating
 - ii) Valve utilization factor
 - iii) Transformer rating

- 3 a) Explain the individual characteristics of a Rectifier and an Inverter with sketches. 7 M

- b) With circuit diagram, explain the principle of firing angle control scheme. 7 M

- 4 What are the various sources of reactive power in HVDC system? 14 M
- 5 a) What are the basic principles of over current protection? 6 M
- b) Discuss the various faults exist in converter station. Explain. 8 M
- 6 a) What are the various applications of MTDC systems? 7 M
- b) Explain the types of MTDC systems with neat sketch. 7 M
- 7 Give reasons for selecting star-star and star-delta transformer configuration instead of two star-star configurations for 12 pulse converter. Derive an equation for primary current. 14 M
- 8 Give a detailed account of design aspects of the following filters: 14 M
- a) Single tuned filter b) Double tuned filter.