

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: 31384

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Elective

Electrical and Electronics Engineering

01UEE912 - HVDC TRANSMISSION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Compare AC and DC Transmission.
2. Mention the types of DC links.
3. What does the word pulse number refers to?
4. Draw the Graetz bridge circuit.
5. Identify the principal of control in DC link?
6. List any two single commutation failures.
7. Name the sources of reactive power.
8. Classify the types of filter?
9. What are the constraints in power flow analysis?
10. Mention the major types of AC-DC system interconnection.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain the HVDC transmission based on VSC. (8)
- (ii) Discuss about DC breakers and design problems. (8)

Or

(b) Describe with a neat diagram, the different configurations of asynchronous interconnection in HVDC system. (16)

12. (a) Describe with a neat diagram, the operation of 6 pulse VSC circuit. (16)

Or

(b) Write short note on

(i) Converter bridge characteristics (8)

(ii) Choice of converter configuration (8)

13. (a) Illustrate the individual phase control method for generating gate pulse of HVDC valves. (16)

Or

(b) Describe the control circuit for the operation of Voltage source converter with neat sketch. (16)

14. (a) (i) Differentiate between SVC and STATCOM. (6)

(ii) Explain in detail the working and control characteristic of thyristor controlled reactor. (10)

Or

(b) How characteristics and non characteristics harmonics can be generated? Derive an expression for AC voltage harmonics. (16)

15. (a) Discuss the concept of flexible per unit system for DC quantities and explain the basic assumptions made in AC to DC converter. (16)

Or

(b) (i) Differentiate the simultaneous and sequential method of power flow analysis. (6)

(ii) Develop the flow chart of the AC-DC power flow. (10)