Reg. No. : | | | | | | | | | | |

Question Paper Code: 59312

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. List the advantages of DC transmission.
2. Mention the types of DC links.
3. Draw the LCC Bridge characteristics.
4. Draw the Graetz bridge circuit.
5. Classify the types of individual phase control and equidistant pulse control?
6. List any two single commutation failures.
7. What is a need for filters?
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) Describe with a neat diagram, the different configurations of asynchronous interconnection in HVDC system. (16)

Or

(b) Discuss in detail about the planning of HVDC transmission and also the modern trends in HVDC technology. (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 Current source converter with neat sketch. (16)

14. (a) Compare the salient features of SVC and STATCOM based on all operational aspects. (16)

Or

(b) (i) Write brief notes on active filters. (6)

(ii) Derive an equation for harmonic voltage and current for single tuned filter and discuss the influence of network admittance. (10)

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)
