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Question Paper Code: 39312

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. List the types of MTDC system.
3. What does the word pulse number refers to?
4. Draw the Graetz bridge circuit.
5. State the effects of double commutation failure.
6. List any two single commutation failures.
7. Points out any two problems that will occur due to injection of harmonics.
8. Classify the types of filter?
9. What are the constraints in power flow analysis?
10. State the advantages of per unit system.

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) Discuss the advantages, disadvantages and application of HVDC transmission system. (16)

12. (a) Illustrate the analysis of two and three valve conduction mode using Graetz circuit. (16)

Or

- (b) Write short note on
- (i) Converter bridge characteristics (8)
 - (ii) Choice of converter configuration (8)

13. (a) Discuss the working of firing angle control circuit with a neat sketch. (16)

Or

- (b) Describe the control circuit for the operation of Current 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) (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) Derive the discrete time converter model for 3 valve conduction. (16)

Or

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