Code: 13A02803

R13

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2018

HVDC TRANSMISSION

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) How the rating of a converter station is described?
(b) Define reliability with reference to HVDCT.
(c) Define HVDC link
(d) What is meant by Graetz circuit?
(e) Draw the converter control characteristics.
(f) List the two basic firing angle control schemes.
(g) What are the problems associated with harmonics?
(h) What are the advantages of double tuned filters?
(i) List the faults due to malfunction of valves and controllers in a converter station.
(j) Classify the type of over voltages in ac system of converter station.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 What is a transmission link? Explain different types of DC links with their relative merits and demerits.

OR

3 Describe and explain static converter configurations.

UNIT – II

4 Obtain the equivalent circuit of converter rectifier.

OR

5 Explain the functions of converter station terminal equipment.

UNIT – III

6 Explain the principles of DC link control.

OR

7 Explain the operation of IPC scheme and list the drawbacks of this scheme.

UNIT – IV

8 Explain the objectives in designing the size and branches of harmonic filters and dc harmonic filters in a HVDC substation.

OR

9 What are harmonics? Explain how harmonics are generated in DC side of a converter station.

UNIT – V

10 Classify and briefly explain converter faults.

OR

11 With a neat schematic, explain the over current protection scheme of a converter pole.

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