Code: 15A02708

R15

B.Tech IV Year I Semester (R15) Regular Examinations November/December 2018

FLEXIBLE AC TRANSMISSION SYSTEMS

(Electrical & 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) Give the classification of FACTS controllers.
(b) What is a shunt controller?
(c) What are the advantages of using PWM techniques in converters?
(d) What are the limitations of using thyristor based converters in FACTS?
(e) What are the objectives of shunt compensation?
(f) What are hybrid VAR generators?
(g) How do prevent the occurrence of resonance in TCSC operation?
(h) What is the difference between GCSC and TCSC?
(i) What are the multiple functionalities of UPFC?
(j) What is IPFC?

PART – B

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

UNIT – I

2 Discuss in detail about the benefits of FACTS controllers.

OR

3 (a) Explain the various stability metrices to the considered in transmission systems.
(b) Write short note on combined shunt and series controllers.

UNIT – II

4 With a circuit diagram, explain the 48-pulse operation of the converter. Also explain the transformer connections for 48-pulse operation.

OR

5 (a) Distinguish between voltage source and current sourced converters.
(b) Write short notes on PWM converters.

UNIT – III

6 Discuss in detail the various methods of controllable VAR generation.

OR

7 Discuss the comparison between STATCOM and SVC.

UNIT – IV

8 Elaborately explain the various objectives of series compensation.

OR

9 Write detailed notes on the following: (i) TSSC. (ii) SSSC.

UNIT – V

10 With a neat schematic diagram, explain the real and reactive power control of transmission system using UPFC.

OR

11 Explain the basic operating principles and transmission control capabilities of UPFC.

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