

Total No. of Questions : 5]

SEAT No. :

P5368

[5562]-225

[Total No. of Pages : 2

M.E. (Electrical) (Power System)

HVDC AND FLEXIBLE AC TRANSMISSION

(2017 Course) (Semester-II) (503209)

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *Neat diagrams must be drawn wherever necessary.*
- 2) *Assume Suitable data if necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of Calculators is allowed.*

Q1) Solve any Three:

[3×6=18]

- a) Explain the term angle of advance and its significance in inverter control.
- b) Write short note on protection of dc line.
 - i) Detection of line faults.
 - ii) DC Breakers.
- c) How the economic choice of voltage level selected in DC transmission system for a fixed power transmission as compared with EHVAC lines?
- d) Explain how a VSC can be operated as a rectifier or inverter by controlling the valve conduction sequence.
- e) What are the different control characteristics of HVDC link? Elaborate each with suitable diagram.

P.T.O.

Q2) a) Prove that SVC can be used to enhance the power transfer capacity of a transmission line. [8]

b) Explain the working, characteristics and operating modes of variable reactance model of thyristor controlled series capacitor. [8]

OR

Q3) a) Explain the working of STATCOM. Compare its V-I characteristic with SVC. [8]

b) With the help of power angle curve explain how transient stability is improved with the help of series controllers. [8]

Q4) a) Give the comparison of UPFC with other FACTS devices. [8]

b) Explain the block diagram of overall UPFC control structure. [8]

OR

Q5) a) Explain the steady state UPFC model for power flow studies. [8]

b) What are the different modes of operation of UPFC? Give the details of working in each mode. [8]

