

[6580]-570

B.E. (Electrical Engineering) (Insem.)
POWER SYSTEM OPERATION & CONTROL
(2019 Pattern) (Semester - VII) (403141)

Time : 1 Hour]

[Max. Marks : 30

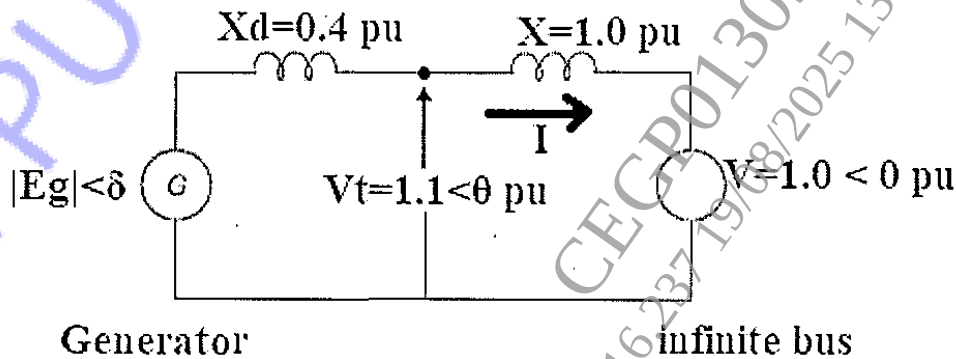
Instructions to the candidates :

- 1) Answer Q.1 or Q.2, Q.3 or Q.4.
- 2) Figures to the right indicate full marks.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Assume suitable data, if necessary.
- 5) Use of non programmable calculator is allowed.

- Q1) a)** Explain transient stability analysis for sudden increase in mechanical input with the help of equal area criterion. [7]
- b) Explain the effect of clearing time on stability. Consider the case of three phase short circuit fault at the outgoing radial feeder connected to generator bus. Derive the expression of critical clearing angle. [8]

OR

- Q2) a)** Find the maximum steady-state power capability of a system consisting of a generator equivalent reactance of 0.4 pu connected to an infinite bus through a series reactance of 1.0 pu as shown in figure. The terminal voltage of the generator is held at 1.1 pu and the voltage of the infinite bus is 1.0 pu. [7]



P.T.O.

- b) Explain the following terms : [8]
- i) Steady state stability and Enlist methods to improve it. Explain any one.
 - ii) Transient Stability and Enlist methods to improve it. Explain any one.

- Q3)** a) What is necessity of reactive power control? What are the ways to control reactive power? Explain any one. [7]
- b) Explain working principle of TCSC with the help of circuit diagram, V-I characteristic, advantages and its application. [8]

OR

- Q4)** a) Explain working principle of STATCOM with it's of circuit diagram, V-I characteristic and its application. [7]
- b) Discuss the different types of FACTS controller. Also, Explain the problems associated with the series compensation. [8]
