BE - Sem VIII - OED - EE

(7)

FACTS

18/12/2015

QP Code : 2749

Note : Question No.1 is compulsory.
Solve any FOUR out of remaining six questions.
All questions carry equal marks.

(3 HOURS)
Total :- 100 Marks

Q.No.1 Write Short notes on - (20)

1) Main objectives of load compensation.
2) Operation and V-I charactristics of TCR
3) Passive compensation and Active compensation.

Q.No.2 a) Show that the voltage sensitivity for load reactive power is $\frac{dv}{dq} = \frac{E/SSC}{1+kr\,E/SSC}$ (20)

b) Obtain the wave equation for transmission line from fundamental Maxwell's equations.

Q.No.3 a)Explain the balancing of the unbalanced load. (20)

b)Prove that the surge impedance loading of the line has flat voltage profile.

Q.No.4 a)Explain , how the mid-point of tranmission line is the best location for the compensator. (20)

b)Expain shunt compensation by synchronous voltage source.

Q.No.5 a)What is meant by reactive power biasing?Explain with V-Q charateristics. (20)

b)Draw the ideal compensator characteristics and explain 1)Knee point voltage,Vk, 2)Compensated gain Kr, 3)Max or Rated reactive power Qr max, 4)Stiff system.

Q.No.6 a)Explain various types of FACTS controller. (20)

b) Using phasor diagram to illustrate different operation of UPFC.

Q.No.7 a)Define & Explain with respect to transmission line. (20)

i) Surge Impedence
ii) Surge impedence loading.
iii) Explain the reactive power control by using transformer.

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QP-Con. 11898-15.