

Total No. of Questions : 6]
P487

SEAT No. :
[Total No. of Pages : 2

TE/Insem/APR - 14
T.E. (Electrical)
POWER SYSTEM - II
(Semester - II) (2012 Pattern)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of calculator is allowed.*
- 5) *Assume suitable data if necessary.*

Q1) a) A long transmission line delivers a load of 60 MVA at 110 kV, 50 Hz at 0.8 pf lagging. The constants at transmission line are $A = D = 0.98 \angle 0.32^\circ$, $B = 70.3 \angle 69.2^\circ$, $C = 4.44 \times 10^{-3} \angle 90^\circ$. **[6]**

- i) Sending end active and reactive power.
- ii) Line Losses

b) Explain the procedure for drawing the receiving end circle diagram. **[4]**

OR

Q2) a) Derive the equation for active and reactive power flow at the receiving end using generalized constants of transmission line. **[6]**

b) Explain Surge Impedance & Surge Impedance Loading. **[4]**

Q3) a) For HVDC transmission system, write short note on - Constant current control. **[5]**

b) Draw the configuration of HVDC system indicating all the components. **[5]**

OR

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- Q4)** a) For HVDC transmission system, write short note on
- i) Homo polar HVDC system [6]
 - ii) Mono polar HVDC system.
- b) What are the merits of HVDC system over EHVAC system? [4]

- Q5)** a) Write down the formula to calculate power loss due to corona. What are the factors affecting it? [5]
- b) What are the merits EHVAC systems? [5]

OR

- Q6)** a) Find the disruptive critical voltage and visual critical voltage for local and general corona for a three phase line consisting of 21 mm diameter conductors spaced in 6 m delta configuration. Take temperature 25°C, pressure 73 cm of mercury, surface factor 0.84, irregularity factor for local visual corona 0.72 and for general (decided) visual corona 0.82.[6]
- b) Explain power handling capacity and power loss at various voltage levels. [4]

