Exam. Code: 0934
Sub. Code: 6979

1079

B. Engg. (Electrical & Electonics Engg.)

4th Semester

EE-403: Power Systems-I

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt **five** questions in all, including Q. No. 1 (Section-A) which is compulsory and selecting atleast two questions each from Section-B & C.*

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Section - A

1.a)	Define string efficiency and its importance.	(5x2=10)
b)	What are transposed conductors and their use.	
c)	What is proximity effect.	
d)	Define regulation of transmission lines.	
e)	What are the advantages of per unit system.	

Section – B

2. a)	Discuss methods of grading cables.	
b)	A single core lead sheath cable is graded by using two dielectric of relative permittivity 3.0 (inner) And 2.5 (outer), the thickness of each being 1 cm. the core dia is 1.2 cm. system voltage is 3 phase, 66 KV. Determine the maximum stress in two dielectrics.	(2x5=10)
3. a)	A string of 5 insulators is fitted with a gradingring. All discs are similar and capacitance of each pin to earth is C. Find the values of line to pin capacitances so that the voltage distribution is uniform.	(2x5=10)
b)	Explain methods of improving string efficiency.	
4.a)	What is the effect of ice and wind on sag.	
b)	Discuss the phenomenon of wave reflection and refraction . Derive the expression for reflection and refraction coefficient.	(2x5=10)

Section - C

5. a)	Show that the inductance per unit length of an overhead transmission line due to internal flux linkages Is constant and independent of size of conductor.	(2x5=10)
b)	Derive expression for capacitance of three phase transmission with asymmetrical spacing.	
6.	What is the need of reactive power control. Explain shunt and series compensation and compare .	(10)
7.	A 500 Km long transmission line charged at 132KV has series impedance of 50+j250 ohms per phase and shunt admittance of j1.2 X10-3 siemens per phase to neutral. The line is supplying 50MVA at 0.8 p.f lagging. Find the sending end voltage, current, power and power factor for π network.	(10)

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