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Internal Assessment Test 1

Sub:	Transmission and Distribution					Sub Code:	15EE43	Branch:	EEE	
Date:	12/03/18	Duration:	90 min's	Max Marks:	50	Sem/Sec:	4A & 4B		OBE	
<u>Answer any FIVE FULL Questions</u>								MARKS	CO	RBT
1 (a)	With a neat diagram, explain feeders, distributor and service main of a distribution system.					[05]	CO2	L4		
(b)	Discuss the various methods of increasing string efficiency.					[05]	CO6	L2		
2	Discuss the advantages of high voltage transmission by deriving the related expressions.					[10]	CO2	L2		
3 (a)	Each line of a 3-phase system is suspended by a string of 3 identical insulators of self-capacitance C farad. The shunt capacitance of connecting metal work of each insulator is 0.2 C to earth and 0.1 C to line. Calculate the string efficiency of the system if a guard ring increases the capacitance to the line of metal work of the lowest insulator to 0.3 C.					[07]	CO6	L3		
(b)	Why are insulators used with overhead lines? Discuss the desirable properties of insulators					[03]	CO6	L2		
4 (a)	An overhead 3-phase transmission line delivers 5000 kW at 22 kV at 0.8 p.f. lagging. The resistance and reactance of each conductor is 4 Ω and 6 Ω respectively. Determine :					[07]	CO1	L3		
(i)	Sending end voltage (ii) percentage regulation (iii) transmission efficiency.									
(b)	Draw the equivalent circuit and phasor diagram of a single phase short transmission line.					[03]	CO1	L2		

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- 5 (a)** Explain in details about the commonly used conductor materials. [05]
(b) Deduce an expression for voltage regulation of a short transmission line, giving the vector diagram. [05]
- 6 (a)** An overhead transmission line at a river crossing is supported from two towers at heights of 40 m and 90 m above water level, the horizontal distance between the towers being 400m. If the maximum allowable tension is 2000 kg, find the clearance between the conductor and water at a point mid-way between the towers. Weight of conductor is 1 kg/m. [07]
- 6 (b)** Derive the sag expressions for supports at unequal levels. [03]
- 7 (a)** Draw and explain the single line diagram of a typical A.C power supply scheme. [10]
- 8 (a)** Discuss the various types of line supports and insulators. [10]

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