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## Internal Assessment Test 2

Sub:	Transmission and Distribution					Sub Code:	15EE43	Branch	EEE		
Date:	17/04/18	Duration:	90 min's	Max Marks:	50	Sem/Sec:	4A	& 4B		OF	BE
		<u>A</u>	nswer any FI	VE FULL Questi	ions			M	ARKS	СО	RBT
1 (a)	Explain Ferranti	effect.							[02]	CO1	L4
<b>(b)</b>	Explain with vertransmission line	_	the nominal	T method for o	obtain	ing the perfo	rmance of med	lium	[08]	CO1	L4
2	Derive an expressolution.	ssion for send	ing end voltag	ge and current fo	or long	g transmission	line using rigo	rous	[10]	CO1	L1
3	3 A 3-φ transmission line 200 km long has the following constants:							[10]	CO1	L3	
	Resistance/phase/km = $0.16 \Omega$										
	Reactance/phase/km = $0.25 \Omega$										
	Shunt admittance/phase/km = $1.5 \times 10^{-6}$ S										
	Calculate by rigorous method the sending end voltage and current when the line is delivering a load										
	of 20 MW at 0.8										
4 (a)	) Find the most economical size of a single-core cable working on a 132 kV, 3- phase system, if a dielectric stress of 60 kV/cm can be allowed.								[05]	CO5	L3
<b>(b)</b>	Derive an expres	sion for the th	ermal resistar	nce of dielectric	of a si	ngle-core cabl	e.		[05]	CO5	L1

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## Internal Assessment Test 2

Sub:	Transmission and Distribution Sub Code: 15EE43 B						Branch	EEE			
Date:	17/04/18	Duration:	90 min's	Max Marks:	50	Sem/Sec:	4A	& 4B		OE	BE
	Answer any FIVE FULL Questions								ARKS	СО	RBT
1 (a)	Explain Ferranti	Explain Ferranti effect.								CO1	L4
<b>(b)</b>	Explain with vector diagram the nominal T method for obtaining the performance of medium transmission line.							lium	[80]	CO1	L4
2	Derive an expression for sending end voltage and current for long transmission line using rigorous solution.						rous	[10]	CO1	L1	
3	A 3-φ transmissi	on line 200 ki	n long has the	e following const	ants :				[10]	CO1	L3
	Resistance/phase/km = $0.16 \Omega$										
	Reactance/phase/km = $0.25 \Omega$										
	Shunt admittance/phase/km = $1.5 \times 10^{-6}$ S										
	Calculate by rigo							load			
	of 20 MW at 0.8	p.f. lagging.	The receiving	end voltage is ke	ept co	nstant at 110 l	ςV.				
4 (a)	Find the most eco				g on a	132 kV, 3- ph	nase system, if a		[05]	CO5	L3
	dielectric stress o	of 60 kV/cm (	can be allowed	1.						COF	T 1
4(b)	Dariya an aynras	gion for the th	armal racistar	an of dialogaria	of a cir	nala aora ashl			[05]	CO5	L1
<b>4(b)</b>	Derive an expres	sion for the th	iermai resistar	ice of dielectric (	)1 a S1	ngie-core cabi	e.		[05]		

5 (a)	Discuss the advantages and disadvantages of corona.	[05]	CO5	L2
(b)	Explain the theory of corona formation.	[05]	CO5	L4
6 (a)	With a neat diagram, show the various parts of a high voltage single-core cable.	[05]	CO5	L2
6 (b)	Find an expression for the most economical conductor size of a single core cable.	[05]	CO5	L3
7 (a)	Explain intersheath grading in cables.	[10]	CO5	L4
8 (a)	A 100-km long 3-phase, 50-Hz transmission line has following line constants:	[08]	CO1	L3
	Resistance/phase/km = $0 \cdot I \Omega$			
	Reactance/phase/km = $0.5 \Omega$ .			
	Susceptance/phase/km = $10 \times 10^{-6} S$			
	If the line supplies load of 20 MW at 0.9 p.f. lagging at 66 kV at the receiving end, calculate by nominal $\pi$ method: (i) sending end power factor (ii) regulation (iii) transmission efficiency.			
8 (b)	What do you understand by generalized circuit constants of a transmission line? What is their importance?	[02]	CO1	L2

5 (a)	Discuss the advantages and disadvantages of corona.	[05]	CO5	L2
` /	Explain the theory of corona formation.	[05]	CO5	L4
6 (a)	With a neat diagram, show the various parts of a high voltage single-core cable.	[05]	CO5	L2
6 (b)	Find an expression for the most economical conductor size of a single core cable.	[05]	CO5	L3
7 (a)	Explain intersheath grading in cables.	[10]	CO5	L4
<b>9</b> (a)			CO1	1.2
8 (a)	A 100-km long 3-phase, 50-Hz transmission line has following line constants: Resistance/phase/km = $0.1 \Omega$	[08]	CO1	L3
	Reactance/phase/km = $0.5 \Omega$ .			
	Susceptance/phase/km = $10 \times 10^{-6} S$			
	If the line supplies load of 20 MW at 0.9 p.f. lagging at 66 kV at the receiving end, calculate by nominal $\pi$ method: (i) sending end power factor (ii) regulation (iii) transmission efficiency.			
8 (b)	What do you understand by generalized circuit constants of a transmission line? What is their importance?	[02]	CO1	L2

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