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FIRST Semester B. E. Degree Semester End Examination (SEE), Jan/ Feb 2024

## Introduction to Electrical Engineering

(Model Question Paper - 1)					
[Time: 3 Hours]		[Maximum Marks: 100]			
	<b>Instructions to students:</b>				
	<ul><li>i. Answer FIVE FULL Questions as per choice.</li><li>ii. Use BLACK ball point pen for text, figure, table, etc.</li></ul>				
	iii. Assume missing data, if any.				
		Marks	CO	RBT	
		IVIAL KS		Level	

## Module 1

1.	a)	With neat single line diagram explain the various steps of electrical power transmission and distribution system	[10 Marks]	CO1	L2
	b)	With a neat block diagram explain hydel power generation	[08 Marks]	CO1	L2
	c)	With a neat block diagram explain solar power generation	[07 Marks]	CO1	L2
		OR			
2.	a)	State any 5 Difference between conventional & non conventional energy source	[10 Marks]	CO1	L2
	b)	With a neat block diagram explain nuclear power generation	[08 Marks]	CO1	L2
	c)	With a neat block diagram explain Wind power generation	[07 Marks]	CO1	L2
		Module 2			
3.	a)	State Ohm's Law and mention its Limitations	[07 Marks]	CO2	L2
	b)	Define R.M.S value of an alternating quantity. Obtain the relation between r.m.s value and the maximum value of an alternating quantity.	[09 Marks]	CO2	L2
	c)	Find the current in all the branches for the circuit shown below.	[09 Marks]	CO2	L3



OR

4.	a)	State and Explain Kirchoff's current and Voltage laws with examples	[06 Marks]	CO2	L2
	b)	Explain with a neat diagram and relevant waveform how a sinusoidally	[10 Marks]	CO2	L3
		varying voltage is generated.			
	c)	For the circuit shown below obtain the voltage between points X and Y	[09 Marks]	CO2	L3



5.	a)	Derive the condition for maximum efficiency of a single phase Transformer	[09 Marks]	CO3	L2		
	b)	Derive a torque equation of a DC Motor	[09 Marks]	CO3	L2		
	c)	A 250 KVA, 11000/415V, 50Hz single phase transformer has 80 turns on the secondary. Calculate i) The rated primary and secondary currents ii) The number of primary turns iii) The maximum value of flux iv) Voltage induced per turn	[07 Marks]	CO3	L3		
		OR		~ ~ ~			
6.	a)	With a relevant waveform derive an EMF Equation of Transformer	[09 Marks]	CO3	L2		
	b)	What is Back EMF. Explain the importance of Back EMF produced by DC Motor	[09 Marks]	CO3	L2		
	c)	A 4 pole DC shunt motor takes 25A from a 250V supply. The armature & field resistance are $0.5\Omega$ and 125 $\Omega$ respectively. The wave wound armature has 30 slots and each slot contains 10 conductors. If the flux per pole is 0.02wb. Calculate (i) speed (ii) torque developed (iii) power developed	[07 Marks]	CO3	L3		
		Module 4					
7.	a)	Explain the various factors that are required to be considered in selecting the type of wiring for domestic wiring	[07 Marks]	CO4	L2		
	b)	Explain two part tariff and also state the advantages and disadvantages.	[08 Marks]	CO4	L2		
	c)	With a neat sketch explain the plate earthing.	[10 Marks]	CO4	L2		
		OR					
8.	a)	State any seven precautionary measures taken against electric shock	[07 Marks]	CO1	L2		
	b)	Differentiate MCB with fuse	[08 Marks]	CO1	L2		
	c)	With a neat sketch explain the pipe earthing	[10 Marks]	CO4	L2		
	Module 5						
9.	a)	Briefly explain on coal, oil & natural gas energy sector reforms	[08 Marks]	CO5	L2		
	b)	Briefly explain on Green House effect and Carbon cycle.	[08 Marks]	CO5	L2		
	c)	Briefly explain on energy conservation & its importance	[09 Marks]	CO5	L2		
10.	a)	Explain briefly on any two principal pollutants	[08 Marks]	CO5	L2		
	<b>b</b> )	Explain the need for energy and explain Phase-1 pre-audit phase activities.	[09 Marks]	CO5	L2		
	c)	Explain on Identification of Energy Conservation Opportunities	[08 Marks]	CO5	L2		

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