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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- I & II (NEW) EXAMINATION - WINTER 2019

Subject Code: 2110005 Date: 11/01/2020

Subject Name: Elements of Electrical Engineering

Time: 10:30 AM TO 01:00 PM Total Marks: 70

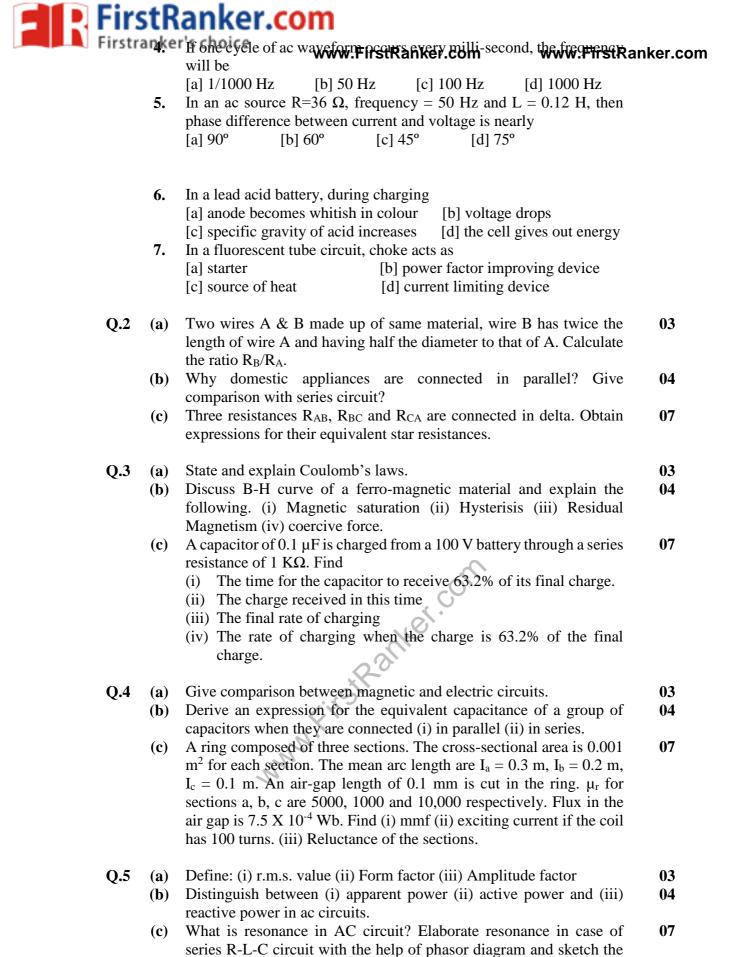
Instructions:

1. Question No. 1 is compulsory. Attempt any four out of remaining Six questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks.

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Q.1		Objective Question (MCQ)	Mark
	(a)		07
	1.	A circuit contains two unequal resistances in parallel	
		[a] current is same in both	
		[b] large current flows in larger resistance	
		[c] potential difference across each is same	
		[d] smaller resistance has smaller conductance	
	2.	Which medium has least dielectric strength?	
		[a] Air [b] Quartz [c] Glass [d] Paraffin wax	
	3.	Which of the following is a vector quantity?	
		[a] Magnetic potential [b] Magnetic field intensity	
		[c] Flux density [d] Relative permeability	
	4.	If the current and voltage are out of phase by 90°, the power is	
		[a] Minimum [b] Maximum [c] Zero [d] 1.1 *V*I	
	5.	In ac circuits, the ac meters measure	
		[a] RMS values [b] Peak values	
		[c] Mean value [d] Mean square value	
	6.	Which of the following statement is not correct?	
		[a] A primary cell is an electrochemical cell	
		[b] After charging, a primary cell can be again put to use	
		[c] Dry cell is a primary cell	
		[d] Leclanche cell is used in experiments, where constant supply of	
		current is not needed.	
	7.	Candela is the unit for	
		[a] Light flux [b] Brightness	
		[c] Luminous efficiency [d] Luminous intensity	
			
	(b)		07
	1.	A resistor is to be connected across a 45 V battery to provide 1 mA	
		of current. The required resistance with a suitable wattage rating is	
		[a] 45Ω , $10W$ [b] 4.5Ω , $2W$	
	2	[c] $450 \text{ k}\Omega$, 20W [d] $45 \text{ k}\Omega$, $\frac{1}{4}\text{W}$	
	2.	The capacitance reactance of an ac circuit containing 35µF	
		capacitance at a frequency of 60 Hz will be [a] 50Ω [b] 60Ω [c] 75Ω [d] 100Ω	
	2		
	3.	A property of a material which opposes the creation of magnetic flux in it is known as	
		[a] magneto motive force [b] reluctance	
		[c] permeance [d] reluctivity	
		[u] refuctivity	



03

resonance curve.

Q.6

(a) List out the merits of two watt meter method.



Firstr	aŋŊe	Phase voltage and current of a transcended inductive load is 150 and V and 25 A. Power factor of load is 0.707 (lag). Assuming that the system is 3-wire and power is measured using two wattmeters, find	ker:com
		the readings of wattmeters.	
	(c)	Obtain the relationship between line and phase values of current in a	07
		three phase, balanced, delta connected system.	
Q.7	(a)	List out the different types of illumination schemes.	03
	(b)	Discuss the Lead acid battery with charging & discharging equations.	04
	(c)	Define term 'earthing'. State all the methods of earthing and explain any	07
		one of them.	

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