Sanjay Ghodawat University, Kolhapur

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

2018-19
EXM/P/09/01

Year and Program:2018-19	**School of Technology**	**Department of FY B. Tech**
Course Code: FYT 107	**Course Title: Elements of Electrical Engineering**	**Semester – I**
Day and Date: Friday, 30/11/2018	**End Semester Examination (ESE)**	**Time: 10AM-1PM** **Max Marks: 100**

Instructions:
1) All questions are compulsory.
2) Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Solve the following.**			
a)	Define the following terms and state their units: mmf, magnetic flux density, magnetic field intensity & reluctance.	07	L_1	CO1
	OR			
a)	Draw & explain magnetization curve for magnetic material.	07	L_1	CO1
b)	Define average value and derive expression for average value of sinusoidal current by analytical method.	08	L_3	CO2
	OR			
b)	Derive an expression for impedance of R-L-C series circuit & draw its phasor diagrams.	08	L_3	CO2
Q.2	**Solve the following.**			
a)	Define and explain balanced load and phase sequence in three phase system.	07	L_3	CO2
	OR			
a)	Prove that line voltage = $\sqrt{3}$ phase voltage in balanced STAR connected circuit.	07	L_3	CO2
b)	What is fuse? Explain rewirable type of fuse with neat diagram.	08	L_1	CO3
	OR			
b)	State the causes of electrical accident and give their preventive measures.	08	L_1	CO3

Q.3	**Solve any Two.**				
	a)	State similarities & dissimilarities between electric circuit & magnetic circuit.	08	L_1	CO1
	b)	Derive an expression of current for purely capactive circuit. Draw the phasor diagram and waveform for it.	08	L_3	CO2
	c)	State the advantages of three phase system over single phase system	08	L_1	CO2
	d)	Define earthing. Explain plate earthing with neat diagram.	08	L_1	CO3
Q.4	**Solve any Two.**				
	a)	Compare core type and shell type transformer.	09	L_2	CO4
	b)	Derive the EMF equation for single phase transformer.	09	L_3	CO4
	c)	Explain the different type of losses in single phase transformer.	09	L_2	CO4
Q.5	**Solve any Two.**				
	a)	Explain double revolving field theory for single phase induction motor.	09	L_2	CO4
	b)	Explain capacitor start, induction run motor. Draw the torque-speed characteristics & give its application.	09	L_2	CO4
	c)	Explain the construction and working principle of shaded pole induction motor	09	L_2	CO4
Q.6	**Solve any Three.**				
	a)	Define the following terms of single phase transformer : i. Efficiency ii. All day efficiency iii. Voltage regulation	06	L_1	CO4
	b)	Give the classification of single phase transformer.	06	L_1	CO4
	c)	Explain permanent capacitor induction motor. Draw its phasor diagram & give the application.	06	L_2	CO4
	d)	Explain capacitor start, capacitor run motor. Draw its phasor diagram & give the application.	06	L_2	CO4

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