

KERALA GOVERNMENT CERTIFICATE EXAMINATION IN

ELECTRICAL ENGINEERING (Revision 2003)

BASIC ELECTRICL AND ELECTRONICS

(Maximum marks 100)

Time: 3 hours

Note: Part A: Question I is compulsory.

Part B: Answer any 8 questions

PARTA

	Answer	the following questions in one or two sentences: (Each question carries two	
		Define electromotive force with units	marks)
	2.	What are the two general classes of magnet	
	3.	What do you understand by a secondary cell	•
	4.	Explain the working principle of generato:	
	5.	Why the armature is laminated	
	6.	Give the relation between maximum value and RMS value	-
	0	What is synchronous speed	
	8.	What do you mean by transformer	•
	9. 10	What are the main advantages of auto transformer	
•		For what purpose is the breather fitted in a transformer	
•			
		PARTR	•
		State and avalois above the	
> .A.		State and explain ohms law.	
	b)	Derive the equation for calculating the effective resistance, when three ie	Sistances
•	•	connected in series and parallel.	
	•		
TTT			·
	a)	Differentiate between secondary cell and primary cell. Name two	
	•	cells in each case.	· A
	h)	Mention four indications of a fall 1	4
		Mention four indications of a fully charged battery	3
	C)	State faradays laws of electrolysis	3
IV	a	* State formadorya lorra C 1	
		State faradays laws of electromagnetic induction.	3
	b)	Compare electric circuit and magnetic circuit.	· · · · · · · · · · · · · · · · · · ·
	c)	What is hysteresis loss? How is it minimizing?	
			4
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V	a)	Three capacitors of 15µF, 30µF, 60µF are connected in series across a	
-		100V supply: Determine 1. Equivalent capacitance	
			•

2. PD across each capacitor.

	b)	What are the factors on which the capacity of a capacitor depends?	
		Derive an expression for three capacitors when connected in series and paralle	
VI	a) *	Define frequency and RMS value of an alternating current.	
	b)	Draw three-circuit diagram for measuring the three-phase delta connected	
•	•	squirrel cage induction motor by two-wattmeter method.	
•	c)	An inductance of 0.2Henry coil is connected in series with a resistance of 4 old	Ţ
		connected in parallel with 200V 50I-Iz supply.	
•		Find 1. Current taken by the coil.	
•		2. Power consumed.	•
		3. Power factor	4
VII	a)	Define effective value and peak value of an alternating quantity	2
	b)	A 150hm resistance and 0.5H. Inductance coil is connected to 230V	
		50c/s A.C supply finds	
		1. Impedance	
•		2. Current	• •
		3. Power consumed	∆ 1.
•		Define the following	
		1. Amplitude	
• .		2. Form factor	
		3. Time period	3
VIII	a)	Name six applications of universal motor.	3
	b)	Explain the working principle of a single-phase capacitor start induction motor.	1
	_	Write short note on thermostat	3
X	a)	Explain the working principle of transformer.	Å
	b)	What is transformer?	7
	c)	A 2000/200V 20KVA transformer has 66 turns in the secondary. Calculate the	
		primary turns and the primary and secondary full load current.	4
	a)	What is armature reaction and how it can be prevented	