Vivekananda College of Engineering & Technology, Puttur
[A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]
Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08	Rev 1.9	<EC>	<18/11/19>

CONTINUOUS INTERNAL EVALUATION – 2

Dept:EC	Sem / Div: 1A,B&C	Sub: Basic Electrical Engineering	S Code:18ELE13
Date:25/11/19	Time: 3:00-4:30pm	Max Marks: 50	Elective:N

Note: Answer any 2 full questions, choosing one full question from each part.

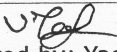| QN	Questions	Marks	RBT	CO's
	PART A			
1 a	Two wattmeter method is used to find the power of a balanced star connected 3 phase load. The readings of watt meters are 255kW and 85kW. Determine the power consumed and load power factor. Also find the line current if line voltage is 1600V.	6	L3	CO1
b	Derive the condition for maximum efficiency of a transformer	5	L3	CO2
c	With neat diagram explain the constructional features of a DC generator.	8	L2	CO3
d	Define earthing. Explain any one type of earthing with a neat diagram.	6	L2	CO4
	OR			
2 a	Show that the two wattmeters are sufficient to measure three phase power. Also derive an expression for the power factor in terms of wattmeter readings.	9	L3	CO1
b	A single phase 50Hz transformer has 30 primary turns and 350 secondary turns. The cross sectional area of the core is 250sq.cm. If primary winding is connected to 230V, 50Hz, then calculate i) Peak value of flux density in the core. ii) Voltage induced in the secondary	6	L2	CO2

		winding. iii) Primary current if secondary current is 100A			
	c	Derive an expression for emf equation derivation of a DC generator.	5	L3	CO3
	d	With a neat connection diagram and functional table, explain two way control of a lamp.	5	L2	CO4

PART B

3	a	Differentiate between core and shell type transformers.	6	L2	CO2
	b	A single phase transformer has a square core of area 9sq cm and three windings designed for the following voltages. i)Primary:230V ii)Secondary:110V and iii)Tertiary:6/0/6 V. Find number of turns in each winding if flux density is not to exceed 1T.	7	L3	CO2
	c	What is electric shock?Explain the precautions against shock.	6	L2	CO4
	d	Two watt meters are used to measure the power in a 3 phase system with balanced delta connected load. If line voltage is 400V and per phase impedance is $10+j2$ ohms, find readings w1 and w2.	6	L3	CO1

OR

4	a	Derive an expression for emf equation derivation of a transformer.	6	L3	CO2
	b	A transformer is rated at 100KVA. At full load, copper loss is 1200W and core loss is 960W. Calculate i) Efficiency at full load, unity power factor ii) Efficiency at half load, 0.8 power factor iii) The load KVA at maximum efficiency	8	L3	CO2
	c	What are different types of domestic wiring? Explain concealed conduit wiring.	5	L2	CO4
	d	Explain the principle of operation of a DC generator	6	L2	CO3

Prepared by: Yadunandana V

HOD