b1

Reg.No.:								

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 8032

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – AUG. / SEP. 2023
Second Semester
Computer Science and Engineering
U19EE201- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Regulation 2019)
(Common to Electronics and Communication Engineering, Information Technology, Biotechnology, Biomedical Engineering & Computer Science and Technology)

Time : Three Hours | Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

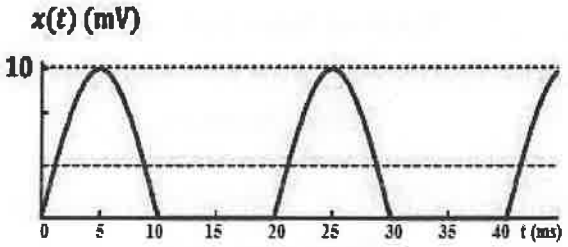
(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define power and power factor.	2	K1	CO1
2.	Differentiate real and reactive power.	2	K2	CO1
3.	State Faraday's law of electromagnetic induction.	2	K1	CO2
4.	Brief the working principle of transformer.	2	K2	CO2
5.	State the need of earthing with respect to electrical safety.	2	K1	CO3
6.	Name different types of electric lamps.	2	K1	CO3
7.	Define barrier potential in PN junction diode.	2	K1	CO4
8.	Compare emitter, base and collector width in transistors.	2	K2	CO4
9.	Convert $(672)_{10}$ to hexadecimal equivalent.	2	K4	CO5
10.	State De Morgan's Theorem.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	Determine the average and rms values of a half rectified sine wave shown.	7	K4	CO1



		ii.	Define the term form factor and peak factor. What is the value of form factor and peak factor for sine wave?	6	K1	CO1
			(OR)			
	b)		List the types of connections possible in three phase system. Derive the relation between line and phase current, voltage of the listed types.	13	K1	CO1
12.	a)		Discuss the construction details and working principle of Induction motor.	13	K2	CO2
			(OR)			
	b)		Discuss the construction details and working principle of DC motor.	13	K2	CO2
13.	a)		Explain about any three types of electrical lamps.	13	K1	CO3
			(OR)			
	b)	i.	Explain different types of wiring systems.	8	K2	CO3
		ii.	Compare staircase and corridor wiring.	5	K2	CO3
14.	a)		Explain the working principle of NPN transistor under CB configuration along with its characteristics.	13	K1	CO4
			(OR)			
	b)	i.	Draw the block diagram of SMPS and explain its operation.	8	K2	CO4
		ii.	With neat diagram explain the operation of LED.	5	K2	CO4
15.	a)		State and prove Boolean and De Morgan's theorem.	13	K2	CO5
			(OR)			
	b)	i.	Prove: A'(A+B) + (B+A) (A+B') = A+B	6	K4	CO5
		ii.	Implement the following function using NAND gates only $ABC + AB' + ABC'$	7	K4	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.			Questions	Marks	KL	CO
16.	a)	i.	Design an electric circuit diagram to implement staircase wiring.	7	K3	CO3
		ii.	Calculate the energy bill for 60 days to the following consumption at Unit rate Rs. 4.00. a. Fan load of 30 watts for 12 hours per day. b. Lighting load 340 watts for 8 hours per day. c. Drinking water pump motor running 4 hours per day 100 watts. Other miscellaneous load of 500 watts for 6 hours per day.	8	K4	CO3
			(OR)			
	b)		Explain the working principle of Zener diode. Also prove how it act as a voltage regulator with necessary equations and diagrams.	15	K2	CO4