St. Vincent Pallotti College of Engineering & Technology

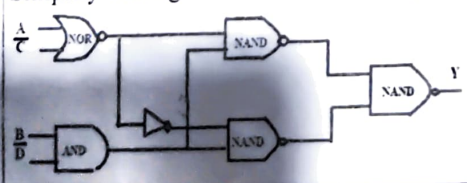
(An Autonomous Institute)

Academic Year: 2023– 24

CAT II - B.Tech

Course : -	Engineering Practices-I	**Course Code : -**	AS103T
Semester : -	I	**Max. Marks : -**	35
Program : -	Basic Science & Engineering	**Duration : -**	1 hr .30 min
		Date of Paper -	18/ 12/ 2023

Instructions to Candidate – 1) Question No. 1 is compulsory.
2) Solve Que. No. 02 OR Que. No. 03
3) Solve Que. No. 04 OR Que. No. 05
4) Solve Que. No. 06 OR Que. No. 07
5) All Questions carry marks as indicated
6) Use of Non-Programmable calculator is allowed.

Que. No.	Description of Question	Marks	[CO]	[BTL]
Que.1(a)	Explain solar cell.	02	3	2
Que.1(b)	Define transducer & gives its classification.	02	4	1
Que.1(c)	Why voltmeters are design with high internal electrical resistance	02	4	2
Que.1(d)	Covert the $(567)_8$ Octal number in to binary.	02	5	2
Que.1(e)	Draw the symbol for Ex-OR gate and write truth table	02	5	1
Que.2 (a)	Write a short note on BJT. Explain biasing in detail.	05	3	2
	OR			
Que.3 (b)	Explain working principle of DC motor. Also define back EMF.	05	3	2
Que.4(a)	Explain the digital multimeter with help of block diagram	05	4	2
Que.4(b)	Explain dual power supply in detail.	05	4	2
	OR			
Que.5(a)	Explain the construction & working of LVDT.	05	4	2
Que.5(b)	What is sensors? Explain temperature sensor & its type.	05	4	2
Que.6(a)	Explain NAND gate. Realize the OR gate using NAND Gate	05	5	3
Que.6(b)	State & prove De Morgan's theorem.	05	5	2
	OR			
Q.7(a)	Simplify the logic Circuit shown in figure below 	05	5	3
Q.7(b)	Explain Microprocessor with the help of Block diagram	05	5	2

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Semester: -	**I**	**Duration: -**	1 hr .30 min
Program : -	**Basic Science & Humanities**	**Date of Paper**	27/10/2023

Instructions to Candidate – 1) Question No. 1 is compulsory.
2) Solve Que. No. 02 OR Que. No. 03
3) Solve Que. No. 04 OR Que. No. 05
4) Solve Que. No. 06 OR Que. No. 07
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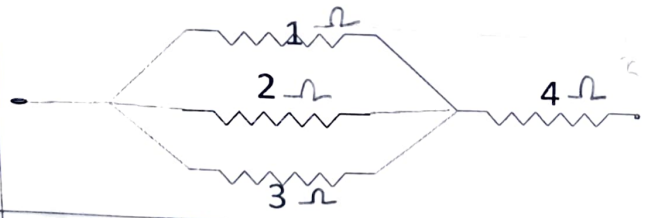
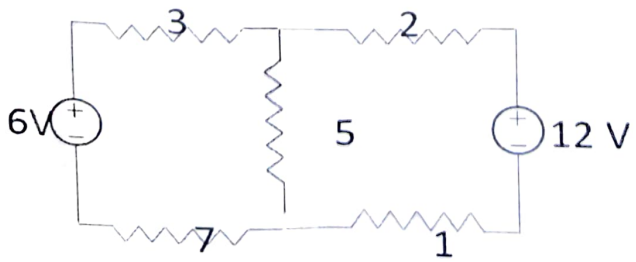
Que. No.	Description of Question	Marks	[CO]	[BTL]
Que.1(a)	Define Kirchoff's current law.	02	1	1
Que.1(b)	Draw phasor diagram of purely inductive circuit.	02	1	1
Que.1(c)	What is MCB?	02	2	1
Que.1(d)	What is fuse? State its uses.	02	3	1
Que.1(e)	What is doping?	02	3	1
Que.2(a)	Find equivalent resistor in ohms.Given values are in ohms. 	05	1	3
Que.2(b)	Find current through all resistors present in ohms using Kirchoff's Laws. 	05	1	3

	OR			
Que.3(a)	What is resonance? Derive equation for resonant frequency in R-L-C Circuit.	05	2	2
Que.3(b)	A current of 0.5 A flows through a series combination of resistor of 120 ohm and capacitor of reactance of 150 ohm. Find the impedance ,power factor, supply voltage ,voltage across resistor and capacitor.	05	2	3
Que.4(a)	Describe with block diagram the hydro power plant or steam power plant.	05	2	2
Que.4(b)	What is earthing? Explain the necessity of earthing with neat sketches.	05	2	2
	OR			
Que.5(a)	Describe with block diagram the solar power plant.	05	2	2
Que.5(b)	In a residence 3 tube lights each of them of 40 watt are operated daily for 5 hours and 2 fans each of 120 watt are operated daily for 4 hours . Calculate electricity bill at Rs. 10 per unit for March?	05	2	3
Que.6	Describe the working of diode in unbiased condition and forward biased and reverse biased.	05	3	2
	OR			
Que.7	Explain the construction and working of LED . Give its applications.	05	3	2

urse outcomes: After studying this course student will be able to:

CO1	Understand the different basics of DC and AC circuit
CO2	Understand the electrical power system and electrical energy, billing
CO3	Understand basic working of AC/DC motors and working of electronic devices
CO4	Recognize and Understand the working principles of various electronic devices and illustrate their applications
CO5	Understand the basics of Boolean Algebra, number system, types of signals.