LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **COMPUTER APPLICATIONS**

THIRD SEMESTER – **APRIL 2023**

UPH 3403 – APPLIED ELECTRONICS

Date: 12-05-2023   Dept. No.   Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

	SECTION A - K1 (CO1)	
	Answer ALL the Questions	**(10 x 1 = 10)**
1.	**Define**	
a)	Depletion region	
b)	Zener diode	
c)	Common mode rejection ratio	
d)	Schmitt trigger	
e)	Random Access Memory	
2.	**Fill in the blanks**	
a)	The semiconductors such as silicon and germanium have ------------- bonding.	
b)	-------- **diodes** can be used to produce a stabilised voltage output.	
c)	An ideal Op-Amp has ------ input impedance.	
d)	In 555 timer IC the voltage divider network consists of ----- 5 kΩ resistors.	
e)	Data stored in ----------- is lost when we switch off the computer or if there is a power failure.	
	SECTION A - K2 (CO1)	
	Answer ALL the Questions	**(10 x 1 = 10)**
3.	**Match the following**	
a)	Operational amplifier - Pentavalent impurity	
b)	P type semiconductor - Zero output impedance	
c)	N type semiconductor - Photo diode	
d)	IC 555 - Trivalent impurity	
e)	Solar cell - Timer	
4.	**True or False**	
a)	Semiconducting materials are used in IC manufacturing.	
b)	Zener diode is a PN junction diode.	
c)	Operational amplifier has zero open loop gain.	
d)	555 timer has two comparators.	
e)	RAM will not support rewriting the data.	
	SECTION B - K3 (CO2)	
	Answer any TWO of the following	**(2 x 10 = 20)**
5.	Explain the semiconducting nature of some materials by making use of its bonding mechanism.	

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6.	What is a zener diode? Describe its I-V characteristics and how it can be used for voltage stabilization.
7.	Describe the operation of inverting operational amplifier with necessary theory.
8.	Construct a Schmitt trigger using 555 timer and explain its working.

SECTION C – K4 (CO3)

Answer any TWO of the following **(2 x 10 = 20)**

9.	What is a PN junction diode? Explain the biasing of a PN junction diode and analyse its VI characteristics.
10.	Explain the construction, advantages and applications of LEDs.
11.	With a neat diagram explain the operation of OPAMP as a non-inverting amplifier.
12.	Construct a monostable multivibrator using 555 timer and explain its operation.

SECTION D – K5 (CO4)

Answer any ONE of the following **(1 x 20 = 20)**

13.	Discuss the mechanism of data storage and retrieval in optical disc.
14.	Explain the pin configuration and block diagram of IC 555 timer. Describe how it can be used as an astable multivibrator.

SECTION E – K6 (CO5)

Answer any ONE of the following **(1 x 20 = 20)**

15.	With suitable circuit diagrams explain the summing and difference amplifier applications of an operational amplifier.
16.	Explain the operation of photo diode with suitable schematic diagram.

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