Reg. No.: | | | | | | | | | |

G.T.N. ARTS COLLEGE SELF FINANCE (AUTONOMOUS)

(Affiliated to Madurai Kamaraj University || Accredited with 'B' Grade by NAAC)

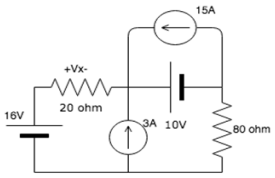
END SEMESTER EXAMINATION - NOVEMBER - 2021

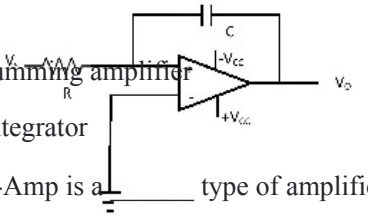
(UNDER OUTCOME BASED EDUCATION (OBE) PATTERN)

Programme : M.Sc. Physics | **Date : 16.02.2022**

Course Code : 20PPHC13 | **Time : 10:00 AM - 1:00 PM**

Course Title : Analog Electronics | **Max. Marks : 60**

Q. No.	SECTION - A (10 * 1 = 10 Marks) Answer ALL Questions	CO(s)	K - Level
1.	Find the value of Vx due to the 16V source.  1.4.2V 2.3.2V 3.2.3V 4.6.3V	CO1	K2
2.	In nodal analysis how many nodes are taken as reference nodes? 1.1 2.2 3.3 4.4	CO1	K2
3.	Most of the electrons in the base of an NPN transistor flow_____. 1.out of the base lead 2.into the emitter 3.into the collector 4.into the base supply	CO2	K1
4.	When the diode is forward bias its depletion region gets _____. 1.larger 2.narrowed 3.positive charge 4.negative charge	CO2	K2
5.	Which of the following properties should an ideal op-amp have _____. 1.infinitely wide bandwidth, infinitely high output impedance and perfect linearity. 2.high DC gain, low input reactance and perfect linearity. 3.infinitely high input impedance, perfect linearity and zero noise. 4.Infinitely high gain, perfect linearity and zero input impedance.	CO3	K1
6.	The given figure represent_____	CO3	K2



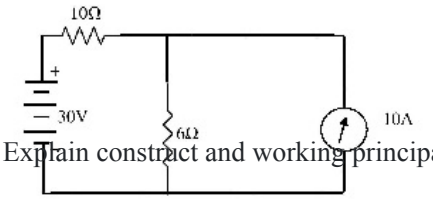
1.summing amplifier 2.precision rectifier

3.integrator 4.differentiator

7.	Op-Amp is a_____ type of amplifier.	CO4	K1
	1.current 2.voltage		
	3.power 4.resistance		
8.	Which type of waveform are output signals in function generator_____.	CO4	K2
	1.sine wave 2.triangular wave		
	3.square wave 4.sine, square and triangular wave		
9.	How many comparators would a 12-bit flash ADC require?	CO5	K2
	1.4000 2.3095		
	3.4095 4.2512		
10.	Radiation sensor detects radiation level from _____ objects.	CO5	K2
	1.electrical 2.mechanical		
	3.radioactive 4.micro-optics		

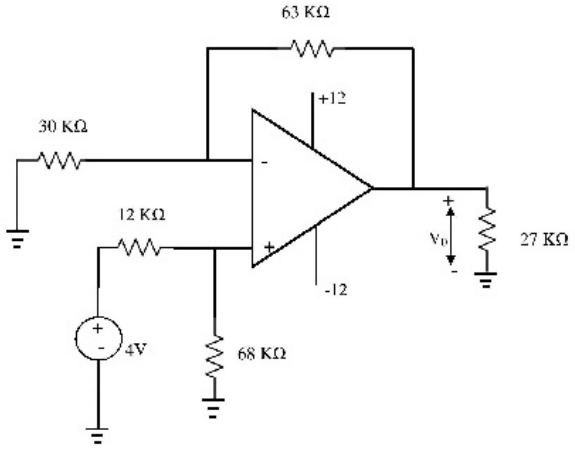
Q. No.	SECTION - B (5 * 4 = 20 Marks) Answer ALL Questions	CO(s)	K - Level
11. (a)	State the Superposition theorem and list the steps to be followed to solve a network.	CO1	K2
	[OR]		
(b)	State and explain junction diode.	CO1	K2
12. (a)	Explain the enhancement and depletion mode of MOSFET briefly.	CO2	K2
	[OR]		
(b)	What are the differences between JFET and MOSFET?	CO2	K2
13. (a)	Explain in detail about inverting amplifier.	CO3	K2
	[OR]		
(b)	Draw the block diagram of operational amplifier and explain it in detail.	CO3	K2
14. (a)	Describe LC oscillator with neat circuit diagram.	CO4	K3
	[OR]		
(b)	Draw the functional diagram of astable multivibrator.	CO4	K3
15. (a)	What is a data converter function and explain the different types of data converters.	CO5	K3
	[OR]		
(b)	How does an energy sensor works?	CO5	K3

Q. No.	SECTION - C (3 * 10 = 30 Marks) Answer any of 3	CO(s)	K - Level
16.	Find the current through 6Ω resistor of a network by using superposition theorem. Also find the power through 6Ω resistor.	CO1	K2



17. Explain construct and working principal of BJT in detail. CO2 K3

18. What do you mean by inverting input and non-inverting input and define input impedance and output impedance by drawing the schematic of op-amp. CO3 K3



19. With neat diagram explain the working of timers. CO4 K4

20. What are the different types of sensors? List it down its classification and their respective application. CO5 K4

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