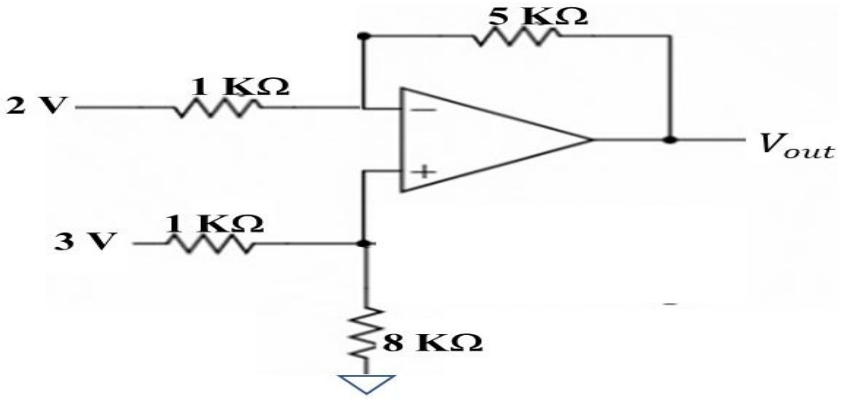
	Sanjay Ghodawat University, Kolhapur Established as State Private University under Govt. Of Maharashtra. Act No XL, 2017	**2020-21**

Year and Program B.Sc. III	**School of Science**	**Physics**
Course Code: PHS304	**Digital and Analog circuits and Instrumentation**	**Semester – VI**
Day and Date:	**END SEMESTER EXAMINATION**	**Time: 2 Hours** **Max Marks: 50**

Instructions: All questions are compulsory.

	Q.1 Answer the following questions	**Marks**	**BL**	**CO**
a	Verify if the truth tables of different Logic gates is same or different. Take help of suitable circuit diagrams.	8	L2	1
	OR			
a	Consider two situations forPN Junction diode; forward biased and reverse biased. Then draw and explain the plot of current Vs voltage in both situations.	8	L2	1
b	Explain how working of and LED's and Photodiode differ from each other? Draw necessary diagrams.	8	L3	2

	Q.2 Answer the following questions	**Marks**	**BL**	**CO**
a	 i) Find Output Voltage. ii) Determine the frequency of oscillations of a RC Oscillator circuit having 3-stages each with a resistor and capacitor of equal values. R = 10kΩ and C = 500pF	8	L4	3
b	Describe concept of virtual ground and derive expression for closed loop gain for non-inverting Op-Amp.	8	L2	3

OR

b	Derive expression for Integrator and Differentiator operational amplifier.	8	L2	3

Q.3	**Answer the following questions.**	**Marks**	**BL**	**CO**
a	In laboratory CRO is used to display waveforms. Discuss how waveforms are generated on the screen of CRO? State its other uses.	9	L4	4
b	Describe the type of rectifier that converts AC voltage into DC voltage.	9	L3	4

OR

b	Draw block diagram of IC-555 and explain working of each pin.	9	L3	4