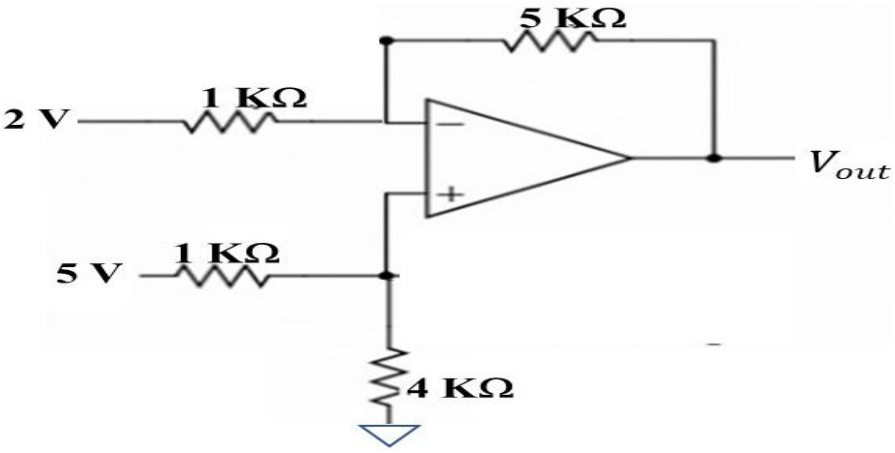
	Sanjay Ghodawat University, Kolhapur Established as State Private University under Govt. of Maharashtra. Act No XL, 2017	**2020-21** EXM/P/09/00
Year: 2021, B.Sc. III	**School of Science**	**Department: Physics**
Course Code: PHS 304	**Course Name:** **Digital and Analog Circuits and Instrumentation**	**Semester : VI**
Day and Date: **Friday, 28.05.2021**	**End Semester Examination**	**Time:2 Hrs.** **Max Marks:50**

Instructions: 1) All Questions are compulsory.

Q.1	**Answer / Solve the following(Any Two)**	**Marks**	**BL**	**CO**
a)	Describe the types of Logic gates with suitable circuit symbol and it's truth table.	8	L1	CO1
b)	Explain the P-type, N-type semiconductor and barrier formation in the PN junction diode.	8	L1	CO2
c)	Explain the construction and working of solar cell.	8	L1	CO2

Q.2 **Answer / Solve the following(Any Two)**

a) 8 L3 CO3



i) Find output voltage.

ii) Determine the frequency of oscillations of an RC oscillator circuit having 3-stages each with a resistor and capacitor having equal values. R = 10kΩ and C = 500pF.

b) Describe the concept of virtual ground and derive an expression for the closed loop gain for inverting op-amp. 8 L3 CO3

c)	Derive an expression for the inverting and non-inverting summing amplifier.	8	L3	CO3

Q.3 Answer / Solve the following(Any Two)

a)	Explain the construction and working of Cathode Ray Oscilloscope (CRO).	9	L2	CO4
b)	Describethe Half Wave Rectifier with neat labelled circuit diagram.	9	L2	CO4
c)	i) Draw the block diagram of IC-555. ii) Explain the working operation ofIC 555 Timer.	9	L2	CO4

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