

Seat No: \_\_\_\_\_

Enrollment No: \_\_\_\_\_

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**Diploma Engineering, Mid semester Examination**

Semester: 4<sup>th</sup>

Date: (24/01/2023)

Subject Code: (03608259)

Time: (1hr: 30min)

Subject Name: (Linear Integrated Circuits)

Total Marks: 40

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

Q.1	Answer any six out of Ten. (2 Marks Each)	(12)	Co/Po Name	Blooms Taxonomy Words
	1. List Out advantages of ICs over Discrete component.		CO1	Knowledge
	2. Enlist Different applications of Operational Amplifier		CO1	Understand
	3. Explain Slew Rate.		CO1	Understand
	4. Define Input Bias Current.		CO2	Knowledge
	5. Draw voltage follower circuit		CO1	Analyze
	6. What is LPF?		CO1	knowledge
	7. Draw the schematic symbol for Op-amp.		CO1	Create
	8. Define Common Mode Rejection Ratio.		CO2	Knowledge
	9. List out the Applications of PLL		CO2	Apply
	10. Define SVRR.		CO1	Analyze
<b>Q.2</b>	A) Draw and explain Pin Diagram of op-amp IC 741.	<b>(03)</b>	CO1	Understand
	<b>OR</b>			
	A) Draw only diagrams for feedback configuration	<b>(03)</b>	CO1	Understand, Analyze
	B) Draw and explain Block Diagram of Typical Op-Amp.	<b>(03)</b>	CO2	Apply
	<b>OR</b>			
	B) Draw and Explain Open loop Non-Inverting Amplifier.	<b>(03)</b>	CO4	Apply
	C) Explain Voltage to current (V to I) Converter with Floating load	<b>(04)</b>	CO1	Apply
	<b>OR</b>			
	C) The 741C op-amp having the following parameters is connected as non-inverting amplifier with $R_1 = 1K\Omega$ and $R_F = 10K\Omega$ $A = 200,000$ $R_i = 2M\Omega$ $R_o = 75\Omega$ $f_o = 5Hz$ Supply Voltages = $\pm 15V$ Output voltage swing = $\pm 13V$ Compute the values of $A_F$ , $R_{IF}$ , $R_{oF}$ , $f_F$ , and $V_{oot}$ . Explain Potentiometer in detail.	<b>(04)</b>	CO1	Analyze
	C) Explain operation of Basic PLL.	<b>(04)</b>	CO2	Understand
<b>Q.3</b>	A) Explain Integrator with diagram.	<b>(03)</b>	CO4	Analyze
	<b>OR</b>			
	A) Explain OP-AMP as a Sign Changer	<b>(03)</b>	CO4	Understand
	B) Draw and explain Block Diagram of Analog multiplier.	<b>(03)</b>	CO2	Analyze
	<b>OR</b>			
	B) Explain working of Voltage Controlled Oscillator.	<b>(03)</b>	CO2	Understand
	C) Classify manufacturing process of Monolithic IC and explain anyone	<b>(04)</b>	CO1	Analyze
	<b>OR</b>			
	C) Derive the equation for output resistance with feedback for Non-Inverting Amplifier	<b>(04)</b>	CO4	Analyze



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