



A23-2103230123A

Reg. No..... Signature

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2023

LINEAR INTEGRATED CIRCUITS

[Maximum Marks: 75]

[Time: 3 Hours]

PART-A

I. Answer *all* the following questions in one word or one sentence. Each question carries *'one'* mark.

		$(9 \times 1 = 9 \text{ Marks})$		
		Module Outcome Cognitive level		
1.	Draw equivalent circuit of op-amp.	M1.02	U	
2.	Define CMRR.	M1.03	R	
3.	List the op-amp package.	M1.02	R	
4.	What is log amplifier?	M2.01	R	
5.	List any two applications of comparator.	M2.04	R	
6.	Define lock-in range.	M3.04	R	
7.	Draw pin diagram of timer IC555.	M3.01	R	
8.	Classify the IC voltage regulators.	M4.01	U	
9.	Define resolution of ADC.	M4.02	R	

PART-B

II. Answer any *eight* questions from the following. Each question carries 'three' marks.

(8	X	3	=	24	I	M	ar	ks)	
Μ.	. d.,	L C			C		41	Invol	

		Module Outcome	Cognitive level
1.	Show op amp voltage follower as unity gain amplifier.	M1.04	U
2.	Explain Inverting Amplifier using op-amp.	M1.04	U
3.	Determine frequency of wien bridge oscillator for $C=0.05\mu F$ and $R=1.59K\Omega$.	M2.03	А
4.	Explain Half wave precision rectifier.	M2.02	U
5.	Explain Voltage to current converter.	M2.01	U
6.	Draw circuit diagram of monostable multivibrator using op amp.	M2.03	U
7.	Draw the circuit diagram of 555 timer is configured in monostable	M3.02	U
	mode.		
8.	Draw functional block diagram of NE565 PLL IC.	M3.03	U
9.	List the features of voltage regulator IC 723.	M4.01	U
10.	Define Monotonicity, Settling time, Linearity.	M4.03	U



PART-C Answer all questions. Each question carries *'seven'* marks

		(6 x 7 = 42 Marks) Module Outcome Cognitive level		
III.	List the op amp parameters and explain any five.	M1.03	U	
	OR			
IV.	Explain the working of BJT differential amplifier.	M1.01	U	
V.	Explain the working Schmitt trigger using op amp.	M2.04	U	
VI.	OR Construct a first order high-pass filter at a cut-off frequency of 2 kHz with a pass band gain of 2.	M2.05	A	
VII.	Explain the working of triangular wave generator.	M2.03	U	
	OR			
VIII.	Explain working of clipper and clamper using op amp.	M2.02	U	
IX.	Explain working of astable multivibrator using IC 555.	M3.02	U	
	OR			
Х.	Explain the working of PLL as AM and FM detection.	M3.04	U	
XI.	Explain the working principle of opto coupler.	M4.01	U	
	OR			
XII.	With the help of circuit diagram explain High Voltage Regulator using IC723.	M4.01	U	
XIII.	Explain the working of weighted resistor type DAC.	M4.02	U	
	OR			
XIV.	Explain the working of dual slope ADC.	M4.03	U	
