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 x 1 = 9 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 Marks)

		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=0.05µF and R=1.59KΩ.	M2.03	A
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 mode.	M3.02	U
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
	OR		
VI.	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		
X.	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

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