Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree (S,FE) Examination June 2022 (2015 scheme)

Course Code: EC212

Course Name: LINEARINTEGRATED CIRCUITS AND DIGITAL ELECTRONICS (MC)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1 Explain inverting and non-inverting amplifier in terms of gain, circuit diagram, and waveform. (5)

2 What is the operating principle of an isolation amplifier? Write any two applications of it. (5)

3 Analyse a 2- bit flash ADC with its circuit diagram. (5)

4 State and prove De-Morgan's Theorem. (5)

5 Design and implement a full adder circuit. (5)

6 Distinguish static and dynamic RAM. (5)

7 Discuss the need of a master slave JK flip-flop with circuit diagram. (5)

8 Illustrate SIPO and PIPO shift registers .Mention their characteristics. (5)

PART B

Answer any three full questions, each carries 10 marks.

9 a) Design a circuit to obtain a triangular waveform if the given input signal is sinusoidal. (10)

10 a) Design a Schmitt trigger of threshold voltage value $\pm$ 3v. (10)

11 a) Elucidate a second order low pass filter with its circuit diagram, gain, cut- off frequency and frequency response. (10)

12 a) Minimize the expression using K Map (8)

$F(A, B, C, D) = m(1, 2, 6, 7,13, 14, 15) + d(3, 5, 12)$

b) Explain the significance of Don't care conditions. (2)

13 a) Discuss on successive approximation ADC. (10)

PART C

Answer any two full questions, each carries 15 marks.

14	a)	Elaborate on an 8 x 1 multiplexer.	(15)
15	a)	Design a 4-bit gray –binary code converter.	(15)
16	a)	Explicate a 3- bit synchronous down counter using T flip-flop.	(15)
17	a)	Explain a Mealy sequence detector with an example.	(15)

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