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Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree (S,FE) Examination August 2021 (2015 Scheme)

Course Code: EC212
Course Name: LINEAR INTEGRATED CIRCUITS AND DIGITAL ELECTRONICS (MC)

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all the questions below; each one carries 5 marks.   Marks

1	Define the following terms and explain their significance in practical circuits	(5)
	(i) Input offset current	
	(ii) Slew rate	
2	How can we clip the positive half cycle of a signal using op amp.	(5)
3	Discuss briefly about wide band pass filter.	(5)
4	State and prove the De Morgan's Theorem.	(5)
5	Design and implement a full adder with minimum number of gates.	(5)
6	Compare the characteristics of SRAM and DRAM.	(5)
7	Design a 4- bit ring counter using D flip flop.	(5)
8	Elaborate the importance of master-slave FFs with an example.	(5)

PART B
Answer any three full questions; each carries 10 marks.

9		With the help of a neat diagrams, show that op amp can be used as integrator and differentiator	(10)
10	(a)	Explicate the threshold levels of a regenerative comparator with necessary diagrams.	(5)
	(b)	Draw the circuit diagram and waveform of a Sample & Hold circuit using op-amp. Explain its working.	(5)
11	(a)	Illustrate the working principle of an 8-bit successive approximation A/D converter.	(6)
	(b)	Distinguish Butterworth filter from Chebyshev filter.	(4)
12		Minimize the following function using Karnaugh map and implement using basic logic gates.	(10)
		$F(A,B,C,D) = \Sigma m(0,1,3,5,7,8,9,11,13,15)$	

13   Elucidate the working of an Astable multivibrator with a circuit diagram and   (10)
waveform.

PART C
Answer any two full questions; each carries 15 marks.

14   Summarize the following   (15)

      (i)   synchronous up counter

      (ii)   synchronous down counter

15   Design and implement a 3-bit binary to grey code converter.   (15)

16   Design the following   (15)

    a) octal to binary encoder

    b) 3-to-8 decoder.

17   Discuss in detail about JK flip flop and obtain the characteristic equation of JK   (15)
flip flop.

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