

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FOURTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

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

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 5 marks.*

- 1 List out the ideal and practical characteristics of Op-amp.
- 2 Explain the working of an astable multivibrator with a neat diagram.
- 3 Draw a circuit to overcome the disadvantages of a 3 bit binary weighted DAC.
- 4 Convert  $(3456)_{10}$  to octal and hexadecimal.
- 5 Implement a half subtractor using logic gates.
- 6 Distinguish PLA from PAL.
- 7 Draw a diagram for parallel in parallel out shift register using D Flip Flop.
- 8 Explain the working of Johnson counter.

**PART B***Answer any 3 questions, each carries 10 marks.*

- 9 Design an integrator of 1.5 KHz. Draw its frequency response.
- 10 List out the physical significance of an instrumentation amplifier with a neat diagram.
- 11 Explain how op-amp acts as an S/H circuit.
- 12 Derive the transfer function of a first order low pass filter.
- 13 Minimize the  $f(a,b,c,d) = \sum m(5,7) + d(8,9,13,15)$

**PART C***Answer any 2 questions, each carries 15 marks.*

- 14 Implement full adder using 3 x 8 decoder.
- 15 Realize  $f = \sum m(0,3,4)$ ,  $f = \sum m(4,5,7)$  &  $f = \sum m(4,6,7)$  using PLA and PAL.
- 16 Design a 3 bit up and down synchronous counter.
- 17 Obtain J-K Flip flop from S-R flip flop

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