Reg. No._____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2017

Course Code**: EC204**

Course Name**: ANALOG INTEGRATED CIRCUITS (AE, EC)**

Max. Marks:100 Duration: 3 Hours

PART A

Question No.1 is compulsory. Answer question 2 or 3

1. a. Define the following terms (6)
   - i) CMRR
   - ii) Slew rate
   - iii) PSRR

   b. Design a circuit to obtain an output voltage of $-(V_1 + 2V_2 + 5V_3)$ (5)

   c. Derive the following characteristics of voltage series feedback amplifier. (4)
   - i) Closed loop gain
   - ii) Input impedance
   - iii) Output impedance
   - iv) Bandwidth

2. a. Explain in detail a method of improving CMRR of differential amplifier. (10)

   b. Explain the various stages of op-amp. (5)

OR

3. Draw an instrumentation amplifier using four op-amps and explain the need for each op-amp. Derive the expression for its output voltage. (15)

PART B

Question No.4 is compulsory. Answer question 5 or 6.

4. a. Explain the working of precision full wave rectifier with a neat diagram. (7)

   b. Draw a second order active high pass filter and derive the expression for its cut off frequency. (8)

5. a. With the help of a neat diagram, derive the frequency of oscillation for RC phase shift oscillator. (10)

   b. Draw the circuit of antilog amplifier and derive the output voltage. (5)

OR

6. a. Explain in detail the working of Schmitt trigger and explain the transfer characteristics. (8)

   b. Design a first order low pass filter with a cut off frequency of 2kHz. (7)

PART C

Question No.7 is compulsory. Answer question 8 or 9.

7. a. Discuss in detail any two applications of PLL. (5)

   b. Write a short note on IC723 based voltage regulators (5)

   c. Explain the working of dual slope A/D converters. (10)

8. a. Explain in detail the working of monostable and astable multivibrator using 555. (10)

   b. Discuss different methods for implementing analog multipliers. (5)

   c. Explain the working of high speed sample and hold switch. (5)

OR

9. a. Derive the output voltage for a 4 bit R-2R ladder D/A converters (10)

   b. Explain the working of successive approximation type A/D converters. (7)

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