

Code No: RT31026

R13**SET - 1****III B. Tech I Semester Supplementary Examinations, May - 2016****LINEAR & DIGITAL IC APPLICATIONS**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answering the question in **Part-A** is compulsory3. Answer any **THREE** Questions from **Part-B**

PART -A

- 1 a) Draw the circuit for level shifter. [3M]
- b) List any Six characteristics of an Ideal op-amp. [3M]
- c) Design a subtractor circuit using op-amp with relevant equations. [4M]
- d) Define stable and quasi stable state. [4M]
- e) Give the conversion time for [4M]
 - i) counting ADC ii) successive approximation ADC iii) dual slope ADC.
- f) Draw the circuit diagram of Second order high pass filter and give its transfer function. [4M]

PART -B

- 2 a) Draw Block diagram of Typical Op-Amp With Various Stages and explain in detail. [8M]
- b) Explain the operation of differential amplifier with its transfer characteristics. [8M]
- 3 a) What is the function of voltage regulator? [3M]
- b) Show the standard representation of IC voltage regulator. [3M]
- c) List and explain the characteristics of three terminal IC regulator. [10M]
- 4 a) With the circuit diagram explain the working of Instrumentation Amplifier. [10M]
- b) Design a differentiator circuit that will differentiate input signal with $f_{\max} = 100\text{Hz}$. [8M]
- 5 a) Design an astable multivibrator with 50 % duty cycle using 555 timer. [9M]
- b) Derive the expression for Time period of an astable multivibrator using 555 timer. [7M]
- 6 a) Design and explain the operation of first order wide band pass filter with its characteristics? [8M]
- b) Design and explain the operation of All Pass Filter with its characteristics? [8M]
- 7 a) What is the conversion time of a 10 bit successive approximation ADC if its input clock is 5 MHz? [8M]
- b) Explain the operation of D/A converter with binary weighted resistors. [8M]
