Student Exam No: _____

GANPAT UNIVERSITY

B.Tech Sem. IVth Biomedical & Instrumentation

CBCS Regular Exam May - June 2013

2BM401 Analog Integrated Electronics

Time: 3 Hours **Total Marks-70**

Instructions:-

1. All the questions are compulsory.
2. Answer of each section must be written in separate answer books.
3. Figure to the right indicate marks.
4. Assume data, if needed.
5. Conventional terms / notations are used.

Section – I

Que.1 **[12]**

a). Give the reason to perform AC analysis of DIBO differential amplifier. Also derive complete DC analysis of DIBO differential amplifier

b). Describe the working of 555 timers as monostable multivibrators. Calculate the frequency of the square wave generator if R=2k and C=0.01uf

OR

Que.1. **[12]**

a). Draw the block diagram of OP-AMP and explain the function of each block.

b). Draw and explain the circuit of a Differentiator using 741

Que.2. **[11]**

a). Define Oscillators with its basic principle and explain Wein bridge oscillator with proper diagram.

b). Draw and Explain Differential amplifier with two op-amps and derive gain formula of it.

OR

Que.2 **[11]**

a). Draw and Explain voltage to frequency converter.

b). Design a wide band stop filter which having low cut off frequency 350Hz and high cutoff frequency 800Hz and pass band gain is 2.

Que.3. **[12]**

a). Define Negative feedback and positive feedback with example.

b). Design a low pass filter at a cut off frequency of 4 kHz with pass band gain 2.

c). Define: Input offset current, Slew Rate, Offset voltage adjustment Range, SVRR, Ideal voltage transfer curve

Section – II

Que.4.

a). Derive close loop voltage gain for the voltage shunt feedback Amplifier with diagram. [12]

b). Give the classification of differential amplifier based on op-amp are used in it and also give application and advantage of differential amplifier.

OR

Que.4.

a). Derive Ad gain equation for instrumentation Amplifier with circuit Diagram [12]

b). Explain with design about first order high pass filter.

Que.5.

a). What is integrator? Explain in detail about voltage follower circuit [11]

b). Draw and Explain the circuit for +15 v and -15v power supply.

OR

Que.5.

a). Draw the circuit of basic integrator using op-amp. What are the problems associated with the configuration? How they are overcome? [11]

b). Draw and Explain the frequency response of the five major active filters.

Que.6.

a). Design a high pass filter at a cut of frequency of 3 kHz with pass band [12]

b). Write a short notes on Quadrature Oscillator

c). Design a 60Hz notch filter with proper diagram

END OF PAPER