

B.TECH SEM – V (2007 COURSE) (BIOMEDICAL ENGG.) :
WINTER - 2017
SUBJECT : LINEAR INTEGRATED CIRCUITS

Day : **Thursday**
Date : **18/01/2018**

Time : **02.30 PM TO 05.30 PM**
Max. Marks : **80**

W-2017-2487

N. B. :

- 1) **Q. No. 1 and Q. No.5 are COMPULSORY.** Out of the remaining attempt **Any TWO** questions from each sections.
- 2) Answers to the two sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.
- 5) Assume suitable data, if necessary.

SECTION - I

- Q.1** a) Draw the block diagram of IC 741 and discuss the function of each block in detail. **(05)**
- b) Draw the circuit diagram for temperature compensated antilog amplifier. **(04)**
- c) Draw and explain peaking amplifier in detail. **(05)**
- Q.2** a) Draw high frequency model of an op-amp with single break frequency. Derive an expression for the gain as a function of frequency. **(07)**
- b) Explain the single supply operation of an op-amp with its circuit diagram. **(06)**
- Q.3** a) Explain the sample and hold circuit with its waveforms. **(07)**
- b) Draw and explain inverting and non-inverting half wave precision rectifier using an op-amp with waveforms. **(06)**
- Q.4** a) Design a practical integrator circuit with a dc gain of 10, to integrate a square wave of 10KHz. **(07)**
- b) Draw the circuit diagram for instrumentation amplifier using two op-amp. Also derive its output expression. **(06)**

P.T.O.

SECTION - II

- Q.5** a) Write a short note on frequency scaling with one example. (05)
- b) Draw the circuit diagram for square and triangular wave generator using op-amp. (04)
- c) State the features of IC LM 380. (05)
- Q.6** a) Design a high pass filter at a cut off frequency of 1KHz with a pass band gain of 2. (07)
- b) Draw and explain the working of wide band pass filter in detail. (06)
- Q.7** a) Draw the PIN diagram of IC 555 and state the function of each pin in detail. (07)
- b) Draw and explain working principle of function generator IC 8038. (06)
- Q.8** a) Which are the different techniques used to convert analog signal into the digital signal. Explain merits and demerits of each technique. (07)
- b) Derive the output equation V to I converter with floating load and with grounded load with their circuit diagrams. (06)

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