H.T.No. | | | | | | | | | | |

Code No: EC1506 **GEC-R14**

III B.Tech I Semester Regular Examinations, November 2016

PULSE AND INTEGRATED CIRCUITS

(Electrical and Electronics Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered in one place.
Answer any **FOUR** questions from **PART-B.** All Questions carry equal Marks

PART-A

6 × 2 = 12M

1. Draw the output waveforms of Low-pass RC circuit for square wave input.
2. Define the term clipping.
3. Define multivibrator. Mention different types of multivibrators.
4. Mention the characteristics of Practical Op-amp.
5. Draw the circuit diagrams of inverting and non-inverting amplifiers using Op-amp.
6. a) which of the following is suitable for slowly varying signals
   i) Dual slope ADC ii) single slope ADC
   iii) Monolithic ADC iv) All the above

   b) A Flash ADC:
   i) has greater speed ii) requires large no. of comparators
   iii) conversion process takes place simultaneously iv)All the above

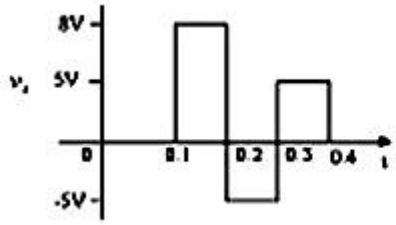
PART-B

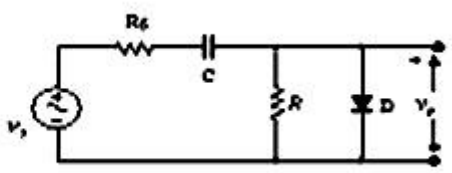
4 × 12 = 48M

1. a) Derive the expressions for the percentage tilt when square wave signal is applied to High-pass RC circuit. (8M)

   b) Show that average level of the steady state output of High-Pass RC circuit is always zero. (4M)

2. a) The input is applied to the clamping circuit shown in Fig. Plot the output waveform when $R_s = R_f = 50\Omega$, R=10K, $R_r = \infty$, C = 1 μF. (7M)





   b) Specify various applications of comparator. (5M)

3. a) Explain the operation of monostable multi-vibrator with neat waveforms. (8M)

   b) Mention the need of commutating capacitors in multi-vibrators. (4M)

4. a) What is input offset voltage. Explain the concept of Common Mode Rejection Ratio. (4M)

   b) Explain the Dominant pole compensation technique with a neat circuit diagram. (8M)

5. a) Design a practical differentiator to operate in the input frequency range from 1kHz to 20kHz. (4M)

   b) Draw and explain the operation instrumentation amplifier with necessary equations. (8M)

6. a) Explain any two important specifications of converters. (4M)

   b) Draw and explain the working of Successive approximation ADC. (8M)

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