Code: R7220401

R07

B.Tech II Year II Semester (R07) Supplementary Examinations December/January 2015/2016
PULSE & DIGITAL CIRCUITS
(Common to ECE, E.Con.E & ECC)

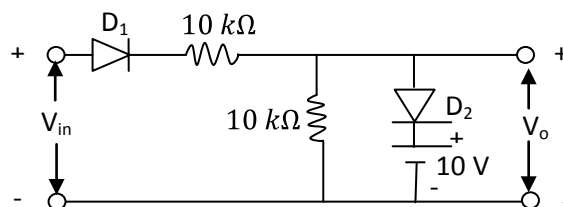(For 2008 Regular admitted batch only)

Time: 3 hours   Max. Marks: 80

Answer any FIVE questions
All questions carry equal marks

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1 (a) Explain the response of low pass RC circuit to an exponential input.
   (b) Explain RC double differentiator circuit.

2 (a) For the clipper circuit shown below, the input is $50 \, sin\omega t$. Draw the transfer characteristics
        and input – output waveforms, assuming ideal diode.

   (b) Explain the two way parallel clipper circuit.

3 (a) Explain how diode acts as a switch.
   (b) Draw the SCR characteristics and explain:
        (i) Holding current.
        (ii) Forward break over voltage.

4 (a) Design an astable multivibrator to meet the following specifications V_{CC} = 10 V, I_C = 2 mA,
        h_{FE} = 30. The output should be a square wave of 1 KHz with 60% duty cycle.
   (b) Explain the working of self biased binary with the help of neat circuit diagram.

5 (a) Derive the expression for sweep speed error.
   (b) Draw and explain bootstrap sweep circuit using Darlington transistor.

6 (a) Explain how a sinusoidal oscillator can be used as a frequency divider.
   (b) Explain the principles of synchronization with the help of an example.

7 (a) What is pedestal? How it effect the output of a sampling gate?
   (b) Explain the operation of four diode bi-directional sampling gate.

8 (a) Explain the two input NOR gate of DTL family.
   (b) Draw and explain the circuit diagram of a diode OR gate for positive logic.

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