Code No: RT22023   **R13**   SET - 1

II B. Tech II Semester Supplementary Examinations, April-2018
PULSE AND DIGITAL CIRCUITS
(Com. to EEE, ECC)

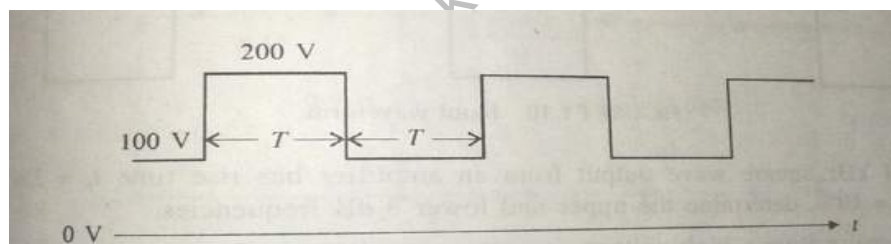Time: 3 hours   Max. Marks: 70

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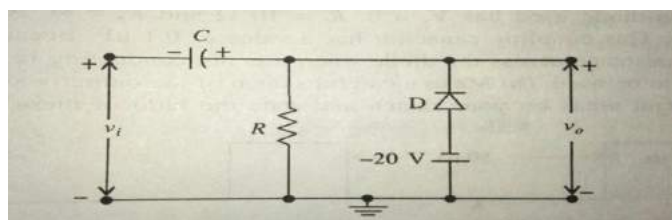~~~~~~

PART –A

1. a) Why the capacitor in an RC high-pass circuit is called a blocking capacitor?   (4M)

   b) What is the disadvantage of having a diode as a series element in a clipper?   (4M)

   c) What are the other names of a monostable multivibrator?   (3M)

   d) Explain the concept of Fan-in and Fan-out?   (3M)

   e) List out the basic principles of Miller and Bootstrap time base generators?   (4M)

   f) Define a term Pedestal? List out the advantages of Pedestal using in a circuit?   (4M)

PART -B

2. a) The square wave shown in figure is fed to an RC integrating circuit. Compute and plot the output waveforms if (i) RC is very large, say RC=2T and (ii) RC is very small, say RC=T/2.   (10M)

   b) Drive the lower cutoff frequency of a low-pass RC circuit?   (6M)

3. a) With the help of a neat circuit diagram, explain the working of an emitter coupled clipper?   (8M)

   b) Sketch the output waveform, from the circuit shown in figure. When the input, is (i)a sine wave of Vi=30 sin (wt) and (ii)a square wave of ± 30V peak to peak?   (8M)

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4. a) Explain the need and working of collector catching diodes in multivibrators?   (8M)
    b) Design an astable multivibrator, to generate a square wave of 2KHz frequency with a duty cycle of 35%?   (8M)

5. a) Explain the 2-input NAND gate of DTL family?   (8M)
    b) Draw and Explain the basic CMOS inverter circuit?   (8M)

6. Define the terms slope error, displacement error and transmission error. How are they related for an exponential sweep circuit? Derive the relation between them?   (16M)

7. a) With the help of the diagram, explain the working principle of a bidirectional diode sampling gate?   (8M)
    b) With the help of a neat circuit diagram and waveforms, explain the synchronization of a sweep generator with pulse signals?   (8M)