Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ECE / ETE) (2011 Onwards) (Sem.–4)

PULSE WAVE SHAPING AND SWITCHING

Subject Code : BTEC-405

Paper ID : [A1193]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

(a) How does a low-pass circuit reserve the pulse shape?

(b) If the O/P of an attenuator is 1/10 of its input, what is the Rise time of the output?

(c) What are the applications of voltage comparators?

(d) What do you mean by biased clamping?

(e) What is Bistable circuit? What are the applications of a bistable multivibrator?

(f) Define Resolving time, setting time and resolution time.

(g) What is Relaxation Circuit?

(h) Why sampling gates are called linear gates? What are other names of it?

(i) Differentiate between series and parallel Resonance Circuit.

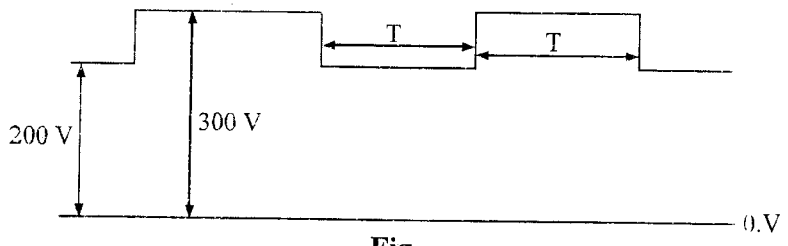
(j) What is attenuator?

SECTION-B

2. Draw the Inverter for transistor logic and explain its working.

3. Explain with circuit Diagram and Waveforms various states of collector-coupled Monostable Multivibrator.

4. The Square wave shown is fed to an RC coupling Network. What are the voltage waveforms across R and across C if (a) RC is very large say RC = 10T and (b) RC is very small say RC = T/10?



Fig

5. Explain in detail Schmitt trigger circuit. What are its applications?

6. What type of Difficulties are there in practical clamping circuits? How to overcome these?

SECTION-C

7. (a) Describe how Schottky diode helps reducing storage time?

   (b) Explain the effect of temperature on zener and Schotkey diode.

8. Give a detail description on Switching Characteristics of electronic switches. Also explain the terms (a) delay time(b) Rise time (c) storage time (d) fall time.

9. Design an astable multivibrator using transistors and explain its action. Sketch waveform at various points. Design an Astable circuit using Ge transistors to generate a square waveform of amplitude 10 V at a frequency of 10 kHz with a duty cycle of 0.4. Choose $C_1 = C_2 = 0.01\ \mu F$.