Code No: 07A4EC07 **R07** **Set No. 2**

II B.Tech II Semester Examinations,April/May 2012
PULSE AND DIGITAL CIRCUITS
Common to BME, ICE, E.COMP.E, ETM, E.CONT.E, ECE
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Explain the response of the clamping circuit when a square wave input is applied under steady state conditions.
   (b) Explain the effect of diode characteristics on clamping voltage. [8+8]
2. (a) Draw the circuit diagram of UJT sweep circuit and explain its operation with necessary waveforms.
   (b) Derive the expression for sweep speed error of a transistor constant current sweep circuit. [16]
3. (a) Discuss the applications of RC integrator and differentiator in brief.
   (b) Explain the operation of RC low pass circuit for exponential input. [8+8]
4. Explain about various switching conditions of Schmitt trigger with necessary waveforms. [16]
5. (a) Draw the circuit diagram of diode-transistor logic NOR gate and explain its operation.
   (b) For the figure 5b given below, draw the output waveform X for the given inputs.

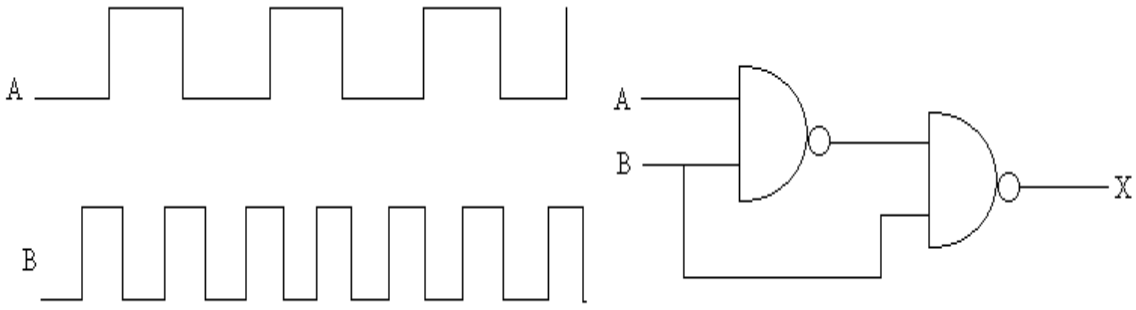

Figure 5b

[8+8]

6. (a) Define phase delay and phase jitter?
   (b) Explain the method of synchronization of a sinusoidal oscillator with pulses.
   (c) Explain the frequency division in sweep circuit. [4+8+4]
7. (a) For a common emitter circuit $V_{cc} = 10V$, $R_c = 1k\Omega$ I_B=0.2A. Determine
      i. The valve of h_{FE}(min) for saturation to occur.
      ii. If R_c is changed to 220Ω, will the transistor be saturated?

(b) Explain the phenomenon of latching in a transistor. [8+8]

8. (a) Draw the bidirectional gate using transistors and explain its working.
(b) Discuss the reduction of pedestal in a sampling gate circuit. [16]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: 07A4EC07 **R07** **Set No. 4**

II B.Tech II Semester Examinations,April/May 2012
PULSE AND DIGITAL CIRCUITS
Common to BME, ICE, E.COMP.E, ETM, E.CONT.E, ECE

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Draw the circuit diagram of UJT sweep circuit and explain its operation with necessary waveforms.
   (b) Derive the expression for sweep speed error of a transistor constant current sweep circuit. [16]

2. (a) Draw the bidirectional gate using transistors and explain its working.
   (b) Discuss the reduction of pedestal in a sampling gate circuit. [16]

3. (a) For a common emitter circuit $V_{cc} = 10V$, $R_c = 1k\Omega$ I_B=0.2A. Determine
      i. The valve of h_{FE}(min) for saturation to occur.
      ii. If R_c is changed to 220Ω, will the transistor be saturated?
   (b) Explain the phenomenon of latching in a transistor. [8+8]

4. Explain about various switching conditions of Schmitt trigger with necessary waveforms. [16]

5. (a) Draw the circuit diagram of diode-transistor logic NOR gate and explain its operation.
   (b) For the figure 5b given below, draw the output waveform X for the given inputs.

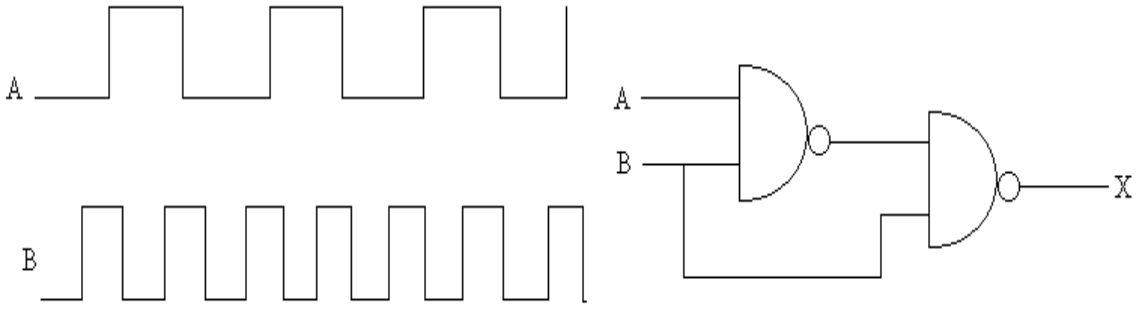

Figure 5b

[8+8]

6. (a) Explain the response of the clamping circuit when a square wave input is applied under steady state conditions.
   (b) Explain the effect of diode characteristics on clamping voltage. [8+8]

7. (a) Discuss the applications of RC integrator and differentiator in brief.
   (b) Explain the operation of RC low pass circuit for exponential input. [8+8]

8. (a) Define phase delay and phase jitter?
   (b) Explain the method of synchronization of a sinusoidal oscillator with pulses.
   (c) Explain the frequency division in sweep circuit. [4+8+4]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: 07A4EC07 **R07** **Set No. 1**

II B.Tech II Semester Examinations,April/May 2012
PULSE AND DIGITAL CIRCUITS
Common to BME, ICE, E.COMP.E, ETM, E.CONT.E, ECE
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Discuss the applications of RC integrator and differentiator in brief.
   (b) Explain the operation of RC low pass circuit for exponential input. [8+8]
2. (a) Explain the response of the clamping circuit when a square wave input is applied under steady state conditions.
   (b) Explain the effect of diode characteristics on clamping voltage. [8+8]
3. (a) Draw the bidirectional gate using transistors and explain its working.
   (b) Discuss the reduction of pedestal in a sampling gate circuit. [16]
4. (a) Draw the circuit diagram of UJT sweep circuit and explain its operation with necessary waveforms.
   (b) Derive the expression for sweep speed error of a transistor constant current sweep circuit. [16]
5. (a) Draw the circuit diagram of diode-transistor logic NOR gate and explain its operation.
   (b) For the figure 5b given below, draw the output waveform X for the given inputs.

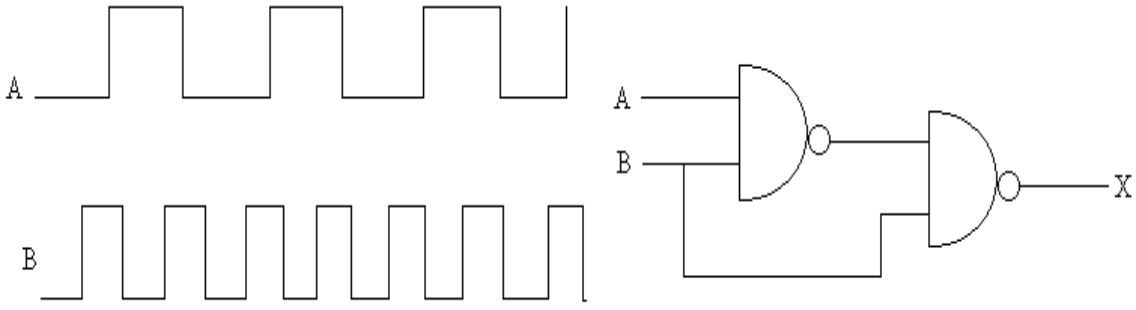

Figure 5b

[8+8]

6. Explain about various switching conditions of Schmitt trigger with necessary waveforms.[16]
7. (a) For a common emitter circuit $V_{cc} = 10V$, $R_c = 1k\Omega$ I_B=0.2A. Determine
      i. The valve of h_{FE}(min) for saturation to occur.
      ii. If R_c is changed to 220Ω, will the transistor be saturated?
   (b) Explain the phenomenon of latching in a transistor. [8+8]

8. (a) Define phase delay and phase jitter?
   (b) Explain the method of synchronization of a sinusoidal oscillator with pulses.
   (c) Explain the frequency division in sweep circuit. [4+8+4]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: 07A4EC07 **R07** **Set No. 3**

II B.Tech II Semester Examinations,April/May 2012
PULSE AND DIGITAL CIRCUITS
Common to BME, ICE, E.COMP.E, ETM, E.CONT.E, ECE

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Discuss the applications of RC integrator and differentiator in brief.
   (b) Explain the operation of RC low pass circuit for exponential input. [8+8]
2. (a) Draw the bidirectional gate using transistors and explain its working.
   (b) Discuss the reduction of pedestal in a sampling gate circuit. [16]
3. (a) Draw the circuit diagram of diode-transistor logic NOR gate and explain its operation.
   (b) For the figure 3b given below, draw the output waveform X for the given inputs.

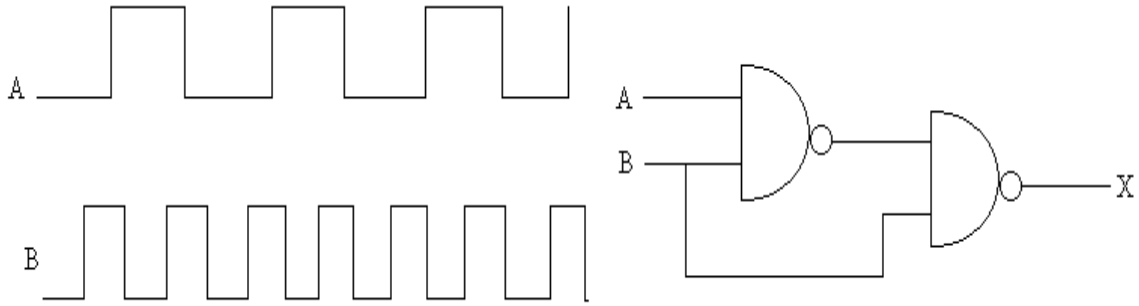

Figure 3b

[8+8]

4. (a) Explain the response of the clamping circuit when a square wave input is applied under steady state conditions.
   (b) Explain the effect of diode characteristics on clamping voltage. [8+8]
5. (a) Define phase delay and phase jitter?
   (b) Explain the method of synchronization of a sinusoidal oscillator with pulses.
   (c) Explain the frequency division in sweep circuit. [4+8+4]
6. (a) Draw the circuit diagram of UJT sweep circuit and explain its operation with necessary waveforms.
   (b) Derive the expression for sweep speed error of a transistor constant current sweep circuit. [16]
7. (a) For a common emitter circuit $V_{cc} = 10V$, $R_c = 1k\Omega$ I_B=0.2A. Determine
      i. The valve of h_{FE}(min) for saturation to occur.

ii. If R_c is changed to 220Ω, will the transistor be saturated?

(b) Explain the phenomenon of latching in a transistor. [8+8]

8. Explain about various switching conditions of Schmitt trigger with necessary waveforms. [16]

⋆ ⋆ ⋆ ⋆ ⋆