

Code No: R22021

R10**SET - 1****II B. Tech II Semester Supplementary Examinations, April/May-2017****PULSE AND DIGITAL CIRCUITS**

(Com. to EEE, ECE, ECC, BME, EIE)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) Explain the function of RC double differentiator circuit? (7M)  
b) Explain the function of normal attenuator? Explain the need of compensated attenuator? (8M)
2. a) Draw and explain the function of comparator circuit? (8M)  
b) Explain, how to convert sinusoidal signal input into a square output with 2-level clipper circuit? (7M)
3. a) Define the terms used in switching times (8M)  
(i)  $T_{ON}$  (ii)  $T_{OFF}$  (iii) delay time (iv) fall time (v) storage time  
b) Explain the function of 2-input RTL NOR gate with suitable examples? (7M)
4. a) Define commutating capacitor? Explain the need of commutating capacitors in bistable multivibrator? (8M)  
b) Define the types of multivibrators with other names? (7M)
5. Explain the working principle of Astable multivibrator? Prove that the gate width of an astable multivibrator is  $1.38RC$ ? (15M)
6. a) With suitable diagram, explain the function of boot strap sweep circuit? (8M)  
b) Prove that  $e_d = T_s/2RC$ ? (7M)
7. a) Explain the need of frequency division? Explain any one of the technique to achieve frequency division? (8M)  
b) A free running oscillator has sweep amplitude of 100V and a period of 1m sec synchronizing pulses are applied to the device such that breakdown voltage is lowered by 50V at each pulse. The synchronizing pulse frequency is 4KHz. What is the amplitude and frequency of synchronized oscillator waveform? (7M)
8. a) List out the characteristics of unidirectional and bidirectional sampling gates? (7M)  
b) Explain the working principle of monostable blocking oscillator using emitter timing? (8M)