

Code No: RT31041

R13**SET - 1****III B. Tech I Semester Supplementary Examinations, May - 2017****PULSE AND DIGITAL CIRCUITS****(Common to Electronics and Communications Engineering, Electronics and Instrumentation Engineering)**

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answering the question in **Part-A** is compulsory3. Answer any **THREE** Questions from **Part-B**

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**PART -A**

- 1 a) Define Integrator and condition for good integrator circuit. [3M]
- b) Design a 2-different positive level clipper circuit. [4M]
- c) Define 'ON' time and 'OFF' time of a transistor in terms of transistor switching times? [3M]
- d) Define the types of states in multi vibrators. [3M]
- e) Define the slope or sweep-speed error. [3M]
- f) Define Pedestal height. [3M]
- g) Explain the need of commutating capacitor in bistable multivibrator. [3M]

**PART -B**

- 2 a) Prove that  $e_t = T/2RC$  for ramp as input to the High pass RC-Circuit? [6M]
- b) Explain the working principle of rate-of-rise amplifier? [5M]
- c) Explain the working of attenuator as a CRO Probe? [5M]
- 3 a) Prove that external resistance  $R = \sqrt{R_i \times R_f}$  in a clipping circuit? [6M]
- b) Discuss the function of series diode and shunt diode clipping circuits? How can the clipping level shifted to reference voltage? Explain? [10M]
- 4 a) Explain the breakdown voltage consideration of a transistor. [5M]
- b) Design and explain 2-input ECL OR/NOR gate. [6M]
- c) Define voltage levels and noise margin of 10KECL family. [5M]
- 5 a) Derive the equation for voltage-to-frequency converter when a stable multi vibrator is used as a basic circuit. [8M]
- b) The Schmitt trigger circuit also called sinusoidal to square converter? Explain the working principle. [8M]
- 6 a) Explain the working principle of UJT sweep circuit. [8M]
- b) Explain the working principle of Boot-strap -time base generator. [8M]
- 7 a) Draw and explain the reduction of pedestal techniques in a gate circuit. [8M]
- b) Explain, how monostable multivibrator can be used for frequency division? [8M]

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