

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 compulsory
 3. Answer any **THREE** Questions from **Part-B**

PART -A

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|------|---|------|
| 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

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|------|---|-------|
| 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 $R = \sqrt{R_f \times R_f}$ 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] |
