III B. Tech I Semester Supplementary Examinations, August - 2021
PULSE AND DIGITAL CIRCUITS
(Electronics and Communication 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**
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PART –A   **(22 Marks)**

1. a) Sketch the response of RC Low pass when square wave as input t ≈ Tp.   [4M]
   b) Classify the clippers.   [4M]
   c) Define T_{on} and T_{off} of a Transistor Switching time.   [3M]
   d) Classify and define Multivibrators.   [3M]
   e) If Transmission error is 8 ms, estimate the Sweep speed error and   [4M]
       displacement error.
   f) Explain the need of Synchronization and frequency division.   [4M]

PART –B   **(48 Marks)**

2. a) Derive the response of RC low pass circuit when the sinusoidal signal is [8M]
       given as input.
   b) Explain the operation of RC double differentiator circuit.   [8M]

3. a) Explain the function of basic parallel Clipper circuit during positive and [8M]
       negative periods of Sinusoidal signal.
   b) Explain the function of Voltage Comparator Circuit.   [8M]

4. a) Explain the working principle of Monostable Mutivibrator with wave   [8M]
       forms.
   b) Determine the period and frequency of oscillation for an astable   [8M]
       multivibrator component values R_1= 2 kΩ, R_2=10 kΩ, C_1=0.01 µF and
       C_2=0.05 µF.

5. a) Explain piece-wise linear diode characteristics.   [8M]
   b) Design 2 i/p AND gate using DTL and explain its operation.   [8M]

6. a) Draw the circuit diagram of a transistor miller - time base generator and [8M]
       explain its working.
   b) Define the sweep speed error, displacement error and transmission   [8M]
       error of voltage time-base waveform.

7. a) Explain the principle of synchronization.   [8M]
   b) Compare the unidirectional and bidirectional sampling gates with   [8M]
       suitable diagrams.

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