

**II B. Tech II Semester Supplementary Examinations, April - 2021****PULSE AND DIGITAL CIRCUITS**

(Com to ECE, EIE, ECC)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answer **ALL** the question in **Part-A**3. Answer any **FOUR** Questions from **Part-B****PART -A**

1. a) Define a differentiator? If  $10\sin\omega t$  is applied as input to the differentiator, then estimate the output? 2M
- b) List out the differences between series and shunt clippers? 2M
- c) The current  $I_c$  discharged from maximum to 90% at 1 msec and fall to 10% at 5 msec calculate the fall time? 2M
- d) Define and show the overshoot in a multivibrator waveform? 3M
- e) Express the relation between errors occur time in time base generator? 3M
- f) Write the advantages of TTL logic when compared to diode logic 2M

**PART -B**

2. a) A 10 Hz square wave is fed to an amplifier. Calculate and plot the output waveform under the following conditions:  
The lower 3 db frequency is i) 0.3 Hz ii) 3 Hz iii) 30 Hz. 7M
- b) For a parallel RLC circuit, an input  $V_i$  is applied. Derive the Q factor of the Circuit. 7M
3. a) Give the circuits of different types of shunt clippers and explain their operation With the help of their transfer characteristics. 7M
- b) Draw the basic circuit diagram of negative peak clamper circuit and explain Its operation. 7M
4. a) Explain about design of transistor switch 7M
- b) With suitable diagram, Explain the function of a Bistable Multivibrator, Using Collector catching diodes. 7M
5. a) Explain how astable vibrator is used as a voltage to frequency convertor 7M
- b) Draw & Explain the function of basic monostable multivibrator? Draw the Corresponding output Waveforms? 7M
6. a) Derive the relation between the slope, transmission and displacement errors. 7M
- b) With a neat circuit, Explain a method of compensation used to improve The linearity of a bootstrap time base circuit. 7M
7. a) Explain the bidirectional sampling gate using diodes. Derive the gain of gate signal for the sampling gate. 7M
- b) Define following parameters: 7M
  - i) Fan-out ii) Noise margin iii) Propagation delay.

