

Code No: R15A0404

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Supplementary Examinations, April 2023**Pulse and Digital Circuits**

(ECE)

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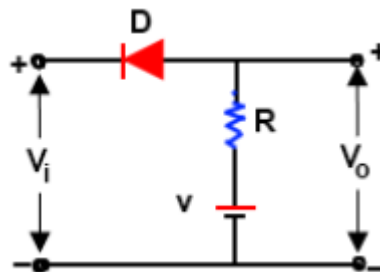
Time: 3 hours**Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

PART-A (25 Marks)

- 1). a Write the Relation between rise time and Bandwidth in low pass RC circuit. [2M]
- b Compare linear wave shaping with non-linear wave shaping. [3M]
- c What is the difference between clipping and clamping? [2M]
- d Sketch the output of the following clipper for sinusoidal input signal. [3M]



- e Define the term Rise time. [2M]
- f What is hysteresis how it can be eliminated in a Schmitt trigger? [3M]
- g Distinguish between voltage and current time base generators. [2M]
- h Compare the principle of operation of Miller sweep circuit and Bootstrap sweep circuit. [3M]
- i What are the advantages and disadvantages of unidirectional diode gates? [2M]
- j Enumerate the advantages of MOS families over bipolar families. [3M]

PART-B (50 MARKS)**SECTION-I**

- 2 Derive an expression for the output of low pass RC circuit excited by a step input. Draw the output for different time constants. [10M]
- OR
- 3 Draw the output waveform of an RC high-pass circuit with a square wave input under different time constants. Derive the expression for percentage of tilt. [10M]

SECTION-II

- 4 Give the circuits of different types of shunt clippers and explain their operation [10M]

with the help of their transfer characteristics.

OR

- 5 Explain transfer characteristics of emitter coupled clipper and derive necessary equations. [10M]

SECTION-III

- 6 Draw a Schmitt Trigger using transistors and derive for UTP & LTP. [10M]

OR

- 7 Explain the operation of a Monostable multivibrator and derive for the pulse width with necessary waveforms & circuits. [10M]

SECTION-IV

- 8 Define the terms slope error, displacement error and transmission error that occur in a sweep circuit and obtain an expression for these errors for an exponential sweep circuit. [10M]

OR

- 9 List and explain various methods to generate a time base waveform. [10M]

SECTION-V

- 10 With a neat circuit diagram, explain bidirectional sampling gate using transistors. [10M]

OR

- 11 Explain the characteristics and implementation details of CMOS and ECL logic families. [10M]
