



R18 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 2P3DE

B.Tech III Semester Supplementary Examinations, March/April 2023

PULSE AND DIGITAL CIRCUITS
(ECE)

Maximum Marks: 70

Date: 10.04.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 What is the function of Differentiator?
- 2 Write the low-pass circuit applications?
- 3 What is meant by clipping in wave shaping?
- 4 Define Clamping.
- 5 How transistor used as a switch?
- 6 What is an ideal diode?
- 7 What is Multivibrator?
- 8 Define UTP and LTP of a Schmitt trigger.
- 9 Draw the circuit diagram of OR gate using Diodes.
- 10 Why totem pole is used in TTL.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 Explain the response of low pass RC circuit for square wave input along with waveforms. [10M]
- OR
- 12 A. Design a High pass RC circuit when $R=20K\Omega$, $C=0.1\text{Microfarad}$ and $F=50\text{Hz}$, and explain its operation along with wave forms. [5M]
B. Define the rise time and write the expression for step input. [5M]
- 13 State and prove Clamping Circuit Theorem. [10M]
- OR
- 14 Classify different types of clipper circuits. Draw their circuits and explain their operation and also transfer characteristics. [10M]
- 15 Explain the terms Rise time, fall time, Hold time of a transistor switching characteristics in detail. [10M]
- OR
- 16 List and explain all the switching times of a Diode. [10M]

17 With the help of neat circuit diagram and waveform, explain the principle of operation of collector coupled monostable multivibrator. [10M]

OR

18 What is hysteresis and explain the different methods for avoiding hysteresis in Schmitt trigger in detail. [10M]

19 Draw and explain a diode AND circuit for negative logic and how it works. How an OR circuit acts a buffer circuit? [10M]

OR

20 A. List out the few comparisons of TTL, RTL and CML logic families. [5M]

B. Explain how to cancel a pedestal in a sampling gate with suitable circuit diagram. [5M]