



*R20 Regulation*  
**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous, Accredited by NAAC with 'A' Grade)  
**B.Tech IV Semester Regular Examinations, July 2022**

*Subject code: 3P4DC*

**PULSE AND DIGITAL CIRCUITS**  
(ELECTRONICS & COMMUNICATION ENGINEERING)

**Maximum Marks: 70**

Date: 26.07.2022 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 Draw the low pass RC circuit.
- 2 Why is the capacitor in an RC high-pass circuit called a blocking capacitor?
- 3 Distinguish between comparators and clipping circuits.
- 4 Why is a clamping circuit also called a dc inserter?
- 5 Define a diode forward recovery time and reverse recovery time.
- 6 What are the factors that contribute to the delay time of the transistor switch?
- 7 What is the use of Commutating capacitors?
- 8 What is meant by a quasi-stable state?
- 9 What is sampling gate?
- 10 Which logic is the fastest of all the logic families? Why?

**Part-B**

Answer All the following questions.

(10MX 5=50Marks)

- 11 A. Explain the working of the high-pass RC circuit as a differentiator. [4M]  
B. Derive an expression for the output of a high-pass circuit excited by a square input. [6M]  
OR
- 12 A. Draw and explain the response of the ringing circuit for a step input. [5M]  
B. Elaborate on the functioning of the attenuator circuit. [5M]
- 13 A. Discuss the circuit of Clipping at two independent levels. [5M]  
B. Draw the different diode Clipping circuits using the diode appears as a shunt and series element [5M]  
OR
- 14 A. Explain the working and applications of Voltage comparators. [5M]  
B. State and prove the clamping circuit theorem. [5M]
- 15 With the help of a circuit diagram, explain the working of the transistor miller time base generator [10M]

OR

- 16 A. Explain the working principle of Silicon-controlled-switch circuits. [5M]  
B. What are the characteristics of Piecewise Linear Diode? [5M]

- 17 Explain the two types of Bistable Multivibrator Triggering with a neat diagram. [10M]

OR

- 18 Explain about Monostable Multivibrator. [10M]

- 19 Explain the working principle of the four and six diode sampling gates with a neat diagram. [10M]

OR

- 20 A. Write notes on the digital logic families, and compare their characteristics. [5M]  
B. Discuss the characteristics of the ECL circuit. [5M]