2403000502049005
EXAMINATION SEPTEMBER 2024 (ATKT EXAM)
BACHELOR OF SCIENCE (NCP-NEP) SEM-2
MDC- COMBINATIONAL CIRCUIT DESIGN THEORY

[Time: As Per Schedule] **[Max. Marks: 25]**

Instructions:
1. **Fill up strictly the following details on your answer book**
   a. Name of the Examination: **BACHELOR OF SCIENCE (NCP-NEP) SEM-2**
   b. Name of the Subject: **MDC- COMBINATIONAL CIRCUIT DESIGN THEORY**
   c. Subject Code No: **2403000502049005**
2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

Student's Signature

Q.1 One word or short answer. (Any 5) **5**

1 What is called toggling in J-K flip-flop?
2 What is the Full name of K-map?
3 What is BCD?
4 What is Half adder?
5 What is minterm and maxterm in K maps?
6 What is Synchronous Counter?

Q.2 A. Draw the K-maps for 2 variables, 3 Variables and 4 variables and discuss the rule to minimize the Boolean function. **5**

B. Minimize the Boolean function F(A, B, C, D) = Σm(0, 1, 3, 5, 7, 8, 9, 11, 13, 15) **5**

OR

A. What is Combinational circuit? Design Half adder. **5**

B. Explain redundant groups and don't care conditions in K maps **5**

Q.3 A. What is SOP and POS with respect to K maps? Give examples. **5**

B. Explain the working of parallel in parallel out (PIPO)register **5**

OR

A. What are flip-flops? Mention its type and explain briefly any one with truth table. **5**

B. Draw and explain 3 bit binary ripple counter. **5**

*****