

# 30002:Computer Organization(Quiz#1)

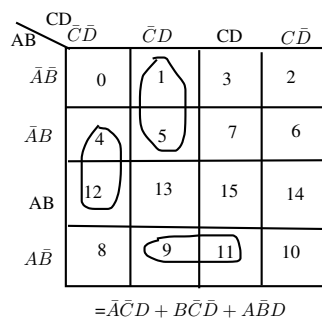
Time: 25 minutes

MM 10.

Note: All questions carry equal marks.

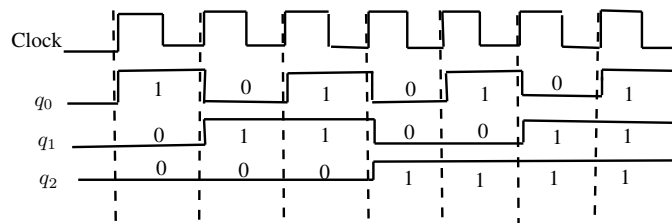
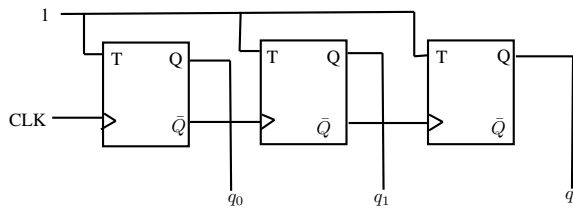
1. The switching expression corresponding to  $f(A, B, C, D) = \Sigma(1, 4, 5, 9, 11, 12)$  is:  
 (a)  $BC'D' + A'C'D + AB'D$     (b)  $ABC' + ACD + B'C'D$   
 (c)  $ACD' + A'BC' + AC'D'$     (d)  $A'BD + ACD' + BCD'$

Correct answer: A

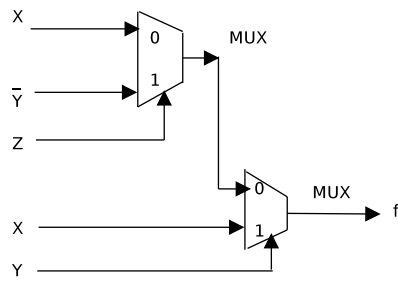


2. Construct a modulo 8 counter using T-flip flops and the basic gates.

Modulo-8 (up) counter. To get 'down counter' connect true output to next input. To have both together, select the operation through two OR gate followed with one and gate, to feed Q or  $\bar{Q}$  to next gate's input.



3. For the figure shown below, which of the following option correctly represents  $f(X, Y, Z)$  ?  
 (A)  $X\bar{Z} + XY + \bar{Y}Z$     (B)  $X\bar{Z} + XY + \bar{Y}Z$   
 (C)  $XZ + XY + \bar{Y}Z$     (D)  $XZ + X\bar{Y} + \bar{Y}Z$

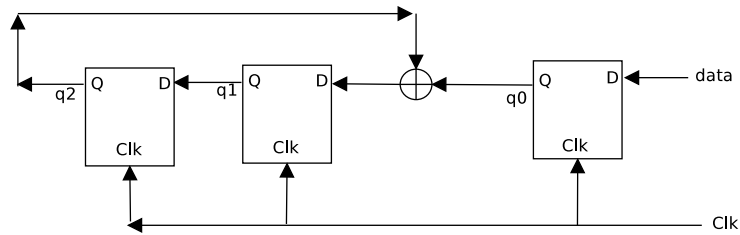


Ans: The correct answer= $X + \bar{Y}Z$

4. What is the minimum number of D flip-flops needed to design a mod-258 counter ?

Ans:  $\lceil \log 258 \rceil = 9$

5. Consider the circuit, the  $\oplus$  operator is EX-OR. The D-FF are initialized to zero level. The following



data:100110000 (1 first) is supplied to the “data” terminal in nine clock cycles. After that the value of  $q_2q_1q_0$  are: (A)000 (B) 001 (C) 010 (D) 101

Correct Answer= C

