Reg. No.:

Name :

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Mid-Term Examinations, April 2021

Programme	:	**B.Tech All programme**	Semester	:	**Winter 2020-2021**
Course	:	**Digital Logic Design**	Code	:	**ECE2002**
Faculty	:	**Dr. Jitendra Kumar Tandekar**	Slot/Class No.	:	**B11+B12+B13/0371**
Time	:	**1½ hours**	Max. Marks	:	**50**

Answer all the Questions

Q. No.	Question Description	Marks
1	Reduce the following Boolean expressions to the indicated number of literals: (i) $A'C' + ABC + AC'$ to three literals (ii) $(x'y' + z)' + z + xy + wz$ to three literals (iii) $A'B(D' + C'D) + B(A + A'CD)$ to one literal (iv) $(A' + C)(A' + C')(A + B + C'D)$ to four literals (v) $ABC'D + A'BD + ABCD$ to two literals	**10**
2	Simplify the following Boolean expressions, using four-variable maps: (i) $A'B'C'D' + AC'D' + B'CD' + A'BCD + BC'D$ (ii) $x'z + w'xy' + w(x'y + xy')$ (iii) $A'B'C'D + AB'D + A'BC' + ABCD + AB'C$ (iv) $A'B'C'D' + BC'D + A'C'D + A'BCD + ACD'$	**10**
3	What is a decoder? With neat diagram explain the functionality of a 3:8 decoder	**10**
4	Implement the following Boolean function using 8:1 MUX. $F(A,B,C,D)=\sum(0,1,3,4,8,9,15)$ $F(A,B,C,D)=\sum(1,3,4,11,12,13,14,15)$	**10**
5	Explain the working of clocked RS flip-flop with the help of truth table.	**10**

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