Enrollment No: $\qquad$ Exam Seat No: $\qquad$

## C.U.SHAH UNIVERSITY

## Summer Examination-2017

## Subject Name : Digital Electronics

Subject Code : 4CS02DEC1
Semester : 2

Date : 06/05/2017
Branch: M.Sc. C.A. \& I.T. (Integrated)
Time : 02:00 To 05:00 Marks : 70

Instructions:
(1) Use of Programmable calculator \& any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

## Q-1

Attempt the following questions:
a) In Boolean Algebra $\mathrm{A}+\mathrm{A}^{\prime}=$
(A) 1
(B) 0
(C) -1
(D) None of Above
b) In Boolean Algebra A.A' = $\qquad$
(E) 1
(F) 0
(G) -1
(H) None of Above
c) In Half Adder $\qquad$ and $\qquad$ are output.
(A) Sum, Carry
(B) Borrow, Difference
(C) Sum, Difference
(D) None of Above
d) In Full Subtractor $\qquad$ and $\qquad$ are output.
(A) Sum, Carry
(B) Borrow, Difference
(C) Sum, Difference
(D) None of Above
e) In Half Adder $\qquad$ number of input and $\qquad$ number of output.
(A) 2,2
(B) 2,4
(C) 2,3
(D) None of Above
f) In Boolean Algebra $\mathrm{A}+1=$
(A) 1
(B) 0
(C) -1
(D) None of Above
$\qquad$ is Input Device.
(A) Keyboard
(B) Calculator
(C) Printer
(D) None of Above
h) $\qquad$ is Output Device.
(A) Keyboard
(B) Calculator
(C) Printer
(D) None of Above
i) In De'Morgan's law (AB)' $=$ $\qquad$
(A) $\mathrm{A}^{\prime}+\mathrm{B}^{\prime}$
(B) A.B
(C) A.B'
(D) None of These
j) In AND gate if both input are 1 at that time output is
(A) 1
(B) 0
(C) -1
(D) None of Above
k) In OR gate if both input are 0 at that time output is
(A) 1
(B) 0
(C) -1
(D) None of Above
1)
(A) NOT
(B) AND
(C) OR
(D) None of Above
m) AND gate is a logical $\qquad$
(A) SUBTRACTION
(B) DIVISION
(C) MULTIPICATION
(D) NONE OF THESE
n) OR gate is a logical
(A) SUBTRACTION
(B) DIVISION
(C) MULTIPICATION
(D)NONE OF THESE


## Attempt any four questions from Q-2 to Q-8

Q-2 Attempt all questions ..... (14)
(A) What is Gate? Explain types of gate in brief.(7)
(B) Explain Half Adder with Diagram and Truth Table. ..... (7)
Q-3 Attempt all questions(14)
(A) Write a note on Full Adder with Diagram and Truth Table. ..... (7)
(B) Write a note on Full Subtractor with Diagram and Truth Table. ..... (7)
Q-4 Attempt all questions(14)
(A) Convert Following Decimal Number to Binary ..... (7)
(a)(1024)d=(
$\qquad$ )b (b) (624)d=(__ )b
(B) Explain the Block Diagram of Digital Computer.(7)
Q-5 Attempt all questions(14)
(A) Draw the Circuit Diagram using gates.(7)

(1) $X Y^{\prime} Z^{\prime}+X^{\prime} Y Z '+X Y Z$
(2) $A^{\prime} C+A B+B C$
(B) Prove $(\mathrm{AB})^{\prime}=\mathrm{A}^{\prime}+\mathrm{B}^{\prime}$ and $(\mathrm{A}+\mathrm{B})^{\prime}=\mathrm{A}^{\prime} . \mathrm{B}^{\prime}$ using Perfect Induction Method.
(A) Explain Decoder with Diagram.(7)
(B) Convert (1) (555)decimal $=($

$\qquad$
)octal(2) (456)decimal =(__)octal
Q-7 Attempt all questions(14)
(A) Prove $\mathrm{A}+(\mathrm{B}+\mathrm{C})=(\mathrm{A}+\mathrm{B})+\mathrm{C}$ using Perfect Induction Method. ..... (7)
(B) Write a short note on Half Subtractor. ..... (7)
Q-8 Attempt all questions(14)
(A) What is Product of Sum(POS) and Sum of Product(SOP)? Explain in brief. ..... (7)
(B) Draw the Circuit Diagram $\mathrm{X}^{\prime} \mathrm{Y}^{\prime} \mathrm{Z}+\mathrm{XYZ}+\mathrm{XZ}+\mathrm{XY}+\mathrm{YZ}$ using gates. ..... (7)


