

C.U.SHAH UNIVERSITY**Summer Examination-2017****Subject Name: Digital Electronics****Subject Code: 2TE03DEL1****Branch: Diploma (CE)****Semester: 3****Date: 23/03/2017****Time: 10:30 To 01:30****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.
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Q-1**Attempt the following questions:****(14)**

- a) What is full form of BCD?
a) Basic Coded Data b) Binary Coded Decimal
c) Binary Coded Data d) Byte Code Data
- b) Flipflop can store ____ bits of data.
a) 1 b) 2 c) 4 d) 8
- c) A 3-variable K-map will have _____ boxes
a) 3 b) 6 c) 8 d) 9
- d) What is 2's complement of 101011?
a) 010101 B) 110010 c) 001110 d) 11111
- e) $1110 + 0001 =$ _____
a) 010011 b) 001111 c) 011110 d) 110111
- f) $(10)_8 = (\text{_____})_{10}$
a) 8 b) 10 c) 17 d) 7
- g) Full form of ASCII is _____
a) American State Cube for Information Interchange
b) American Standard Code for Information Interchange
c) Advanced Standard Case for Information Interchange
d) American Standard Code for Interactive Information
- h) $AB + ABC =$ _____
a) ABC b) C c) 1 d) AB
- i) $11 * 11 =$ _____
a) 1001 b) 1111 c) 0111 d) 1100
- j) $A + 1 =$ _____
a) A b) 1 c) 0 d) AA
- k) $(1111)_2 = (\text{_____})_{10}$
a) 11 b) 15 c) 10 d) 16
- l) $1010 / 10 =$ _____
a) 0101 b) 10 c) 1010 d) 1100
- m) $(10)_{16} = (\text{_____})_{10}$
a) A b) B c) 16 d) 10



- n) Which of the following is not a flipflop?
 a) J-K b) R-S c) T-D d) D

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

- Q-2 Attempt all questions**
- A) State and explain the De Morgan's theorems. (7)
 B) Explain J-K Flip-flop with diagram and truth table. (7)
- Q-3 Attempt all questions**
- A) Explain basic logic gates. (7)
 B) Explain Half adder with diagram and truth table. (7)
- Q-4 Attempt all questions**
- A) Explain 3X8 Decoder. (7)
 B) Explain Universal gates and justify the name Universal. (7)
- Q-5 Attempt all questions**
- A) Explain Full Subtractor. (7)
 B) Explain 4-bit asynchronous binary counter. (7)
- Q-6 Attempt all questions**
- A) Write a note on R-S flip-flop. (7)
 B) Simplify the equation for $f(A,B,C) = \sum (2,3,4,6,7) + d(0)$ using K map. (7)
- Q-7 Attempt all questions**
- A) Explain Ex-OR and Ex-NOR gates with example. (7)
 B) Explain 4-bit parallel – in and parallel – out register. (7)
- Q-8 Attempt all questions**
- A) Simplify: $(A + C)(AD + AD) + AC + C$ (7)
 B) Simplify using K-Map: $F(W,X,Y,Z) = \sum (1,3,5,7,11,12,14)$ (7)

Q-1 Attempt the following questions: (14)

- a) BCD નું પૂરું નામ શું છે?
 a) Basic Coded Data b) Binary Coded Decimal
 c) Binary Coded Data d) Byte Code Data
- b) ફ્લિપ-ફ્લોપ __ બિટ્સ ના ડેટા સ્ટોર કરી શકે
 a)1 b) 2 c) 4 d) 8
- c) 3 વેરિએબલ K-Map માં ___ બોક્સ હોય.
 a) 3 b) 6 c) 8 d) 9
- d) 101011 નું 2's કોમ્પ્લીમેન્ટ __ થશે ?
 a) 010101 B)110010 c)001110 d)11111
- e) $1110 + 0001 =$ _____
 a) 010011 b)001111 c)011110 d)110111
- f) $(10)_8 = (\text{_____})_{10}$
 a)8 b)10 c)17 d)7
- g) ASCII નું પૂરું નામ _____ છે.
 a) American State Cube for Information Interchange
 b) American Standard Code for Information Interchange



- c) Advanced Standard Case for Information Interchange
d) American Standard Code for Interactive Information
- h) $AB + ABC = \underline{\hspace{2cm}}$
b) ABC b) C c) 1 d) AB
- i) $11 * 11 = \underline{\hspace{2cm}}$
a) 1001 b)1111 c)0111 d)1100
- j) $A + 1 = \underline{\hspace{2cm}}$
b) A b) 1 c) 0 d) AA
- k) $(1111)_2 = (\underline{\hspace{2cm}})_{10}$
a) 11 b)15 c) 10 d)16
- l) $1010 / 10 = \underline{\hspace{2cm}}$
a) 0101 b)10 c)1010 d)1100
- m) $(10)_{16} = (\underline{\hspace{2cm}})_{10}$
a)A b)B c)16 d)10
- n) નીચેના માંથી કયો ફ્લોપ-ફ્લોપ નથી?
a) J-K b) R-S c) T-D d) D

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

- Q-2 Attempt all questions**
- A) ડી-મોર્ગન નો સિદ્ધાંત લખો અને સમજાવો. (7)
- B) J-K Flip-flop ડાયાગ્રામ અને ટ્રુથ ટેબલ સાથે સમજાવો (7)
- Q-3 Attempt all questions**
- A) બેઝિક લોજિક ગેટ્સ સમજાવો (7)
- B) Half adder ડાયાગ્રામ અને ટ્રુથ ટેબલ સાથે સમજાવો. (7)
- Q-4 Attempt all questions**
- A) 3X8 Decoder સમજાવો. (7)
- B) યુનિવર્સલ ગેટ્સ સમજાવો અને યુનિવર્સલ નામ યથાર્થ કરો. (7)
- Q-5 Attempt all questions**
- A) Full Subtractor સમજાવો. (7)
- B) ૪-બીટ એસિન્ક્રોનસ કાઉન્ટર સમજાવો (7)
- Q-6 Attempt all questions**
- A) R-S flip-flop પર ટ્રેક નોંધ લખો. (7)
- B) K map નો ઉપયોગ કરી સાદું રૂપ આપો: $f(A,B,C) = \sum (2,3,4,6,7) + d(0)$ (7)
- Q-7 Attempt all questions**
- A) Ex-OR અને Ex-NOR ગેટ્સ ઉદાહરણ સાથે સમજાવો. (7)
- B) ૪-બીટ પેરેલલ -ઈન અને પેરેલલ -આઉટ રજીસ્ટર સમજાવો. (7)
- Q-8 Attempt all questions**
- A) સાદું રૂપ આપો: $(A + C)(AD + AD) + AC + C$ (7)
- B) K-Map નો ઉપયોગ કરી સાદું રૂપ આપો: $F(W,X,Y,Z) = \sum (1,3,5,7,11,12,14)$ (7)

