4th Sem / Branch : Elect.

Subject:- Digital Electronics

Time : 3Hrs.   M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory   (10x1=10)

Q.1   11011 in Binary is equal to _____ in Decimal.

a)   10   b)   15

c)   27   d)   50

Q.2   The number of Digits in Hexadecimal Numbers System is

a)   8   b)   10

c)   16   d)   2

Q.3   According to Boolean Algebra A+1=

a)   0   b)   2

c)   -1   d)   1

Q.4   In 8:1 MUX How many select lines are required?

a)   1   b)   2

c)   4   d)   3

Q.5   1 Byte has _____ Number of bits

a)   8   b)   4

c)   2   d)   1

Q.6   A NAND GATE is AND GATE followed by

a)   NOR Gate   b)   NOT Gate

c)   XOR Gate   d)   OR Gate

Q.7   A four variable K-Map has _____ cells.

a)   4   b)   8

c)   16   d)   32

Q.8   _____ is a Universal Gate

a)   NOT   b)   NAND

c)   OR   d)   XOR

Q.9   A half Adder has _____ inputs.

a)   2   b)   3

c)   4   d)   5

Q.10 1st compliment of 111001 is

a)   101011   b)   100011

c)   000110   d)   111001

SECTION-B

Note: Objective type questions. All questions are compulsory.   (10x1=10)

Q.11 36_{10}=(   )$_2$

Q.12   Define A/D converter.

Q.13   Base of Octal system is _____.

Q.14   A.A= _____

Q.15   Full form of RAM is _____.

Q.16 In inverter gate, if input A=1 then output 4 = ____ .

Q.17 Draw symbol of AND Gate.

Q.18 Draw symbol of XOR Gate.

Q.19 Convert 1111 into Hexadecimal.

Q.20 Full form of LCD is _____ .

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Convert 47_{10} = ( )$_2$ = ( )$_8$ = ( )$_{16}$

Q.22 State and prove De-morgan's Theorm.

Q.23 Draw the truth table, symbol of AND Gate.

Q.24 Do the substraction using 1's compliment method.
10001-1101

Q.25 Explain difference between Analog signal and Digital signal.

Q.26 Solve the following Boolean expression.

  i) $g = A\overline{C} + AB\overline{C}$

  ii) $g = (A+B)(A+C)$

Q.27 Explain PIPO shift Register.

Q.28 Explain T Flip Flop.

Q.29 Discuss truth table, logic diagram and logical expression of a Half Adder.

Q.30 Explain difference between ROM, RAM, EPROM, EEPROM.

Q.31 What is De Multiplexer? Draw it's block diagram and explain 1:8 Demultiplexer.

Q.32 Describe Ring Counter in detail with Truth Table and Logical circuit.

Q.33 Explain 7-segment Decoder.

Q.34 Explain 7-segment display Device.

Q.35 Draw the symbol and truth table for XOR Gate.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Simplify the function using K map $g = (A,B,C,D) = \text{S}m(1,2,5,7,9,11,13) + d(6,10,14)$

Q.37 Draw the block diagram and explain successive Approximation Analog to Digital Converter.

Q.38 Draw the Block Diagram and explain Binary weighted D/A converter.