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**4th Sem. / Elect.  
Subject:- Digital Electronics**

Time : 3Hrs.

M.M. : 100

**SECTION-A**

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

Q.1 What is the radix of Hexadecimal Number System?

- a) 8
- b) 16
- c) 2
- d) 6

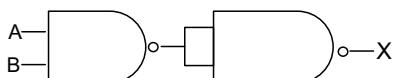
Q.2 How many bits make a Byte?

- a) 4 bits
- b) 8 bits
- c) 16 bits
- d) 2 bits

Q.3 The ones complement of 001110 binary is?

- a) 110001
- b) 111001
- c) 001001
- d) 110000

Q.4 The output of the logic circuit shown in figure will be



- a)  $A+B$
- b)  $A \cdot B$
- c) 0
- d)  $(A \cdot B)$

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Q.5 A logic circuit which performs the function of half adder has:

- a) 3 inputs & 2 outputs
- b) 2 inputs & 2 outputs
- c) 1 inputs & 2 outputs
- d) 2 inputs & 1 outputs

Q.6 Basic storage elements of Static RAM is?

- a) Cell
- b) Flip-Flop
- c) Capacitor
- d) All of the above

Q.7 An inverter output is the complement of its input.  
(True/False)

Q.8 There are \_\_\_\_\_ Cells in a 2-variable K-map.

- a) 12
- b) 16
- c) 4
- d) 8

Q.9 Half adder is also known as?

- a) XOR gate
- b) AND gate
- c) NAND gate
- d) OR Gate

Q.10 The memory in which the stored data is lost, when power is switched off is?

- a) PROM
- b) ROM
- c) RAM
- d) Ferrite Core Memory

**SECTION-B**

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

Q.11 Convert Binary Number 100011 into Octal number?

Q.12 Draw the standard symbol of JK flip-flop?

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- Q.13 Define full adder?  
 Q.14 Define decoder?  
 Q.15 What is the use of multiplexer?  
 Q.16 Expand DROM  
 Q.17 Define A/D conversion.  
 Q.18 What is race condition in SR flip flop  
 Q.19 Draw the symbols for AND gate with two inputs?  
 Q.20 Who invented Boolean Algebra?

### **SECTION-C**

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions.  $(12 \times 5 = 60)$

- Q.21 Perform the following binary calculations?  
 i)  $(11011011)_2 + (00010010)_2$ ,  
 ii)  $(1100)_2 - (0110)_2$   
 Q.22 Explain half adder with diagram?  
 Q.23 Convert  $(76)_{10}$  to its equivalent Binary and  $(1110\ 0110.110)_2$  to its equivalent Decimal?  
 Q.24 What are the different types of semiconductor memory?  
 Q.25 What is sequential circuit. Draw the block diagram of sequential circuit?  
 Q.26 Explain the De Morgan's theorems?  
 Q.27 Differentiate between latch & flip flop

- Q.28 What do you meant by K-map? Also draw three variables K-Map?  
 Q.29 What are the basic Logic gates? Also draw the symbols of NAND & NOR logic gates?  
 Q.30 Why NAND and NOR gate are called universal gates?  
 Q.31 Explain the operation of T flip flop with diagrams?  
 Q.32 Differentiate between POS & SOP?  
 Q.33 Draw the symbol & truth table of  $Y = (A+B)$   
 Q.34 Explain successive approximation A/D converter?  
 Q.35 What are the differences between Combinational Circuits and Sequential Circuits?

### **SECTION-D**

**Note:** Long answer type questions. Attempt any two questions out of three questions.  $(2 \times 10 = 20)$

- Q.36 Reduce the expression by using K-map  

$$Y = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}\bar{C}D + A\bar{B}\bar{C}\bar{D} + \bar{A}BCD + ABCD$$
 Also draw the logic circuit for simplified solution?  
 Q.37 What is LCD & LED. Differentiate between both in details  
 Q.38 Explain the followings  
 i) R-S Flip Flop  
 ii) Difference between RAM & ROM