**SATYAWATI SECONDARY SCHOOL**

**VYAS-2, DAMAULI**

**Class: -** X  **Learning Achievement Examination 2081 F.M: 50 Subject: Digital Design and Microprocessor Time***: 2 Hrs.*

*Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.*

**Group A**

**Multiple choice questions.** **[9\*1=9]**

**1. Binary equivalent of AA16 is**

a. 1010 1010

b. 1011 1101

c. 1100 1010

d. 1010 0101

**2. The signed magnitude form of number –(11)10 is**

a. 11011

b. 01011

c. 11100

d. 01101

**3. The special purpose gates are used in**

a. Inversion of logic

b. Basic use

c. Different adders and subtractors circuit

d. Converting basic gates to universal gates

**4. When both inputs to Ex-Nor gate is high**

a. Low

b. High

c. Both a & b

d. Invalid

**5. Duality theorem is**

a. A+1=A+0

b. A+1=A.1

c. A+1=A

d. A+1=A.0

**6. To construct 4 x 1 MUX we require**

a. 4 inputs and two selection lines

b. 2 inputs and 4 selection lines

c. 4 inputs and 4 selection lines

d. 8 inputs and 3 selection lines

**7. The half adder can add ……… bits and generates sum and carry.**

a. 1

b. 2

c. 3

d. 4

**8. 8085 is a …….. bit processor.**

a. 4

b. 8

c. 16

d. 32

**9. For immediate movement of data we need to use**

a. MOV instruction

b. MVI instruction

c. LDA instruction

d. STA instruction

**Group B**

**Give short answers for the following questions. (5\*5=25)**

10. What is the advantage of 2’s complement over 1’s complement? Perform the following calculations. [1+1+1+1+1]

a. (1100011.1)2= (?)10 b. (677)8 = (?)16

c. (11000+1111)2 d. (1101)2 x (1111)2 +(11011)2

11. Define universal gates? Why they are called so? Make X-OR gate from universal gates.

12. Minimize the following 4 variable boolean expression in SOP form using K-Map.

a. F(A,B,C,D)= £m(0,1,4,5,6,10,13) +d (2,3)

13. Define half adder with truth table and its logical diagram.

14. Explain the bus system of 8085 microprocessor.

**Group C**

**Give long answers for the following questions. (2\*8=16)**

15. Draw the block diagram of 8085 microprocessor and explain its features.

16. Explain the basic, universal and special gates with the help of logic diagram, Boolean expression and truth table.

**☺ GOOD LUCK ☺**