2013

CAPP

Paper- 1

Full Marks: 50

Time: 3 hours

Answer any five questions whereas Group-A will be compulsory

The figures in the right hand margin indicate marks

Candidates are required to give their answer in

their own words as far as practicable

GROUP-A

1. Choose the correct answers from the following: 1 x 10 =10

i. A positive binary no. is represented by:
   a. 0-sign bit
   b. 1-sign bit
   c. 2-sign bit
   d. None of these

ii. The sum of 11010 + 01111 equals:
   a. 101001
   b. 101010
   c. 110101
   d. 101000

iii. An inverter performs an operation known as
   a. Complementation
   b. Assertion
   c. Inversion
   d. Both (a) and (c)

iv. Which one of the following is not valid rule for Boolean algebra?
   a. A + 1=1
   b. A= A'
   c. A.A= A
   d. A.1= A

v. According to associative law of multiplication:
   a. B=B.B
   b. A(BC)= (AB)C
   c. A(A+1)= A
   d. A+AB=A

vi. A 3-variable K-map has:
   a. Eight cells
   b. Three cells
   c. Sixteen cell
   d. Four cells

vii. The device used to convert a binary no. to a 7-segment display format is:
   a. Multiplexer
   b. Encoder
   c. Decoder
   d. Register

viii. The input to a full-adder are A=1, B=1, C_{in}=0. The output are:
   a. ∑=1, C_{out}=1
   b. ∑=1, C_{out}= 0
   c. ∑=0, C_{out} =1
   d. ∑=0, C_{out} =0

ix. A flip flop is in toggle condition the:
   a. J=1, K=0
   b. J=1, K=1
   c. J=0, K=0
   d. J=0, K=1

x. Asynchronous counter is known as:
   a. Ripple counter
   b. Multiple clock counter
   c. Decade counter
   d. Modulus

GROUP-B

Answer any four of the following:

2. (a) Find the 10's complement of 54. 2
   (b) Convert the following: 4
   I. $(110101)_2 = (?)_{10}$
   II. $(16.125)_{10} = (?)_2$
   III. $(6A5C)_{16} = (?)_2$
   IV. $(1204)_8 = (?)_{10}$
   (c) What do you mean by logic gates? Describe their basic types. 4
3. (a) Define the three basic law of Boolean algebra. 3
   (b) Show that 2
   (A+B)(A+C)=A+BC
   (c) What is the difference between minterm and maxterm? 5
4. (a) Simplify the 5
   AB+A.(B+C)+B.(B+C)
   (b) Show the K-map 5
   F(ABCD)= ∑ (0,1,2,3,5,7,8,10,14)
5. Write short notes of any two: 2 X 5=10

(a) Register
(b) Encoder
(c) Multiplexer
(d) Virtual memory

6. (a) Explain about the ripple counter. 5
   (b) What do you understand by full-adder? Draw the complete logic circuit with their truth table. 5
7. (a) What is shift register? Describe their various types. 5
   (b) What is difference between fetch and execute cycle? 5
8. (a) What are various addressing mode of intel 8086? Discuss their function. 5
   (b) What do you understand by memory? Define the various types of RAM. 5
9. What is difference between algorithm and flow-chart with suitable example? 10