Quiz # One

Student Name: _____ student ID: _____.

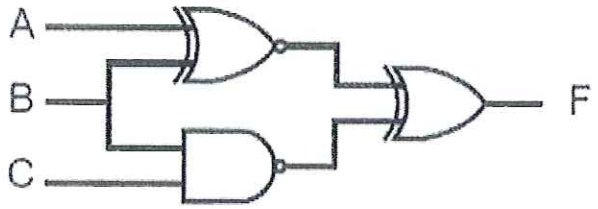
Q1. If two adjacent *1*s are detected in the input, the output is set to high input combinations will be

a) 1100
b) 0011
c) 0101
d) 1010

Q2. On solving the expression Y = (a+c+d).(a+c+d').(a+c'+d).(a+d'), we get the value of Y to be:

a) a'c' + a'cd' + a'd
b) a'
c) a'c'
d) a

Q3. Which of the following expression represents the given circuit?



a) F= (A ⊕B)' ⊕ (B'+C')
b) F= B(A ⊕ C)' + AB'
c) F= (A ⊕B) + C'
d) F= (A' ⊕B') ⊕(B'+C')

Q4. The number of bits needed to address **4K** memory is

a) 12
b) 6
c) 8
d) 16

Q5. De Morgan's theorems states that (X+Y)' = X'.Y'. Simply stated, this means that logically there is no difference between:

a) a NOR and a NAND gate with inverted inputs
b) a NOR and an AND gate with inverted inputs
c) an AND and a NOR gate with inverted inputs
d) a NAND and an OR gate with inverted inputs

Q6. How many *1*s are there in the binary representation of 15 x 256 + 5 x 16 + 3?

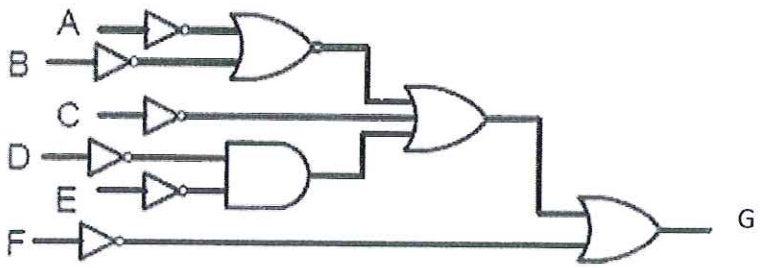
a) 10
b) 9
c) 8

d) 11

Q7. The Boolean expression $A'.B + A.B' + A.B$ is equivalent to
a) A + B
b) A.B
c) (A + B)'
d) A'.B

Q8. Which of the following combinations of gates does not allow the implementation of an arbitrary Boolean function?
a) OR gates and exclusive – OR gates only
b) NAND gates only
c) OR gates and inverters gates only
d) OR gates and NAND gates.

Q9. Which of the following expression represents the given circuit?



a) G= F' + D'+E' + C' + A'+B'
b) G= F' + D'E' + C' + AB
c) G= F' + D'+E' +C' + AB
d) G= F' + DE +C' + A'B'

Q10. The simplification of the Boolean expression $A'.B.C'.A.B'.C$ is
a) A
b) 1
c) 0
d) BC

Q11. The Boolean expression $(C \oplus D)\ (B+D+C)$ may be simplified as
a) CB
b) CD+C'D'
c) B+C⊕D
d) B'+ CD

Q12. Which of the following sets represents a universal logic family?
a) XOR
b) AND
c) NAND
d) None of the above