AF-3110

BCA (Part - II)
Term End Examination, 2017-18

Paper - IV

Digital Electronics
and Microprocessor

Time : Three Hours] [*Maximum Marks* : 100
[*Minimum Pass Marks* : 33

Note : Answer **all** questions. The figures in the right-hand margin indicate marks.

1. [*A*] Answer the following : 2×10

(*a*) The base/radix of hexadecimal number is ..... .

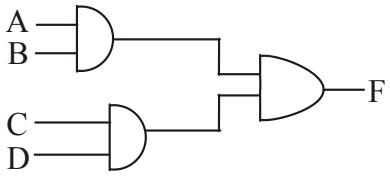
(*b*) Two's complement of 1011 is 0101. (True/False)

(*c*) IEEE stands for ..... .

(*d*) Boolean Algebra A + 1 = A. (True/False)

(*e*) The Boolean expression of XOR gate is ..... .

(*f*) The Boolean expression for the logic circuit F = ...



(*g*) CMOS stands for ..... .

(*h*) The memory element used in sequential circuit is called ..... .

(*i*) There are ..... cells in a 4-variable K-maps.

(*j*) Excess-3 code of number 5 is ..... .

[*B*] Write short answer of the following questions : 1×5

(*a*) What is Truth table ?

(*b*) Write the name of logic family circuit.

(*c*) SOP and POS stands for ..... .

(*d*) What is Counter ?

(*e*) What is Microprocessor ?

Unit-I

2. What are logic gates ? Explain the various types of logic gates used in digital devices. 15

OR

Perform the following :

(*a*) $(101011.01)_2 - (\ ?\ )_{10}$

(*b*) $(A26)_{16} = (\ ?\ )_2$

(*c*) $(123)_{10} = (\ ?\ )_4$

(*d*) 2's complement of 19

(*e*) 10111 / 11

(*f*) 1.1×1011

Unit-II

3. What are Semiconducter Devices ? Explain with example. 15

OR

Explain the difference between the following :

(*a*) NMOS and PMOS

(*b*) DTL and TTL

Unit-III

4. What is Boolean Algebra ? Explain the various laws of Boolean Algebra. 15

OR

Simply the following Boolean functions :

(*a*) $F = (A + B)'\ (A' + B')'$

(*b*) $F = x'y'z + x'yz + xy'$

Unit-IV

5. What is combinational circuit ? Explain how 3-to-8 line decoder is constructed with Truth table and circuit diagram. 15

OR

Explain the following :

(*a*) Ripple counter

(*b*) Digital comparator

(*c*) Adder

Unit-V

6. What is Microprocessor ? Explain the architecture of 8085 Microprocessor. 15

OR

Explain the meaning of the following 8085-Pin instruction :

(*a*) CMP r

(*b*) CMP M

(*c*) PUSH r

(*d*) POP r

(*e*) JMP addr[Label]

(*f*) J2 addr[Label]

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