Reg. Exam - Oct' 2019

F.Y.BSc IT
Semester I
Digital Electronics

4.10.19

TIME: 2 ½ HOURS MARKS: 75

N.B: ALL QUESTIONS ARE COMPUSORY
FIGURES TO THE RIGHT INDICATE FULL MARKS.

Q.1 ANSWER THE FOLLOWING (ANY THREE): 15

A) Convert the following:
$(ABC.EF)_{16} = ?_{2} = ?_{8} = ?_{10}$
B) Solve the following using one's compliment method
$(10100)_2 - (1010)_2$
C) Solve the following using two's compliment method
$(10100)_2 - (110010)_2$
D) Describe binary addition with the help of an example
E) Explain analog system
F) Explain the error correcting code

Q.2 ANSWER THE FOLLOWING (ANY THREE): 15

A) Explain, 'NAND is a universal gate'
B) Solve the following using K-MAP and draw the circuit diagram:
$y = \sum m\ (4, 5, 6, 7, 14, 15)$
C) Solve the following using K-MAP and draw the circuit diagram:
$y = \Pi\ m\ (0, 4, 5, 8, 12, 13)$
D) Explain Quine Mc Cluskey with the help of an example
E) Describe basic gates
F) Explain De Morgan's theorem

Q.3 ANSWER THE FOLLOWING (ANY THREE): 15

A) Design a 8-bit adder using 4 bit adders
B) Describe the binary subtractors
C) Explain the working of BCD adder
D) Explain the working of full adder
E) Explain code convertor (any one)
F) Explain the working of Comparator

Q.4 ANSWER THE FOLLOWING (ANY THREE): 15

A) Describe the multiplexer
B) Explain the working of decoder
C) Design a16:1 multiplexer using 4:1 multiplexer
D) Solve using multiplexer
$Y = \sum (1, 2, 5, 6, 8, 9)$
E) Describe JK flip flop
F) Describe the D flip flop

Q.5 WRITE NOTES ON (ANY THREE): 15

A) Asynchronous counter
B) Mode-10 counter
C) Serial-in-Serial-Out register
D) Twisted Ring counter
E) Right shift register
F) Left shift register

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