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3rd Sem /
Branch : Computer, ECE, Automation & Robotics
Sub.: Digital Electronics

Time : 3Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Which digital gate performs the multiplication operation? (CO2)

a) AND gate b) OR gate
c) NOR gate d) NAND gate

Q.2 A decade counter counts_____ number of clocks. (CO3)

a) 4 b) 8
c) 10 d) 16

Q.3 One byte is equals to ____ bits. (CO1)

a) 6 b) 8
c) 5 d) 7

Q.4 A four variable K-Map has ____ cells. (CO2)

a) 4 b) 16
c) 8 d) 10

Q.5 The base of radix represents_____. (CO1)

a) No. of bits b) No. of digits
c) No. Of symbols d) All of above

Q.6 The universal gate is _____. (CO2)

a) NAND gate b) OR gate
c) AND gate d) None of above

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 How many NOR gates are required to obtain AND operation? (CO2)

Q.8 PROM stands for _____. (CO5)

Q.9 In Boolean Algebra, $(A.\bar{A})+A=?$ (CO2)

Q.10 2's complement of 100101 is _____. (CO1)

Q.11 A flip flop has _____ stable states. (CO4)

Q.12 Gray code equivalent to binary code 1011 is _____. (Co1)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Differentiate between weighted and non - weighted codes. (CO1)

Q.14 Convert $(67)_{10} = (?)_2 = (?)_8 = (?)_{16}$. (CO1)

Q.15 Explain AND, OR and NOT gate with symbol and truth table. (CO2)

Q.16 Solve the Boolean expression $\overline{A}B\overline{C} + \overline{A}\,\overline{B}C + \overline{A}BC + \overline{A}\,\overline{B}\,\overline{C}$. (CO2)

Q.17 Give the basic function of MUX. Draw block diagram and truth table of 8x1 MUX. (CO3)

Q.18 Explain 4 bit full adder circuit with diagram. (CO3)

Q.19 Explain with diagram D flip flop. (CO4)

Q.20 Explain with diagram SISO shift register. (CO4)

Q.21 Explain Successive Approximation ADC. (CO5)

Q.22 Explain classification of Semiconductor Memories. (CO5)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Simplify K-Map and realize the circuit with NAND gates only. (CO2)

$Y = Sm(0, 1, 3, 5, 7, 9, 11, 13, 15)$

Q.24 Explain with diagram working of Synchronous Decade Counter. (CO4)

Q.25 Define Encoder. Explain its function using block diagram. (CO3)