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223831

3rd Sem / Artificial Intelligence & Machine Learning

Subject : Digital Electronics & Microcontrollers

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 The number of digits in octal system is (CO1)

a) 8 b) 9

c) 2 d) 10

Q.2 A NOR gate is equivalent to an OR gate followed by _____ gate (CO1)

a) OR b) NOT

c) NOR d) AND

Q.3 The number of select line for 16:1 MUX are_____. (CO2)

a) 6 b) 4

c) 2 d) 3

SECTION-D

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

Q.23 Explain in details about Boolean rules and Law. (CO1)

Q.24 Simplify using K-map and realize the circuit with NAND gates only. (CO2)

$Y=\sum m(1,3,7,11,15)+d(0,2,5)$

Q.25 Explain the architecture of 8051 Microcontroller. (CO4)

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

a) 4 b) 8

c) 16 d) 10

Q.5 A full adder circuit has outputs (CO3)

a) 1 b) 2

c) 4 d) 3

Q.6 How many interrupts sources are available in the 8051 microcontroller (CO4)

a) 2 b) 4

c) 5 d) 8

SECTION-B

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

Q.7 One's complement of 1011001 is _____ (CO1)

Q.8 A+A= _____ (CO1)

Q.9 What is Associative Law? (CO2)

Q.10 4:1 MUX has_____ number of select lines. (CO3)

Q.11 A combinational circuit doesn't have_____ (CO4)

Q.12 Reset pin is usually indentified as_____ in 8051 (CO4)

SECTION-C

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

Q.13 A K-Map of three variables contains_____ cells. (CO2)

Q.14 Two's complement of 111101 is_____ (CO2)

Q.15 Write a short note on Logic gates. (CO2)

Q.16 Implement a NOR gate by using NAND gates only (CO2)

Q.17 Give the basic function of a DEMUX. Draw block diagram and Truth Table of an 1 x 8 DEMUX. (CO2)

Q.18 Explain SIPO shift register.

Q.19 Write down some application of counters (CO3)

Q.20 Why 8051 is called 8 bit Microcontroller (CO4)

Q.21 Difference between Microprocessor and Microcontroller. (CO4)

Q.22 Write difference between CISC and RISC. (CO4)