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3rd Sem / Comp, IT, Eltx, EI, Med. Eltx., Power Eltx, Elect. & Eltx. Engg.

Subject:-Digital Electronics/ Digital Eltx. - I

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 NOT gate has_____ output.

a) 1 b) 2

c) 3 d) 4

Q.2 Base/Radix of Hexadecimal number system is_____.

a) 16 b) 8

c) 2 d) 10

Q.3 Output of EX-NOR gate is_____ when both of its inputs are HIGH.

a) 1 b) 0

c) invalid d) None of the above

Q.4 A quad group in K-maps eliminates_____ number of variables.

a) 2 b) 4

c) 3 d) 1

Q.5 A full adder has_____ inputs.

a) 2 b) 3

c) 4 d) 5

Q.6 A 1:8 demultiplexer has_____ select lines.

a) 2 b) 3

c) 4 d) 8

Q.7 A encoder is a _____ circuit.

a) Sequential b) Combinational

c) Both (a) and (b) d) None of the above

Q.8 If S=1 & R=1 then the output (Q) of S-R flip flop is _____.

a) 1 b) 0

c) Invalid d) None of the above

Q.9 Decade counter has_____ states.

a) 5 b) 9

c) 4 d) 10

Q.10 IC used for ALU is_____.

a) 7408 b) 74266

c) 74181 d) 7400

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Give any one advantage of digital signal over analog Signal.

Q.12 Draw the symbol and truth table of EX-OR Gate.

Q.13 State De-Morgan's Theorem.

Q.14 Give a truth table of 4:1 multiplexer.

Q.15 Full Form of EPROM is_____.

Q.16 Write any one advantage of the flip flop over the latch.

Q.17 Explain the mode number (Modulus) in the counter.

Q.18 Expand TTL.

Q.19 Give the IC number of 4-bit ALU.

Q.20 Define Accuracy in DAC.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Differentiate between Analog signal and digital signal.

Q.22 Convert $(6A8C)_{16}$ Hexadecimal number into binary number.

Q.23 Explain 3-bit Excess-3 code and Gray code.

Q.24 Explain the NOR gate as a universal logic gate.

Q.25 Explain the Full adder with circuit diagram.

Q.26 Define 8:1 multiplexer.

Q.27 Explain Decimal to BCD Encoder.

Q.28 Subtract 1101 from 0101 using 2's complement method of subtraction.

Q.29 What is race around condition in J-K flip flop?

Q.30 Differentiate between latch and flip flop.

Q.31 What is SIPO?

Q.32 Explain different types of ROM.

Q.33 Explain ALU in detail.

Q.34 Give symbol and truth table of SR- flip flop and JK - flip flop.

Q.35 Explain successive approximation ADC.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Simplify with the help of K-Map f(A,B,C,D) = å m(0,1,7,9,11,13,14) + d(3,5,6,10,15) and realize the expression using NAND gates.

Q.37 Explain R/2R ladder digital to analog converter with neat diagrams.

Q.38 Write a short note on any two of the following:

a) Ring Counter

b) Race around condition

c) D-flip flop.