Q.28 What is the differences between register & counter.

Q.29 Explain any one digital to analog convertor.

Q.30 Solve the following Boolean expression using k-map

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

Q.31 Draw and explain 2 bit binary full adder.

Q.32 Discuss 4-bit decoder circuit for 7 segment display.

Q.33 Explain SIPO shift register.

Q.34 Discuss performance characteristics of A/D convertor.

Q.35 Write a short note on logic Gates.

SECTION-D

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

Q.36 Explain TTL NAND gate with circuit diagram.

Q.37 Explain working of RS latch using NAND gate.

Q.38 Explain the operation of synchronous up/down counter with truth table & pulse diagram.

Roll No. .....

3rd Sem / Instrumentation & Control Engg.
Subject:-Fundamental of Digital Electronics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 A Nibble represents_____ bits.

a) 3 b) 5

c) 2 d) 4

Q.2 Excess 3-code for decimal number 95 is.

a) 10010101 b) 01011001

c) 10011000 d) 11001000

Q.3 Which of the following gates cannot be used as and invertor.

a) NAND b) NOR

c) AND d) XOR

Q.4 A full adder can add_____bits.

a) 2 b) 3

c) 4 d) 6

Q.5 A 32:1 mux has _____select lines.

a) 5 b) 6

c) 7 d) 8

Q.6 Which device has more operating speed.

a) LED b) LCD

c) None of these

Q.7 Which logic family is the fastest.

a) RTL b) DTL

c) ECL d) TTL

Q.8 IC 74237 is a_____.

a) 1:16 Demux b) 1:8 Demux

c) 16:1 mux d) 8:1 mux

Q.9 The process of converting a known input digit into a coded output is known as.

a) Decoding b) Encoding

c) Multiplexing d) None of these

Q.10 The base of a hexadecimal number system is_____.

a) 15 b) 17

c) 16 d) 14

SECTION-B

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

Q.11 Digital signals are used in DBMS in Banks. True/False

Q.12 The base or radix of a decimal number is_____.

Q.13 Draw symbol of OR gate.

Q.14 Excess-3 code is a non-weighted code. True/False

Q.15 Logical inversion is also known as NOT operation. True/False

Q.16 _____ is the example of sequential circuits.

Q.17 2:1 mux has only two select lines. True/False

Q.18 Flip flop have clock input. True/False

Q.19 Counter are used in automobile parking. True/False

Q.20 A/D convertor is used in digital voltmeters. True/False

SECTION-C

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

Q.21 Differentiate between analog system and digital systems.

Q.22 Divide $(1111000)_2$ by $(100)_2$

Q.23 What do you mean by error detecting codes.

Q.24 Implement a NOR gate by using NAND gates only.

Q.25 State and explain DE morgen's theorems

Q.26 Explain half adder with its truth table & logical diagram.

Q.27 Explain the term multiplexer. Design a 2:1 multiplexer.