xiv) Explain the details of IC 7495.

xv) What is the working principle of D/A converters?

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.3 What is digital signal? What are various advantages of digital signal? Also write different applications of digital signals.

Q.4 Explain four bit decoder circuit for 7-Segment display with the help of suitable diagram.

Q.5 Explain the working of 3-bit up/down synchronous counter with the help of truth diagram.

Q.6 Draw diagram and explain working principle of Stair step ramp A/D converter.

Q.7 Find out the minimum expression for function using K-Map

$Y(A,B,C,D)=\sum m(0,1,2,3,10,12)+d(4,8)$

Roll No. .....

3rd Sem. / IC/ EI

Subject : Fundamentals of Digital Electronics

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

Q.1 a) What is difference between analog and digital signal?

b) Define Byte.

c) Convert octal number $(763)_8$ into equivalent binary number.

d) What do you mean by 2's complement?

e) _____ code is an example of non-weighted code.

f) Convert BCD number 01010001 into decimal number.

g) Binary number 101011100001 has even parity. (True/False)

h) Define logic gate.

i) VLSI consists of _____ number of gates.

j) CMOS stands of_____.

k) X.(X+Y)= _____.

l) Define K- map.

m) What is difference between half adder and full adder circuit?

n) Define DEMUX.

o) Name any IC used for flip flops.

p) Define asynchronous counter.

q) Draw diagram of Parallel in serial out shift register.

r) Name any two performance characteristics of D/A converters.

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

Q.2 i) Explain Octal and Hexadecimal numbers.

ii) What will be the result after dividing $(11011)_2$ by $(101)_2$?

iii) What is gray code? How to convert gray code to binary code?

iv) Explain the concept of parity. What is single and double parity?

v) What are universe gates? Name logic gates which are used as universe gate.

vi) Draw symbol of AND gate. Also explain truth table of AND gate.

vii) Write a short note on " CMOS logic family ".

viii) Explain De Morgan's theorems.

ix) What are three basic laws of Boolean algebra?

x) Draw and explain 4 bit full adder circuit.

xi) Explain basic functions of MUX with the help of diagram.

xii) Explain the operation of RS flip flop with the help of truth table.

xiii) Write a short note on "Divide by N ripple counters".