Roll No.....

Total No. of Questions : 13] **[Total No. of Pages : 02**

Paper ID [A0305]

(Please fill this Paper ID in OMR Sheet)

B.Sc. IT/DCA (201) (S05) (N) (Sem. - 2nd)

DIGITAL ELECTRONICS FUNDAMENTALS

Time : 03 Hours **Maximum Marks : 75**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Nine** questions from Section - B.

Section - A

Q1) ***(15 × 2 = 30)***

a) Convert the following hexadecimal numbers into decimal
   (i) 3FFE
   (ii) 2180

b) (10101) convert to Decimal Number system.

c) How subtraction of 4-bit no. is performed by addition?

d) Using Boolean algebra simplify following expression
   A. (B+B'C)

e) Represent (-17) decimal number into 1's complement and 2's complement form.

f) Draw and give truth table for EX-OR gate.

g) Write the working of 4: 1 multiplexer.

h) Give working of half adder.

i) Explain NOR gate with truth table.

j) Draw circuit for full subtractor.

k) Give the advantages of edge triggered flip-flops.

l) What is a race around condition?

m) Differentiate between volatile and non-volatile memory.

n) What is Flip-flop?

o) Draw and give truth table for D flip flop.

Section - B

(9 × 5 = 45)

Q2) Draw the minimized logic circuit for the Boolean equation

Y = A'B'C'D+AB'C'D+ABC'D+ABCD'

Q3) Convert decimal no. 100.55 into binary, octal codes.

Q4) State and discuss the De-Morgan's Theorem's.

Q5) Write expression for Boolean function $F(A,B,C)=\sum m(1,4,5,6,7)$ in standard POS form.

Q6) How are AND, OR and NOT operations realized with NAND gates?

Q7) Draw the circuit of a 3 to 8 decoder and explain its operation.

Q8) Draw and explain full adder using two multiplexers.

Q9) Draw and explain Decimal to binary encoder.

Q10) Discuss the working of JK master slave flip-flop.

Q11) Give relative merits for storing data in ROM, PROM and EPROM.

Q12) Draw and explain S-R flip flop using NAND gate.

Q13) Explain magnetic and semiconductor memory.