**Roll No: ………………………….**

**Hi-Tech Institute of Engineering & Technology**

**DEPARTMENT OF BCA**

**Course- BCA**

**(SEM - 2) EVEN SEMESTER MODEL TEST PAPER**

**SUBJECT - DECO**

**Subject Code: BCA-204**

**TIME : 3 hrs Maximum Marks:75**

**Note: Attempt all the sections as per instructions.**

 **SECTION A
Note: Attempt all questions. 3\*5=15**

1. Write Distributive law.
2. What is truth table? What is its significance?
3. Define associative memory.
4. Draw the memory hierarchy structure and mask the arrow from low to high(speed) and high to low(cost).
5. How many flip flops are needed to implement a 32 bit register.

 **SECTION B
Note: Attempt any two questions. 7.5\*2=15**

1. Draw RS flip flop and explain its working.
2. Construct full adder using logic gates.
3. Minimize the following Boolean function using K map.

 F(A,B,C,D)= ∑ (0,2,3,5,7,9,11,13,14)

 **SECTION C
Note: Attempt any three questions. 15\*3=45**

1. Explain the various Boolean laws and simplify the following Boolean expressions.

i) (Ā+B+$\overbar{B}$A)D

II) ĀB$\overbar{C}$+AB$\overbar{C}$+$\overbar{A}\overbar{BC}$+A$\overbar{BC}$

III) ĀB$\overbar{C}$ +ĀB$\overbar{C}$D+B$\overbar{C}$

1. I) Implement 8:1 multiplexer using 4:1 multiplexer.

II) Differentiate between SRAM and DRAM.

1. Explain how a JK flip flop can be converted into D flip flop.
2. Write applications of shift register.
3. I) What is track and sector? How data are stored in hard disk,floppy disk and CD?

II) Explain how 3 to 8 decoder function can be obtained from a demultiplexer.