School of Basic Sciences

Master of Science in Physics
Semester End Examination - Jun 2024

Duration : 180 Minutes
Max Marks : 100

**Sem II - C1PO204T - Digital Electronics**

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Write K-map for NAND gate and solve to get the Boolean expression of NAND gate — K1(3)

2) Obtain the excitation table of D flip flop — K2(4)

3) Explain the 4-bit subtractor with digital circuit diagram. — K2(6)

4) The Boolean function $F(X,Y)$ realized by the given circuit is — K3(6)
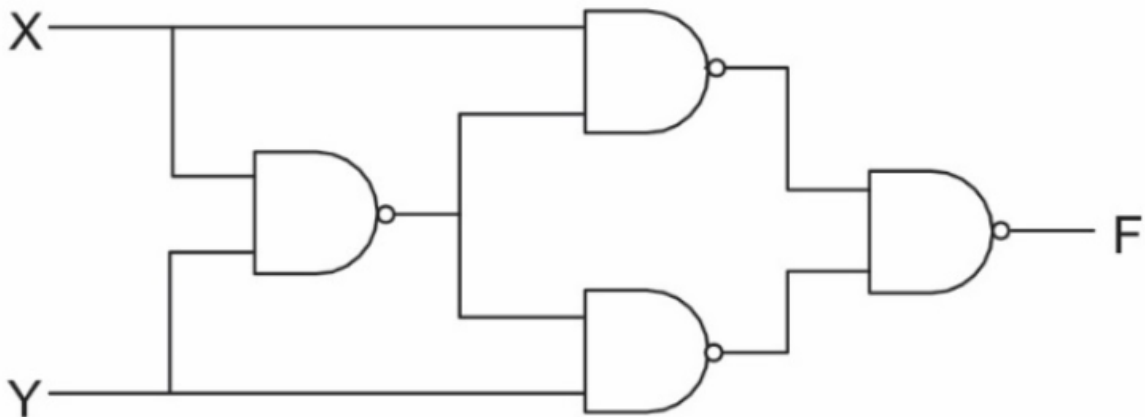
5) Discuss the comparator circuit using XOR logic gate — K3(6)

6) What do you mean by universal gate? Draw the AND gate using transistors and write the truth table. — K3(9)

7) Explain the quantization and encoding process in A/D converter — K3(9)

8) What is liquid crystal and what are its the unique properties? — K4(8)

9) Describe a 8 to 3 binary encoder using truth table and draw its digital circuit — K4(12)

10) Describe a sample and hold circuit in D/A converter — K5(10)

11) Explain the features of 8085 in detail. K5(15)

OR

Describe dual slope A/D converter with suitable circuit diagram. K5(15)

12) Design SR flip-flop using JK flip-flop. K6(12)

OR

Discuss the working, truth table and Boolean equation using K-map of T- flip flop and D flip flop. K6(12)