POSSESION OF MOBILES IN EXAM IS UFM PRACTICE.

Name Deva **Enrollment No.** 221037

Jaypee Institute of Information Technology, Noida

T1 Examination, Even Semester 2024

B. Tech, IVth Semester

Course Name: Digital Systems **Max Time: 1 hr.**

Course Code: 18B11EC213 **Max Marks: 20**

After pursuing the above mentioned course, students will be able to:

CO1	Understand the fundamentals of number system, Boolean algebra and Boolean function minimization techniques.	Understanding Level (C2)
CO2	Applying the concepts of Boolean algebra to implement combinational circuits and flip flops using logic gates.	Applying Level (C3)
CO3	Analyse state diagram and construct sequential logic circuits using flip flops. Also, classify the signals and systems and analyse the signals using Fourier transform.	Analysing level (C4)
CO4	Understand various steps involved in digitization and transmission of a signals and evaluate their performance parameters.	Evaluating Level (C5)

Note: Attempt all the questions.

Q1. (a) Convert $(5654)_7$ to decimal number and then to binary number.

(b) Convert $(756.603)_8$ to hexadecimal number.

(c) Subtract $(14)_{10}$ from $(46)_{10}$ using 8-bit 2's complement.

[CO1 (Understanding), 2+2+1 Marks]

Q2. Obtain minimal expression for $F(A,B,C,D)=\sum m(6,7,8,9)+d(10,11,12,13,14,15)$ using Quine-McCluskey (QM) method.

[CO1 (Understanding), 5 Marks]

Q3. Implement the following Boolean function using 8:1 MUX only, considering D as a input and A,B,C as selection lines.

$$F(A,B,C,D) = AB'+BD+B'CD'$$

[CO2 (Applying), 5 Marks]

Q4. (a) Implement full subtractor using 3:8 Decoder and OR gates.

(b) Implement 2-bit comparator using 1-bit comparator modules.

[CO2 (Applying), 3+2 Marks]