INTEGRAL UNIVERSITY, LUCKNOW
Department of Electronics & Communication Engineering
Home Assignment-2

Subject Name: Digital Electronics/ Digital Logic Circuits for Clinical Engineers **Subject Code: EC-209/EC23**

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1. Differentiate between Latch and Flip-Flop.
2. An AB FF has four operations: clear to 0, no change, complement & set to 1, when inputs AB are 00, 01, 10 and 11 respectively;
   (a) Present –Next state table (b) Excitation Table (c) Convert it to D- FF
3. Design Ripple modulus-6 counter using T-Flip Flop.
4. Design Synchronous modulus-5 counter.
5. Explain T-Flip Flop and Draw the state diagram of T-Flip Flop. Convert JK-Flip Flop into T-Flip Flop.
6. Draw the logic diagram of a Four bit register with four D-FF and four 4×1 multiplexers with mode selection inputs S_1 & S_0 .The register operates according to the following function table;

S.No.	S_1	S_0	Register Operation
1.	0	0	No Change
2.	0	1	Shift Right
3.	1	0	Shift Left
4.	1	1	Load Parallel data

7. Design Asynchronous (Ripple) modulus-8 counter using T-Flip Flop.
8. Draw the connection diagram of 4:16 Decoder using 3:8 Decoder. Implement $f_1(A,B,C) = \sum_m (0,2,4,7)$ and $f_1(A,B,C) = \sum_m (0,1,3,7)$ using decoder.
9. How does a Priority Encoder differ from an ordinary Encoder? Explain Octal to Binary Encoder.
10. Differentiate between Asynchronous and Synchronous Counter.