DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY KURUKSHETRA

MID TEST-II

Course Name: Digital Design
Course Code: ECPC-202
Date: 25.10.2024

Max. Marks: 20
Time Allotted: 50 Min
Time: 8:30-9.20 AM

1. Develop a synchronous 3-bit up/down counter with a gray code sequence. **[4]**
2. Design 1 Hz pulse generator using a 256 Hz oscillator **[2]**
3. Design a strip of 8 light bulbs, such that the bulbs illuminate one at a time, right to left, and then repeat illuminating in that sequence. The sequence should proceed at the rate of one bulb per second. Such a lighting display might be attractive outside a restaurant or movie theater. **[2]**
4. Discuss Ring and Johnson counter using timing diagram and also discuss advantages and disadvantages along with application. **[4]**
5. Discuss problem with level-sensitive JK latches. Discuss and design different ways to convert JK-Latch to JK-FF. Use Timing Diagram for analysis. **[4]**
6. Mod-8 Synchronous counter with counting sequence 0->2->4->7->3->6->1->0, **[4]**