

Digital Electronics & Computer Organization (DECO)**Subject Code: UCS1001****1st Year CSE 2024-25 (Even Semester)****Assignment-2**

1. Explain edge-triggered flip-flops. How are they different from level-triggered latches?
2. What is the characteristic table of a JK flip-flop? Explain how the flip-flop behaves when the J and K inputs are both HIGH.
3. A 3 GHz computer takes 3 clock cycles for ALU operations, 6 clock cycles for branch instructions, and 4 clock cycles for data transfer or memory instructions. Find the total time taken by the computer to execute the program, which contains 11 ALU instructions, 7 branch instructions, and 4 data transfer instructions.
4. Describe the process of instruction execution and straight-line sequencing.
5. Discuss the concept of bus structure in a computer system.
6. Explain the different functional units of a basic computer.
7. Describe the interrupt in the context of the processor and classify
8. Explain the I/O interface devices. Also, discuss different techniques of I/O interfaces.
9. Discuss the Direct Memory Access (DMA) suitable block diagram and explain its operation.
10. Describe the various registers used in the DMA controller.
11. Discuss the different types of operations of the Arithmetic and Logic Unit (ALU).
12. Explain the cache memory.
13. Describe the pipelining concept in the processor.

Important instructions/points for DECO Assignment-2 Submission:

- Last Date of Submission: 30 April 2024
- Submit the assignment to your subject teacher only.
- Questions 1 to 6 from Unit-2 and 3.
- Questions 6 to 10 from Unit 4.
- Questions 11 to 13 from Unit 5.
- Write your name, class, section, registration number, subject name, subject code, and date of submission on the 1st page of the assignment. **(Put your Name and Roll number on each page)**