**II B.TECH – I SEMESTER REGULAR EXAMINATIONS : DEC-2023**

**COMPUTER ORGANIZATION AND ARCHITECTURE (20CS3303)**

**(COMPUTER SCIENCE & ENGINEERING)**

**Regulation: PVP20**

**UNIT-I**

 **1 A) Build a digital circuit that performs arithmetic micro operations. (CO2-L3) 7M**

* Explanation - 4M
* Diagram-3M

 **1 B) With the help of block diagram, explain a 4-Bit binary adder. (CO2-L2) 7M** Diagram -6M

* Explanation - 3M
* Diagram-4M

**(OR)**

**2 A) What is the need of the common bus system? Draw and explain the diagram of bus system constructed using multiplexers. (CO2-L3) 7M**

* Need of the common bus system -1M
* Construct bus system for four registersusing multiplexers**.**  -3M
* Explanation - 3M

**2 B) Discuss in detail various types of shift micro operations. (CO2-L2) 7M**

* Any five or six shift micro operations.

**UNIT-II**

**3 A) Construct and explain the flowchart for Instruction cycle. (CO2-L3) 7M**

* Explanation - 3M
* Flow chart -4M

**3B) List and explain the different types of computer instructions. Also provide their formats. (CO2-L4) 7M**

* Memory - reference instruction 3M
* Register - reference instruction 2M
* Input-Output instruction 2M

 **(OR)**

**4 A) List and explain the register reference instructions. (CO2-L2) 7M**

* List-3M
* Explanation-4M

**4 B) Describe various steps involves when an interrupt occur. (CO2-L2) 7M**

* Explanation - 5M
* Flow chart -2M

**UNIT-III**

**5 A) Explain different types of addressing modes.(CO3-L2) 7M**

* Any six or seven addressing modes

**5 B) Develop a program to execute Y=(A-B)/(C+D\*E) using one, two and three address instructions. (CO3-L3) 7M**

* one address instruction- 2M
* Two address instruction-2M
* Three address instruction-3M

**(OR)**

**6 A) Illustrate various data transfer and manipulation instructions. (CO3-L2) 7M**

* Data transfer -3.5M
* Data manipulation-3.5M

**6 B) List and explain conditional branch instructions.(CO3-L4) 7M**

* List-3M
* Explanation-4M

**UNIT-IV**

**7 A) Discuss the hardware implementation of signed magnitude addition and subtraction (CO2-L3) 7M**

* Explanation-3M
* Hardware implementation-4M

**7 B) Draw and explain the implementation of Booth's multiplication algorithm. (CO2-L4) 7M**

* Diagram-3M
* Explanation -4M

**(OR)**

**8 A) What is cache memory also explain its operation.( CO4-L4) 7M**

* Diagram-2M
* Explanation -5M

 **8 B) Analyze the concept of virtual memory with the help of an example(CO4-L4) 7M**

* concept of virtual memory -5M
* Example-2M

**UNIT-V**

**9 A) What do you mean by strobe control. Explain its data transfer from source and destination initiation.(CO4-L2) 7M**

* Strobe control-1M
* Source initiation-3M
* Destination initiation-3M

**9B) Demonstrate Daisy chaining priority method.(CO4-L3) 7M**

* Diagram-3M
* Explanation -4M

 **(OR)**

**10 A) What is pipelining. Explain how processing is done in the pipelining.(CO4-L3) 7M**

* Pipelining-2M
* Processing is done in the pipelining-5M

**10 B) Explain how the instruction pipeline Works. (CO4-L4) 7M**

* + - * Flowchart-3M
* Explanation-4M