**Assignment(1)**

**Class:MCA-I(Sem-I)**

**Subject: Computer Organization andArchitecture**

**Topics:**Difference between demultiplexer,multiplexer and Difference between RISC and CISC

**Submitted To:**

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**Ques1:Difference Between Multiplexer and Demultiplexer?**

**Ans.**

| **Multiplexer** | **Demultiplexer** |
| --- | --- |
| Multiplexer processes the digital information from various sources into a single source. | Demultiplexer receives digital information from a single source and converts it into several sources |
| It is known as Data Selector | It is known as Data Distributor |
| Multiplexer is a digital switch | Demultiplexer is a digital circuit |
| It follows combinational logic type | It also follows combinational logic type |
| It has 2n input data lines | It has single input line |
| It has a single output data line | It has 2n output data lines |
| It works on many to one operational principle | It works on one to many operational principle |
| In time division Multiplexing, multiplexer is used at the transmitter end | In time division Multiplexing, demultiplexer is used at the receiver end |

**Ques2:Difference Between RISC and SISC?**

**Ans.**

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| **RISC** | **CISC** |
| It is a Reduced Instruction Set Computer. | It is a Complex Instruction Set Computer. |
| It emphasizes on software to optimize the instruction set. | It emphasizes on hardware to optimize the instruction set. |
| It is a hard wired unit of programming in the RISC Processor. | Microprogramming unit in CISC Processor. |
| It requires multiple register sets to store the instruction. | It requires a single register set to store the instruction. |
| RISC has simple decoding of instruction. | CISC has complex decoding of instruction. |
| Uses of the pipeline are simple in RISC. | Uses of the pipeline are difficult in CISC. |
| It uses a limited number of instruction that requires less time to execute the instructions. | It uses a large number of instruction that requires more time to execute the instructions. |
| It uses LOAD and STORE that are independent instructions in the register-to-register a program's interaction. | It uses LOAD and STORE instruction in the memory-to-memory interaction of a program. |
| RISC has more transistors on memory registers. | CISC has transistors to store complex instructions. |
| The execution time of RISC is very short. | The execution time of CISC is longer. |
| RISC architecture can be used with high-end applications like telecommunication, image processing, video processing, etc. | CISC architecture can be used with low-end applications like home automation, security system, etc. |
| It has fixed format instruction. | It has variable format instruction. |
| The program written for RISC architecture needs to take more space in memory. | Program written for CISC architecture tends to take less space in memory. |
| Example of RISC: ARM, PA-RISC, Power Architecture, Alpha, AVR, ARC and the SPARC. | Examples of CISC: VAX, Motorola 68000 family, System/360, AMD and the Intel x86 CPUs. |