**UNIT-1**

1. a) Explain about Amdhal’s law.

b) Represent 32.75 and 18.125 in single precision IEEE 754 Representation[7+8]

2. a) Explain the terms compiler, linker, assembler, loader and describe how a C program or any other high level language program is executed in a system. Indicate entire process with a figure.

b)Describe the multiple bus organization and compare it with the single bus organization[8+7]

3Distinguish between error detection and correction codes. What do you understand by odd parity and even parity?. What is odd function and even function?. To calculate odd and even parity values which functions can be used? Calculate Odd and even parity values for all hexadecimal digits 0-9 and A-F [15]

4a) What are the different performance measures used to represent a computer system’s performance.

b) Explain about MIPS, FLOPS rating of a processor. [9 +6]

5. (a) Represent 1259.125 in Single precision and double precision IEEE 754 standards.

(b)Give means to identify whether or not an overflow has occurred in 2s complement addition or subtraction operations. Take one example for each possible situation and explain. Assume 4 bit registers.[7+8]

6. a) Explain about various buses such as internal, external, backplane, I/O, system, address , data, synchronous and asynchronous ?

b).List the steps needed to execute the machine instruction Add LOCA,R0 In terms of transfers between the components and some simple control commands. Assume that the instruction itself is stored in the memory at location INSTR and that this address is initially in register PC.[7+8]

**UNIT-2**

1. (a) How many types of interrupts are available?. Explain their sources

(b) Explain how X=(A+B)/(A-B) is evaluated in a stack based computer [7+8]

2. Design register selection circuit to select one of the four 4-bit registers content on to bus. Give fuller explanation [15M]

3.a) Design a circuit transferring data from a 4bit register which uses D flip-flops to another register which employs RS flip-flops.

b) Discuss in detail about various types of shift micro operations[7+8]

4. What are the different types of basic addressing modes and Explain with examples[15]

5.a)Give the comparisons between RISC and CISc architecture

b)Explain about different types of Stack organizations

6 a)What is Instruction cycle. Explain Instruction cycle of the Basic computer?

b) How do we classify CPU’s based on their register organizations. In which organizations, zero address instructions are used. Mention few zero address instructions and their actual execution in practice.

**UNIT- 3**

1. a)Hardwired control unit is faster than microprogammed control unit. Justify this statement.

b)What is mapping process and explain with examples

2. Draw the general block diagram of a micro sequencer and also explain the inputs and outputs along with their functioning.

3. Draw a block diagram of a control memory with associated HW for finding out next microinstruction address. Clearly specify the control flow. What is meant by mapping process in this context?

4. a) Explain the variety of techniques available for sequencing of microinstructions based on the format of the address information in the microinstruction.

b) How do you map micro operation to a micro instruction address. [8+8]

**UNIT- 4**

1 A)Discuss how addition and subtraction of signed magnitude numbers can be done?

B) Describe Hardware for signed 2's complement addition and subtraction?

2. a)Explain hardware for Booth's algorithm

b)Explain Booth’s multiplication algorithm

3. Multiply 100111 with 11011 using Booths algorithm

4. Explain division algorithms

5. Explain multiplication with signed magnitude numbers algorithm with example