*Total No. of Questions : 8]* *[Total No. of Printed Pages : 2*

**Roll No** .....

# CS-4002-CBGS

## B.E. IV Semester

Examination, December 2020

## Choice Based Grading System (CBGS)

## Computer System Organization

***Time : Three Hours***

***Maximum Marks : 70***

***Note:*** i) Attempt any five questions.

ii) All questions carries equal marks.

1. a) Explain the design of arithmetic and logic unit by taking on example.

   b) Explain how addition and subtraction are performed in fixed point number.

2. a) Explain different modes of data transfer between the central computer and I/O device.

   b) Differentiate between

      i) Serial and parallel data transfer

      ii) Synchronous and asynchronous data transfer

3. a) Explain signed magnitude, signed 1's complement and signed 2's complement representation of numbers. Find the range of numbers in all three representations for 8 bit register.

   b) Explain the process of multiplication by Booth method. Multiply 6 and -3 using Booth method.

4. If cache access time is 100ns, main memory access time is 1000ns and the hit ratio is 0.9. Find the average access time and also define hit ratio.

5. a) Explain hardwired microprogrammed control unit? What is address sequencer circuit?

   b) Explain how a stack organized computer executes instructions? What is Stack?

6. a) Draw and explain the memory hierarchy in a digital computer. What are advantages of cache memory over main memory?

   b) What is Associative memory? Explain the concept of address space and memory space in Virtual memory.

7. a) What is Paging? Explain how paging can be implemented in CPU to access virtual memory.

   b) Explain SIMD array processor along with its architectural diagram.

8. Write short notes on

   a) Vector processing

   b) RISC Vs CISC

   c) Virtual memory

   d) PCI Vs SCSI bus

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