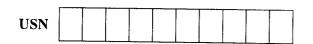
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## Fourth Semester B.E. Degree Examination, June/July 2018 Computer Organization

Time: 3 hrs. Max. Marks: 100

Note: Answer FIVE full questions, selecting atleast TWO questions from each part.

## PART - A

- 1 a. What is stored program concept? Explain the functional units of a stored program digital computer, along with a block diagram. (09 Marks)
  - b. Write the basic performance equation. Explain the role of each of the parameters in the equation on the performance of the computer.

    (05 Marks)
  - c. Convert the following pairs of singed decimal numbers to 5-bit 2's complement numbers and add them. State whether over flow occurs or not:
    - i) -5 and 7 ii) -3 and -8 iii) -10 and -13.

(06 Marks)

- 2 a What is an addressing mode? Explain register, indirect and index addressing modes with an example for each.
  - b. What is subroutine linkage? Explain with an example, subroutine linkage using linkage register.
  - c. Register R1 and R2 of computer contain the decimal valve 1200 and 4600. What is the effective address of the source operand in each of the following instructions:
    - i) Load 20(R1), R5
    - ii) Move #3000, R5
    - iii) Store R5, 30(R1, R2)
    - iv) Add -(R2), R5
    - v) Subtract  $(R1)^+$ , R5

(05 Marks)

- 3 a. What is an interrupt? Explain polling and vectored interrupts with their advantages and disadvantages. (08 Marks)
  - b. What is DMA? What are its advantages? With the supporting diagram, explain different registers on a DMA interface. (06 Marks)
  - c. With a block diagram explain bus arbitration using daisy chain.

(06 Marks)

- 4 a. With a neat sketch, explain the individual input and output interface circuits. Also elicit their salient features. (10 Marks)
  - b. With a help of data transfer signals explain how a read operation is performed using PCI bus.

    (10 Marks)

## PART - B

- 5 a. Draw the organization of a 1K × 1 memory cell and explain its working. (08 Marks)
  - b. Explain any two cache mapping functions.
    c. Write a short note on virtual memory organization.
    (08 Marks)
    (04 Marks)
- 6 a. Explain Booth's algorithm, multiply -13 and +11 using Booth's multiplication (10 Marks)
- 6 a. Explain Booth's algorithm, multiply -13 and +11 using Booth's multiplication. (10 Marks) b. Explain the IEEE standard for floating point number representation. (10 Marks)

7	a.	Using single bus organization, write the control sequence to execute the instruction		
,	a.	Add(R3), R1.	(07 Marks)	
	b.	The state of the s	(08 Marks)	
	c.	177 to 1 t	(05 Marks)	
8	a.	With an example explain Amdhal's law.	(07 Marks)	
	b.	Explain the classification of parallel processing proposed by Flynn.	(08 Marks)	
	c.	Write a note on hardware multithreading.	(05 Marks)	

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