



**Fourth Semester B.E. Degree Examination, July/August 2021**  
**Computer Organization**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1
  - a. With a neat diagram, explain the function of processor register. (08 Marks)
  - b. Give the basic performance equation and explain the role of each parameter. (04 Marks)
  - c. Compute the following pair's of decimal number by converting them to 2's complement 5-bit binary number and state if there is overflow in each pair.
    - (i)  $-5 + -2$
    - (ii)  $-3 - -7$
    - (iii)  $+2 - -3$
    - (iv)  $+2 - +4$  (08 Marks)
- 2
  - a. Explain with example Register, Immediate, Indirect, Index and Relative addressing mode. (10 Marks)
  - b. What is stack frame? Explain. (04 Marks)
  - c. Explain with example, (i) LshiftL (ii) AshiftR (iii) RotateRC (06 Marks)
- 3
  - a. What is program-controlled I/O? Mention its disadvantages. (04 Marks)
  - b. Discuss in detail the issue encountered by the processor in handling multiple devices during I/O operations and how are they overcome. (08 Marks)
  - c. With neat diagram, explain how direct memory access (DMA) works. (08 Marks)
- 4
  - a. Explain with a diagram, 8 bit serial interface working. (10 Marks)
  - b. With a timing diagram, explain the read operation of a PCI bus. (10 Marks)
- 5
  - a. Draw the internal organization of  $2M \times 8$  dynamic memory chip and explain its working. (10 Marks)
  - b. Explain the memory hierarchy of a computer with a block diagram. (06 Marks)
  - c. Write short note on magnetic hard disk. (04 Marks)
- 6
  - a. Explain 16-bit carry lookahead adder built from 4-bit adder. (08 Marks)
  - b. Convert the decimal numbers +13 and  $-6$  into 5-bit binary number and multiply them using booth multiplication. (06 Marks)
  - c. Give the IEEE standard for floating point number representation. (06 Marks)
- 7
  - a. With a neat diagram, explain how a word is fetched from memory. (10 Marks)
  - b. Explain three bus organization of the data path, with a diagram. (10 Marks)
- 8
  - a. What do you mean by per formula of a computer? On what factors performance measuring is carried out. (06 Marks)
  - b. Discuss shared memory multiprocessor concepts in detail. (08 Marks)
  - c. What is hardware multithreading? Explain the different hardware multithreading. (06 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and /or equations written eg,  $42+8 = 50$ , will be treated as malpractice.

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