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**Fourth Semester B.E. Degree Examination, Dec.2019/Jan.2020**

**Computer Organization**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting at least TWO questions from each part.**

**PART – A**

- 1 a. With a neat diagram, explain the different processor registers. (08 Marks)
- b. Derive the basic performance equation. Discuss the measures to improve the performance. (08 Marks)
- c. Convert the following pairs of decimal numbers to 5 bit signed 2's complement number and add them. State whether or not overflow occurs: (i) 7 and 12 (ii) -9 and -6 (04 Marks)
- 2 a. Define an addressing mode. Explain addressing mode with an example, immediate, register and auto increment and decrement. (05 Marks)
- b. What is subroutine? Explain stack frame related to subroutine. (07 Marks)
- c. Explain logical shift and rotate instruction with examples. (08 Marks)
- 3 a. Explain with neat diagram, how interrupt request from several IO processor through a single INTR line. (10 Marks)
- b. With timing diagram, explain synchronous and asynchronous bus. (10 Marks)
- 4 a. With block diagram, explain how printer is connected to processor. (05 Marks)
- b. In computer system why a PCI bus is used? With a net sketch, explain how read operation performed with timing diagram. (10 Marks)
- c. Explain input and output data transfer signals of USB. (05 Marks)

**PART – B**

- 5 a. With figure explain static cell of memory. (05 Marks)
- b. What are the different types of mapping? Explain any one in detail. (05 Marks)
- c. What do you mean by memory interleaving? Explain with example. (05 Marks)
- d. Explain in detail, the working principle of magnetic hard disk. (05 Marks)
- 6 a. Draw and explain Schematic representation of carry save addition operations. (05 Marks)
- b. Explain the algorithm for binary division, using non-restoring method, with an example. (08 Marks)
- c. Explain the IEEE standard for floating point number representation. (07 Marks)
- 7 a. With figure explain the concept multiple bus organization of processor. (10 Marks)
- b. Explain in detail the sequence of operations needed to perform processor function. (10 Marks)
- 8 a. State the advantages of multiprocessor system. (04 Marks)
- b. With figure explain the concept of cluster and other message passing multiprocessors. (10 Marks)
- c. Explain the characteristic of vector processing. (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.