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10CS46

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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