Fourth Semester B.E. Degree Examination, Aug./Sept.2020
Computer Organization

Time: 3 hrs.   Max. Marks:100

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

PART – A

1   a.   Draw and explain the connection between processor and memory with the respective registers. **(08 Marks)**

    b.   Derive the basic performance equation. Discuss the measures to improve the performance. **(08 Marks)**

    c.   Covert the following pairs of decimal numbers to five 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.   What is little endian and big endian storage concept of memory. Represent the number 63478952H in 32 bit big endian and little endian memory. **(06 Marks)**

    b.   What is subroutine? Explain stack frame related to subroutine. **(07 Marks)**

    c.   Explain logical shift and rotate instructions with examples. **(07 Marks)**

3   a.   Explain how interrupt requests from several IO devices can be communicated to a processor through a single INTR line. **(10 Marks)**

    b.   What are the different methods of Direct Memory Access (DMA). Explain them in brief. **(05 Marks)**

    c.   Explain Synchronous and Asynchronous bus by using timing diagram. **(05 Marks)**

4   a.   Explain with figure serial interface circuit. **(08 Marks)**

    b.   Explain with respect to Universal Serial Bus (USB):
(i) Architecture   (ii) Packet   (iii) Input and output operation **(12 Marks)**

PART – B

5   a.   Draw a diagram and explain working of 16 Megabits DRAM chip configured as 2M×8. Also explain how it can be made to work in fast page mode. **(10 Marks)**

    b.   Explain static memory cell with figure. **(05 Marks)**

    c.   What do you mean by memory interleaving explain with example. **(05 Marks)**

6   a.   Draw and explain schematic representation of carry save addition operation. **(05 Marks)**

    b.   Give Booth's algorithm to multiply binary two numbers, explain working of algorithm taking an example. **(10 Marks)**

    c.   Explain the IEEE standard for floating point number. **(05 Marks)**

7   a.   Write and explain the control sequence for execution of an unconditional branch instruction. **(10 Marks)**

    b.   With figure explain the concept of multiple bus organization of processor. **(10 Marks)**

8   a.   Write a short note on Power Wall. **(06 Marks)**

    b.   Explain different approaches used in multithreading. **(08 Marks)**

    c.   State the advantages of multiprocessor system. **(06 Marks)**

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