CBCS SCHEME

15CS34

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

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions.

1   a. With a neat sketch, describe the steps that takes place to execute an instruction. **(08 Marks)**
     b. Explain briefly pipelining and super scalar operation of the processor with a suitable examples. **(04 Marks)**
     c. What is performance measurement? Explain overall SPEC rating for computer. **(04 Marks)**

2   a. What is instruction? Explain basic instruction types with suitable examples. **(05 Marks)**
     b. Explain the following addressing modes with examples:
         (i) Register mode   (ii) Absolute mode   (iii) Immediate mode **(06 Marks)**
     c. Write short notes on encoding machine instruction. **(05 Marks)**

3   a. What is interrupt? Explain the implementation of interrupt priority using individual interrupt request and acknowledge lines. **(06 Marks)**
     b. What do you mean by vectored interrupts? Explain. **(03 Marks)**
     c. What is bus arbitration? What are its types? Explain the simple arrangement for bus arbitration using daisy chain. **(07 Marks)**

4   a. Explain sequence of events during read operation of synchronous bus data transfer with respect to timing diagram. **(05 Marks)**
     b. Describe with a neat sketch printer to processor connection. **(05 Marks)**
     c. Write a short note on USB structure and operation. **(06 Marks)**

5   a. Explain organization of $2m \times 8$ dynamic memory chip. **(08 Marks)**
     b. Explain synchronous DRAM with a neat sketch. **(08 Marks)**

6   a. Explain associative mapping with a necessary diagram. **(05 Marks)**
     b. Describe the organization of virtual memory. **(05 Marks)**
     c. Write short notes on hard disk drive. **(06 Marks)**

7   a. Draw a 4 bit carry look ahead adder and explain. **(06 Marks)**
     b. Perform the multiplication of $+13$ and -6 using Booth's algorithm. **(06 Marks)**
     c. Describe 2 bit by 2 bit array multiplier. **(04 Marks)**

8   a. Explain IEEE standard format of floating point number. **(06 Marks)**
     b. Explain the concept of sequential multiplication using register configuration with a suitable example. **(08 Marks)**
     c. What are two limitations of Carry Save Addition (CSA)? **(02 Marks)**

9   a. With a figure explain single bus organization of data path inside a processor. **(08 Marks)**
     b. With a suitable diagram, explain input and output gating for the registers. **(06 Marks)**
     c. List out the 4 actions are needed to execute Add (R_3), R_1 instruction. **(02 Marks)**

10   a. Describe the basic organization of micro-programmed control unit with a neat sketch and example. **(10 Marks)**
     b. Write a short note on Digital Camera. **(06 Marks)**

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