Hall Ticket No | | | | | | | | | | | Question Paper Code: ACS004

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech III Semester End Examinations (Supplementary) - February, 2018

Regulation: IARE – R16

COMPUTER ORGANIZATION AND ARCHITECTURE

(Common for CSE | IT)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) Briefly discuss the process of memory read and memory write operations with the help of timing diagrams. **[7M]**
   (b) Enumerate the working of an bidirectional I/O device with its interface and enable/ load logic. **[7M]**

2. (a) Illustrate different methods of constructing memory subsystem configuration by taking an example for each. **[7M]**
   (b) Explain the classification of Assembly language instructions based on the operation they performed. **[7M]**

UNIT – II

3. (a) Write about bus and memory transfer instructions with neat example. **[7M]**
   (b) What is micro program and explain the use of micro programming in control memory. **[7M]**

4. (a) Draw and explain about 4-bit arithmetic circuit for the addition, subtraction, increment and decrement by using 4X1 MUX and two selection lines. **[7M]**
   (b) Write about shift micro operations and explain the right and left shift operations with example. **[7M]**

UNIT – III

5. (a) Explain about floating-point representation in computer arithmetic with example. **[7M]**
   (b) Write about division addition/subtraction algorithm with flow chart. **[7M]**

6. (a) Explain about any three addressing modes with example. **[7M]**
   (b) Explain the architecture of carry-lookahead adder (CLA). **[7M]**

UNIT – IV

7. (a) List different principles of locality and explain the typical memory hierarchy. **[7M]**

   (b) Briefly discuss the time needed for checking the interrupts to be added to the instruction cycle? **[7M]**

8. (a) Briefly explain about daisy-chaining priority and Draw the circuit diagram for one stage of the daisy-chain priority arrangement. **[7M]**

   (b) Draw the pipeline for floating point addition and subtraction if the given floating point numbers are A= 0.1342 $X10^3$ and B=0.7330$X10^2$ then what are the sub operations performed in each segment. **[7M]**

UNIT – V

9. (a) Illustrate the process of pipeline floating-point addition and subtraction for the following normalized floating-point binary numbers: **[7M]**

$$X = A \times 2^a$$
$$Y = B \times 2^b$$

   (b) Explain the classification of computer system based on number of instructions and umber of processing units. **[7M]**

10. (a) Describe about the parallel arbitration procedure used in multiprocessor organization. **[7M]**

    (b) Write about synchronous and asynchronous data transfers in pipe lining concept. **[7M]**

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