INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Four Year B.Tech V Semester End Examinations (Regular) - November, 2019
Regulation: IARE – R16
COMPUTER ORGANIZATION
Time: 3 Hours   **(ECE)**   **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) Illustrate expanded structure of IAS Computer and explain the component's functions. **[7M]**

   (b) Explain in brief the sign and magnitude representation and how it differs with complement representation. **[7M]**

2. (a) Differentiate computer organization and computer srchitecture. **[7M]**

   (b) Explain indexing, direct, indirect and relative addressing modes. **[7M]**

UNIT – II

3. (a) Explain booth's multiplication algorithm with an example **[7M]**

   (b) Explain in detail about the hardware implementation of addition and subtraction algorithm with neat diagram. **[7M]**

4. (a) Describe Floating Point Representation as per IEEE and Explain Floating point simple Arithmetic operation procedures with example each. **[7M]**

   (b) Explain the 2's complement multiplication using Robertson's algorithm with an example **[7M]**

UNIT – III

5. (a) Explain about the hardware implementation of hardwired and micro programmed control. **[7M]**

   (b) Discuss the various hazards that might arise in a pipeline. What are the remedies commonly adopted to overcome/minimize the sehazards. **[7M]**

6. (a) Brief the instruction pipeline, conflicts and specify the advantages and disadvantages of pipelining. **[7M]**

   (b) Describe superscalar processing and multiple functional units. **[7M]**

UNIT – IV

7. (a) Explain the memory hierarchy in a computer system. **[7M]**

   (b) Define cache memory? Explain its operation. **[7M]**

8. (a) Explain Virtual Memory and give an example of calculating a virtual address with physical address **[7M]**

   (b) Explain in brief optical storage and specify the real time optical storage devices with its capacities. **[7M]**

UNIT – V

9. (a) What is Direct Memory Access (DMA)? What is the need for DMA? Explain the working of DMA. Also mention its advantages. **[7M]**

   (b) Determine the number of clock cycles that it takes to process 200 task in a six segment pipeline. **[7M]**

10. (a) Write a short note on RISC processors with suitable diagrams **[7M]**

   (b) What programming steps are required to check when a source interrupts the computer while it is still being serviced by a previous interrupt request from the same source? **[7M]**

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