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Code No. : 16404 O

## VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
### B.E. (ECE: CBCS) III Year II Semester Old Examinations, May-2019
## Computer Organization and Architecture

Time: **3 hours**                                                                 Max. Marks: **70**

*Note: Answer ALL questions in Part-A and any FIVE from Part-B*

### Part-A (10 × 2 = 20 Marks)

1. Draw the structure of IEEE 754 format for 32 bit floating point number.
2. What is the range of numbers that can be represented in a fixed point format using 8 bits of a signed fraction?
3. Give the functional Table of Arithmetic Logic Shift Unit?
4. Hard-wired control unit is faster than micro programmed control unit. Justify the statement.
5. Define addressing mode and what is the purpose of it?
6. What is instruction pipelining? Write the need for it.
7. Explain the strobe control method of asynchronous data transfer.
8. What is priority interrupt technique?
9. Define address space and memory space.
10. What is memory mapping and what are different types of memory mapping?

### Part-B (5 × 10 = 50 Marks)

11. a) Draw a flowchart to explain how addition and subtraction of two floating point numbers can be done. [5]
    b) Perform division operation on M = 11 and Q = 1000 using restore division method where Q is dividend and M is divisor. [5]
12. a) Classify computers based on the instruction formats of CPU organization. Explain each with an example. [6]
    b) Compare the advantages and the limitations of micro programmed control and hardwired control. [4]
13. a) Explain the concept of pipeline in general and arithmetic pipeline in detail. [6]
    b) Compare the key features of CISC and RISC architectures. [4]
14. a) Differentiate priority interrupt and daisy chain priority interrupt. [5]
    b) Draw the block diagram of a typical asynchronous communication interface and explain its operation in detail. [5]
15. a) Explain associative memory with a neat block diagram and derive the match logic for one word of association memory. [5]
    b) Explain segmented page mapping technique with the help of a numerical example. [5]
16. a) Perform signed multiplication of -3 and 7 using booth multiplication algorithm. Represent the numbers in 5 bits including sign bit. [6]
    b) Explain the stored program organization. [4]
17. Answer any *two* of the following:
    a) Vector processing [5]
    b) Parallel priority Interrupt [5]
    c) Memory management [5]

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