Code No: **RT41044**   **R13**   Set No. 1

IV B.Tech I Semester Supplementary Examinations, February/March - 2018
COMPUTER ARCHITECTURE AND ORGANIZATION
(Common to Electronics and Communication Engineering and Electronics and
Instrumentation Engineering)

Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) What are different types of computers? Mention their applications.   [4]
    b) Define microinstruction and microprogram.   [4]
    c) What is a control memory?   [4]
    d) Compare between static RAMs and dynamic RAMs.   [4]
    e) What is the need for input output ports?   [3]
    f) What is cache coherence?   [3]

PART–B *(3x16 = 48 Marks)*

2. a) Perform the (+21)+(-16)   and (-23)+(+13) arithmetic operations using 2's
        complement representation for negative numbers   [8]
    b) What are multiprocessors? Discuss their characteristics.   [8]

3. a) What is register transfer language? With suitable examples, explain the
        representation of instructions in register transfer language and assembly
        language.   [8]
    b) What is a stack? Discuss its organization.   [8]

4. a) Define *microinstruction* and *microprogram.* Write   an   example   for
        microprogram.   [8]
    b) What is hardwired control? Discuss its advantages and disadvantages.   [8]

5. a) What is the need for memory in computers? Discuss different types of memories.   [8]
    b) Explain the memory hierarchy in computers.   [8]

6. a) List and briefly explain various input-output data transfer schemes.   [8]
    b) What is an Input–Output Processor (IOP)? Discuss its use.   [8]

7. a) What is parallel processing? What are its advantages? Explain.   [8]
    b) Explain the implementation of instruction pipelining.   [8]