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]