

Code No: **R41021**

**R10**

**Set No. 1**

**IV B.Tech I Semester Supplementary Examinations, March - 2017**

**COMPUTER ORGANIZATION**

**(Electrical and Electronics Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Answer any FIVE Questions  
All Questions carry equal marks**

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- 1 a) Perform the arithmetic operations with the decimal numbers using signed-10's complement representation for negative numbers.  
i)  $(-638) + (+785)$                       ii)  $(-638) - (+185)$  [8]  
b) Discuss and differentiate Multicomputer and multiprocessors. [7]
- 2 a) Design a 4-bit combinational circuit decremter using four full-adder circuits. [8]  
b) What is the difference between a direct and an indirect instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register? [7]
- 3 a) Write a program to evaluate the arithmetic statement:  
$$X = A - B + C * (D * E - F) / G + H * K$$
  
i) Using a general register computer with three address instructions.  
ii) Using an accumulator type computer with zero-address operation instructions. [8]  
b) List the Control functions and Micro Operations for the Input-output instructions. [7]
- 4 a) What are the methods to reduce the number of Micro Instructions needed by the Control Unit? Explain in details with Suitable examples. [8]  
b) Explain how the mapping from instruction code to a Micro Instruction address can be done. [7]
- 5 a) Write short notes on the use of a Memory Controller with a neat Diagram. [8]  
b) In how many computers the cache block size is in the range of 32 to 128 bytes. What would be the main advantages and disadvantages of making the size of cache blocks larger or smaller? [7]
- 6 a) What is an I/O processor? Explain with a neat Diagram. [8]  
b) Describe Asynchronous data transfer using Strobe control. [7]
- 7 a) Explain the Arithmetic Pipeline for floating point addition and subtraction with a neat Diagram. [8]  
b) Describe briefly about Vector Processing and its applications. [7]
- 8 a) Write short notes on Multistage Switching Network. [8]  
b) Explain the physical forms available for establishing an Inter Connection Network. [7]