Code No: **R41021** **R10** **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, November - 2016

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 (+70) + (80) and (-70) + (-80) with binary numbers in signed-2's complement representation. Use eight bits to accommodate each number together with its sign. Show overflow occurs in both cases, that the last two carries are unequal and that there is a sign reversal. [8]

b) Explain briefly about single Bus structure with a suitable Diagram? [7]

2 a) Draw a Diagram of a Bus system using three-state buffer and a Decoder instead of the Multiplexers. [8]

b) Describe about Instruction Set Completeness. [7]

3 a) Convert the following numerical arithmetic expression into reverse polish notation and show the stack operations for evaluating the numerical result.

(3 + 4) [10 (2 + 6) + 8] [8]

b) Explain briefly about BSA with an example. [7]

4 a) Give the block Diagram of a Control Memory and Associated Hardware needed for selecting the next Micro Instruction Address. [8]

b) What is the difference between a Microprocessor and a Micro program? Is it possible to design a Microprocessor without a Micro program? Are all Micro programmed computers also Microprocessors? [7]

5 a) Name some specific features of Memory design that lead to superior performance. Compare cache memory and virtual memory. [8]

b) An eight-way set-associative cache consists of a total of 256 blocks.
The main memory contains 8192 blocks, each consisting of 128 words.

i) How many bits are there in the main memory address?

ii) How many bits are there in the TAG, SET and WORD fields? [7]

6 a) Explain Direct Memory Access and the need for DMA in computers? [8]

b) Explain the difference between Isolated I/O and memory-mapped I/O?
What are advantages and disadvantages of each? [7]

7 a) Describe a 4-segment Pipeline for floating point Addition and Subtraction of two binary numbers. [8]

b) Explain Flynn's Classification of Computer system with an example. [7]

8 a) Give the block Diagram of a Crossbar Switch connected to one Memory module. [8]

b) Describe the characteristics of Multiprocessors. [7]

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