

B.TECH.**THEORY EXAMINATION (SEM-IV) 2016-17****COMPUTER ORGANIZATION****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION-A****1 Explain the following : (10×2=20)**

- a) What is multiplexer? Give some applications of multiplexer.
- b) Show the bit configuration of 24 bit register when its contents represent the decimal equivalent of 195 in BCD.
- c) Discuss self complementing BCD code.
- d) What is micro code? Explain.
- e) What do you understand by wide branch addressing? Explain.
- f) Write short note on RISC.
- g) Write short note on indirect addressing.
- h) Discuss write back method.
- i) What is flash memory?
- j) What is asynchronous data transfer? Explain.

SECTION-B**2 Attempt any five of the following : (10×5=50)**

- a) Register A holds the 8-bit binary 11011001. Determine the B operand and the logic micro operation to be performed in order to change the value in A to
 - i. 01101101
 - ii. 11111101
- b) Give the hardware implementation of following operations;-
 - i. Selective set
 - ii. Selective complement
- c) 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 one address instruction.
- d) Give the brief description of various I/O bus architecture.
 - e) What do you understand by hardwired control? Also discuss DMA.
 - f) Write short notes on
 - i. Serial communication
 - ii. Input Output Processor
 - g) A virtual memory has page size of 1 K words. There are 8 pages and 4 blocks. The associative memory page table contains the following entries

Page	Block
0	3
1	1
4	2

6	0
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Make a list of all virtual addresses (in decimal) that will cause a page fault if used by the CPU.

- h) Explain decoder. Draw the block diagram of 2 to 4 line decoder with NAND gate. Also show its truth table.

SECTION-C

Attempt any two of the following : (15×2=30)

3. Attempt the following

- a) Give the block diagram of DMA controller. Why are the read and write control lines in a DMA controller bidirectional?
- b) Discuss the working principle of I/O processor

4. Attempt the following

- a. What do you mean by asynchronous data transfer? Explain strob controller and hand shaking mechanism for asynchronous data transfer.
- b. Convert the followings
 - i. $(100100)_2 = (?)_{10}$
 - ii. $(235.41)_7 = (?)_{13}$

5. Attempt the following

- a. An encoded microinstruction format is to be used. Show how a 9 bit micro operation field can be divided in to sub field to specify 46 different actions.
- b. How a processor executed instructions? Define the internal functional units of a processor and how they are interconnected?