

**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)**

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

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

- 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
  - 01101101
  - 11111101
- Give the hardware implementation of following operations;-
  - Selective set
  - Selective complement
- Write a program to evaluate the arithmetic statement

$$X=(A-B+C*(D*E-F))/(G+H*K)$$

- Using a general register computer with three address instructions.
  - Using an accumulator type computer with one address instruction.
- Give the brief description of various I/O bus architecture.
  - What do you understand by hardwired control? Also discuss DMA.
  - Write short notes on
    - Serial communication
    - Input Output Processor
  - 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

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

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

4. Attempt the following

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

5. Attempt the following

- 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.
- How a processor executed instructions? Define the internal functional units of a processor and how they are interconnected?