USN | | | | | | | | | |                                    **15CS34**

## Third Semester B.E. Degree Examination, June/July 2018
## Computer Organization

Time: 3 hrs.                                                      Max. Marks: 80

**Note:** *Answer any FIVE full questions, choosing one full question from each module.*

### Module-1

1  a. Define Addressing Mode. Give the details of different addressing modes. **(08 Marks)**
   b. Describe the basic operational concepts between the processor and memory. **(08 Marks)**

**OR**

2  a. What is Subroutine? How to pass parameters to subroutines? Illustrate with an example. **(08 Marks)**
   b. How to encode assembly instructions into 32-bit words? Explain with examples. **(08 Marks)**

### Module-2

3  a. Define Bus Arbitration. With diagrams, explain the centralized bus arbitration mechanism. **(08 Marks)**
   b. With the help of timing diagram, briefly discuss the main phases of SCSI bus involved in its operation. **(08 Marks)**

**OR**

4  a. With neat diagrams, explain how to interface printer to the processor. **(08 Marks)**
   b. Explain the following methods of handling interrupts from multiple devices.
      i)  Interrupt nesting/priority structure          ii)  Daisy chain method. **(08 Marks)**

### Module-3

5  a. Describe how to translate virtual address into physical address with diagram. **(08 Marks)**
   b. Draw and explain the internal organisation of $2M \times 8$ asynchronous DRAM chip. **(08 Marks)**

**OR**

6  a. Describe any two mapping functions in cache. **(08 Marks)**
   b. Describe the principles of magnetic disk. **(08 Marks)**

### Module-4

7  a. Perform the operations on 5 – bit signed numbers using 2's complement system. Also indicate whether overflow has occurred. **(06 Marks)**
      i)  $(-10) + (-13)$         ii)  $(-10) - (-13)$         iii)  $(-2) + (-9)$.
   b. Perform the multiplication of 13 and -6 using Booth algorithm and Bit – pair recoding method. **(10 Marks)**

**OR**

8  a. Perform the restoring division for $8 \div 3$ by showing all the steps. **(06 Marks)**
   b. Explain the logic diagram of 4 – bit carry look ahead adder and its operations. **(10 Marks)**

### Module-5

9  a. Draw and explain multiple bus organization along with its advantages. **(10 Marks)**
   b. Write down the control sequence for the instruction Add $(R_3)$, $R_1$ for single bus organization. **(06 Marks)**

**OR**

10 a. With block diagram, explain the general requirements and working of digital camera. **(10 Marks)**
   b. Write the control sequence for an unconditional branch instruction. **(06 Marks)**

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