

**Third Semester B.E. Degree Examination, Dec.2018/Jan.2019**  
**Computer Organization**

Time: 3 hrs.

Max. Marks: 100

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

**Module-1**

- 1 a. Explain with a neat diagram the connection between the processor and the computer memory. (05 Marks)  
b. Explain the Basic Instruction types with example. (05 Marks)  
c. Define Addressing mode, explain the various addressing modes with example. (10 Marks)

**OR**

- 2 a. Write an assembly program that reads a line of characters and display it. (05 Marks)  
b. What are assembler directives? Point out and explain the various directives with example. (05 Marks)  
c. Point out various shifts and rotate instruction and example with a neat diagram and example. (10 Marks)

**Module-2**

- 3 a. Define interrupt. Point out and explain the various ways of enabling and disabling interrupts. (07 Marks)  
b. What are Exceptions? Point out and explain the different kinds of exceptions. (05 Marks)  
c. What is interrupt nesting, explain with a neat diagram the implementation of interrupt priority, using individual interrupt request and acknowledge lines. (08 Marks)

**OR**

- 4 a. What is Bus Arbitration? Explain centralized and distributed arbitration. With a neat diagram. (10 Marks)  
b. Explain Universal serial Bus tree structure and split bus operation with a neat diagram. (10 Marks)

**Module-3**

- 5 a. Explain synchronous DRAMS with a block diagram. (05 Marks)  
b. Define ROM ; point out and explain various types of ROMS. (05 Marks)  
c. Define cache memory, explain various types of it with a neat block diagram. (10 Marks)

**OR**

- 6 a. What is Virtual memory? Explain virtual memory organization. (07 Marks)  
b. Explain the optical disk organization with a neat diagram. (10 Marks)  
c. Define Hit rate and miss penalty. (03 Marks)

**Module-4**

- 7 a. Draw 4-bit carry-look ahead adder and explain. (10 Marks)  
b. Perform multiplication for -13 and + 9 using Booth's Algorithm and explain Booth's Algorithm process. (10 Marks)

**OR**

- 8 a. Explain with a neat figure the circuit arrangement for binary division. (10 Marks)  
b. Explain IEEE standard for floating point number. (10 Marks)

**Module-5**

- 9 a. Explain three – bus organization of the datapath with a neat block diagrams. (06 Marks)  
b. Explain Hard Wired Control Unit Organization in a processing unit. (06 Marks)  
c. Write the control sequence for execution of the Instruction. Add ( $R_3$ ),  $R_1$  in the execution of a complete instruction. (08 Marks)

**OR**

- 10 a. Explain briefly the block diagram of a digital camera. (10 Marks)  
b. With a neat block diagram, explain the working of microwave oven in an embedded system. (10 Marks)