

(Please write your Exam Roll No.)

Exam Roll no. ....

# END TERM EXAMINATION

FIRST SEMESTER [MCA] DEC, 2013-JAN-2014

Paper Code: MCA107

Subject: Computer Organisation (2010 Onwards)

**Time: 3 Hours**

**Maximum Marks: 60**

*Note: Attempt any five questions including Question no. 1 which is compulsory*

Q1. Explain briefly:

- a) How that any three variable logic function  $f(x, y, z)$  can be realized using 2-input multiplexer.  
Give the realization & truth table.
- b) What is the difference between access time and cycle time of a memory? Which is larger?
- c) Differentiate between floating point and fixed point representation.
- d) Differentiate between micro operation and macro operation.

Q2. Discuss different addressing modes used in computer system.

Q3.

- a) Implement 4-to-16 line decoder using 3-to-8 decoders.
- b) For an array multiplier circuit that multiplies two unsigned four-bit number, calculate the following:
  - I) How many AND gates are required?
  - II) How many adders and of what size is required?
  - III) How many bits are there in final product?

Q4.

- a) Explain the need of memory hierarchy with the help of a block diagram? What is the reason for not having one large memory unit for storing all information at one place?
- b) Compare *IO mapped* and *memory mapped IO*. Give their applications.

Q5. Explain the use of following registers:

- I) PC
- II) MAR
- III) IT
- IV) MDR

Q6.

- a) What are the main advantages of using input/output interface? Why interface is used in digital computer?
- b) What do you mean by initialization of DMA controller? With the help of block diagram , explain DMA transfer.

Q7.

- a) Discuss the design steps for designing a accumulator logic.
- b) Explain instruction cycle. Give the RTL statement for each sub cycle. How the instruction cycle is to accommodate the interrupt from I/O devices?

Q8. Write short notes on any two

- a) Instruction format
- b) Error detection code
- c) Flip-flop