

Roll No

MCA - 104**M.C.A. I Semester**

Examination, December 2014

**Computer Organization and Assembly Language
Programming****Time : Three Hours****Maximum Marks : 70**

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 ii) All parts of each question are to be attempted at one place.
 iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
 iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Draw logic symbol of Ex-OR gate and write its truth table.
 b) Name three Basic gates and two universal gates.
 c) Convert hexadecimal number $(F3)_{16}$ in to decimal number.
 d) What is register? Draw and explain shift register.

OR

What is sequential logic circuit? Write types of Flip Flops and explain any one of them.

2. a) Explain 2's complement method of subtraction of binary numbers.
 b) Write a micro operation to add the contents of two registers and store the sum in third register. The operation will execute when $P = 1$.
 c) Represent the following conditional control statement by two register transfer statements with the control function.
 If $(P = 1)$ then $(R1 \leftarrow R2)$ else if $(Q = 1)$ then $(R1 \leftarrow R3)$

[2]

- d) Categorize micro operations. Enlist all the logic micro operations.

OR

The following transfer statements specify a memory. Explain the memory operation in each case.

- i) $R2 \leftarrow M[AR]$ ii) $M[AR] \leftarrow R3$
 iii) $R5 \leftarrow M[R5]$

3. a) Define instruction code with its two parts.
 b) If an instruction code has 4 bit opcode and 12 bit address field then
 i) How many operations this code can perform.
 ii) How many memory locations can be addressed.
 c) Write and explain three phases of an instruction cycle.
 d) Briefly explain all the addressing modes of computer instruction.

OR

Write three modes of data transfer and explain any one of them.

4. a) Draw flag register of 8086.
 b) Explain PUSH and POP instruction in short.
 c) What do you understand by branch instructions? Give a suitable example.
 d) Draw and discuss the internal block diagram of 8086.

OR

What is assembly language programming? Write any one program in assembly language and explain it.

5. a) Give one example for primary and one for secondary memory.
 b) Explain hit ratio in cache organization.
 c) Give one-one example for semiconductor, magnetic and optical memory.
 d) With the help of a diagram explain how cache is used in cache organization.

OR

Give a short note on virtual memory organization.