*Total No. of Questions :5]* *[Total No. of Printed Pages :2*

Roll No .....

# CS/IT - 402

## BE. IV Semester

Examination, June 2014

## Computer System Organization

*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.

### Unit - I

1. a) Define instruction code with its two parts. 2
   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. 2
   c) Convert hexadecimal number $(F3)_{16}$ in to decimal number. 3
   d) Briefly explain all the addressing modes of computer instruction. 7

OR

Draw and explain Von Newman model of computer and explain its subsystems. 7

### Unit - II

2. a) Explain 2's complement method of subtraction of binary numbers. 2
   b) Write a brief note on microprogram sequencer. 2
   c) Represent the following conditional control statement by two register transfer statements with the control function.





If (P = 1) then (R1 ← R2) else if (Q = 1) then (R1 ← R3) 3

   d) Differentiate hardwired and microprogrammed control unit. Explain merits and demerits of each of them. 7

OR

Take an example and explain the design of arithmetic and logic unit. 7

### Unit - III

3. a) Classify instruction set of 8085. 2
   b) Differentiate simplex, half duplex and full duplex data transfer. 2
   c) Briefly explain Daisy-chaining priority method of interrupt. 3
   d) Write three modes of data transfer and explain any one of them. 7

OR

What is assembly language programming? Write any one program in assembly language and explain it. 7

### Unit - IV

4. a) Give one example for primary and one for secondary memory. 2
   b) Explain hit ratio in cache organization. 2
   c) Give one-one example for semiconductor, magnetic and optical memory. 3
   d) With the help of a diagram explain how cache is used in cache organization. Explain mapping techniques. 7

OR

Give a short note on virtual memory organization. What is Paging? 7

### Unit - V

5. a) Draw a four segment pipeline. 2
   b) Give definition of vector processing. And enlist its application. 2
   c) Derive an expression for speedup ratio of a pipeline processing. 3
   d) Draw a space time diagram of a six segment pipeline showing the time it takes to process eight tasks. 7

OR

Differentiate instruction and arithmetic pipeline. 7

 