Registration No. : | | | | | | | | | | |

Total number of printed pages – 2

B. Tech

PCCS 4301

Fifth Semester Back Examination – 2014

COMPUTER ORGANIZATION

BRANCH(S) : CSE, IT

QUESTION CODE : L 216

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10

   (a) What are the different functional units in a modern computer ?

   (b) Differentiate between computer architecture vs. computer organization.

   (c) What are the six stages of an instruction cycle ?

   (d) What is the difference between a source operand and the destination operand of an instruction ?

   (e) What is the difference between big-endian and little-endian representation ?

   (f) Give an example of zero address, one address, two address and three address instructions.

   (g) Differentiate between hardware controlled and microprocessor controlled.

   (h) What are operations performed on data in 8085 ?

   (i) Why computers' memory systems are typically built as hierarchies ?

   (j) Write the steps to retrieve a word from a memory location by the CPU.

2. (a) Give an account of bus structures in a computer. 5

   (b) What are the steps perform to execute an instruction in CPU ? Explain your answer with reference to the CPU with single-bus organization. 5

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3. (a) Give an account of different addressing modes. 5

(b) Write an assembly language program for the following : 5

$U = f(x,y) = ((A^*(A + B) - (A + C)^*B) / (A + C) - (A + B))$

4. (a) Write an algorithm for adding two binary numbers in signed-2's complement representation. 5

(b) Show the IEEE Floating Point representation of number $-0.75_{decimal}$ in single precision. 5

5. (a) Draw a diagram showing the main components of the von Neumann model of computing, with a brief explanation of each component and how it interacts with the rest. 5

(b) Design and explain fast adder and multiplier. 5

6. (a) Give an account of RISC vs CISC architecture. 5

(b) What is the difference between RAM and ROM ? 5

7. (a) Physical memory maps is said to be different from the logical memory map. Explain the difference. 5

(b) Give an account of page replacement policies. 5

8. Write short notes on any **two** of the following : 5×2

(a) Instruction sequencing

(b) Integer division

(c) Cache updating scheme

(d) Secondary storage.