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

Total number of printed pages – 2

B. Tech

PCCS 4301

Fifth Semester Back Examination – 2014

COMPUTER ORGANIZATION

BRANCH : CIVIL, EEE

QUESTION CODE : L 291

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) Why is tristate logic often used in bus design ?

   (b) Differentiate between big-endian and little-endian representation.

   (c) How can you check the completeness of an instruction set ?

   (d) What is execution trace ? Mention its main use.

   (e) Draw a design diagram of a 4-bit adder.

   (f) Mention any two problems that may arise during floating point arithmetic.

   (g) Differentiate between instructions and microinstructions.

   (h) Mention the important differences between virtual memory and cache memory.

   (i) What is flash drive ? Why are they named so ?

   (j) Define and mention the usefulness of locality of reference.

2. What is the importance of addressing mode during execution of an instruction ? Explain the various addressing modes by taking suitable example. 10

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3. Draw and explain the flowchart for floating point addition and subtraction. 10

4. (a) Show separately the use of one-, two- and three-address instructions to compute Y=(A – B)/(C*D). 5

   (b) Design an unsigned binary multiplier. Explain its working by takinga suitable example. 5

5. (a) What is bus arbitration ? Explain the different bus arbitration methods. 5

   (b) List the differences between RISC and CISC architecture. 5

6. (a) Explain the principal components of a cache with a neat sketch. Suggest the different ways of cache organization. 5

   (b) Define virtual memory. Briefly explain a technique to implement the virtual memory. 5

7. (a) Mention the importance of page replacement policy. Compare the performance of different page replacement policies by taking a suitable example. 5

   (b) Briefly describe the different mapping techniques used in cache memory. 5

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

   (a) Assembly language

   (b) Design of fast adder

   (c) Microprogrammed control unit

   (d) Instruction cycle.