Roll No. .....

BCA–302(O)

B. C. A. (Third Semester) EXAMINATION, Dec., 2012

(Old Course)

Paper Second

COMPUTER ORGANIZATION

Time : Three Hours] *[Maximum Marks : 75*

Note : Section A is compulsory. Attempt *seven* questions out of ten from Section B and *one* question from Section C.

Section – A

(Numerical/Analytical/Problematic Questions)

1. A 12 MB main memory has 64 kB direct mapped with 16 bytes word length of each : 6
   (i) How many address lines are in the main memory and cache memory ?
   (ii) Show how the main memory address is partitioned ?

2. Convert the numbers as directed : 5
   (i) $(\cdot 8125)_{10} = (\ )_2$
   (ii) $(A72E)_{16} = (?)_8$
   (iii) $(\cdot BF85)_{16} = (?)_8$
   (iv) $(247 \cdot 36)_8 = (?)_{16}$
   (v) Subtract 1101 from 10101111.

3. Explain the function of a control unit of a basic computer. 4

Section – B
(Short Answer Type Questions)

4. What do you mean by addressing modes ? Discuss different types of addressing modes with their merits and demerits. 6

5. Discuss in brief (with their advantage and disadvantage) : 6
   (i) RISC
   (ii) CISC

6. Discuss the basic concept of pipeline. 6

7. What is the cache memory ? How is the performance of cache memory measured ? 6

8. Classify the generation of computer according to its memory used. 6

9. Why is magnetic disk known as direct access device ? Discuss the following with reference to magnetic disk : 6
   (i) Access time
   (ii) Seek time
   (iii) Latency time

10. What do you mean by auxiliary memory ? Discuss the construction of magnetic tape. 6

11. What do you mean by instraction format ? Also discuss the execution cycle of instruction. 6

12. What is the normalized floating point and what is the IEEE standard floating point format ? 6

13. Explain the role of stacks in programming. What are push and pop operation ? 6

Section – C

(Long Answer Type Questions)

14. Describe DMA with suitable block diagram. Why does DMA have priority over the CPU when both request a memory transfer ? Explain. 18

15. Define the term address space and memory space. An address space is specified by 24 bits and the corresponding memory space by 16 bits. Find the following :

    (i) How many words are there in the address space ? 6

    (ii) How many words are there in the memory space ? 6

    (iii) If a page consists of 2 K words, how many pages and blocks are there in the system ? 6