53 (CS 301) COAR

2014

COMPUTER ORGANIZATION AND ARCHITECTURE

Paper : CS 301

Full Marks : 100

Pass Marks : 30

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* With a clear diagram discuss the different units of a computer. 10

   (b) With an example show that 2's complement number representation technique is better than signed number representation. 10

2. *(a)* With an example discuss about the floating point number representation technique. 10

(b) Discuss about the functions of

(i) PC

(ii) IR

(iii) MAR

(iv) MBR. 2·5×4

3. *(a)* What is memory hierarchy and how it is used to compare the performances of different types of memory ? 5

(b) With a clear diagram discuss briefly about a SRAM cell. 5

(c) With an example discuss about *any one* of cache mapping technique. 10

4. *(a)* Write briefly about *five* different types of addressing mode. 10

(b) If the size of the address bus is 16 *bit* and each memory location can store 1 *byte* of data then what will be the size of the main memory ? 5

(c) Compare between Hardwired and Microprogrammed control units. 5

5. (a) Using Booth's multiplication algorithm compute (+10) × (–5). 10

(b) Using restoring division algorithm compute (5/2). 10

6. (a) Why interrupt driven I/O is better than programmed I/O ? 5

(b) Briefly discuss about priority interrupt. 10

(c) What are the advantages of vector interrupt over scalar interrupt ? 5

7. Write briefly on : 5×4

(a) pipelining

(b) virtual memory

(c) DMA

(d) Cache coherence.
