53 (CS 301) COAR

2015

COMPUTER ORGANIZATION & ARCHITECTURE

Paper : CS 301

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions*

1. (a) With suitable example discuss the different addressing modes.

    (b) $c = a * b$
         $d = c + a$
         $e = c + d$

    Express the following instructions with the help of three addresses, two addresses and one address instruction.

    10+10

2. (a) Using Booths Multiplication algorithm, perform the multiplication of $(-5) \times (-4)$.

   (b) Using restoring division algorithm, perform the division of 12/4.

   $$10+10$$

3. (a) With a clear diagram discuss about the different components of ALU.

   (b) Briefly discuss about the different phases of an instruction execution.

   $$10+10$$

4. (a) Why 2's complement representation is better than that of signed number representation ?

   (b) Store the number -134.25 using IEEE single precision floating point representation as well as double precision representation technique.

   $$10+10$$

5. (a) With a clear diagram discuss about the read and write principle of CD.

   (b) Consider a two-way set associative cache mapping technique where Main memory consists of 2048 blocks each having 32 words. The size of the cache is 128 blocks. Compute the size of the tag, set and word field. $$10+10$$

6. (a) With a clear diagram, discuss about the scenario of interrupt handling.

   (b) Differentiate between programmed I/O & memory mapped I/O.

   (c) Briefly discuss on Paging.   10+5+5

7. Write briefly on :   5+5+10

   (a) DMA

   (b) TLB

   (c) Micro programmed control unit.