JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2016

B.Tech IV Semester

COURSE CODE: 10B22CI421   MAX. MARKS: 15

COURSE NAME: Computer Organization

COURSE CREDITS: 04   MAX. TIME: 1 HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Each question carries equal marks.

1. Answer the following questions:

   a. Simplify the following expression using the Boolean algebra.

      i. $AB + A(CD + C\bar{D})$

      ii. $(B\bar{C} + \bar{A}D)(A\bar{B} + C\bar{D})$

   b. What is the difference between computer organization and computer architecture?

   c. Using DE Morgan's theorems, show that:

      i. $\overline{(A + B)}\ \overline{(\bar{A} + \bar{B})} = 0$

      ii. $A + \bar{A}B + \bar{A}\bar{B} = 1$

2. (a) Implement the following Boolean function with a multiplexer.

   $F(A, B, C, D) = \sum(0, 2, 5, 8, 10, 14)$

   (b) Implement 512x8 RAM using 64x8 chips.

3. Draw and explain the 4-bit arithmetic circuit with function table.