

Roll Number: _____

Thapar University Patiala

Computer Science & Engineering Department

MBA bridge course Mid-Semester Test
March 11th, 2010

CA 009: Computer Organization
and Architecture

Time: 02 Hours; MM: 50

Name of Faculty: Ravinder Kumar.

Instruction to Students: Attempt all questions. Assume any missing data.

Q1: Simplify the following Boolean function in sum of product form by means of four variables map. Draw the logic diagram with (a) AND – OR gates; (b) NAND gates. 8

$$F(A, B, C, D) = \sum (0, 2, 8, 9, 10, 11, 14, 15)$$

Q2: The following memory units are specified by the number of words times the number of bits per word. How many address lines and input – output data lines are needed in each case? 4

- a) 2K x 16 b) 64K x 8 c) 16M x 32 d) 4G x 16

Q3: a) Draw a bus system using multiplexed four registers (each eight bits). 9
 b) Draw a four bit arithmetic circuit with arithmetic circuit operation table.
 c) Draw a control unit of basic computer.

Q4: Explain the a few logic and shift micro operations: 8
 a) Selective set
 b) Selective complement
 c) Arithmetic shift left
 d) Arithmetic shift right

Q5: What is addressing mode. Explain direct and indirect addressing mode with example. 7

Q6: Differentiate the each part of computer instruction cycle and interrupt cycle. Explain with the example of flow chart for computer operations. 8

Q7: Show step-by-step execution of Branch and Save Return Address instruction with example. 6