**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID: \_\_\_\_\_\_\_\_\_\_\_\_**

**Department of Computer Science and Engineering**

**MIDTERM EXAMINATION**

**Summer 2015**

**CSE340: Computer Architecture**

**Total Marks:** **40**  **Time Allowed: 1 hour**

Return the question with your answer script

**Section 1 –10 Marks**

Question 1

Design a magnitude comparator for 2-bit numbers A=A1A0 and B=B1B0. The outputs are F, G and H, where F is 1 if A>B, G is 1 if A=B and H is 1 if A<B. **10**

* + 1. Generate the truth table for the above algorithm.
    2. Implement the comparator using 4-to-16 decoder.

**Section 2(Answer ANY TWO) –30 Marks**

Question 2

1. Explain various addressing modes in MIPS. **9**
2. Define Computer Architecture, ISA. What are the roles of a computer Architect? **6**

Question 3

1. Convert -61.6875 into IEEE-754 single point floating point representation. Also show the hex equivalent of the representation. **7**
2. X=0100 0110 1100 0000 0000 0000 0000 0000 Y=1100 0100 1010 0000 0000 0000 0000 0000 representing single precision IEEE 754 floating-point numbers, Find X+Y. Also show its decimal equivalent. **8**

Question 4

1. Convert the following MIPS instructions. For each instruction, you should identify the format type (R, I, or J format): **6**
   * 1. subi $14,$15,73
     2. srl $7,$8,11
     3. bnq $7$8,100
2. Write the equivalent MIPS code for the given C function: **6**

For (i=0;i<11;i++){

x=x+y;

}

1. Define sign extension and zero. **3**