

**Department of Computer Science and Engineering**  
**Quiz 02**  
**Spring 2025**  
**CSE340 : Computer Architecture**  
**Total Marks: 15**                      **Duration: 35 Minutes**

**Name:**

**ID:**

- Answer ALL the questions.

**Q1. Convert the following high-level language code into its corresponding RISC-V assembly language code.** [10]

```
int i = 1;
int sum = 0;
while(i <= 100){
    sum = sum + i;
    i++;
    if(sum >= 200){
        break();
    }
}
```

**Q2.**

```
#80000    Loop:slli x10, x22, 2
          add x10, x10, x25
          lw x9, 0(x10)
          bne x9, x24, Exit
          addi x22, x22, 1
          sub x1,x2,x3
          beq x0, x0, Loop
Exit:
          jal x1,Loop
```

**From the provided code snippet, convert the 2nd SB format instruction to its corresponding binary representation.**

[5]

### Surprise Quiz 02

- a. How can we generate an unconditional jump using the SB format instructions? [1]
- b. Figure out the task of each register from these individual instructions.
  - i. LD x9,64(x10) [1]
  - ii. LD x10, 64(x9) [1]
- c. ADDI X5,X0,4096. Is the instruction correct? If not make necessary corrections. [2]

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- Answer ALL the questions.

**Q1. Convert the following high-level language code into its corresponding RISC-V assembly language code.** [10]

```
#include <stdio.h>

int main() {
    int sum = 0;
    for (int i = 1; i <= 100; i++) {
        sum = sum + i;
        if (sum >= 200) {
            break;
        }
    }
    return 0;
}
```

**Q2.**

```
#80000      Loop:slli x10, x22, 2
            add x10, x10, x25
            lw x9, 0(x10)
            bne x9, x24, Exit
            addi x22, x22, 1
            addi x21,x1,1
            beq x0, x0, Loop
            Exit:
            jal x1,Loop
```

**From the provided code snippet, convert the 1st SB format instruction to its corresponding binary representation.** [5]

### Surprise Quiz 02

- a. How can we generate an unconditional jump using the SB format instructions? [1]
- b. Figure out the task of each register from these individual instructions.
  - i. LD x9,64(x10) [1]
  - ii. LD x10, 64(x9) [1]
- c. ADDI X5,X0,4096. Is the instruction correct? If not make necessary corrections. [2]