Reg.No: | | | | | | | |

# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
Coimbatore – 641 035.

**B.E / B.Tech – Internal Assessment Exam- II**
**Academic Year 2023-2024 (ODD)**
**FIFTH SEMESTER (REGULATION R2019)**
**19ITT202 – COMPUTER ORGANIZATION AND ARCHITECTURE**

**A**

**TIME: 1.5 HOURS** **MAXIMUM MARKS: 50**

**ANSWER ALL QUESTIONS**

**PART A — (5 x 2 = 10 Marks)**

| | | | |
|---|---|---|---|
| 1. | What are the rules to perform addition on floating point numbers? | CO2 | UND |
| 2. | Subtract (11010)2-(10000)2 using 1's complement and 2's complement method. | CO2 | APP |
| 3. | Mention the various phase of an executing an instruction. | CO3 | REM |
| 4. | What are steps required to execute an instruction by the processor? | CO3 | UND |
| 5. | Write the sequence of operations to perform the Instruction [R3]<- [R1]+[R2] | CO3 | UND |

## PART- B (2 x 13 = 26 Marks , 1*14=14 Marks)

| | | | | | |
|---|---|---|---|---|---|
| 6. | (a) | Perform the arithmetic operations below with binary numbers and with negative numbers in signed 2's complement representation. Use seven bits to accommodate each number together with its sign. In each case, determine if there is an overflow by checking the carries into and out of the sign bit position.<br>a. (+35) + (+40)<br>b. (-35) + (-40)<br>c. (-35) - (+40) | 13 | CO2 | APP |
| | | **(OR)** | | | |
| | (b) | Write a short notes on single bus organization | 13 | CO3 | UND |
| 7. | (a) | **i** ) Discuss about hardwired control<br>ii ) Differentiate hardwired control and microprogrammed control | 7<br>6 | CO3 | UND |
| | | **(OR)** | | | |
| | (b) | Explain about data hazards with an exampl**e.** | 13 | CO3 | REM |
| 8. | (a) | Show the step-by-step multiplication process using Booth algorithm when the following binary numbers are multiplied. Assume 5-bit registers that hold signed numbers. The multiplicand in both cases is + 15.<br>a. (+ 15) * (+ 13)<br>b. (+ 15) * (- 13) | 14 | CO2 | APP |
| | | **(OR)** | | | |
| | (b) | Divide using the restoring and non-restoring division algorithm with step by step intermediate results and explain.<br>(a) 10100011 by 1011 (b) 00001111 by 0011.<br>(Use a dividend of eight bits.) | 14 | CO2 | APP |

**Prepared By** **Verified By** **HOD**

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