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AY 2021-22

IN-HOUSE CLASS TEST-II

B. Tech.

Computer Science and Engineering

III SEMESTER

CSC303: COMPUTER ORGANIZATION

Duration: 60 MINUTES **09-11-2021** **Max. Marks: 20**

Answer all questions

1. a) Perform the operation (+50) – (– 45) using addition and subtraction algorithm with signed 2's complement data in binary numbers. [2]
   b) What are the various methods for designing the hardwired control Unit. Explain each with its diagram and working. [3]
   c) Design the multiplier control in microprogrammed control. Also explain how it works. [3]

2. a) Write Goals of Parallelism. [1]
   b) 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 is + 14. [3]
   (+ 14) * (- 12)
   c) Show the content of register E, A, Q and SC during the process of division of 00011111 by 0011. [3]

3. a) Give four main differences between Microprogrammed and Hardwired Control Unit. [2]
   b) An instruction pipeline consists of 4 stages fetch(F), decode(D), execute(E) and write(W). Each instruction spent one clock cycle for each stage. Given is 5 instructions (I1, I2, I3, I4, I5) in a set, but at stage four branch condition occurs. [3]

   i) Draw the phase time diagram.
   ii) At what clock cycle, instruction I1, I2, I3, I4, I5 will complete its execution?

******GOOD LUCK******