Internal Assesment

Course: Computer System Organization (CST207)

Date: 07.08.2025
Time: 50 min
Total marks: 20

$1 \times 5 = 5$

1. (a) The Von Neumann architecture is based on the concept of:
   A) Separate memory for data and instructions
   B) Shared memory for data and instructions
   C) Harvard memory model
   D) Cache memory only

   (b) Consider the instruction: Load R2, (R3)
   What does this instruction do? A) Copies the contents of R3 into R2
   B) Loads into R2 the value stored at the memory address contained in R3
   C) Stores the value of R2 into the memory address contained in R3
   D) Adds the contents of R2 and R3 and stores the result in R2

   (c) What is operand forwarding in the context of pipelining?

   (d) Mention and explain any one issue of pipelining.

   (e) What is cache memory?

2. Explain Von Neumann architecture.   3

3. Multiply -9 with -13 using Booth's algorithm.   4

4. Calculate the number of page faults for the following reference string with frame size = 3 by using
   (a) LRU and (b) FIFO page replacement algorithm:

$$5, 0, 2, 1, 0, 3, 0, 2, 4, 3, 0, 2, 3, 1, 0, 1, 5$$

$(4 + 4)$