REG.NO.:

VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

School of Computer Science Engineering and Information Systems

CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2024-2025

SLOT: D1 +TD1

Programme Name & Branch	: M.Tech [SE]
Course Code and Course Name	: ISWE301L-Computer Architecture and Organization
Faculty Name(s)	: Dr. K.Santhi, Dr. M. Deepa, Dr. M. Vanitha, Dr. P.Suganya, Dr. Benjula Anbu Malar M B
Class Number(s)	: VL2024250103032, 3040, 3046, 3024, 3015
Date of Examination	: 16/9/24
Exam Duration	: 90 minutes Maximum Marks: 50

General instruction(s):

BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

CO- Course Outcomes:

CO3: Analyse the arithmetic algorithms to perform Arithmetic and Logic unit (ALU operations.

CO4 : Design a memory system on understanding the chip organization and analyse its performance.

Answer All Questions 5 x 10 =50 Marks

Q. No	Question	M	CO	BL
1.	Design 1024 × 16 – bit RAM using 512 × 8 – bit RAM chips. i) Draw the memory map table (5 Marks) ii) Draw memory design diagram (5 Marks)	10	CO4	BL5
2.	Consider a cache of size 16 KB with block size 256 bytes. The size of main memory is 256 KB. Find the physical address splits for direct mapping, associative mapping and 4 -way set -associative mapping.	10	CO4	BL3
3.	Demonstrate the step-by-step multiplication process using Booth multiplication algorithm when the following numbers are multiplied. A = -45 (Multiplicand) B = -13 (Multiplier). Use 7-bit registers to accommodate the data. Draw the necessary flow diagram.	10	CO3	BL3
4.	Divide 57 by 7 by using a signed magnitude division algorithm and find out the value of the quotient and remainder. Show the contents of the registers M, A, Q & n during the process of a division using restoring algorithm. Assume 6-bits to accommodate the data. Give an algorithm for the division method.	10	CO3	BL2
5.	a) Formulate the value of -15.635 in 32-bit floating point format IEEE 754.	5	CO3	BL2
	b) Formulate the value of 0.025 in 64-bit floating point format IEEE 754.	5		

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