



VIT

Vellore Institute of Technology
CHENNAI

Reg. Number:

Continuous Assessment Test (CAT) – I - AUGUST 2024

Programme	:	B. Tech (CSE)	Semester	:	Fall Semester 2024-25
Course Code & Course Title	:	BCSE205L Computer Architecture and Organization	Class Number	:	CH2024250101443 CH2024250100885 CH2024250100532
Faculty	:	Dr. M. Asha Jerlin Dr. Kaja Mohideen A Dr. M. Vidhya Lakshmi	Slot	:	A1+TA1
Duration	:	1 ½ hours	Max. Mark	:	50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.

Answer all questions

Q. No	Sub Sec.	Description	Marks
1	a.	Illustrate the stored program concept on a machine that has same memory for storing instructions and data. Explain the operational steps involved with a suitable diagram. [10 marks] Load M(X) Mul R3 Store M(X)	15
	b.	Considering the address lines in 2 bits and Data lines in 16 bits. Draw and Explain the register file with three access ports for the instruction $R4 \leftarrow R3 - R2$. [5 marks]	
2		You are buying a new processor. They have two options: a RISC and a CISC processor. Your friend is unsure which one to choose and asks for your advice. He uses the computer for simple tasks like browsing the web, word processing, and light programming. Based on the scenario, which processor would you recommend and justify your recommendation with 5 valid points.	5
3		At an event in VIT, a team is asked to design a processor that performs multiplication using Modified Booth's Algorithm. i. Show the step-by-step process for multiplying $(25)_{10}$ and $(-6)_{10}$. [6 Marks] ii. Validate the correctness of the result. [2 Marks] iii. Find the decimal equivalent of the content of the accumulator at the end of the second iteration. [2 Marks]	10
4		i) Represent the given decimal value $(85.125)_{10}$ into IEEE	10

	754 single precision floating number format [4 marks]	
	ii) Add the given decimal numbers $(234.45)_{10}$ and $(122.35)_{10}$ and write the normalized result in IEEE single precision format. [6 Marks]	
5	You have been selected as an assembly language programmer at ARC technologies. Your manager has given you an expression: $A = (B * C + D) - (E - R)$ asking you to code it in one, two and three address instructions. Give the program listing.	10