Quiz one

PART A Six Theory Questions

Q1. What is the difference between **computer architecture** and **computer organization**?

Q2. List two advantages of integrated circuits (ICs) over earlier vacuum tube computers.

Q3. What is the main idea of Amdahl's Law, and why is it important in multicore systems?

Q4. What is the purpose of the Program Counter (PC) during the fetch cycle?

Q5. What is the difference between the data bus and the address bus?

Q6. What are the four basic functions of a computer system?

Q7. What does the Instruction Register (IR) hold during program execution?

Q8. What is the main function of the ALU (Arithmetic and Logic Unit) in the CPU?

Q9. Why is the data bus width important for system performance

PART B Two Calculation Questions

Q11. Little's Law

A computer server receives 200 tasks per second.

Each task spends an average of 0.05 seconds inside the system.

Find: The average number of tasks in the system (L)

Q12. Little's Law

A web server receives 480 requests per minute.

Each request spends an average of 4 seconds in the system (waiting + processing).

Find: How many requests are in the system on average?

Q13. Amdahl's Law

A program is 70% parallelizable, and we use 4 processors.

Find: The speedup using Amdahl's Law.