



# **PAC INSTITUTE OF TECHNOLOGY AND SOCIAL STUDIES**

## **JANUARY – APRIL 2025 ASSESSMENT**

### **FORMATIVE ASSESSMENT**

Qualification / Course : COMPUTER SCIENCE LEVEL 6

Unit of Competency : COMPUTER ORGANIZATION

### **WRITTEN ASSESSMENT**

TIME: 3 HOURS

#### **INSTRUCTIONS TO THE CANDIDATE:**

- 1. Read all the instructions carefully before attempting the questions.*
- 2. This paper consists of two sections, A & B.*
- 3. You are allowed 3 Hours to Answer the questions.*
- 4. Marks for each question are indicated in brackets.*
- 5. Write your responses in the Separate Answer booklet provided.*
- 6. Do not write anything on this question paper.*

## SECTION A: (40 MARKS)

*Answer ALL questions in this section.*

1. State TWO functions of computer system registers. (2 Marks)
2. Differentiate between Computer Organization and Computer Architecture. (4 Marks)
3. List FOUR basic components of a computer system. (4 Marks)
4. Explain TWO functions of the Arithmetic and Logic Unit (ALU) (4 Marks)
5. Name any four types of computer memory. (4 Marks)
6. Explain TWO purposes of cache memory. (4 Marks)
7. Explain TWO significance of virtual memory. (4 Marks)
8. List three categories of peripheral devices. (3Marks)
9. State Four function of the Control Unit in the CPU (4 Marks)
10. Explain Direct Memory Access (DMA). (4 Marks)
11. Explain Bus Interface and its role in I/O operations. (3 Marks)
12. List any two standard I/O devices and their specification factors. (2 Marks)
13. Explain the purpose of the Fetch-Execute cycle (2 Marks)

## SECTION B: (60 MARKS)

Answer any **THREE** questions in this section.

14. a) Explain four key functions of memory in a computer system. (4 marks)  
b) Differentiate between **Primary Memory**, **Cache Memory**, **Registers**, and **Virtual Memory**, highlighting their roles in processing. (6 marks)  
c) Discuss three key factors that determine the performance of RAM in a computer. (6 marks)  
d) Explain the significance of **cache memory levels (L1, L2, L3)** in CPU performance. (4 marks)
15. (a) Discuss the various modes of data transfer in a computer system. (10 Marks)  
(b) Explain the role of peripheral devices in computer operations and list their categories. (10 Marks)
16. (a) Describe the Central Processing Unit (CPU) architecture; including ALU, Control Unit, and Buses. (10 Marks)  
(b) Discuss the different types of registers used in CPU operations. (10 Marks)
17. (a) Explain the IEEE-based Integer and Floating Point representations. (10 Marks)  
(b) Perform binary addition and subtraction on the following:  
1.  $1101 + 1010$   
2.  $1111 - 1001$  (10 Marks)
18. (a) Explain how logic gates are used to perform logic operations. (10 Marks)  
(b) Draw the truth table and logic diagram for an AND, OR, and XOR gate. (10 Marks)