



PAC INSTITUTE OF TECHNOLOGY AND SOCIAL STUDIES JANUARY-APRIL 2025 ASSESSMENT

FORMATIVE ASSESSMENT

Qualification / Course : COMPUTER SCIENCE LEVEL 6

Unit of Competency : Understand Computer Organization and Computer Architecture

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 the questions in this section)

1. Explain the following terms as used in computer systems.
 - (a) Cache memory: (2 Marks)
 - (b) Virtual memory. (2 Marks)
2. State **TWO** functions of computer system registers. (2 Marks)
3. Outline **TWO** ways in which instructions are represented in a computer system. (4 Marks)
4. Differentiate between computer organization and computer architecture. (4 Marks)
5. Explain the purpose of BIOS in a computer system. (2 Marks)
6. You are provided with a computer system and asked to identify the exact model and specifications of the CPU installed. Describe the tools or methods you would use to accomplish this task. (3 Marks)
7. State **TWO** major components involved in input-output processing. (2 Marks)
8. Explain the role of the bus interface in computer architecture (2 Marks)
9. A photographer needs a new printer for high-quality photo printing. Advise them on the necessary specifications for the printer. (3 Marks)
10. Define the term integer arithmetic (2 Marks)
11. Describe the concept of programmable logic devices (PLDs) in representing logic operations. (2 Marks)
12. State the procedure of determining the number of cores in a computer system CPU. (2 Marks)
13. You are tasked with recommending a CPU for a user who primarily uses their computer for graphic design and video editing. They have a moderate budget and require high performance for their demanding tasks. Outline ONE CPU specifications you would consider most important for this user. Justify your answer. (2 Marks)
14. Describe **THREE** types of buses in a computer system. (3 Marks)
15. Central Processing Unit (CPU) is normally regarded as the 'brain' of the computer. State

THREE components of the CPU.

(3Marks)

SECTION B: (60 Marks)

(Answer any THREE (3) questions in this section)

16. The importance of computers in today's world cannot be overstated. Computers play a vital role in various aspects of our lives and have transformed the way we work, communicate, learn, and access information.

(a) Using a diagram, describe **FOUR** main components of a computer system.

(10 Marks)

(b) Explain **FIVE** computer hardware components.

(10 Marks)

17. Cloud storage refers to the online storage of data on remote servers, accessible through the internet.

(a) Explain:

i. **THREE** advantages of cloud storage

(6 Marks)

ii. **THREE** disadvantages of cloud storage

(6 Marks)

(b) Describe the process of instruction execution in a pipelined architecture, including the stages involved.

(8 Marks)

18. Computer memory refers to the electronic components and systems used by computers to store and retrieve data. It plays a crucial role in the functioning of a computer by providing storage for instructions and data that the processor needs to perform tasks.

(a) Describe different levels of the memory hierarchy

(10 Marks)

(b) Explain **FIVE** levels of RAID (Redundant Array of Independent Disks)

(10 Marks)

19. The importance of computer number systems lies in their fundamental role in representing and manipulating data within a computer system.

(a) Describe **FOUR** number systems as used in computer architecture.

(8 Marks)

(b) Explain **THREE** modes of data transfer.

(6 Marks)

(c) A data scientist regularly works with large datasets and performs complex computations. Explain **THREE** ideal memory specifications for the computer.

(6 Marks)

