

QUESTION BANK: MCQS
CHAPTER 02: COMPUTATIONAL THINKING AND ALGORITHMS

What is the first step in solving a computational problem?

- A) Testing the solution
- B) Designing a solution
- C) Understanding the problem
- D) Writing the algorithm

Which of the following is an example of a computing problem?

- A) Finding the shortest route on a map
- B) Making a sandwich
- C) Reading a book
- D) Drawing a picture

What does the "Input" in the I-P-O model represent?

- A) The process of analyzing data
- B) The data received by the system
- C) The result displayed by the system
- D) The storage mechanism used

Which of the following best describes "decomposition" in computational thinking?

- A) Breaking down a problem into smaller parts
- B) Analyzing the output of a program
- C) Writing a program in a single step
- D) Combining small programs into one

In computational thinking, "abstraction" refers to:

- A) Ignoring unnecessary details
- B) Breaking a problem into smaller parts
- C) Testing a program for errors
- D) Drawing a flowchart

The purpose of the I-P-O chart is to:

- A) Visualize the flow of data
- B) Store program code
- C) Perform calculations
- D) Debug programs

Which principle of computational thinking focuses on finding patterns?

- A) Decomposition
- B) Abstraction
- C) Pattern recognition
- D) Automation

Which method is NOT typically used to design a solution?

- A) Flowcharts
- B) Pseudocode
- C) Algorithms
- D) Guesswork

What is an example of output in the I-P-O model?

- A) Data entered through a keyboard
- B) Results displayed on a screen
- C) The storage of intermediate data
- D) The instructions in a program

Which of the following is NOT a step in problem-solving?

- A) Identifying the problem
- B) Designing the solution
- C) Guessing the solution
- D) Evaluating the solution

What does "algorithm" mean in computational thinking?

- A) A computer program
- B) A set of ordered steps to solve a problem
- C) A type of hardware
- D) A mathematical formula

Which method is used to break down a complex problem?

- A) Abstraction
- B) Pattern recognition
- C) Decomposition
- D) Processing

What is pseudocode primarily used for?

- A) Debugging code
- B) Writing program syntax
- C) Representing algorithms informally
- D) Compiling software

Which principle of computational thinking helps in identifying similarities?

- A) Decomposition
- B) Pattern recognition
- C) Abstraction
- D) Testing

Which tool is commonly used to visualize algorithms?

- A) Compiler
- B) Flowchart
- C) Text editor
- D) Calculator

The term "processing" in the I-P-O model refers to:

- A) Displaying results
- B) Performing computations on input
- C) Receiving data
- D) Storing output

What is the main advantage of using the I-P-O model?

- A) It simplifies programming syntax
- B) It provides a structured approach to problem-solving
- C) It eliminates the need for coding
- D) It automates all computations

In computational thinking, automation refers to:

- A) Manually solving a problem
- B) Repeatedly writing the same code
- C) Using computers to execute repetitive tasks
- D) Ignoring unnecessary details

Which is NOT a principle of computational thinking?

- A) Automation
- B) Debugging
- C) Abstraction
- D) Pattern recognition

What is the main purpose of a flowchart?

- A) To store data
- B) To visualize a process
- C) To write code
- D) To compile a program

Which of the following represents "processing" in the I-P-O model?

- A) User input
- B) Displaying data on a screen
- C) Performing calculations on input data
- D) Saving data to memory

How is abstraction helpful in solving problems?

- A) It ignores unnecessary details
- B) It combines all the details
- C) It focuses on hardware design
- D) It creates repetitive tasks

What is a computing solution?

- A) A description of a problem
- B) A test of the software
- C) A method for addressing a computational problem
- D) A type of computer hardware

Which of the following is a characteristic of pseudocode?

- A) It uses strict syntax rules
- B) It is written in natural language
- C) It is a compiled language
- D) It uses graphical elements

What is the first step in designing an algorithm?

- A) Implementing the solution
- B) Testing the algorithm
- C) Understanding the problem
- D) Writing the code

In the I-P-O chart, "output" refers to:

- A) Data storage
- B) The results displayed by the system
- C) Intermediate data processing
- D) Data entered into the system

What is the key feature of decomposition?

- A) Solving a problem as a whole
- B) Breaking a problem into smaller, manageable parts
- C) Automating repetitive tasks
- D) Ignoring complex details

Which of the following is an example of pattern recognition?

- A) Writing a program from scratch
- B) Identifying common behaviors in datasets
- C) Dividing a problem into sub-problems
- D) Visualizing the problem through a chart

What does the "Output" in the I-P-O model represent?

- A) The storage of data
- B) The process of analyzing data
- C) The results or data produced by the system
- D) The instructions to solve the problem

Which is NOT a component of the I-P-O model?

- A) Input
- B) Feedback
- C) Processing
- D) Output

How does decomposition contribute to problem-solving?

- A) It combines multiple problems into one
- B) It eliminates unnecessary steps
- C) It breaks a problem into smaller, manageable parts
- D) It automates all processes

Which of these tools is most helpful in designing a solution?

- A) Spreadsheet
- B) Flowchart
- C) Word processor
- D) Presentation software

What is the main focus of the "processing" stage in the I-P-O model?

- A) Storing data for future use
- B) Transforming input into output
- C) Displaying results
- D) Accepting user input

Which principle of computational thinking focuses on ignoring irrelevant details?

- A) Pattern recognition
- B) Abstraction
- C) Decomposition
- D) Algorithm design

What is the primary goal of problem-solving in computational thinking?

- A) Identifying a problem
- B) Implementing an existing solution
- C) Finding a systematic way to solve a problem
- D) Analyzing unrelated data

Which of the following is true about flowcharts?

- A) They must be written in a programming language
- B) They visually represent the steps of a process
- C) They are used only for storing data
- D) They are more detailed than pseudocode

In computational thinking, which principle focuses on automation?

- A) Pattern recognition
- B) Abstraction
- C) Decomposition
- D) Using computers to execute repetitive tasks

What is the primary purpose of an I-P-O chart?

- A) To analyze test results
- B) To structure data storage
- C) To represent the flow of input, processing, and output
- D) To design graphical user interfaces

Which of the following best describes pseudocode?

- A) A high-level representation of an algorithm
- B) A type of programming language
- C) A flowchart written in a graphical format
- D) A debugging tool for software errors

What is the benefit of using abstraction in solving problems?

- A) It increases computational speed
- B) It eliminates all complexity
- C) It focuses on the main idea and ignores unnecessary details
- D) It simplifies user input

What is the first step in identifying a computing problem?

- A) Finding solutions
- B) Testing results
- C) Understanding the requirements
- D) Writing code

What does the "Input" in the I-P-O model involve?

- A) Performing calculations on data
- B) Data entered into the system
- C) Displaying results to the user
- D) Storing data for future use

Why is pattern recognition important in computational thinking?

- A) It allows for better storage of data
- B) It helps identify commonalities in problems
- C) It eliminates unnecessary processing
- D) It ensures accurate results

Which of these is an example of a computing problem?

- A) Walking to a store
- B) Calculating tax on an income
- C) Reading a book
- D) Painting a picture

What does the "Process" step of the I-P-O model accomplish?

- A) Stores data
- B) Displays final results
- C) Transforms input into output
- D) Collects user feedback

Which computational thinking principle helps in focusing on common features of problems?

- A) Decomposition
- B) Abstraction
- C) Pattern recognition
- D) Automation

What is the significance of algorithms in problem-solving?

- A) They automate repetitive tasks
- B) They visually represent data
- C) They provide a step-by-step procedure to solve a problem
- D) They help store data effectively

What is a key characteristic of decomposition?

- A) Combining multiple problems into one
- B) Breaking a problem into smaller parts for easy management
- C) Ignoring unnecessary details in a problem
- D) Automating repetitive tasks

How does pattern recognition help in solving computing problems?

- A) By creating new problems
- B) By finding similarities in problems to apply known solutions
- C) By simplifying programming syntax
- D) By ensuring efficient data storage

What is the role of abstraction in computational thinking?

- A) To break a problem into smaller parts
- B) To focus on essential details and ignore irrelevant ones
- C) To identify common patterns in problems
- D) To automate repetitive tasks

QUESTIONS BANK: SHORT QUESTIONS
CHAPTER 02: COMPUTATIONAL THINKING AND ALGORITHMS

1. Define computational thinking.
2. What are the main steps of the problem-solving process?
3. Explain the Input-Processing-Output (I-P-O) model.
4. What is the purpose of pattern recognition in computational thinking?
5. How does abstraction help in problem-solving?
6. What is an algorithm?
7. List the principles of computational thinking.
8. Describe the purpose of decomposition in solving a problem.
9. What is an I-P-O chart?
10. Give an example of a computing problem.
11. How can pseudocode help in designing a solution?
12. Differentiate between input and output in the I-P-O model.
13. What is the importance of the "processing" step in the I-P-O model?
14. Name three methods used to design a solution.
15. Why is computational thinking important in software development?
16. What is the significance of flowcharts in solution design?
17. Define pattern recognition with an example.
18. How does decomposition simplify a computing problem?
19. Differentiate between pseudocode and actual code.
20. Write a short note on the role of algorithms in computational thinking.
21. What is the main purpose of testing a solution?
22. How do flowcharts help in understanding algorithms?
23. Why is identifying a computing problem important?
24. Explain the difference between processing and output in the I-P-O model.
25. How can computational thinking be applied in real-life scenarios?
26. What is the relationship between abstraction and decomposition?
27. Define automation in the context of computational thinking.
28. What are the benefits of using pseudocode in solution design?

29. How is an I-P-O chart used in problem-solving?
30. List examples of input devices in the I-P-O model.
31. Write a short note on the importance of problem-solving skills in computing.
32. Explain why testing and evaluation are critical in solution design.
33. What are some tools commonly used to design algorithms?
34. How can abstraction be applied to everyday problems?
35. Define the term "problem-solving" in computational thinking.
36. Why is pattern recognition an essential part of computational thinking?
37. Write a short note on the difference between input and output.
38. What is the importance of designing a structured solution?
39. How does testing ensure the effectiveness of a solution?
40. Explain the purpose of a process in the I-P-O model.
41. What are the main principles of computational thinking?
42. Why is abstraction important in solving complex problems?
43. What is the role of automation in computational thinking?
44. Give an example of a real-world application of the I-P-O model.
45. What is the significance of pattern recognition in software development?
46. How do flowcharts differ from pseudocode?
47. What is the purpose of testing and evaluation in the problem-solving process?
48. Describe a scenario where decomposition can be used effectively.
49. Why are structured solutions important in problem-solving?
50. What is the difference between a computing problem and a regular problem?
51. How can pseudocode simplify the implementation of algorithms?
52. Explain the concept of an I-P-O chart with an example.
53. What are the benefits of identifying patterns in a dataset?
54. How is testing used to validate a computational solution?
55. Write a short note on the advantages of abstraction in computational thinking.
56. How does the I-P-O model help in systematic problem-solving?
57. What is the significance of "output" in the I-P-O model?
58. Define the role of pseudocode in algorithm design.
59. Why is decomposition essential in programming?
60. What are the key differences between input and processing in the I-P-O model?

QUESTIONS BANK : LONG QUESTIONS

CHAPTER 01: COMPUTATIONAL THINKING AND ALGORITHMS

1. Explain the Input-Processing-Output (I-P-O) model with an example.
2. Discuss the principles of computational thinking in detail.
3. Describe the problem-solving process step-by-step with a real-life example.
4. How does abstraction and pattern recognition contribute to computational thinking?
5. Compare and contrast pseudocode and flowcharts in solution design.
6. Write a detailed explanation of the methods used to design a computational solution.
7. Explain the role of algorithms in computational problem-solving with examples.
8. Create an I-P-O chart for a basic calculator application.

9. Discuss the importance of decomposition in solving complex computing problems.
10. Write a detailed note on the I-P-O model and its relevance in computational thinking.

