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Total No. of printed pages = 02

**Monsoon, 2023**  
**Undergraduate Semester Examinations**  
**COMPUTATIONAL THINKING**  
**Course Code: BCS23150T**

**Full Marks – 50**

**Time – 2 hours**

*The figure in the margin indicates full marks for the questions.*

Part A

Answer ALL questions

Multiple Choice(10 x 1mark = 10marks)

- 1 a) Computational thinking is?  
(i) Programming (ii) Thinking like a computer  
(iii) Logically solving problem (iv) Coding
- b) taking a complex problem and breaking it down into a series of small more manageable problems called -----  
(i) Decomposition (ii) Abstraction  
(iii)Pattern matching (iv) Algorithms
- c) What is \_\_\_\_\_ focusing only on the important details, while ignoring irrelevant information called?  
(i) Abstraction (ii) Decomposition  
(iii) pattern matching (iv)Algorithms
- d) Decomposition makes problems \_\_\_\_\_.  
(i) Easier to understand (ii) Better to code  
(iii) Harder to solve (iv)Less time to solve
- e) Pattern recognition involves finding what 2 things among small, decomposed problems?  
(i) Patterns (ii) Code  
(iii)Difference (iv) Similarities
- f) Which of these are true about algorithms?  
The steps / instructions can be ambiguous  
(ii) Algorithms rely heavily on syntax  
(iii) Algorithms are about expressing thinking steps not syntax  
(iv) Pseudo code cannot be used to write an algorithm
- g) Which of the following is not a component of computational thinking?  
(i) Abstraction (ii) Decomposition

- (iii) Pattern matching
- (iv) Typing
- (v) Algorithmic Thinking
- h) What is flowchart ?
  - (i) A visual representation of an algorithm
  - (ii) A series of shapes
  - (iii) A diagram that shows abstraction
  - (iv) None of the above
- i) What does an arrow represent in a Flowchart
  - (i) Start
  - (ii) Data flow
  - (iii) Decision
  - (iv) Process
- j) The more patterns we can find means solving our problem will be \_\_\_\_ (pick all correct answers).
  - (i) Easier
  - (ii) Quicker
  - (iii) Harder
  - (iv) None of the above

Part B

*Answer ANY FOUR questions*  
(Max.100 words each)

- 2. What is an expert system? Give example 5
- 3. Differentiate between knowledge and information 5
- 4. What are the different types of number systems? Explain with examples. 5
- 5. What is the base address of a decimal number? Convert the following decimal numbers into a binary number (i) 45, (ii) 3B 5
- 6. What is the base address of a hexadecimal number? Convert the following hexadecimal number into a binary number: (i) 11, (ii) 5A 5
- 7. Write any three benefits of computational thinking ? 5

Part C

*Answer ANY TWO questions*  
(Max.200 words each including subdivisions)

- 8. a) What do you mean by computational thinking? Give examples. 5
- b) What do you mean by an array? Write any two merits and demerits of array. 5
- 9. a) What do you mean by Algorithm and Flowchart? Write about different symbols use to draw a flowchart. 5
- b) What do you mean by searching and sorting? Give examples. 5
- 10. Write algorithm and flowchart to
  - (a) Find the sum of 5 natural numbers less than 10. 5
  - (b) Find whether a number is odd or even. 5

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