INTERNAL ASSIGNMENT

**Course Code:** 23OBC101 **Assignment No:** 1

**Course Title:** Computational Thinking and Fundamentals of IT

**Last Date of Submission**: 04 Dec 2023 **Maximum Marks:** 30

1. The assignment will have two parts, A and B. Part A is of 10 MCQ-type Questions of 1 mark each.
2. Part B is of 20 Marks having 8 Descriptive Questions. Attempt any 5 out of them.

**Part-A (10 x 1 = 10 Marks)**

|  |  |  |
| --- | --- | --- |
| **Q.No.** | **Question** | **CO** |
| 1 | What is computational thinking? | 1 |
| Ans key | 1. A computer programming language 2. A method for data analysis 3. An approach to problem solving using computer science techniques 4. A form of artificial intelligence |
| 2 | What is the difference between "data" and "information"? | 1 |
| Ans key | 1. Data encompasses knowledge about the real world, while information pertains to encoded quantities 2. Data is processed by computers, while information represents real-world quantities 3. Data is a subset of information that contains numerical values, while information includes characters and symbols 4. Data is restricted to continuous values, while information can be either continuous or discrete |
| 3 | What is the Nyquist-Shannon sampling theorem related to? | 1 |
| Ans key | 1. Binary encoding 2. Colour representation 3. Digital audio sampling 4. Image compression |
| 4 | What is the purpose of pseudocode in programming? | 1 |
| Ans key | 1. To provide a specific syntax for a programming language. 2. To outline the sequence of steps in a program without strict syntax rules. 3. To convert code from one language to another. 4. To replace the need for algorithms in programming |
| 5 | What is the purpose of a flowchart? | 2 |

|  |  |  |
| --- | --- | --- |
| Ans key | 1. To write program code 2. To communicate the program logic visually 3. To debug the program 4. To store data in a system |  |
| 6 | What is an algorithm? | 2 |
| Ans key | 1. A mathematical equation 2. A defined set of step-by-step procedures for solving a problem 3. A programming language 4. A graphical representation of a program |
| 7 | What is the advantage of using flowcharts for program development? | 2 |
| Ans key | 1. Better communication of program logic 2. Improved program analysis 3. Effective documentation of program logic 4. All of the above |
| 8 | Which drawback is associated with the use of algorithms? | 2 |
| Ans key | 1. Difficult tasks are challenging to explain using algorithms 2. Time-consuming development and proof of accuracy 3. Difficulty in representing programming constructs like looping and branching 4. All of the above |
| 9 | \_\_\_\_\_\_\_\_ is an electronic device that stores data and process data by converting it into information that is useful to people. | 3 |
| Ans key | 1. Computer 2. Xerox machine 3. Scanner 4. Printer |
| 10 | The result of the process and computation is displayed on the \_\_\_\_\_\_\_ devices. | 3 |
| Ans key | 1. Output 2. Input 3. Both 4. Neither |

**Part B Answer any 5 Questions (5 X 4 = 20)**

|  |  |  |
| --- | --- | --- |
| **Q.No.** | **Questions** | **CO** |
| 1 | Interpret how Computational Thinking is used. | 1 |
| 2 | Explain classic puzzle solving. | 1 |
| 3 | Summarize the general Problem Solving Techniques. | 1 |
| 4 | State the definition of a flowchart. | 2 |
| 5 | Illustrate the characteristics of an algorithm. | 2 |
| 6 | Construct a flowchart and algorithm to find the sum of the first 10 integer numbers. | 2 |
| 7 | Discuss the various classification of a computer. | 3 |
| 8 | With a neat diagram explain the functional units of a computer. | 3 |