

December 2023

B.Sc (Maths/Physics/MAC), 1st Semester

Introduction to programming (OCSC-101A/OCSC-101-A)

Time: 3 Hours

Max. Marks:75

- Instructions:**
1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
 2. Answer any four questions from Part -B in detail.
 3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

- Q1 (a) What are Bitwise Operators? (1.5)
 (b) Name some functions used for Console I/O. (1.5)
 (c) What are Unary Operators? Give examples. (1.5)
 (d) What is the use of break and Continue in Loops? (1.5)
 (e) Explain different scopes of a variable. (1.5)
 (f) What are Arrays? Why they are used? (1.5)
 (g) Differentiate between Class and Structure. (1.5)
 (h) What is the difference between = and ==. (1.5)
 (i) Specify Function overloading using a programming example. (1.5)
 (j) What are Copy Constructors? (1.5)

PART -B

- Q2 (a) What are Header Files? How they are different from Library files? (5)
 (b) What are Command Line Arguments? Write a program to find sum of n integers and print it. (10)
- Q3 (a) What is Recursion? Write a program to find factorial of a number using recursion. (5)
 (b) Differentiate between Call by Value and Call by Reference. Write a program to swap two numbers without using third variable. (10)
- Q4 (a) What is the advantage of using switch-case over nested if-else statement? Explain the use of switch case with the help of an example. (5)
 (b) What are Multidimensional Arrays? Write a program to search an element 'x' in an array of n elements. (10)
- Q5 (a) Differentiate between Structure and Union with example. (5)
 (b) Explain the concept behind using Pointers and give an example of Array of Pointers. (10)
- Q6 Explain various operations performed on a file and also the file opening modes. (15)

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Q7 Write short note on three of the following

(15)

- i. Inheritance
- ii. Polymorphism
- iii. Function Overloading
- iv. Access Modifiers

Q1 (a) What are Binary Operators? (1.5)
(b) Name some functions used for Console I/O. (1.5)
(c) What are Unary Operators? Give examples. (1.5)
(d) What is the use of break and Continue in loops? (1.5)
(e) Explain different scopes of a variable. (1.5)
(f) What are Arrays? Why they are used? (1.5)
(g) Differentiate between Class and Structure. (1.5)
(h) What is the difference between = and ==. (1.5)
(i) Specify function overloading using a programming example. (1.5)
(j) What are Copy Constructors? (1.5)

PART-B

Q2 (a) What are Header Files? How they are different from Library files? (2)
(b) What are Command Line Arguments? Write a program to find sum of n integers and print it. (10)
Q3 (a) What is Recursion? Write a program to find factorial of a number using recursion. (2)
(b) Differentiate between Call by Value and Call by Reference. Write a program to swap two numbers without using third variable. (10)
Q4 (a) What is the advantage of using switch-case over nested if-else statement? (2)
(b) Explain the use of switch case with the help of an example. (10)
(c) What are Multidimensional Arrays? Write a program to search an element x in an array of n elements. (10)
Q5 (a) Differentiate between Structure and Union with example. (2)
(b) Explain the concept behind using Pointers and give an example of Array of Pointers. (10)
Q6 Explain various operations performed on a file and also the file opening modes. (12)

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