

Roll No. : 5240010040093.

COMS1610

B.Sc., Semester-First (NEP)

Examination-2024-2025

COMPUTER SCIENCE

PAPER - Major

(Computer Fundamentals & Problem Solving)

[Time : 3 Hrs.]

[Maximum Marks : 75]

Note : This Question paper contains two sections. Section 'A' contains 08 short answer type questions. Attempt any 05 questions from this section. Each question carries 06 marks. Section 'B' contains 05 long answer type questions. Attempt any 03 questions from this section. Each question carries 15 marks.

SECTION - A
(Short Answer Type Questions)

(5×6=30)

Note : Attempt any 05 questions out of 08 given below.

1. What do you mean by digital computer? Explain various generations of computers through a comparative analysis of various technologies.
2. What do you mean by computer network? What is the need of computer network? Discuss various types of computer networks in detail.
3. Define the term computer software. Explain various types of computer software with examples.
4. What do you mean by function? Write a C++ program to print factorial of a given number through function.
5. Discuss various OOPs features in detail. Provide suitable examples in support of your answer.

6. What do you mean by function overloading? Write a program in C++ to overload a constructor.
7. What is exception handling? Explain the role of following constructs in exception handling: try, catch, and throw. Also provide a C++ program in support of your answer.
8. Write short notes on any two of the following:
 - (a) this pointer
 - (b) I/O devices
 - (c) Compiler vs interpreter
 - (d) Time sharing OS

SECTION - B
(Long Answer Type Questions)

(3×15=45)

Note : Attempt any 03 questions out of 05 given below.

9. What do you mean by the term memory hierarchy? Explaining the mechanism, discuss in detail various types of computer memory. Provide neat diagrams wherever necessary.

10. (a) Name any five modern operating systems. Discuss various functions of operating system in detail. Differentiate between multiprogramming and multiuser operating systems.
- (b) Explain various types of loops available in C++. Differentiate between entry-controlled loop and exit-controlled loop. Provide C++ program codes in support of your answer.
11. (a) Write a program to implement call by value and call by reference function calling methods in C++.
- (b) Write a program to implement multiple and hybrid inheritance in C++.
- (c) Write a program to implement dynamic memory allocation in C++.
12. What do you mean by Standard Template Library (STL) in C++? Discuss the following terms in detail: vectors, list, queue, map, set, hash_map, hash_set. Also implement the

sort() function. Provide C++ program codes in support of your answer.

13. Write short notes on any two of the following:
- (a) Network topologies
- (b) File handling
- (c) Arrays
- (d) Friend function