
ODD SEMESTER EXAMINATION - 2024-25
B.C.A AI/Cloud Mock
Semester: I
SUBJECT CODE: BCA104
PROGRAMMING IN C
Time: 3 Hours
Maximum Marks: 70

NOTE:

- THE QUESTION PAPER CONTAINS THREE SECTIONS.
- ATTEMPT ALL THE SECTIONS.

SECTION A

NOTE: Attempt all parts of the following questions. (14 Marks)

Q. 1. Answer the following questions: (7 × 1 = 7 Marks)

a) What is machine language, and how does it differ from assembly language?
b) Explain octal and hexadecimal number systems with examples.
c) What is the purpose of `<math.h>` in C, and name one function it provides?
d) How does a `while` loop differ from a `do-while` loop?
e) Define dynamic memory allocation.
f) List two relational operators in C and explain their use.
g) What is the use of the `getch()` function, and which library provides it?

Q. 2. Answer the following questions: (7 × 1 = 7 Marks)

a) How does the `goto` statement work, and when should it be avoided?
b) What are macros in C? Provide an example.
c) What is the difference between signed and unsigned integers?
d) Write the syntax to declare a function that takes two arguments and returns a float.
e) Explain the purpose of the `scanf` function in C.
f) Who developed the concept of structured programming, and why is it significant?
g) Solve the expression: 10×(6−2)+4/210 \times (6 - 2) + 4 / 2.

SECTION B

NOTE: Attempt all the questions. (7 × 2 × 2 = 28 Marks)

Q. 3.

(i) (a) Differentiate between static and automatic variables with examples.
OR
(b) Explain the concept of typecasting in C with an example program.

(ii) (a) Write a C program to calculate the sum of all even numbers between 1 and 100 using a `while` loop.
OR
(b) Describe the syntax and working of a `switch` statement with an example.

Q. 4.

(i) (a) How do you define and use a two-dimensional array? Provide an example.
OR
(b) Explain the use of the `return` keyword in functions with an example.

(ii) (a) What is a function pointer? Write a program to demonstrate its use.
OR
(b) Write a program to generate the first n terms of the Fibonacci sequence.

SECTION C

NOTE: Attempt all questions. (14 × 2 = 28 Marks)

Q. 5.

(a) What are preprocessor directives in C? Explain `#define`, `#include`, and conditional compilation with examples.
OR
(b) Compare structures and classes in C. Provide examples of each and discuss their usage.

Q. 6.

(a) Explain error handling in file operations. Write a program to read a file and display its contents line by line.
OR
(b) Differentiate between interpreters and compilers. Provide examples of programming languages that use each.