
ODD SEMESTER EXAMINATION - 2024-25
B.C.A Mock paper
Semester: I
SUBJECT CODE: BCA107
PROGRAMMING IN C
Time: 2 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) Why is the `#include <stdlib.h>` header file used in C programs?
b) What is the difference between a local variable and a global variable in C?
c) Explain the purpose of the `return` statement in a function.
d) What is recursion in C programming? Provide an example.
e) What is the purpose of the `typedef` keyword?
f) Define an infinite loop and give an example.
g) How is an array different from a pointer in C?

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

a) What is the purpose of the `const` keyword in C?
b) Write the syntax to declare and initialize a 2D array.
c) What does the `continue` statement do in a loop?
d) What is the difference between `i+=1` and `i=i+1`?
e) Write a function to calculate the square of a number.
f) Differentiate between pass by value and pass by reference.
g) Explain the significance of enums in C with an example.

SECTION B

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

Q. 3.

(i) (a) What is a multidimensional array in C? Provide an example to declare and initialize a 3x3 matrix.
OR
(b) Discuss the differences between `realloc()` and `free()` functions in C.

(ii) (a) Write a program to demonstrate the use of `while` loop to print the first 10 even numbers.
OR
(b) Explain how the `if-else` statement works with an example.

Q. 4.

(i) (a) Write a program to check if a given number is prime using a function.
OR
(b) Explain how the `do-while` loop works with an example program.

(ii) (a) What is the difference between a union and an enum in C? Provide examples.
OR
(b) Write a program to find the average of n numbers entered by the user.

SECTION C

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

Q. 5.

(a) Discuss the advantages of dynamic memory allocation. Explain the functions `malloc()`, `calloc()`, `realloc()`, and `free()` with examples.
OR
(b) What are the different modes available in file handling? Write a program to read and write data into a file using `fopen()` and `fwrite()`.

Q. 6.

(a) Write a program to reverse a string using pointers.
OR
(b) What is the difference between inline comments and block comments in C? Write examples to illustrate their usage.