

Bihar Engineering University, Patna

B.Tech. 1st Semester Examination, 2024

Course: B.Tech.

Code: 100111

Subject: Programming for Problem Solving

Time: 03 Hours

Full Marks: 70

Instructions:-

- (i) The marks are indicated in the right-hand margin.
- (ii) There are NINE questions in this paper.
- (iii) Attempt FIVE questions in all.
- (iv) Question No. 1 is compulsory.

Q.1 Choose the correct answer the following (Any seven question only):-

[2 x 7 = 14]

- (a) Which of the following is a valid variable name in C?
 - (i) 2value
 - (ii) @value
 - (iii) value_2
 - (iv) value#2
- (b) Which of these is not a valid data type in C?
 - (i) int
 - (ii) real
 - (iii) float
 - (iv) char
- (c) Which of the following is the correct syntax for if statement?
 - (i) if [condition] then
 - (ii) if condition then
 - (iii) if (condition)
 - (iv) if {condition}
- (d) What is the output of printf("%d", 5 + 3 * 2);?
 - (i) 16
 - (ii) 10
 - (iii) 11
 - (iv) 13
- (e) Which header file is required to use printf()?
 - (i) stdlib.h
 - (ii) stdio.h
 - (iii) conio.h
 - (iv) string.h
- (f) Which keyword is used to define a constant in C?
 - (i) final
 - (ii) #define
 - (iii) constant
 - (iv) static
- (g) What is the index of the first element in an array?
 - (i) 1
 - (ii) -1
 - (iii) 0
 - (iv) Depends on array
- (h) Which one is the logical AND operator in C?
 - (i) &
 - (ii) |
 - (iii) &&
 - (iv) ||
- (i) Which format specifier is used for printing float values?
 - (i) %d
 - (ii) %c
 - (iii) %f
 - (iv) %x
- (j) Which of these is not a loop in C?
 - (i) for
 - (ii) do-while
 - (iii) while
 - (iv) repeat-until

Q.2

- (a) Explain the structure of a C program with an example.
- (b) Describe basic data types in C with memory size.

[7]

[7]

Q.3

- (a) What is an algorithm. Write an algorithm to perform the addition of two numbers in C and draw a flowchart to represent the addition of two numbers.
- (b) Write a program to check whether a number is even or odd using if-else.

[7]

[7]

- Q.4**
- (a) Explain Arithmetic and Logical operators in C with example programs. [7]
 - (b) Explain Relational and Bitwise operators with example programs. [7]
- Q.5**
- (a) Explain call by value and call by reference with examples. [7]
 - (b) What is the difference between library functions and user-defined functions? [7]
- Q.6**
- (a) What is an array in C programming? Write advantages of using arrays. Explain a one-dimensional array with a suitable example program. [7]
 - (b) Describe the difference between character array and string. [7]
- Q.7**
- (a) Write the difference Between Array and Structure in C programming. [7]
 - (b) Write the difference Between Structure and Union in C programming. [7]
- Q.8**
- (a) What is a pointer? Explain pointer declaration and initialization with sample program. [7]
 - (b) What is file? Explain text file and binary file in details. [7]
- Q.9** Write short notes on any two of the following:- [7 x 2 = 14]
- (a) Structure
 - (b) Union
 - (c) Recursion
 - (d) Fibonacci series program