

**FIRST SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2017**

(CUCBCSS—UG)

BCA 1B 01—PROBLEM SOLVING USING C

(2014—2016 Admissions)

Time : Three Hours

Maximum : 80 Marks

**Part A***Answer all questions.**Each question carries 1 mark.*

1. For defining symbolic constants in C, we need to use \_\_\_\_\_ preprocessor directive.
2. The equivalent shorthand assignment statement for the expression  $x = x + 5$  is \_\_\_\_\_
3. The presence of a \_\_\_\_\_ symbol before an executable statement will make the statement non executable.
4. The relational operator \_\_\_\_\_ is used to check the equality of values in two variables.
5. In loops, for skipping the current iteration and continuing with the remaining iterations, we can use \_\_\_\_\_ statement.
6. An example for an unconditional branching statement in C is \_\_\_\_\_.
7. The \_\_\_\_\_ is an example for exit control loop in C.
8. In passing arguments to functions, the \_\_\_\_\_ method creates duplicate memory locations for the formal arguments.
9. In accessing array elements using pointers, the \_\_\_\_\_ acts as the pointer.
10. For adding information to an existing file, the file needs to be opened in \_\_\_\_\_ mode.

(10 × 1 = 10 marks)

**Part B***Answer all questions.**Each question carries 2 marks.*

11. Explain in brief, the concept of solving a problem using computers.
12. Explain enumerated data type with an example.

**Turn over**

13. Write short note on arrays. Explain the syntax and effect of array declaration.
14. Explain the need and syntax of function prototype declaration.
15. Explain the concept of dynamic memory allocation.

(5 × 2 = 10 marks)

### Part C

*Answer any five questions.  
Each question carries 4 marks.*

16. Explain in detail the increment and decrement operators and conditional operators in C.
17. Explain the syntax and working of Switch statement in C.
18. Explain and compare the different ways of passing arguments to functions.
19. Explain the concept of storage classes in C with example.
20. Explain the user defined data type *structures*. What is the concept and need for array of structures?
21. Write a C program to find the arithmetic mean and standard deviation of a set of integers stored in an array.
22. Write a C program to find the number of odd and even numbers in an array of integers by passing the array into a function.
23. Explain preprocessor directives and command line arguments with example.

(5 × 4 = 20 marks)

### Part D

*Answer any five questions.  
Each question carries 8 marks.*

24. Define the term algorithm, what are the properties of algorithms? Design an algorithm for finding the minimum and maximum from a set of numbers.
25. Explain the syntax and working of different looping structures in C.
26. What do you mean by strings? Explain ways of declaring and initializing strings. Explain any four string handling functions.
27. Distinguish between top down and bottom up approach in programming.
28. Explain the concept and working of recursive functions with an example program for finding factorial of a given integer using recursion.

29. Explain different types of functions in C, with example programs.
30. Write a C program to create a data file to maintain the roll no, name and marks in three subjects for the students in a class. Then use this file to find the average mark of each student.
31. Write short note on :
- (a) Compilers, interpreters and assemblers and their working.
  - (b) Passing arrays to functions.
  - (c) I/O operation on Files.
  - (d) The syntax and working of nested if structures, give example.

(5 × 8 = 40 marks)