



**GN-444**

9

I Semester B.C.A. Examination, December - 2019

(CBCS) (F+R) (Y2K14)

**COMPUTER SCIENCE**

**BCA 103T : Problem Solving Techniques Using C**

Time : 3 Hours

Max. Marks : 70

**Instruction :** Answer **all** Sections.

**SECTION - A**

**I.** Answer **any ten** questions.

**10x2=20**

1. State any four important characteristics of C programming language.
2. Write the C functions used for formatted input and output. Give one example of each.
3. What is the difference between break and continue statements ?
4. Write the output of the following bitwise operations assuming values of  $a=5$  and  $b=10$ .  
(i)  $a \wedge b$       (ii)  $a \& b$
5. Distinguish between actual arguments and formal arguments of functions.
6. What is the ternary operator ? Give one example showing the use of this operator.
7. What is recursion ? State one advantage and one limitation of recursive functions.
8. Assuming value of  $x=10$ , evaluate the following expressions :  
(i)  $x == 10 \&\& !x$  (ii)  $x \% 5 * 2$
9. Write the functions used for dynamic memory allocation.
10. State with example any two string handling functions.
11. What are preprocessor directives ? Give any two examples.
12. Differentiate between structures and unions.



**P.T.O.**



## SECTION - B

II. Answer **any five** questions.**5x10=50**

13. (a) What is software ? Write a note on classification of software. **5**  
(b) Write an algorithm and flow chart to check whether an input number is odd or even. **5**
14. (a) Explain the different types of loops available in C. **5**  
(b) Write a C program to check whether an input number is prime or not. **5**
15. (a) What do you understand by function prototyping ? Illustrate with an example. **5**  
(b) Write a recursive function to find sum of first n natural numbers i.e.,  $1+2+3+\dots+n$ . **5**
16. (a) Explain the different storage classes. **5**  
(b) Write a function for concatenating two strings using pointers. For example, S1="Hello", S2="World", resulting string S3="Hello World". **5**
17. (a) What is an array ? Illustrate with an example how a single dimensional array is declared and initialized. **5**  
(b) Write a C program to sort a single dimensional array in descending order. **5**
18. (a) What is a Structure ? How are structure variables declared and initialized ? Illustrate with an example. **5**  
(b) Write a program to store details like emp-no, name and salary for five employees using structures and print them. **5**
19. (a) What are the different modes for opening a file ? Write any three file operation functions in C. **5**  
(b) Write a program in C that accepts the filename and displays its contents. **5**
20. (a) What are bit fields ? How can they be defined ? State the advantages of bit fields. **5**  
(b) Write a program for multiplying two matrices. **5**