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## B.C.A. Examination, 2019

## First Semester

## Second Paper

## (Programming Principles & Algorithm)

***Time : Three Hours*** ***Maximum Marks : 75***

**Note**: Attempt any **five** questions. **All** questions carry equal marks.

**Note**: The answers to short questions should not exceed 200 words and the answers to long questions should not exceed 500 words.

1. (a) Name the primitive data types in C language with examples. 5+5+5

(b) Why is C known as 'middle level language?

(c) Explain the utility of header files in C language.

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2. (a) Explain the different iterative constructs in C language with illustrative examples. 5+5+5

(b) Discuss :

If, If-Else, Nested If Else, Switch, Give example.

(c) Write a short note on Preprocessor Directive.

3. (a) What is understood by Recursion? Which data structure is used for its implementation? 5

(b) Write a recursive program for computation of the GCD of two integers. (M, N). 5

(c) Write a C program for computing the sum of the series upto t terms: 5

$1+n+n^2+n^3+----N^{(t-1)}$

Where N, t are to be input at run time.

4. Write short notes on: 5+5+5

(i) Big Oh Notation

(ii) Algorithm and its characteristics

(iii) Functions and their types.



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5. (a) Write a C program to print all the odd numbers between 701 to 800. 6

(b) Write a C program to print out all the factors of a given integer N, where N is provided at runtime. 6

(c) What is a palindrome? Give a few examples. 3

6. Write short notes on: 5+5+5

(a) Pseudo code

(b) Perfect Number Computation

(c) Problem solving techniques.

7. (a) C has a rich set of operators. Justify this statement by describing the different types of operators available in C language. 8

(b) Write a C program to accept two integers and to compute their bitwise 'AND' value as printed output. 7





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8. (a) Justify the use of functions as building blocks in a modular program. What is Top down Approach? 7

(b) What is the difference between 8

(i) While and Do while

(ii) Break and Continue

(iii) Perfect Number and Prime Number

(iv) Factorial and cube Root of a number.



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