

9. (a) How many types of storage classes C language supports ? Why do we need different types of such classes ? 6

(b) Change the following For loop into a While loop. Also convert the For loop into Do-while loop : 6

```
int i;
for (i = 10; i > 0; i--)
    printf("%d", i);
```

Roll No. 0102771

BCA-102(N)

B. C. A. (First Semester)
EXAMINATION, Nov./Dec., 2018
 (New Course)

PROGRAMMING PRINCIPLE AND ALGORITHM

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 3 marks.

1. (A) What is Equality Operator ? Explain with example.
- (B) Why do we need signed and unsigned char ?
- (C) Why do we include <stdio.h> in our program ?
- (D) Differentiate between typesetting and type-conversion.

- (E) Why floating point number should not be used for equality in expression ?
- (F) Differentiate between formal parameters and actual parameter.
- (G) What do you mean by time-complexity of an algorithm ?
- (H) What is pre-processor directives ?
- (I) What are the steps of problem-solving techniques ?

Section—B

(Long Answer Type Questions)

Note : Attempt any two questions. Each question carries 12 marks.

2. (a) How is comma operator useful in FOR Loop ? Explain with the help of relevant example. 6
- (b) Write a program to print the following pattern : 6

0

1 2

3 4 5

6 7 8 9

3. (a) Write a program to print the digit at one place of a given number. 6

- (b) Write a short note on formatted and unformatted input/output functions. 6

4. (a) Write a function that accepts number n as input and returns the average of n numbers. 6

- (b) Explain the concept of making function call. 6

5. (a) Draw a flow-chart for multiplications of n natural numbers. 6
- (b) What are the limitations of Big-Oh notation ? Explain in brief. 6

Section—C

(Long Answer Type Questions)

Note : Attempt any two questions. Each question carries 12 marks.

6. (a) Write a program to print the count of even numbers between 1 to 200. Also print the sum. 6
- (b) What are header files ? Why are they important ? Can we write a C program without using any header files ? 6

7. (a) Explain the terms variables and constants. How many type variables are supported by C language ? 6

- (b) Write a program to sum the series : 6

$$\frac{1}{1} + \frac{2^2}{2} + \frac{3^2}{3} + \dots + \frac{n^2}{n}$$

8. (a) Write a program to calculate GCD using recursive function. 6

- (b) Explain the difference between call by value and call by reference. 6