BCA–102(N)

B. C. A. (First Semester)
EXAMINATION, Dec., 2017

(New Course)

Paper Second

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) Let A = 3 and B = 2. Then what will be the value of the following expressions ?

(i) (A > B)

(ii) (A < 5)

(iii) A > (B + 5)

(iv) (A > (B + 3))

(B) Differentiate between the source code and object code. Why are interpreter and complier used ?

(C) What do you understand by identifier and keywords ?

(D) Change the following for loop into a while loop.

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

(E) Why is function declaration statement placed prior to function definition ?

(F) Differentiate between syntax and semantic errors.

(G) Explain bitwise operator.

(H) Explain the utility of #define and #include statements.

(I) What do you understand by Pseudo-Code ? Find the output of the following code :

```
#include <stdio.h>
int main ( )
{
    int n = 2;
     n = ! n;
    printf ("%d", n);
    return 0;
}
```

Section—B

(Long Answer Type Questions)

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

2. (a) Write a short note on iterative statements that C language supports. 6

   (b) Write a program to read a 5 digit number and then display the number in the following format : 6

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

3. (a) Write a program which demonstrates the use of goto, break and continue statements. 6

   (b) Write a program to find whether the given number is Armstrong number or not. 6

4. (a) What is Comma Operator ? Explain with the help of relevant examples. 4

   (b) Write a program to enter a decimal number. Calculate and display the binary equivalent of this number. 8

5. (a) Write a program to SUM the series : 6

$$\frac{1}{2}+\frac{2}{3}+\frac{3}{4}+\ldots\ldots\ldots\frac{n}{(n+1)}$$

   (b) Explain the importance of the switch-case statements. In which situation is a switch-case desirable ? And also give its limitations. 6

Section—C

(Long Answer Type Questions)

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

6. (a) How many types of storage classes C language supports ? Why do we need different type of each storage class ? Explain with the help of a program. 8

   (b) What do you mean by Brain-storming ? How does Brain-storming technique help in problem solving ? 4

7. (a) What is Big-oh notation ? Explain. 4

   (b) Explain the concept of Recursion-Function and write a program to print the Fibonacci series using recursive function. 8

8. (a) What do you understand by scope of variable ? Explain in detail with suitable examples. 5

   (b) What is an algorithm ? Write a program to swap of two variables with the help of call by reference method. 7

9. (a) What are the steps in problem solving ? Explain in brief. 6

   (b) Write a function that will calculate and display the real roots of the equation $ax^2 + bx + c$. 6