Roll No. .....

BCA–301(N)

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

(New Course)

Paper First

OBJECT ORIENTED PROGRAMMING USING C++

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 3 each

(Short Answer Type Questions)

Note : Attempt all questions.

1. (A) Differentiate between pointer and reference variable.

(B) What is the difference between public and protected inheritance ?

(C) How does C++ compiler handle dynamic binding ?

(D) Define reusability ? How does C++ support reusability.

(E) How are constructor and destructor executed in multilevel inheritance ?

(F) What is the role of new operator in C++ ?

(G) How is garbage collection done in C++ ?

(H) Write the output of the following C++ program code :

Assume all required header files are already being included in the program.

```
void position (int & C1 int C2 = 3)
{     C1 + = 2;
      C2 + = y;
}
void main ( )
{   in P1 = 20, P2 = 4;
    position (P1);
    cout << P1 << "," <<P2 << endl;
    position (P2, P1);
    cout << P1 << "," << P2 << endl;
}
```

(I) Write the output of the following C++ program code :

Assume all required header files are already being included in the program.

```
class calc
{
   char Grade;
   int Bonus;
```

```
public :
   calc ( ) {Grade = 'E' : Bonus = 0;}
void Down (int G)
{
   Grade – = G;
}
void Up (int G)
{
   Grade + = G
   Bonus ++;
}
void show ( )
{
   cout << Grade << "#" << Bonus << endll;
}
};
void main ( )
{  Calc C;
   C. Down (2);
   C. Show ( );
   C. Up (7);
   C. Show ( );
   C. Down (2);
   C. Show ( );
}
```


Section—B

(Long Answer Type Questions)

Note : Attempt any *two* questions.

2. (i) Differentiate between the following : 2
   (a) f = open ('diary .txt', 'r')
   (b) f = open ('diary .txt', 'w')
   (ii) Give an example to show how to use object as the arguments in a function. 10

3. (i) Explain how arguments are passed by a program to a function. 6
   (ii) Create a class named shape. Using shape class write a program to develop square and rectangle as the output. 6

4. (i) What is the role of inline function ? How does it differ from macros ? 6
   (ii) What is meant by constant member function ? Explain with example. 6

5. (i) Which operators cannot be overloaded. 2
   (ii) Write a program to overload ++ operator for prefix and postfix use. 10

Section—C

(Long Answer Type Questions)

Note : Attempt any *two* questions.

6. What is polymorphism ? What are the different types of polymorphism ? Explain in detail, what are the merits and demerits ? 12
7. (i) What do you mean by Data Abstraction ? 6
   (ii) Explain how exception handling is done in C++.6

8. (i) Explain typecasting. What are explicit and implicit type conversion ? 6

   (ii) What do you mean by generic class ? Give an example. 6

9. (i) What is the difference between a virtual function and pure virtual function ? Explain with example. 6

   (ii) Write a function template to final a maximum value from an array. 6