15 : F-1stHf08.

Con. 3731-08. (REVISED COURSE) RC–9020

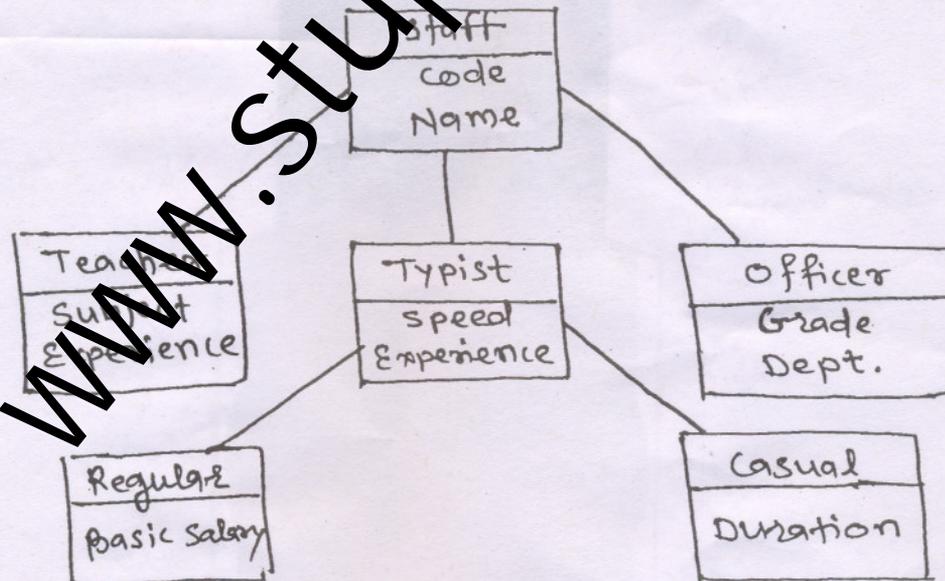(3 Hours) [**Total Marks : 100**

N.B. (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions from the remaining.

1. (a) Explain logical operators. Write a C++ program to demonstrate the same. **10**
   (b) Write a program to display following pattern using nested loops :— **10**

```
        A
      A B A
    A B C B A
  A B C D C B A
```

2. (a) Write a program to sort an array of integer numbers in descending order using bubble **10**
   sort.
   (b) What are inline functions ? Discuss its advantages and disadvantages. Write a **10**
   program to demonstrate inline function.

3. (a) An education institution wishes to maintain a database of its employees. The database **10**
   is divided into a number of classes, as shown below. Specify all the classes and
   define functions to create a database and retrieve inividual information as and when
   required. Assume necessary data.

   (b) What is virtual function ? What is the need of virtual function ? Write a program to **10**
   demonstrate the same.

4. (a) Write a program to find sum of diagonal elements of 3 * 3 matrix. **8**
   (b) Explain the benefits of object oriented programming. **8**
   (c) Distinguish between Function Overloading and Operator Overloading. **4**

[**TURN OVER**

Con. 3731–RC–9020–08.

5. (a) Write a program to overload "+ =" operator to add two distances given in feet and inches.   **8**

   (b) Develop your own functions for performing following operations on strings :—   **8**
     (i) Copying one string to another
     (ii) Adding one string to the end of another.

   (c) Explain the following with example :—   **4**
     (i) break
     (ii) continue.

6. (a) Write short note on Manipulators.   **8**
   (b) Write a program to demonstrate call by reference.   **6**
   (c) Write a program to find factorial value of given integer number using recursion.   **6**

7. (a) Write a program to check the entered number is prime or not.   **8**
   (b) Write a program to declare integer pointer. Store 10 numbers in the pointer. Use new operator to allocate memory for 10 integers. Read and display the numbers.   **6**
   (c) What is abstract class ? Explain with example.   **6**

———————————