AQ – 2650

First Semester M. Sc. (AE) Examination

OBJECT ORIENTED PROGRAMMING C++

Paper – 1 AE 3

P. Pages : 3

Time : Three Hours] [Max. Marks : 80

Note : (1) Due credit will be given to neatness and adequate dimensions.
(2) Assume suitable data wherever necessary.
(3) Illustrate your answer wherever necessary with the help of neat sketches.
(4) Use pen of Blue/Black ink/refill only for writing the answer book.

1. (a) What are reasons for evolution of new programming paradigm of OOPs ? 6

(b) Define following terms related to OOPs :

(i) Encapsulation.

(ii) Message passing.

(iii) Polymorphism.

(iv) Inheritance. 8

OR

2. (a) Explain various concept in structured programming. 7

(b) Describe different methods for defining constant in object oriented programming. 7

3. (a) What are differences between parameter passed by value and passed by reference ? Explain with suitable program segment. 6

(b) Write a program to read two integer numbers through two different object of class "Addition". Add these two integer numbers using friend function and display the total. 7

OR

4. (a) Explain the following terms using C++ program segment :

(i) Scope resolution.

(ii) Inline function. 7

(b) What are the different rules to overload binary operator ? 6

5. (a) What is parameterized constructor and null constructor ? Explain with proper program segment in C++. 7

(b) Explain the terms using program segment in C ++ :

(i) Implicit object.

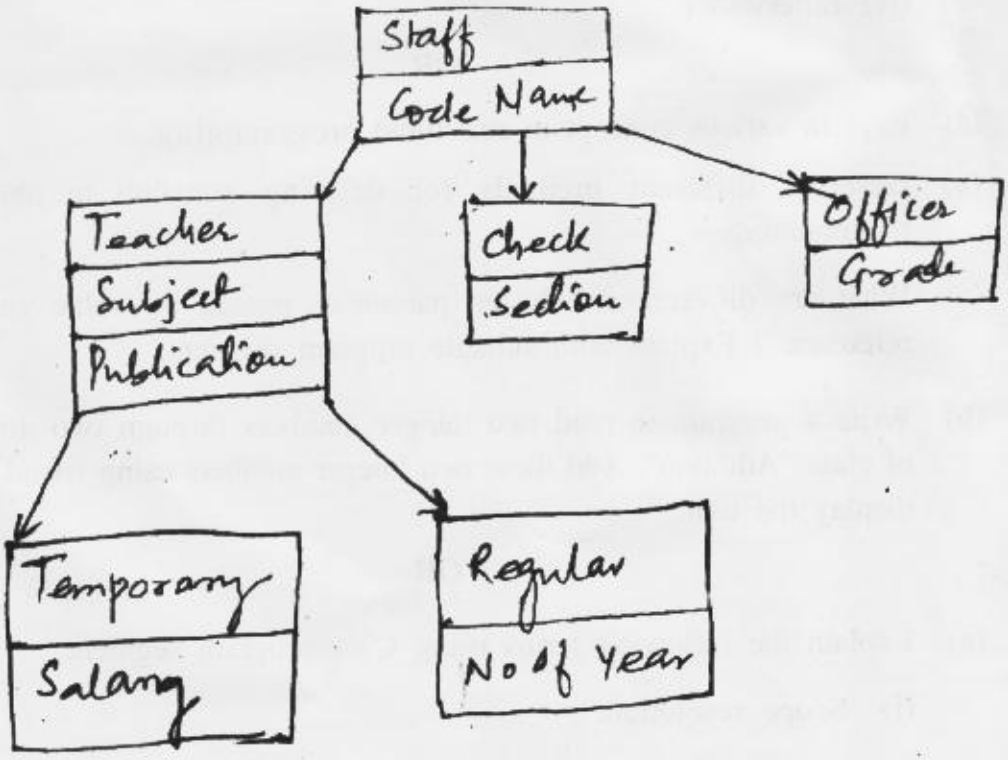
(ii) Access specifier. 6

OR

6. (a) Explain the concept of destructor using suitable program segment in C++. 7

(b) Write a program segment in C++ to demonstrate the concept of 'Pointer to member'. 6

7. (a) An education institute wishes to maintain data base of its employes. The data base is divided into number of classes whose hierarchical relationships are shown in figure. Specify all classes and define function to create data base and retrieve individual information as and when required.



10

(b) Describe different methods of realising polymorphism in C++. 4

OR

8. (a) Design three classes : Student, Exam and Result for task of declaration of Examination result. The student class has data members for representing roll number, name, year and branch. Create Exam class by inheriting the student class. The Exam class adds data members representing marks score in six subjects. Derive the Result class from Exam class and it has its own data members total marks and division obtained.
Write C++ program to model this relationship. What type of inheritance this model belongs to ? 10

(b) Explain protected access specifier. 4

9. (a) Explain Generic function and Generic classes using program segment in C++. 7

(b) Explain virtual function using proper C++ program segment. 6

OR

10. (a) Explain following terms using program segment :

(i) Compile time polymorphism.

(ii) Run time polymorphism. 7

(b) Explain rules for virtual function. 6

11. (a) Explain filling and padding in C++ streams using suitable program segment. 7

(b) Explain error handling in object oriented programming. 6

OR

12. (a) Explain "Setw( )" manipulator using suitable example of C++ program segment. 7

(b) Write a program to display following output :

Object

Object oriented

Object oriented program

Object oriented

Object. 6