

- (b) What is function overriding ? 3
- (c) What is Inheritance ? What are different types of inheritance in C++ ? Write down the syntax of each of them. 8

Unit IV

7. (a) What is a virtual function ? Why is it required ? What is a pure virtual function ? 8
- (b) What is an exception ? What is the significance of catch and throw keywords ? 7
8. (a) What is a template ? Write a template to create class STACK and implement different operations on it. 10
- (b) What are stream error states ? 5

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Roll No.

CC-681

M.C.A. EXAMINATION, Dec. 2017

(Third Semester)

(B. Scheme) (Main & Re-appear)

MCA-501

OBJECT ORIENTED

PROGRAMMING USING C++

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Differentiate between the following :
 - (i) Procedural and Non-procedural Languages
 - (ii) Object oriented and Object based languages. **8**
- (b) What is a reference to variable ? Differentiate between call by reference and call by pointer to a function in program. Give suitable example to illustrate your answer. **7**
2. (a) What is a preprocessor directive ? What are the uses of preprocessor directives ? **6**
- (b) How can you control access to a class through different access modifiers ? **6**
- (c) What is encapsulation ? **3**

Unit II

3. (a) What is a friend function ? What are its properties ? **5**

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- (b) What is a THIS pointer ? What is the relevance of THIS pointer ? **5**
- (c) What is the need of keywords NEW and DELETE ? **5**
4. (a) What is a constructor ? Write down the syntax of different constructors available in C++ ? **7**
- (b) What are the properties of static data and static member function ? Illustrate with the help of program. **8**

Unit III

5. (a) What is operator overloading ? Which operators can not be overloaded in C++ ? **5**
- (b) Write a program to overload + and * operators for a class of complex numbers. **10**
6. (a) What is the order of invoking of constructors in different types of inheritance ? **4**

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P.T.O.