Reg. No. : | | | | | | | | | | | | |

Question Paper Code : JK4210

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2017.

(From Academic Year – 2015 – New Question Paper Pattern)

Second Semester

DMC 7205 – OBJECT ORIENTED PROGRAMMING

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate object oriented programming from structured programming.

2. What are assertions? Give one example.

3. Compare structure and union.

4. What is the output of the following program?

```
#include <iostream>
using namespace std;

class Test
{
        static int x;
public:
        Test() { x++;}
        static int getX() {return x;)
};
int Test::x = 0;
int main()
{
        cout << Test::getX() <<" ";
        Test t[5];
        cout << Test::getX();
}
```

5. Differentiate operator overloading and overriding.

6. What is ADT? List some ADTs.

7. What is class template?

8. Why STL is not thread safe?

9. Define standard exception.

10. What is pure virtual function?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Describe in detail about object oriented programming concepts. (7)

(ii) Write a program to display the given numbers in descending order using arrays. (6)

Or

(b) Write a program to perform arithmetic operations of different data types using function overloading. (13)

12. (a) Explain about implementation of simple ADTs with suitable example. (13)

Or

(b) Explore the different types of constructors with example program. (13)

13. (a) List the rules for unary and binary operator overloading. Explain unary operator overloading using pre and post increment operators. (13)

Or

(b) Write short note on :

(i) Iterators (6)

(ii) Containers. (7)

14. (a) Explain in detail about function templates with suitable example. (13)

Or

(b) (i) Describe in detail about function adapters. (7)

(ii) What are the basic components of STL? Explain. (6)

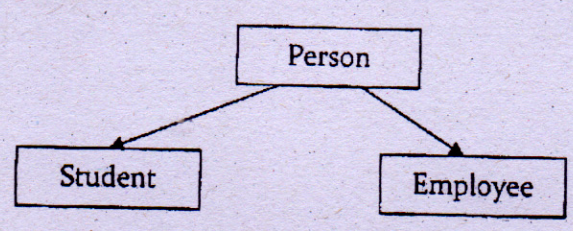
15. (a) What is the need for virtual function? Explain it with suitable example program. (13)

Or

(b) Describe in detail about categories of exception and write a program to handle divide by zero error using exception handling mechanism. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Write a C++ program to implement the following. Calculate the necessary parameters of each class and display. (15)



Or

(b) Write a program to explain class template by creating a template T for a class named **PAIR** having two data members of type T which are inputted by a constructor and a member function get-max() return the greatest of two numbers to main. Note: the value of T depends upon the data type specified during object creation. (15)

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Reg. No. : [ ]

Question Paper Code : KJ1361

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2017.

Second Semester

DMC 7205 — OBJECT ORIENTED PROGRAMMING

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the uses of scope resolution operator.

2. Differentiate between # include " " and # include < >.

3. Differentiate between constructor and destructor.

4. Define Bit Fields. Give an example.

5. List out the operators that can be overloaded and also mention which cannot be overloaded.

6. What is meant by Iteators?

7. Define Exception Handling.

8. What is STL?

9. Differentiate between Error and Exception.

10. List out the advantages and disadvantages of virtual functions.

PART B — (5 × 16 = 80 marks)

11. (a) (i) With an example of your own explain how a pointer to an object can be used to access the member of that object? (8)

(ii) Write a program that takes as input a positive integer n and returns the nth harmonic number. (8)

Or

(b) (i) Write a program which, given an array of integers, returns the integer that appears most frequently in the array. (8)

(ii) Write a program that is given two positive integers r, c and allocates a 2-dimensional array with r rows mid c columns. The function then returns a pointer to the allocated array. (8)

12. (a) (i) With an example of your own explain Abstract data types. (8)

(ii) Implement library information system with the help of constructors and destructors. (8)

Or

(b) (i) Explain in detail about data handling and member functions. (8)

(ii) With an example program explain about 'this' pointer. (8)

13. (a) (i) What are the different techniques by which you can overload a unary operator? Explain it with an example. (8)

(ii) Explain in detail about containers. (8)

Or

(b) (i) With an example of your own explain binary operator overloading using friend function. (8)

(ii) What are the difference between pointers to constants and constant to pointers? (8)

14. (a) (i) With an example compare and contrast between template class and class template. (8)

(ii) Explain in detail about function adaptors. (8)

Or

(b) (i) Explain in detail about function template. (8)

(ii) What is standard template library? How is it different from the C++ standard library? (8)

15. (a) (i) With an example explain about exception. (8)

(ii) Explain in detail about run-time type identifications. (8)

Or

(b) (i) With an example explain in detail about virtual function. Compare and contrast with friend function. (8)

(ii) With an example of your own explain Hybrid Inheritance. (8)

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Question Paper Code : K1361

M.C.A. DEGREE EXAMINATION, AUGUST/SEPTEMBER 2016.

Second Semester

DMC 7205 — OBJECT ORIENTED PROGRAMMING

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the difference between a structure and a class.

2. Define abstract data type.

3. Write the C++ program to find the greatest common divisor among 2 numbers.

4. Write the properties of Static member function.

5. Write the syntax for overloading unary and binary operator.

6. In what way the container class is different from a nested class object?

7. What are the advantages of using templates in C++??

8. What is STL?

9. How to handle the exception that is occurred in a program?

10. Class W inherits class X, Class X inherits Class Y and Class Y inherits class Z. All the above classes have protected data members. Which of the above classes can access the protected data members of W?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the various features of object oriented programming. (12)

(ii) State the difference between Call-by-Reference and call-by-Value. (4)

Or

(b) (i) Write a C++ program swapping two numbers using pointers. (4)

(ii) What do you mean by overloading of a function? When do we need this concept? Explain with an example program. (12)

12. (a) Compare constructors and destructors. Discuss in detail about default, parameterized and copy constructors with an example. (16)

Or

(b) Design a class bank with account number, name and balance attributes. Define functions to withdraw, deposit and cheek balance. (16)

13. (a) Write a C++ program to Add, Subtract and Multiply two complex numbers using operator over loading. (16)

Or

(b) Write short notes on :

(i) List Iterators (8)

(ii) Visitation. (8)

14. (a) Discuss in detail about class templates with an example program. (16)

Or

(b) Describe about the function adapters in detail. (16)

15. (a) List out the types of Inheritance. Discuss in detail about any two Inheritance concepts with an example program. (16)

Or

(b) (i) Why do we need virtual functions? (4)

(ii) Write about Exception handlers. (12)

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : J1400

M.C.A. DEGREE EXAMINATION, AUGUST/SEPTEMBER 2016.

(From Academic Year – 2015 – New Question Paper Pattern)

Second Semester

DMC 7205 — OBJECT ORIENTED PROGRAMMING

(Regulation 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the use of pointers?

2. Write an array structure to hold five characters in an array.

3. Differentiate between structure and union.

4. What is reference semantics?

5. Write about visitation.

6. Write the syntax for ADT conversion.

7. What is the purpose of templates in C++?

8. Define STL.

9. Differentiate error and exception.

10. What is explicit conversion?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain the characteristics of OOPS in detail. (6)

(ii) Write the C++ program to calculate area of circle, rectangle and square using function overloading concept. (7)

Or

(b) (i) Write the C++ program which illustrate Call-by-Reference concept. (6)

(ii) Write a program structure of C++ with sample code. (7)

12. (a) Write the C++ program to generate factorial of given number using function. (13)

Or

(b) (i) Write short notes on this pointer with sample code. (6)

(ii) What are constructors and destructors? With suitable example explain any two forms of constructors. (7)

13. (a) (i) What is polymorphism? Explain different types of polymorphism. (7)

(ii) Write short notes on containers with syntax creation. (6)

Or

(b) Explain in detail between Binary operator overloading with suitable C++ program. (13)

14. (a) Write the C++ program to swap the numbers using the concept of function template. (13)

Or

(b) Write short notes on :

(i) Class Template. (6)

(ii) Function Adaptors. (7)

15. (a) Write a C++ program to add two integers and raise exception when any other integer except (0-9) is given as input. (13)

Or

(b) Write about virtual functions. With suitable example program explain in detail. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Consider the base classes student and sports. Declare the function called get_student( ) to get the student details in the class student and getsm( ) to read the sports mark. Derive the class statement derived from student and sports and declare and define the function display( ) to find out the total and average of the student. Write a C++ program for it using Multiple inheritance.

Or

(b) Write a C++ program to find an average of given numbers in an Array and find the variation of multidimensional arrays?

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Question Paper Code : S1361

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2016.

Second Semester

DMC 7205 – OBJECT ORIENTED PROGRAMMING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is polymorphism?

2. Write a C++ program that uses a function to print whether the given number is prime or not.

3. What is the function of destructors? Give example.

4. When do we declare a member of a class static? What are the characteristics of static members of a class?

5. Write a C++ program to count the number of odd and even numbers in a given set.

6. List the operators that can not be overloaded and justify why they can not be overloaded.

7. What are the syntax and semantics of a function template?

8. Are templates conceptually related with polymorphism? Explain.

9. List out the basic rules for a virtual function.

10. Differentiate between a template class and class template.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the fundamental concepts and features of object oriented programming. (8)

(ii) Write a C++ program to sort 'n' numbers using member function. Use scope resolution operator for function definition. (8)

Or

(b) (i) What is function overloading? Explain it with suitable example. (8)

(ii) Write a note on C++ dynamic memory allocation operators and how they are advantageous over C. (8)

12. (a) (i) What is a constructor? Can there be more than one constructor for a class? Justify. (8)

(ii) Explain the concepts of static data members and static member functions in C++. (8)

Or

(b) (i) Create a class Employee with data members employeeID, nam, designation and salary. Write methods getEmployee( )-to take user input, showOrder( )-to display grade of employees based on salary, showEmployee( ) to display employee details. (10)

(ii) With and illustration, demonstrate how a pointer to an object can be used to access the members of that object? (6)

13. (a) Write a C++ program to implement time class that has separate data members for hours, minutes and seconds. Overload + operator to add two times (objects) and ++ operator to increase time to one second. (16)

Or

(b) (i) Explain different types of iterator with example. (10)

(ii) Briefly narrate about containers in C++. (6)

14. (a) (i) Explain the use of the following notation in a C++ program
Template <typename T> Array <T>
:: Array(int s) (8)

(ii) What are the relationship between function templates and overloading? (8)

Or

(b) Illustrate function adaptors in C++ with suitable example. (16)

15. (a) State the different forms of inheritance supported by C++. Explain them with an example. (16)

Or

(b) How exception is handling in C++? Explain with an example. (16)

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80361

M.C.A. DEGREE EXAMINATION, AUGUST 2015.

Second Semester

DMC 7205 — OBJECT ORIENTED PROGRAMMING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate pointer and reference.

2. What is the use of scope resolution operator?

3. When will the destructors be called? Is it implicit or explicit?

4. What is a virtual base class?

5. Why cant a friend function used to overload assignment operator?

6. List the operators that cannot be overloaded.

7. What is a function template instance?

8. Define a class template.

9. What is an hierarchy inheritance? Give an example.

10. What are pure virtual functions? Where are they used?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the basic object oriented concepts. (10)

(ii) State the merits and demerits of object oriented methodology. (6)

Or

(b) Write a program to create a class Student. Store them in an array of objects. Input total number of students and perform the following :

(i) Sort the list of students

(ii) List the students by branch wise. (16)

12. (a) (i) Give a brief account on constructors and destructors. (8)

(ii) Write a C++ program to generate fibonacci using copy constructor. (8)

Or

(b) Explain the implementation of ADTs in C++ with examples. (16)

13. (a) (i) What is polymorphism? Explain different types of polymorphism. (8)

(ii) Describe the basic concepts of container. (8)

Or

(b) (i) State the rules to be followed while overloading an operator. Write a program to illustrate overloading. (8)

(ii) State the reasons for the iterators making code general and efficient. (8)

14. (a) (i) List the major categories of containers supported by STL. (6)

(ii) Describe function adapters in detail. (10)

Or

(b) What is the need of using function templates? How will you create and use the function template? (16)

15. (a) What are the keywords used in C++ for exception handling? Describe their usage with suitable examples. (16)

Or

(b) Explain virtual functions with examples. (16)

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 22363

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2015.

Second Semester

DMC 7205 — OBJECT ORIENTED PROGRAMMING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate #include " " from #include< >.

2. Write a C++ program that uses a function to print whether the given number is prime or not.

3. Distinguish data abstraction and data encapsulation.

4. What is default constructor?

5. Explain the difference between class variable and instance variable.

6. List out the basic rules for a virtual function.

7. What is the purpose of exception handling?

8. Differentiate between a template class and class template.

9. What is STL?

10. List any four standard exceptions.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare and contrast structured and object oriented programming paradigms. (10)

(ii) Explain the components of standard template library. (6)

Or

(b) (i) With illustration, demonstrate how a pointer to an object can be used to access the members of that object? (10)

(ii) Explain the enumeration types available in C++. (6)

12. (a) (i) What is a constructor? Can there be more than one constructor for a class? Justify. (10)

(ii) Differentiate local variable and a data member with an example. (6)

Or

(b) (i) Compare and contrast structure, union and bit field with an example. (8)

(ii) Explain about the pointer arithmetic with a suitable example. (8)

13. (a) Create a class Complex with two data members real and imaginary. Create two suitable overloaded operator functions to increase the number and add two complex numbers. (16)

Or

(b) (i) Explain different types of iterators with example. (10)

(ii) Briefly narrate about containers in C++. (6)

14. (a) (i) What are the relationship between function templates and overloading? (8)

(ii) Write note on function templates and how parameters are passed to function template with suitable example. (8)

Or

(b) How exception is handled in C++? Explain with an example. (16)

15. (a) Discuss about the different types of inheritance in C++ with suitable example. Also show the order in which the constructor and destructor are called in the inheritance hierarchy. (16)

Or

(b) Create a class Employee with data members employeeID, name, designation and salary. Write methods getEmployee( ) – to take user input, showOrder( ) – to display grade of employees based on salary, showEmployee( ) to display employee details. (16)

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 46360

M.C.A. DEGREE EXAMINATION, AUGUST 2014.

Second Semester

DMC 7205 — OBJECT ORIENTED PROGRAMMING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Encapsulation.
2. What is the use of scope resolution operator?
3. List out the characteristics of constructors.
4. State the difference between local variable and global variable.
5. What is container?
6. Enlist the operators that cannot be overloaded.
7. Write the syntax for class template.
8. Define Algorithm.
9. What is code reuse?
10. State the difference between error and exception.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the benefits of Object Oriented Programming. (10)

(ii) What are the difference between procedure oriented and object oriented programming. (6)

Or

(b) (i) Write a C++ program to find the average of 'n' floating point numbers. (8)

(ii) Explain the call-by-references concept with suitable example. (8)

12. (a) Explain the various form of constructor and destructors with suitable example. (16)

Or

(b) Write short notes on :

(i) Static Member (8)

(ii) Bit Fields. (8)

13. (a) What is operator overloading? Explain it with suitable example. (16)

Or

(b) (i) Discuss about ADT conversions in detail. (8)

(ii) Write short on Visitation. (8)

14. (a) (i) Write a program to create a template to check how many elements are similar in two Arrays. (8)

(ii) Write an example program with class template. (8)

Or

(b) Explain function templates with multiple parameters and overloading of template functions with example. (16)

15. (a) What are the types of inheritance? Explain any two types with suitable example. (16)

Or

(b) Explain the Exception handling in C++ with example. (16)