Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

OE00012 Object Oriented Programming

Programme: MCA Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Which of the following is the mechanism that binds together code and data, it manipulates and keeps both safe from outside interference? **1**

(a) Polymorphism (b) Data abstraction
(c) Encapsulation (d) Inheritance

ii. Which of the following function prototype is correct? **1**

(a) void Setvalue(int a, float b = 2.5, char c = 'A', int d=10);
(b) void Setvalue (int a = 10, float b = 2.5, char c='A', int (d);
(c) void Setvalue (int a = 10, float b, char c = 'A', int (d);
(d) void Setvalue (int a = 10, float b, char c, int d=10);

iii. The access specifiers for the members of a class in C++ are by default **1**

(a) Private (b) Public (c) Protected (d) Static

iv. Which of the following operator cannot be overloaded? **1**

(a) & (address)
(b) :: (scope-resolution)
(c) += (compound assignment)
(d) == (equal to)

v. A friend function violates which feature/s of Object-Oriented Programming (OOP)? **1**

(a) Inheritance (b) Data abstraction
(c) Polymorphism (d) Data hiding

P.T.O.

vi. When a virtual function is redefined in a derived class, it is called: **1**
(a) Overloading (b) Overriding
(c) Rewriting (d) Pure virtual function

vii. Which operator is used to allocate the memory? **1**
(a) Sizeof (b) ++ (c) Open (d) New

viii. Which keyword can be used in template? **1**
(a) Class (b) Typename
(c) Both class & typename (d) Function

ix. Which keyword is used to handle the exception? **1**
(a) Try (b) Throw (c) Catch (d) All of these

x. What does fp point to in the program? **1**

```
#include<stdio.h>
int main()
{
FILE *fp;
fp = fopen("trail","r");
return 0;
}
```

(a) The first character in the file
(b) A structure which contains a char pointer which points to the first character of a file
(c) The name of the file.
(d) The last character in the file.

Q.2 Attempt any two:

i. What are the advantages of object-oriented programming? How it is different from procedural programming? Write features of OOP. **5**

ii. When will you make a function Inline? Write the advantages and limitations of inline function. How does an inline function differ from a pre-processor macro? **5**

iii. What are arrays? How are they declared and used as elements of a class and as instances of a class and how are one dimensional and multidimensional arrays initialized in a C++ program? **5**

Q.3 i. What are static functions? What are the advantages of having static functions in a class? **3**

ii. What is operator overloading? what are the restrictions and limitations of overloading of operators? Write a program to overload the == operator. **7**

OR iii. What are friend classes? Can a class be made friend of other class? Justify your answer. **7**

Q.4 i. What is the use of scope resolution operator? **3**

ii. What are the different forms of Inheritance explain each with suitable examples? Explain the problem in multiple inheritances? **7**

OR iii. What are virtual functions? When can a virtual function be called as pure? Explain whether it is possible to instantiate a class having pure virtual function. Explain with the help of an example. **7**

Q.5 i. Define generic functions and generic classes with suitable example. **4**

ii. Define iterators and allocators? Write program in C++ to demonstrate allocators? **6**

OR iii. What is the need of templates? Differentiate between class template and function template. **6**

Q.6 i. Define C++ library fstream and also explain its three data types with suitable examples. **2**

ii. Define the term Exception handling? Write a program to raise an exception if an attempt is made to divide a number by zero. **8**

OR iii. Write in short about the following with suitable examples **8**
(a) seekg() (b) seekp() (c) tellg() (d) tellp()

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Marking Scheme
OE00012 Object Oriented Programming

Q.1	i.	Which of the following is the mechanism that binds together code and data, it manipulates and keeps both safe from outside interference? (c) Encapsulation		**1**
	ii.	Which of the following function prototype is correct? (a) void Setvalue(int a, float b = 2.5, char c = 'A', int d=10);		**1**
	iii.	The access specifiers for the members of a class in C++ are by default (a) Private		**1**
	iv.	Which of the following operator cannot be overloaded? (b) :: (scope-resolution)		**1**
	v.	A friend function violates which feature/s of Object-Oriented Programming (OOP)? (d) Data hiding		**1**
	vi.	When a virtual function is redefined in a derived class, it is called: (b) Overriding		**1**
	vii.	Which operator is used to allocate the memory? (d) New		**1**
	viii.	Which keyword can be used in template? (c) Both class & typename		**1**
	ix.	Which keyword is used to handle the exception? (d) All of these		**1**
	x.	What does fp point to in the program? (b) A structure which contains a char pointer which points to the first character of a file		**1**
Q.2		Attempt any two:		
	i.	Advantages of object-oriented programming	2 marks	**5**
		Difference from procedural programming	1 mark	
		Features of OOP	2 marks	
	ii.	When to make a function Inline	1 mark	**5**
		Advantages and limitations	3 marks	
		Difference b/w inline function and pre-processor macro	1 mark	
	iii.	Arrays	1 mark	**5**
		Declared and used as elements of a class	2 marks	
		Initialization of 1D & Multidimensional arrays	2 marks	
Q.3	i.	Static functions	2 marks	**3**
		Advantages of having static functions in a class	1 mark	
	ii.	Operator overloading	2 marks	**7**
		Restrictions and limitations	1 mark	
		Program to overload the == operator	4 marks	
OR	iii.	Friend classes	4 marks	**7**
		Can a class be made friend of other class	2 marks	
		Justification	1 mark	
Q.4	i.	Use of scope resolution operator?		**3**
	ii.	Forms of Inheritance with examples	5 marks	**7**
		Problem in multiple inheritances	2 marks	
OR	iii.	Virtual functions	2 marks	**7**
		Explanation with example	5 marks	
Q.5	i.	Generic functions with example	2 marks	**4**
		Generic classes with example	2 marks	
	ii.	Iterators and allocators	3 marks	**6**
		Program in C++ to demonstrate allocators	3 marks	
OR	iii.	Need of templates	2 marks	**6**
		Difference b/w class and function template	4 marks	
Q.6	i.	Defining C++ library fstream and its 3 data types with examples.		**2**
	ii.	Exception handling	3 marks	**8**
		Program to raise an exception	5 marks	
OR	iii.	Write in short about the following with suitable examples		**8**
		2 marks for each	(2 marks * 4)	

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