

Enrollment No.....



Faculty of Engineering
End Sem (Odd) Examination Dec-2018
CS3CO03 Object Oriented Technology

Programme: B.Tech.

Branch/Specialisation: CSE

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. What is the difference between struct and class in C++? **1**
- (a) All members of a structure are public and structures don't have constructors and destructors
 - (b) Members of a class are private by default and members of struct are public by default.
 - (c) All members of a structure are public and structures don't have virtual function
 - (d) All of these
- ii. A member function can always access the data in _____, (in C++). **1**
- (a) The class of which it is member
 - (b) The object of which it is a member
 - (c) The public part of its class
 - (d) The private part of its class
- iii. When we implement Generalization in a programming language, it is called _____? **1**
- (a) Inheritance (b) Encapsulation (c) Polymorphism (d) None of these
- iv. Relationships among Classes is/are **1**
- (a) Inheritance (b) Association (c) Aggregation (d) All of these
- v. A friend function cannot be used to overload the assignment operator =. **1**
- (a) True (b) False (c) May be (d) May not be
- vi. Function/method overloading implements which type of polymorphism? **1**
- (a) Static (b) Dynamic (c) Both (a) & (b) (d) None of these
- vii. A stream may be connected to more than one file at a time. **1**
- (a) True (b) False

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- viii. We can use _____ parameters in both the class templates and function templates. **1**
(a) Single (b) Double (c) Multiple (d) None of these
- ix. In function-oriented design _____ should show how data passes through the system and is transformed by each system function. **1**
(a) Data-flow design (b) Structural decomposition
(c) System structuring (d) Detailed design description
- x. _____ concerned with developing an object-oriented model of a software system to implement the identified requirements. **1**
(a) Object oriented analysis (b) Object oriented methods
(c) Object oriented design (d) Object oriented programming
- Q.2 i. Write an example to show the need of object interaction. **2**
ii. One of the striking features of object oriented programming is the division of programs into objects that represent real world entities. Justify your answer. **8**
- OR iii. Distinguish between the following terms: **8**
(a) Objects and Classes
(b) Data abstraction and data encapsulation
(c) Inheritance and Polymorphism
(d) Dynamic binding and message passing
- Q.3 i. Explain recursive association. **3**
ii. Discuss the different types of aggregation with the help of an example. **7**
- OR iii. Explain the multiplicity and navigability with suitable example. Draw the relationship between them? **7**
- Q.4 i. What is the need of abstract classes? **2**
ii. Create a class that stores the details about a room in a hotel (private: room no, type, cost). Create subclasses like Lounge (no. of people it can accommodate, A/C type (centralized/window), food preference, recreational facilities (as a string array)) and deluxe room (A/C or non A/C, single/double bedded). Create a class that maintains the customer details (name, age, address, phone no). Allow booking of the room by the customer after checking the status of its availability. Overload the booking function such that it can book either a lounge or deluxe room for a customer. **8**

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- OR iii. Create a class powered device (type (electronic/mechanical), power range (10W- 20W), self_powered/adapter) and inherit it in two classes scanner (no. of pages per second, resolution, size, cost, brand) and printer (brand, dpi, color/b/w, pages per second, laser/inkjet). Create another class named copier that inherits the features of printer and scanner along with additional features (storage capacity, stored copy printing speed). Ensure that the duplicate copies of powered_device object don't exist in copier. **8**
- Q.5 i. Write a program in which read the content of given file and writes it to the console. **4**
ii. Write a function template for finding the minimum value contained in an array. **6**
- OR iii. What is major difference between sequence container and associative container? What are the best situations for the use of associative containers? **6**
- Q.6 Attempt any two: **5**
i. Explain object oriented modeling techniques. **5**
ii. Design DFD diagram of login Page. **5**
iii. Design state transition diagram of ATM machine **5**

Marking Scheme
CS3CO03 Object Oriented Technology

Q.1	i. What is the difference between struct and class in C++? (b) Members of a class are private by default and members of struct are public by default.	1		
	ii. A member function can always access the data in _____, (in C++). (a) The class of which it is member	1		
	iii. When we implement Generalization in a programming language, it is called _____? (a) Inheritance	1		
	iv. Relationships among Classes is/are (d) All of these	1		
	v. A friend function cannot be used to overload the assignment operator =. (b) False	1		
	vi. Function/method overloading implements which type of polymorphism? (a) Static	1		
	vii. A stream may be connected to more than one file at a time. (a) True	1		
	viii. We can use _____ parameters in both the class templates and function templates. (c) Multiple	1		
	ix. In function-oriented design _____ should show how data passes through the system and is transformed by each system function. (a) Data-flow design	1		
	x. _____ concerned with developing an object-oriented model of a software system to implement the identified requirements. (d) Object oriented programming	1		
Q.2	i. Need of object interaction. Definition Example	2	1 mark 1 mark	
	ii. Features of object oriented programming Example	8	4 marks 4 marks	
OR	iii. Distinguish between the following terms: Minimum 4 differences (a) Objects and Classes (b) Data abstraction and data encapsulation (c) Inheritance and Polymorphism (d) Dynamic binding and message passing	8	2 marks 2 marks 2 marks 2 marks	
Q.3	i. Recursive association. ii. Types of aggregation Example.	3	5 marks 2 marks	7
OR	iii. Multiplicity & Navigability with suitable example Relationship between them	7	4 marks 3 marks	
Q.4	i. Need of abstract classes ii. For overloading example	2		8
OR	iii. For program	8		
Q.5	i. Program of file ii. Function template Array.	4	3 marks 3 marks	6
OR	iii. Difference b/w sequence container & associative container Minimum 4 differences Use of associative containers	6	4 marks 2 marks	
Q.6	Attempt any two: i. Object oriented modeling techniques. Definition + Types ii. DFD diagram of login Page. iii. State transition diagram of ATM machine	5		5 5
