

Enrollment No.....



Faculty of Engineering / Science

End Sem (Odd) Examination Dec-2022

CS3CO30 / BC3CO35 Object Oriented Programming

Programme: B.Tech.

Branch/Specialisation: CSE/ Computer

/ B.Sc.

Science

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. How many classes can be defined in a single program? **1**
 (a) Only 1 (b) Only 100
 (c) Only 999 (d) As many as you want
- ii. Which language does not support single level inheritance **1**
 (a) C++ (b) C (c) JAVA (d) All of these
- iii. If different properties and functions of a real world entity is grouped or embedded into a single element, what is it called in OOP language? **1**
 (a) Inheritance (b) Polymorphism
 (c) Encapsulation (d) Abstraction
- iv. What is syntax of defining a destructor of class A? **1**
 (a) A(){} (b) ~A(){} (c) A::A(){} (d) ~A(){};
- v. _____ is a simple structural connection or channel between classes and is a relationship where all objects have their own lifecycle and there is no owner. **1**
 (a) Inheritance (b) Composition
 (c) Realization (d) Aggregation
- vi. A _____ connects a single class type (serving in one role) to itself (serving in another role). **1**
 (a) N-ary Association (b) Directed Association
 (c) Recursive association (d) Association End
- vii. What will be the order of execution of base class constructors in the following method of inheritance? **1**
 class a: public b, public c { ... };
 (a) b(); c(); a(); (b) c(); b(); a();
 (c) a(); b(); c(); (d) b(); a(); c();

P.T.O.

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- viii. A virtual function that has no definition within the base class is called- **1**
 (a) Friend function (b) Pure static function
 (c) Pure const function (d) Pure virtual function
- ix. A template class can have- **1**
 (a) Only one generic data type
 (b) At most two data types
 (c) Only generic type of integers and not characters
 (d) More than one generic data type
- x. Which stream class is to only write on files? **1**
 (a) ifstream (b) ofstream (c) fstream (d) iostream
- Q.2 i. What is OOP? Enlist applications of OOP language. **3**
 ii. What the main concepts of object-oriented programming? **7**
 Explain each one of them in detail.
- OR iii. Differentiate between the following- **7**
 (a) OOP & POP
 (b) Class & Object
- Q.3 i. What are constructor and destructor? Explain with its syntax and usage. **3**
 ii. What are the different types of constructors? Explain them. Write a program to demonstrate constructor overloading. **7**
- OR iii. What are the different types of objects? Explain them. Write a program to differentiate each object based on their visibility and persistency. **7**
- Q.4 i. Define delegation and give example also. **3**
 ii. Explain the following terms- **7**
 (a) Association and its types
 (b) Differentiate between aggregation and composition
- OR iii. Explain the following terms with an example- **7**
 (a) Types of aggregation and its properties
 (b) Multiplicity
 (c) Generalization
- Q.5 i. Explain virtual function. **3**

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- ii. What is inheritance? What are the types of inheritance? Write a program to demonstrate the concept of virtual base class. **7**
- OR iii. What is polymorphism? What are the types of polymorphism? Write a program to demonstrate binary operator overloading. **7**
- Q.6 i. What is STD? Explain. **3**
 ii. What are template classes and template functions? Write a program for template class and template function. **7**
- OR iii. Define container? What is the use of container? Write a program for defining the container. **7**

Marking Scheme

CS3CO30 / BC3CO35 Object Oriented Programming

Q.1	i.	How many classes can be defined in a single program? (d) As many as you want	1
	ii.	Which language does not support single level inheritance (b) C	1
	iii.	If different properties and functions of a real world entity is grouped or embedded into a single element, what is it called in OOP language? (c) Encapsulation	1
	iv.	What is syntax of defining a destructor of class A? (b) ~A(){}	1
	v.	_____is a simple structural connection or channel between classes and is a relationship where all objects have their own lifecycle and there is no owner. (d) Aggregation	1
	vi.	A_____connects a single class type (serving in one role) to itself (serving in another role). (c) Recursive association	1
	vii.	What will be the order of execution of base class constructors in the following method of inheritance? class a: public b, public c {...}; (a) b(); c(); a();	1
	viii.	A virtual function that has no definition within the base class is called- (d) Pure virtual function	1
	ix.	A template class can have- (d) More than one generic data type	1
	x.	Which stream class is to only write on files? (b) ofstream	1
Q.2	i.	What is OOP Applications of OOP language	1 mark 2 marks
	ii.	Concepts of object-oriented programming 7 marks for minimum 5 basic concepts	7
OR	iii.	Differentiate between the following- (a) OOP & POP (b) Class & Object	3.5 marks 3.5 marks

Q.3	i.	Definition of constructor and destructor	2 marks	3
		Its syntax and usage	1 mark	
	ii.	Types of constructors	3 marks	7
		Program to demonstrate constructor overloading	4 marks	
OR	iii.	Types of objects	3 marks	7
		Program to differentiate each object based on their visibility and persistency	4 marks	
Q.4	i.	Definition delegation with example		3
	ii.	Explain the following terms-		7
		(a) Association and its types	3.5 marks	
		(b) 4 difference between aggregation and composition		
OR	iii.	Explain the following terms with an example-	3.5 marks	7
		(a) Types of aggregation and its properties	3 marks	
		(b) Multiplicity	2 marks	
		(c) Generalization	2 marks	
Q.5	i.	Virtual function.		3
	ii.	Inheritance	1 mark	7
		Types of inheritance	3 marks	
		Program to demonstrate the concept of virtual base class	3 marks	
OR	iii.	Polymorphism	1 mark	7
		Types of polymorphism	2 marks	
		Program to demonstrate binary operator overloading	4 marks	
Q.6	i.	What is STD		3
		Award three marks if attempted.		
	ii.	Template classes	2 marks	7
		Template functions	2 marks	
OR	iii.	Program for template class and template function	4 marks	
		Definition of container	2 marks	7
		Use of container	2 marks	
		Program for defining the container	3 marks	
