

**II B.Tech II Semester Supplementary Examinations, Nov/Dec 2005**  
**OBJECT ORIENTED PROGRAMMING AND APPLICATIONS**  
**(Instrumentation & Control Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Explain the concepts of Parent class, Child class, Abstract class and Virtual class [12].  
(b) What is class hierarchy? Give one real world example to it. [4]
2. (a) State and describe the responsibilities of a school. Identify atleast six types of members i.e students, teachers, principal etc. For each member type, describe the responsibilities and collaborators. [10]  
(b) Create a scenario for above school using an interaction diagram. [6]
3. Differentiate between classes and methods in C++ and Java. Give appropriate examples. [16]
4. (a) What is the difference between constants and Immutable values?  
(b) Explain with an example the mechanism of creation of objects and initializing its attributes in C++. [8+8]
5. (a) Compare the inheritance in C++ with the inheritance in Smalltalk. [10]  
(b) What is "Virtual" keyword? What are its different applications? [6]
6. (a) What is multiple inheritance? Illustrate the use of it in C++ with an example.  
(b) What is inheritance in JAvA. Explain with examples. [8+8]
7. (a) Discuss the Reverse Polymorphism Problem with suitable real world example.  
(b) What is meant by overriding of data fields? Which OOP language will support it? Describe with an example. [8+8]
8. (a) Differentiate between Interpreter patterns iterator patterns [6]  
(b) Compare Double-Dispatching patterns and Traversal Patterns. [10]

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1. State some Object Oriented Programming languages and explain them briefly. [16]
2. (a) What are different attributes that characterize while programming in small and programming in the large?  
(b) Discuss about identification of components. [8+8]
3. (a) Discuss clearly about parameterized constructor and default constructor. [8]  
(b) Justify that Stack is an example of abstract data type. [4]  
(c) Explain whether a method and a data field can share common name? [4]
4. (a) What is the use of “finalize” method in Java? Shall it take any arguments and shall it return any result. [6]  
(b) Suppose in a language which does not provide direct support for immutable instance variables, how do you design a software tool that would help to detect violations of access? [10]
5. (a) What is subclassing for construction? Give one example in C++ and JAVA.  
(b) What is subclassing for Generalization? Give one example. [8+8]
6. (a) Differentiate between private inheritance and protected inheritance in C++.  
(b) Discuss the issues in Binding and Message Lookup [8+8]
7. (a) Discuss about hierarchy, forward only, bi-directional, and random access iterators. Give suitable examples.  
(b) Discuss whether the error-checking facilities made possible by static typing are worth or loss in flexibility. How important is the container class problem? [8+8]
8. (a) What is event-driven simulation? [6]  
(b) Differentiate between Application frameworks and Design patterns. [10]

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1. (a) Everything in the real world is an object. Comment on this. [5]  
(b) What is polymorphism? Discuss it clearly. [5]  
(c) Each object has its own memory. Comment on this. [6]
2. (a) State and describe the responsibilities of an organization that includes atleast six types of members. For each member type, describe the responsibilities and collaborators [10]  
(b) Create a scenario for above organization using an interaction diagram. [6]
3. (a) Discuss about Data manager's classes, Observer classes and Facilitator classes. [6]  
(b) Differentiate between Structures and classes in C++. What is the default visibility of members in structures as well as classes in C++? [10]
4. What is Generate and Test paradigm in solving a problem? Discuss this paradigm in solving Eight-Queens problem. [16]
5. State and explain different forms of Inheritance. Which forms of inheritance are supported by C++ and Java. Give suitable examples. [16]
6. (a) Differentiate between private inheritance and protected inheritance in C++. [8+8]  
(b) Discuss the issues in Binding and Message Lookup
7. Explain clearly with suitable examples the Binding and Message lookup in C++. [16]
8. Compare Intermediary Pattern and Traversal Pattern.

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1. (a) What is meant by strongly typed and loosely typed language. Give one example to each type. [6]  
(b) What are Eskimos languages? How are they related to OOP? [5]  
(c) Discuss about Exceptions. State some OOP languages which provides Exception handling feature. [5]
2. (a) What is meant by implementation of an interface? [6]  
(b) Explain CRC card for a component. Explain how these are redrawn? [10]
3. Differentiate between classes and methods in C++ and Java. Give appropriate examples. [16]
4. (a) Discuss the issues in creation and initialization.  
(b) What are the errors that are common when a programmer is required to manage the dynamic memory area? [8+8]
5. (a) State and explain different benefits of Inheritance. [6]  
(b) Explain how execution speed and program size will be affected by inheritance . [10]
6. (a) What is multiple inheritance? Illustrate the use of it in C++ with an example.  
(b) What is inheritance in JAVa. Explain with examples. [8+8]
7. Compare the Binding and Message lookup in C++ with Java. [16]
8. (a) Compare Facade intermediary pattern with State intermediary pattern. [10]  
(b) Explain Iterator traversal pattern with an example. [6]

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