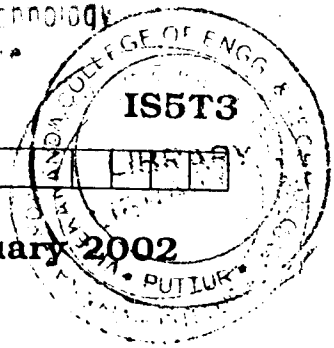


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**Fifth Semester B.E. Degree Examination, February 2002**

**Information Science and Engineering  
Object Oriented Systems Development**

Time: 3 hrs.]

[Max.Marks : 100

**Note: Answer any FIVE full questions.**

1. Consider a payroll program that processes employee records at a small manufacturing firm. The company has several classes of employees with particular payroll requirements and rules of processing each. This company has three types of employees:
  - i) Managers receive a regular salary.
  - ii) Office workers receive an hourly wage and are eligible for overtime after 40 hours.
  - iii) Production works are paid according to a piece rate.

Discuss this problem using the following development approaches.

- a) Structured approach
- b) The object-oriented approach

The following issues need not be considered.

- i) Dataflow diagram.
- ii) ER diagram.
- iii) Feasibility analysis.
- iv) Documentation.

(20 Marks)

2. (a) Discuss the waterfall software development process. What are the merits and demerits of water fall model? (10 Marks)

(b) With the help of suitable diagrams discuss the following.

- i) OOA ii) OOD iii) Object oriented Implementation. Consider the use-case driven approach. (10 Marks)

3. (a) Consider the Rumbaugh et al's object modelling technique to discuss the following four phases of object modeling technique.

- a) Analysis
- b) System design
- c) Object design
- d) Implementation

Also discuss the object model, the OMT dynamic model and the OMT functional model. (10 Marks)

(b) Using Booch methodology represent the design of the ATM system. (10 Marks)

4. (a) With the help of an example discuss the processes and components of the unified approach to describe the model. (10 Marks)

Contd.... 2

- 7. (a) How would you identify attributes and methods. (4 Marks)
- (b) Describe the process of creating access layer. (6 Marks)
- (c) Explain the macro and micro processes of view layer design. (4 Marks)
- (d) Write a short note on UI design rules. (4 Marks)
- 8. (a) Explain the pure fabrication and indirection with respect to GRASP. (10 Marks)
- (b) Write short notes on
  - i) Low coupling
  - ii) Development cycle issues(10 Marks)

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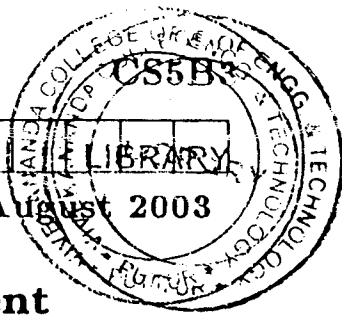
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Fifth Semester B.E. Degree Examination, July / August 2003

Computer Science and Engineering

**Object Oriented System Development**

[Max.Marks : 100

Note: Answer any FIVE full questions.

1. (a) What is object - oriented development methodology ? Explain how the object oriented approach differs from traditional approach. (10 Marks)
- (b) Discuss the waterfall software development process. What are the merits and demerits of waterfall process ? (10 Marks)
2. (a) With a neat diagram explain the three macroprocesses of a software development life cycle with usecase driven approach. (12 Marks)
- (b) How is software verification different from validation ? (4 Marks)
- (c) What is the difference between patterns and frameworks? (4 Marks)
3. (a) Discuss the four phases of object modelling technique. Explain the OMT object model, dynamic model and OMT functional model with a neat diagram. (12 Marks)
- (b) Discuss the various processes and components of the unified approach. (8 Marks)
4. (a) Name the different UML diagrams. Explain briefly the activity diagram and interaction diagram. (10 Marks)
- (b) What are usecases ? Explain. (6 Marks)
- (c) Explain why analysis is a difficult task in software development process. (4 Marks)
5. (a) What are the different approaches in identifying classes ? Explain the common class pattern approach with suitable example. (10 Marks)
- (b) Explain association and n-part-of relationships with suitable examples. (10 Marks)
6. (a) What are the different corollaries that are derived using independence axiom and information axiom ? Explain briefly. (10 Marks)
- (b) Explain in brief UML object constraint language. (5 Marks)
- (c) Explain the process of creating access layer class from business class. (5 Marks)
7. (a) Describe the necessary characteristics that a system must satisfy to be considered an object oriented database. (10 Marks)
- (b) Explain briefly the macro level and micro level process of view layer design. (10 Marks)
8. (a) What are the different GRASP patterns? Explain any two GRASP patterns in brief. (10 Marks)
- (b) Explain singleton GOF and command GOF ? (10 Marks)

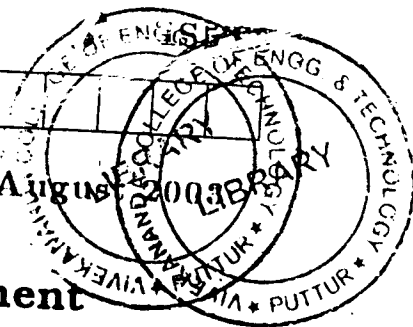
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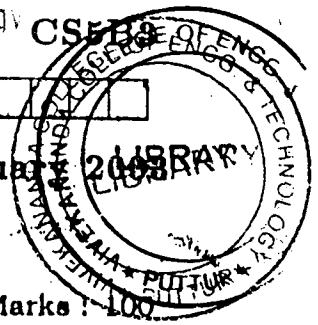
Semester B.E. Degree Examination, July/August 2003  
Information Science and Engineering  
**Object Oriented Systems Development**

[Max.Marks : 100]

Note: Answer any FIVE full questions.

1. (a) Explain the need for object orientation. (4 Marks)  
(b) With example, write a note on the class Hierarchy and Inheritance. (8 Marks)  
(c) List and explain the various processes involved in object oriented software development life cycle in brief. (8 Marks)
2. (a) Briefly explain Rumbaugh et al's object modelling technique. (6 Marks)  
(b) With a neat diagram, explain the three layered approach to software development. (8 Marks)  
(c) Explain the following UML diagrams in brief with an example :  
i) Sequence diagram ii) Collaboration diagram. (6 Marks)
3. (a) What is Business Object Analysis? (4 Marks)  
(b) Explain the uses and extends associations as used in object oriented analysis. (6 Marks)  
(c) XYZ college has a manual library system. It is interested in automating the system.  
i) Identify the actors.  
ii) Analyze the system by use case driven process and develop the following use cases :  
Borrow - books, Return-books, Get-Interlibrary-loan, check-library-card, Purchase-supplies (10 Marks)
4. (a) What is classification? Explain how the same object can be classified in many ways. (4 Marks)  
(b) Explain the common class patterns approach. (6 Marks)  
(c) Explain the following relationships with examples.  
i) Super sub class ii) A part of . (10 Marks)
5. (a) With a neat diagram, explain the object oriented design process in the unified approach. (6 Marks)  
(b) Briefly explain the various database models. (6 Marks)  
(c) Write a note on CORBA. (6 Marks)

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**5th Semester B.E. Degree Examination, January/February**

**Computer Science and Engineering  
Object Oriented System Development**

Time: 3 hrs.]

[Max.Marks : 100

Note: 1. Answer any FIVE full questions.  
2. All questions carry equal marks

- 1. (a) What is object oriented system development methodology? How does the object oriented approach differ from the traditional approach? List the advantages of object oriented development. (10 Marks)
- (b) Explain the following terms (10 Marks)
  - i) Inheritance ii) Protocol iii) Association
  - iv) Consumer - Producer relationship v) Meta classes (10 Marks)
- 2. (a) What is the life time of an object? How can you extend the life time of an object? (4 Marks)
- (b) What is software development process? Explain the software development process with an example. (8 Marks)
- (c) Describe the macroprocesses of the object oriented systems development approach. (5 Marks)
- (d) Why is reusability important? How does OOSD promote reusability. (5 Marks)
- 3. (a) Name and describe the different phases of OMT. (10 Marks)
- (b) Name the different Booch diagrams. Describe briefly the different Booch system development processes. (10 Marks)
- 4. (a) What is data modelling? Explain the different types of modelling. (8 Marks)
- (b) With neat diagram explain the following. (12 Marks)
  - (i) UML collaboration diagram
  - ii) UML activity diagram
  - iii) Deployment diagram
- 5. (a) What is the purpose of analysis? Why is use-case modelling useful in analysis. (4 Marks)
- (b) Describe the basic activities in object oriented analysis. (6 Marks)
- (c) Explain briefly the guidelines for developing effective documentation. (5 Marks)
- (d) Describe the noun phrase strategy for identifying tentative classes in a problem domain. (5 Marks)
- 6. (a) Describe briefly the patterns for finding the candidate class and object using common class pattern. (10 Marks)
- (b) Explain the design axioms and then corollaries for OOD. (10 Marks)

Contd.... 2

6. (a) List the rules with a brief explanation that make an object oriented DBMS as

- i) Object oriented
- ii) DBMS

(12 Marks)

(b) Mention any eight guidelines for designing forms and data entry windows.

(8 Marks)

7. (a) What are GRASP patterns? Explain GRASP patterns as applied to :

- i) Expert
- ii) Creator.

(10 Marks)

(b) Explain GRASP pattern as applied to :

- i) Polymorphism
- ii) Indirection.

(5+5 Marks)

8. Write short notes on :

- a) Object persistence
- b) UML
- c) Prototyping
- d) Quality measures.

(4x5=20 Marks)

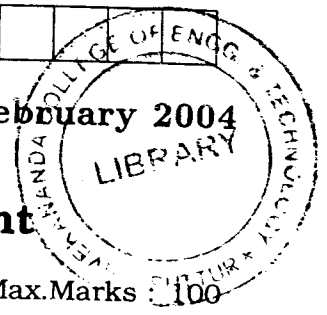
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**5th Semester B.E. Degree Examination, January/February 2004**  
**Computer Science and Engineering**  
**Object Oriented System Development**

Time: 3 hrs.]

[Max.Marks 100

Note: Answer any FIVE full questions.

1. (a) What is system development methodology ? How does the object oriented approach differ from the traditional approach in system development ? Explain. (10 Marks)
- (b) Explain the following terms with example.
  - i) Aggregation
  - ii) Inheritance
  - iii) Static binding and dynamic binding
  - iv) Polymorphism (10 Marks)
2. (a) With a neat diagram explain the various steps in object oriented system development with use -case driven approach. (12 Marks)
- (b) What is the software development process ? Discuss the waterall approach of software development process. (8 Marks)
3. (a) Describe Booch methodology for object - oriented system development. (12 Marks)
- (b) Discuss the unified approach to software development. (8 Marks)
4. (a) What is UML ? Explain the behaviour diagrams in UML. (10 Marks)
- (b) Describe the UML class diagram. (5 Marks)
- (c) Describe the difference between patterns and frameworks. (5 Marks)
5. (a) What is the purpose of analysis ? Why is analysis a difficult task ? Explain. (5 Marks)
- (b) Why is documentation an important part of analysis ? What are the guidelines for developing effective documentation ? (5 Marks)
- (c) Explain the common class patterns approach for identifying classes.(10 Marks)
6. (a) What is an a - part - of structure ? What are its properties ? What guidelines would you use to identify a - part - of structure ? (4 Marks)
- (b) What are different activities of object oriented design process ? Explain. (10 Marks)
- (c) Explain the designing of methods for the VIANET Bank objects. (8 Marks)

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7. (a) Discuss the different corollaries for object oriented design.

(10 Marks)

(b) Describe the user interface design rules.

(10 Marks)

8. (a) Explain pure fabrication and indirection with respect to GRASP. (10 Marks)

(b) What is GOF ? Explain. Also explain the polymorphism in GRASP. (5 Marks)

(5 Marks)

(c) Briefly explain the Gang of four patterns.

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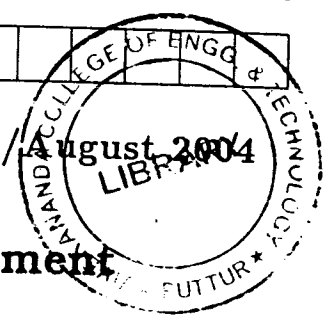
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**Fifth Semester B.E. Degree Examination, July/August 2004**  
**Information Science and Engineering**  
**Object Oriented Systems Development**

Time: 3 hrs.]

[Max.Marks : 100

Note: Answer any FIVE full questions.

1. (a) How does object oriented systems development methodology differ from traditional techniques? Explain the advantages of object orientation. (10 Marks)
- (b) Explain the following:
  - i) Methods and messages
  - ii) Dynamic inheritance
  - iii) Consumer - Producer association
  - iv) Aggregation
  - v) Object persistence (10 Marks)
2. (a) Describe the processes and concepts of Unified Approach. (10 Marks)
- (b) Briefly describe the layered approach to software development. (5 Marks)
- (c) Describe the UML. (5 Marks)
3. (a) With examples explain the UML sequence and collaboration diagrams. (10 Marks)
- (b) What is the objective of analysis? What tools can be used for extracting information about the system? What are the steps for analysis in the Unified Approach? (5 Marks)
- (c) Describe the Use-case model with an example. (5 Marks)
4. (a) Describe the common class pattern and use-case driven approaches for identifying the classes. (10 Marks)
- (b) Give the guidelines for effective documentation. (5 Marks)
- (c) What is super-sub class relationship? How can they be identified? (5 Marks)
5. (a) How can Associations, Attributes and methods be identified? Give the guidelines. (10 Marks)
- (b) What are the major steps in the design phase? Briefly explain the object oriented design axioms and corollaries. (10 Marks)

(5 Marks)

(5 Marks)

(5 Marks)

(5 Marks)

(10 Marks)

(10 Marks)

(4×5=20 Marks)

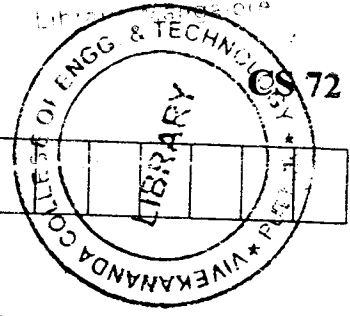
6. (a) What is OODMBS? Compare it with DBMS.  
(b) Explain the steps for the design of the Access Layer.  
(c) State the UI design rules.  
(d) Give the guidelines for designing Dialog box, Error messages and Command buttons.
7. (a) Explain the following patterns with respect to GRASP.  
i) Expert ii) Creator iii) Controller  
(b) What are Gang of Four patterns? Explain any two of them.
8. Write explanatory notes on:  
(a) Prototyping  
(b) The UML Activity diagram  
(c) Guidelines for defining the attributes of classes  
(d) Coupling and Cohesion.

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**NEW SCHEME**

**Seventh Semester B.E. Degree Examination, May / June 2006  
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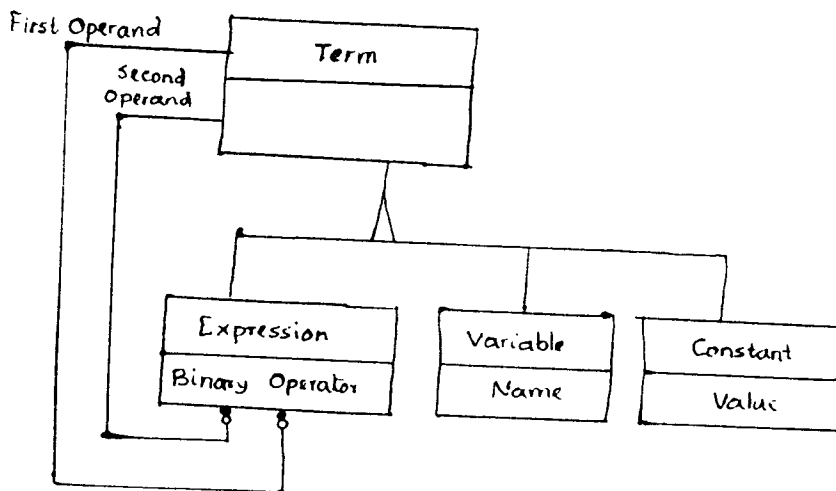
**Object Oriented Analysis and Design**

Time: 3 hrs.]

[Max. Marks:100

- Note: 1. Answer any FIVE questions.  
2. All questions carry equal marks.**

1.
  - a. Describe in brief, various stages of OMT approaches. (12 Marks)
  - b. With a suitable example, discuss the relationship among object model, functional model and dynamic model. (08 Marks)
2.
  - a. Justify 'Generalization and Inheritance are powerful abstractions for sharing similarity among classes while preserving their differences'. (08 Marks)
  - b. Prepare an instance diagram for the class diagram shown below for the expression :  $(X*Y/2)+(A/B+C/D)$ . Modify the class diagram to handle unary operators. (12 Marks)



3.
  - a. Describe in brief, the major elements to be considered within the conceptual framework of Object-oriented model. (12 Marks)
  - b. With an example, write the role of module diagram in the physical design of a system. (08 Marks)
4.
  - a. Explain the life cycle of Micro-development process. (12 Marks)
  - b. Discuss the role of Nested state diagrams. Give an example. (08 Marks)
5.
  - c. Discuss how Unified Process is emerged as a popular software development process. (12 Marks)
  - d. What is use-cases? Describe its role in object-oriented analysis. (08 Marks)

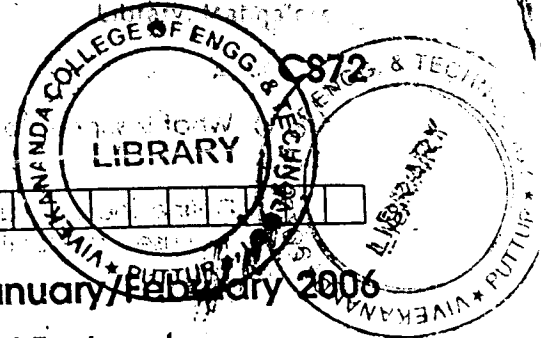
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- 6 a. What are the functions of sequence diagram? Illustrate. (08 Marks)
- b. Explain how domain model is used to represent conceptual classes or real world objects with an example. (06 Marks)
- c. Compare contracts with use-cases. (06 Marks)
- 7 a. Describe with an example how interaction diagram is used for objects interaction via messages. (10Marks)
- b. Explain how dependency relation can be represented using UML notation with an example. (05 Marks)
- c. How exceptions are handled in UML? (05 Marks)
- 8 Write short notes on the following : (06 Marks)
- a. UML meta data (07 Marks)
- b. Eiffel/C++ as object oriented programming language (07 Marks)
- c. Coupling and cohesion

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**NEW SCHEME**



Reg. No.

**Seventh Semester B.E. Degree Examination, January/February 2006**  
**Computer Science/Information Science and Engineering**  
**Object Oriented Analysis and Design**

Time: 3 hrs.)

(Max.Marks : 100)

**Note:** 1. Answer any FIVE full questions.  
 2. All questions carry equal marks.

1. (a) Explain how object oriented development differs from traditional software development approach. Discuss the reasons which help object oriented approach to work. (12 Marks)
- (b) Explain the following :
 

i) Objects	ii) Classes
iii) Object state and properties	iv) Identity

(8 Marks)
2. (a) Discuss the concepts of encapsulation and inheritance with the help of suitable examples. (8 Marks)
- (b) Differentiate between association and aggregation with an example. (4 Marks)
- (c) Describe the macroprocesses of the object oriented system development approach. (8 Marks)
3. (a) What is layered approach? Explain the 3-layered approach adopted for software development. (8 Marks)
- (b) Write an explanatory note on use-cases employed in Jacobson's methodologies. (4 Marks)
- (c) Explain with the help of an example, the Rumbaugh EtAl's object modeling technique. (8 Marks)
4. (a) What is UML? What are its advantages? Explain. (5 Marks)
- (b) Describe the class diagram of UML. (4 Marks)
- (c) With an example, describe the various relationships in a use-case diagram. (5 Marks)
- (d) Write the UML sequence and collaboration diagram for the telephone call example. (6 Marks)
5. (a) Differentiate between the following :
 

i) Users and Actors	ii) Patterns and frame works.
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(8 Marks)
- (b) For the Vianet Bank ATM example, show how actors and use-cases are identified. (6 Marks)
- (c) What are the different approaches for identifying classes? Explain each briefly. (6 Marks)

Contd.... 2

- 6. (a) What is super-sub class structure? Give the generalized guidelines for identifying them. (8 Marks)
- (b) Define the structure and properties of "A-part-of" relationship. What guidelines are used to identify such a relationship? (8 Marks)
- (c) Explain the various activities associated with class responsibility. (4 Marks)
- 7. (a) Explain the object-oriented design axioms and define the corollaries that can be derived from the above axioms. (10 Marks)
- (b) Write a note on class visibility. (6 Marks)
- (c) Differentiate between persistent and transient data. (4 Marks)
- 8. (a) Explain the major activities carried out in the process of designing view layer classes. (8 Marks)
- (b) What is an OODBMS? Explain. Discuss its differences from traditional DBMS. (8 Marks)
- (c) Explain the characteristics of a multidatabase system. (4 Marks)

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