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NMAM INSTITUTE OF TECHNOLOGY, NITTE

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

November - December 2017

14CS701 – OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours **Max. Marks: 100**

Note:** Answer **Five full** questions choosing **One full question from each Unit.

			Marks	BT*
		Unit – I		
1.	a)	Discuss any four object oriented themes pervaded in Object Oriented Technology.	6	L*2
	b)	Design a class diagram for ATM application with attributes.	8	L6
	c)	Discuss any four characteristics of object oriented programming.	6	L2
2.	a)	Discuss the stages of object oriented modeling.	10	L2
	b)	List and explain the purposes of using models.	10	L1
		Unit – II		
3.	a)	What are the uses of qualified association? Explain with required examples.	6	L2
	b)	Compare and contrast bags and sequences.	6	L2
	c)	Why association end names are important? Illustrate with an example.	8	L1
4.	a)	Describe with a diagram, the basic UML syntax for modeling notation for classes.	6	L2
	b)	How an association class participates in an association? Give an example.	6	L1
	c)	Discuss inheritance in the context of disjoint classes and overlapping classes.	8	L2
		Unit – III		
5.	a)	Summarize the stages of software development process.	9	L2
	b)	Discuss the concept in preparing a problem statement.	6	L2
	c)	Mention the steps in constructing application interaction model.	5	L1
6.	a)	Briefly explain steps in constructing domain class model.	10	L2
	b)	Discuss the steps involved in constructing domain state model.	10	L2
		Unit – IV		
7.	a)	Discuss the problem that arise when integrating class libraries from multiple source.	9	L2
	b)	Layers can be partitioned and partitions can be layered. Justify.	8	L4
	c)	Discuss the two main reasons for implementing subsystems in hardware.	3	L2
8.	a)	Discuss the qualities of good class libraries.	6	L2
	b)	Discuss the concept of pattern and give out the benefits.	7	L2
	c)	Differentiate the kinds of control flow in a software system.	7	L4
		Unit – V		
9.	a)	Discuss all steps involved in class design.	9	L2
	b)	Compare reverse engineering and forward engineering.	6	L2
	c)	Discuss three approaches of implementing associations with an example.	5	L2
10.	a)	How would you choose association traversal? Describe briefly.	8	L1
	b)	Discuss briefly on reverse engineering tips needed while building class, state and interaction models.	6	L2
	c)	When fine tuning of generalization is essential. How is it achieved?	6	L1

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations – July 2017

13CS701 – OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours **Max. Marks: 100**

Note: Answer Five full questions choosing One full question from each Unit.

			Marks	BT*
		Unit – I		
1.	a)	What is OO Methodology? Explain the stages of OO Methodology.	10	L*2
	b)	Illustrate the Generalization and Inheritance with neat diagrams.	10	L2
2.	a)	Explain the following with neat diagrams i) Links and Associations ii) Association classes iii) N-ary associations iv) Association end names	10	L2
	b)	List and explain different OCL constructs for traversing class models.	10	L2
		Unit – II		
3.	a)	Construct a state diagram for telephone phone line with do activities.	10	L6
	b)	What are sequence models? Explain kinds of sequence models with example. Also give the guidelines for sequence models.	10	L2
4.	a)	Explain three types of Use Case relationships with example.	6	L2
	b)	Compare Aggregation, Association and Composition.	6	L4
	c)	What are activity models? Write activity diagram for stock trade processing. Also explain the Guidelines for activity models.	8	L6
		Unit – III		
5.	a)	How to elaborate system concept? Explain with ways to devise system concept.	10	L2
	b)	Explain the different steps involved in domain state modeling of ATM system. Also draw the Initial Class Model of ATM System.	10	L2
6.	a)	Explain different criteria involved in keeping the right associations of domain class model with the help of ATM case study.	10	L2
	b)	List and explain the various steps involved in application interaction model with respect to ATM case study.	10	L2
		Unit – IV		
7.	a)	Differentiate between Patterns and Frameworks with respect to system design.	8	L2
	b)	Explain three kinds of software control strategy.	12	L2
8.	a)	What are layers and partitions? Explain.	10	L1
	b)	Explain Batch Transformation and Continuous Transformation with neat diagram.	10	L2
		Unit – V		
9.	a)	Describe the steps involved in implementation modeling with neat diagram.	10	L2
	b)	What is bridging the gap? Explain. Compare forward engineering with reverse engineering.	10	L2
10.	a)	List all the steps involved in improving the class design. Explain any four of them.	10	L2
	b)	How to realize the associations in Implementation Modeling? Explain.	10	L4

BT* Bloom's Taxonomy, L* Level

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

November - December 2016

13CS701 – OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours **Max. Marks:** 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	What is a Model? What purpose it serves?	6	L1
	b)	Describe how class models can be traversed using OCL constructs.	8	L2
	c)	Explain the issues that need to be considered when choosing visibility.	6	L2
2.	a)	Explain any four object oriented themes pervaded in object oriented technology.	7	L2
	b)	Explain multiplicity, Association end names, Bag and Sequences.	7	L2
	c)	What is N-ary Associations? Explain with an example.	6	L2
		Unit – II		
3.	a)	Write notes on metadata and Reification.	6	L2
	b)	What is use case? Design use case diagram for a vending machine.	6	L5
	c)	What are events? Explain different kinds of events.	8	L2
4.	a)	What is a constraint? Explain constraints on objects and constraints on generalization sets.	7	L2
	b)	Summarize the basic notations for a state diagram.	6	L2
	c)	Design an activity diagram for stock trade processing.	7	L6
		Unit – III		
5.	a)	What is System conception? Define the ways to find new system concepts. Define any two development stages of process overview.	10	L2
	b)	Explain the steps to construct an application interaction model.	10	L4
6.	a)	What is a domain model? Explain with example the steps followed in constructing a domain class model.	10	L4
	b)	Explain with example the steps followed in constructing application state model.	10	L4
		Unit – IV		
7.	a)	Find how the subsystems can be allocated to hardware units?	8	L1
	b)	Explain different kinds of global resources with example.	6	L2
	c)	Explain the issues regarding boundary conditions.	6	L2
8.	a)	Explain in detail common architectural styles.	7	L2
	b)	Write qualities of good class libraries while making a reuse plan in system design.	6	L3
	c)	Explain procedure-driven control and event –driven control.	7	L2
		Unit – V		
9.	a)	How to improve the organization of a class design?	8	L3
	b)	Explain one-way associations and two-way associations.	7	L2
	c)	Give the difference between forward engineering and reverse engineering.	5	L2
10.	a)	Describe the steps needed to design an algorithm.	8	L1
	b)	With a neat diagram explain how to promote an association as an object.	6	L3
	c)	Explain three distinct phases for building the class model.	6	L2

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Make up Examinations – January 2017

13CS701 – OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours **Max. Marks: 100**

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	Distinguish the following with examples: i. Class model and state model. ii. Links and associations. iii. Values and attributes. iv. Bags and sequences. v. Association end names and association class.	10	L*4
	b)	Prepare class model for graphical windowing system.	5	L3
	c)	Discuss ternary associations with an example.	5	L2
2.	a)	Prepare a list of classes for the following and draw the class diagram: i. A program for laying out newspaper. ii. Magazine subscription.	6	L3
	b)	Design class diagram from the given object diagram. 	4	L6
	c)	Design class diagram for each group of classes. Add at least 10 relations to each diagram. Use association names, association end names, qualifiers and multiplicities wherever required. (Explain the diagrams and need not show attributes and operations.) i. School, playground , principal, school board, classroom, book, student, teacher, cafetaria, restroom, computer, desk, chair, ruler, door, swing. ii. Expression, constant, variable, function, argument list, relational operator, term, factor, arithmetic operator, statement, computers program.	10	L6
		Unit – II		
3.	a)	Differentiate aggregation and composition with a fairly good example. Show also how an operation can be propagated in a composition or aggregation.	10	L5
	b)	Construct a nested state diagram for a telephone line. Show effects, activities, do activities with proper UML notation.	10	L6

P.T.O.

4. a) Consider a computer email system:
   i. List any three actors
   ii. Prepare a use case diagram for computer email system.
   iii. Prepare an exception scenario and sequence diagram for the email use case. 10

   b) Categorize the following relationships into generalization, aggregation and association:
   i. A fille is an ordinary file or a directory file
   ii. A polygon is composed of an ordered set of point.
   iii. A drawing object is text, geomitrical object or a group.
   iv. Files contain records
   v. A person plays for a team in a certain year. 5

   c) How reification can be carried out in class model? Give example. 5

Unit – III

5. a) List and briefly explain various steps involved in software development. 10

   b) Bring out any five questions that need to be answered during elaborating a system concept. 10

6. a) Discuss first five steps that need to be performed towards the construction of domain class model. 10

   b) Construct ATM class model with attributes and inheritance. 10

Unit – IV

7. a) Bring out the decissions that has to be made for system design. 10

   b) Explain how libraries and frameworks help in making reuse plans? Insist on qualities of good library. 10

8. a) Explain how the allocation of subsystems is done during system design? 10

   b) Discusss the tradeoffs in choosing software control strategy. 10

Unit – V

9. a) What are the design issues involved in realising associations? 10

   b) What are the metrics that has to be applied during design of algorithms? 10

10. a) Discuss wrapping and maintanance. 10

    b) Elaborate on the the inputs and outputs to reverse engineering. 10

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations - July 2016

12CS701 – OBJECT ORIENTED MODELLING AND DESIGN

Duration: 3 Hours | Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	What is object orientation? Describe the stages of object oriented methodologies.	6	L*1
	b)	Design a class diagram for workstation window management system.	8	L6
	c)	What are the uses of qualified association? Explain with required examples.	6	L2
2.	a)	Describe the three models used to define a system.	9	L1
	b)	What is an association class? In which context it is useful? How it differs from an ordinary class? Illustrate with an example.	6	L6
	c)	Compare and contrast bags and sequences .	5	L4
		Unit – II		
3.	a)	Compare association, aggregation and composition? Give their respective UML notation with an example. Explain which one is the most general concept? Which one is the most specific?	10	L4
	b)	Explain the properties of association ends.	10	L5
4.	a)	Draw a state diagram for issuing and returning books from library.	10	L4
	b)	List and explain the various restructuring techniques used with respect to workarounds.	8	L5
	c)	Find the need for promoting n-ary associations to classes.	2	L1
		Unit – III		
5.	a)	Explain the following software development life cycle models: (i) Waterfall Development (ii) Iterative Development Draw domain state model for account with respect to ATM example.	10	L2
	b)	With a neat sequence diagram, explain process transaction scenario. Write a state diagram for transaction Controller.	10	L6
6.	a)	List and explain any five criteria to be considered in keeping the right classes.	10	L1
	b)	Explain with examples the steps followed in constructing application class model.	10	L2

P.T.O.

Unit – IV

7. a) Elaborate the steps for designing a batch transformation and a continuous transformation with neat sketches.
   b) Draw and explain the architecture of ATM systems.

8. a) Characterize the data suitable for files and databases. Give the advantages and disadvantages of using these data storage alternatives.
   b) What is "back of the envelope" calculation? Explain with a case study.

Unit – V

9. a) Describe the steps needed to improve the class design.
   b) When fine tuning of generalization is essential? How is it achieved?
   c) Discuss three approaches of implementing associations with an example.

10. a) Compare reverse engineering and forward engineering.
    b) Why testing is required? What are the tests needed in every stage of development? Describe all types of tests required during implementation.
    c) When fine tuning of classes is essential? How is it achieved?

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Make up Examinations – January 2016

12CS701 - OBJECT ORIENTED MODELING AND DESIGN

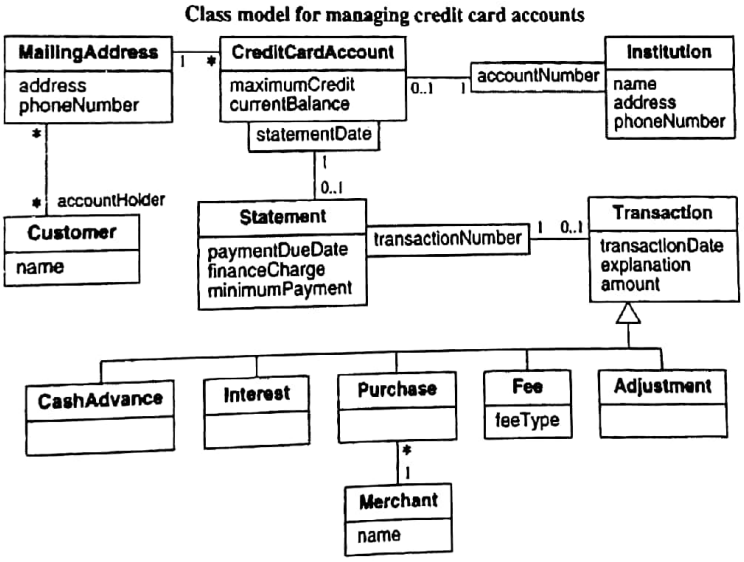
...tion: 3 Hours

Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

Unit – I

		Marks	BT*
a)	What is object orientation? Describe briefly the stages involved in Object Oriented methodology.	6	L*2
b)	Prepare a class diagram for the dining philosopher problem. There are 5 philosophers and 5 forks around a circular table. Each philosopher has access to 2 forks, one on either side. Each fork is shared by 2 philosophers. Each fork may be either on the table or in use by one philosopher. A philosopher must have 2 forks to eat.	5	L6
c)	Compare and contrast ordering, bags and sequences.	9	L4
a)	What is an association end? What are the properties of an association end?	5	L1
b)	Describe with a diagram, the basic UML syntax for modeling notation for classes.	5	L2
c)	Consider the class model below :		



Write OCL expressions for the following.

a) What transactions occurred for a credit card account within a time interval?
b) What volumes of transactions were handled by an institution?
c) What customers patronized a merchant in the last year by any kind of credit card?
d) How many credit card accounts does a customer currently have?
e) What is the total maximum credit for a customer for all accounts? 10 L6

Unit – II

3. a) Describe Propagation of Operation with suitable example.

   b) A simple digital watch has a display and two buttons, A and B to set it. The watch has two modes of operation, display time and set time. In the display time mode, the watch display hours and minutes, separated by a flashing colon. The set time mode has two sub modes, set hours and set minutes. The A button selects modes. Each time it is pressed, the mode advances in the sequence: display, set hours, set minutes, display etc. within the sub modes, the B button advances the hours or minutes once each time it is pressed. Buttons must be released before they can generate another event. Prepare a state diagram of watch.

   c) Explain Enumeration with examples.

   d) Differentiate abstract class and concrete class.

4. a) Explain Multiple Classification.

   b) List and explain the types of state diagrams giving an example for each.

   c) Prepare a state diagram for selecting and dragging objects with the diagram editor. A cursor on the diagram tracks a two-button mouse. If the left button is pressed with the cursor in the object, the object is selected,replacing any previously selected object. If the left button is pressed with the cursor not on object , the selection is set to null. Moving the mouse with the left button held down drags any selected object.

   d) Illustrate how branches, initiation and termination points are indicated in activity diagram?

Unit – III

5. a) List and explain different stages in software development.

   b) Explain how to estimate unnecessary and incorrect attribute with respect to finding attributes.

6. a) List the steps to construct a domain state model. For an ATM Bank system, prepare data dictionary for all modeling elements.

   b) Draw the use-case diagram for ATM and explain each use-case. Bring out the initial and final event for each use-case in ATM example.

Unit – IV

7. a) Find what are the decisions to be made during system design? What are the two aspects of reuse?

   b) Find the qualities of a good class library.

   c) Define the following.
   1)framework 2)pattern.
   What are the benefits of patterns?Differentiate pattern and framework.

8. a) Find the possible pragmatic inconsistencies when integrating class libraries from multiple sources.

   b) Define a subsystem. What are the types of relationships between subsystems? List and define the forms of layered architecture?

Unit – V

9.	a)	Discuss all steps involved in class design.	9	L1
	b)	Describe the consideration for choosing alternative algorithms with an example.	6	L2
	c)	List all kinds of adjustments needed to increase the chance of inheritance. Give an example.	5	L3
10.	a)	List and describe the steps involved in realizing the uses cases during class design.	6	L2
	b)	How would you choose association traversal? Describe briefly.	8	L2
	c)	Discuss briefly on reverse engineering tips needed while building class, state and interaction models.	6	L7

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

December - 2014

CS701 – OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours

Max. Marks: 100

Note:** Answer **Five full** questions choosing **One full** question from **each Unit.

Unit – I

1. a) Consider the modeling concept. Explain the three models with example. 6
   b) Draw the inheritance diagram for equipment. 10
   c) What are OO methodologies? Explain. 4
2. a) Construct OCL for traversing class model for managing credit card account. 8
   b) Explain generalization and Inheritance. 6
   c) Differentiate Class and object diagram. 6

Unit – II

3. a) Draw and explain state diagram for telephone line. 10
   b) Consider a computer email system. List out and explain actors, use cases. Draw the use case diagram. 10
4. a) Prepare the activity diagram for awarding frequent flyer credits. In the past, TWA awarded a minimum of 750 miles for each flight. Gold and red card holders received a minimum of 1000 miles per flight. Gold card holders received a 25% bonus for any flight. Red card holders received a 505 bonus for any flight. 6
   b) Draw and explain sequence diagram for receiving email, sending email and managing email. 6
   c) Explain the following with example Aggregation, Abstract class, Meta data and derived data. 8

Unit – III

5. a) Draw and explain domain class model for ATM. 10
   b) List out and explain steps for domain state model. 10
6. a) What are the steps involved in Application interaction model development? Explain. 10
   b) Draw and explain Application state diagram for session controller showing all steps. 10

Unit – IV

7. a) Architect the ATM system using the concept of system design. 6
   b) Differentiate files and databases. 6
   c) How to allocate subsystem and task to processor. 4
   d) How to determine the physical connectivity? 4
8. a) List out and explain any five steps of system design. 10
   b) How to prepare reuse plan? 8
   c) What are the different kinds of global resources available? 2

Unit – V

9. a) Explain the steps involved in class design. 10
   b) What are the stages involved in maintenance. 10
0. a) What are the reverse engineering tips? Explain. 6
   b) How to build the class models? 6
   c) Differentiate between forward engineering and reverse engineering. 8

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations – July 2014

CS701 - OBJECT ORIENTED MODELING AND DESIGN

uration: 3 Hours

Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

Unit – I

.	a)	What is object-orientation? Explain stages involved in OO Methodology.	10
	b)	Compare the following terms with examples. i) Bags & sequences ii) Values & attributes	10
.	a)	What is a model? Give an example. What purpose does it serve? Explain.	8
	b)	What are links and association? Write and explain UML notation for links and association, with an example.	8
	c)	Explain generalization, with an example.	4

Unit – II

3.	a)	Explain any two properties of aggregation.	4
	b)	Compare aggregation and composition? Give their respective UML notations, with an example.	8
	c)	What is an event? Explain various kinds of events, using UML notations.	8
4.	a)	A simple digital watch has a display and two buttons to set it, the button A and button B. The watch has two modes of operation, display time and set time. In the display time mode, the watch displays hours and minutes, separated by a flashing colon. The set time mode has two sub modes, set hours and set minutes. The A button selects modes, Each time it is pressed the mode advances in the sequence: display, set minutes, set minutes, display, etc. Within the sub modes, the button B button advances the hours or minutes once each time it is presses. Buttons must be released before they can generate another event. Prepare a state diagram of the watch.	6
	b)	Write any four use cases for windows explorer.	4
	c)	Write activity diagram for logging into e-mail system.	6
	d)	Mention the guidelines for sequence models.	4

Unit – III

5.	a)	Explain following software development cycle using OO approach. i) Waterfall development ii) Iterative development	10
	b)	Write and explain steps performed in constructing a domain state model, with an example.	10
6.	a)	Write and explain steps performed in constructing application class model, with an example.	10
	b)	What do you mean by domain analysis? List out steps involved in constructing domain class model.	6
	c)	List out the classes for ATM system.	4

Unit – IV

7.	a)	Explain different ways to decompose system into sub-systems.	10
	b)	Describe the architecture of ATM system with the help of neat diagram.	10
8.	a)	Briefly explain any two kinds of control for the external events in software system.	10
	b)	Explain the following. i) Batch transformation ii) Interactive interface	10

Unit – V

9.	a)	Explain steps involved in describing algorithm.	10
	b)	Explain the following: i) Reverse engineering Vs Forward engineering ii) Wrapping	10
10.	a)	Explain different tasks involved in design optimization.	10
	b)	Explain implementation model in detail.	10

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

December - 2013

CS701 – OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours

Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

Unit – I

1. a) Explain the themes of OO development. 6
   b) What is a model? Briefly discuss about the three models. 8
   c) Describe the different stages of OO methodology. 6

2. a) With example, explain association end properties. 6
   b) With the neat diagram, explain the class model for managing credit card accounts. 8
   c) Describe generalization and specialization. List the purposes of generalization. 6

Unit – II

3. a) Explain the nested states and nested state diagrams with a phone line example. 10
   b) What is a use case? Draw the use case diagram for vending machine. What are the guidelines to be followed while drawing use case models? 10

4. a) What are sequence models? Draw and explain the sequence model for on-line stock broker system. 10
   b) What is an activity diagram? Describe its special constructs. Draw an activity diagram with swimlanes for servicing an airplane. 10

Unit – III

5. a) Describe domain analysis, with an example of ATM. 10
   b) With a neat diagram, explain the steps followed in constructing an application class model. 10

6. a) With a neat sequence diagram, explain process transaction scenario. 10
   b) Explain the stages in software development process. Which life cycle would you prefer in the development? Why? 10

Unit – IV

7. a) List the different aspects of reusability. Explain the steps in designing a compiler using batch transformation. 10
   b) Describe the architecture of an ATM system, with the help of a neat block diagram. 10

8. a) Explain the two ways of choosing software control strategies. 10
   b) Describe the different ways of allocating each concurrent subsystems to a hardware unit. 10

Unit – V

9. a) Explain implementation modelling in detail. 10
   b) List and explain the steps involved in organization of a class design. 6
   c) List the different tasks involved in design optimization. 4

10. a) Explain the following
    i) Two-way association ii) Forward Engineering Versus Reverse Engineering
    iii) Wrapping. 10
    b) Explain the considerations for choosing alternative algorithms. 6
    c) List the inputs and outputs related to reverse engineering. 4

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations – June 2013

CS701 – OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

Unit – I

1. a) Construct a Simple Class model of a workstation window management system. Show all the features of the class modeling 10
   b) Compare following with neat diagrams i) Association Classes ii) Association End names 10
2. a) Differentiate with examples.
   i) class diagram and object diagram ii) Link and association 4 + 4
   b) Prepare an object model for the dining philosopher's problem. There are 5 philosophers and 5 forks around a circular table. Each philosopher has access to 2 forks on either side. Each fork is shared by 2 philosophers. Each fork may be either on the table or in use by one philosopher. A philosopher must have 2 forks to eat. 6
   c) With a aid of diagram explain Generalization and Aggregation. 6

Unit – II

3. a) What are splitting control and merging control? Explain the two forms of merging. 6
   b) Discuss the sequence diagrams with a help of ATM transaction withdrawal. 6
   c) What are activity models? Write a activity diagram for stock trade processing. 8
4. a) What are usecase models? Explain the guidelines of usecase models. 6
   b) Describe Signal event, Change event and Time event. 6
   c) Construct a state diagram for Telephone line with activities. 8

Unit – III

5. a) Explain different criteria involved in keeping the right associations of domain class model. 10
   b) List the various steps involved in application interaction model. Explain any one of them using ATM example. 10
6. a) Define the various development stages in software development. 6
   b) How do you keeping the right classes in domain class model? Explain with a help of ATM case study. 6
   c) Explain steps involved in constructing a domain state model. 8

Unit – IV

7. a) What are libraries? What are the qualities of good libraries? Explain the problems in using reuse code in system design. 10
   b) Explain the three kinds of software control strategy. 10
8. a) What are layers and partitions? Explain how to combine layers and Partitions with help of typical example. 10
   b) Explain batch transformation with continuous transformation with aid of diagrams. 10

Unit – V

9. a) Explain the steps involved in designing the algorithms for class design. 10
   b) How to realize the associations in Implementation Modeling? Explain. 10
10. a) Explain the fine tuning classes and fine tuning generalizations. 10
    b) What is reverse engineering? Compare forward engineering with reverse engineering. Explain the inputs to and outputs from reverse engineering. 10

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

November - December 2015

12CS701 - OBJECT ORIENTED MODELING AND DESIGN

Duration: 3 Hours | Max. Marks: 100

*Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit.***
*2) Provide **diagrams** and **examples** wherever necessary.*

			Marks	BT*
		Unit – I		
1.	a)	Discuss any four object oriented themes pervaded in Object Oriented Technology.	6	L*2
	b)	How an association class participates in an association? Give an example.	6	L1
	c)	Describe how class models can be traversed using OCL constructs	8	L2
2.	a)	What is a model? What purpose it serves?	5	L1
	b)	Design a class diagram for ATM application.	8	L6
	c)	Why association end names are important? Illustrate with an example	7	L4
		Unit – II		
3.	a)	Differentiate multiplicity of an association and multiplicity of attributes. What does scope indicate? What are the possible values of visibility? What are the issues to be considered when choosing visibility?	8	L4
	b)	Explain the types of multiple inheritance. How do you eliminate multiple inheritance?	8	L5
	c)	Write notes on meta data and reification.	4	L2
4	a)	Summarize the basic notations for a state diagram.	6	L2
	b)	Compare activity and do-activity. What are completion transitions?	6	L4
	c)	Explain the three types of concurrencies.	8	L5
		Unit – III		
5.	a)	What is System Conception? Define the ways to find new system concepts. Define any two development stages of process overview.	10	L2
	b)	List and explain any five criteria to be considered in keeping the right associations.	10	L1
6.	a)	Explain with examples the steps followed in constructing application state model.	10	L2

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b) Explain with example to organize and simplify classes using inheritance to construct a domain class model. Draw the ATM class model with attributes and inheritance. 10 L2

Unit – IV

7. a) Give two differences between layers and partitions. How layers and partitions can be combined? 6 L2
   b) Define inherent concurrency? How to identify it? 4 L1
   c) Find how the subsystems can be allocated to hardware units? 10 L1

8 a) With examples, give the different kinds of global resources. 4 L2
   b) Differentiate internal and external control flow. List and define the different types of sub-controls under each control flow. Give the advantages of using those controls. 6 L4
   c) What are the issues regarding boundary conditions? Give some architectural styles 10 L2

Unit – V

9 a) Describe the steps needed to design an algorithm. 8 L2
   b) Write briefly on association traversal. 6 L5
   c) Describe the tasks involved in design optimization. 6 L2

10. a) List all steps needed to improve the organization of a class design. Discuss briefly about the ways to hide information. 8 L1
    b) Comment on recursing downward during class design. 6 L2
    c) Discuss the different ways of adjusting classes and operations to increase inheritance during class design. 6 L5

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

November - December 2017

14CS701 – OBJECT ORIENTED MODELING AND DESIGN

USN

Duration: 3 Hours Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

		Marks	BT*
	Unit – I		
1. a)	Discuss any four object oriented themes pervaded in Object Oriented Technology.	6	L*2
b)	Design a class diagram for ATM application with attributes.	8	L6
c)	Discuss any four characteristics of object oriented programming.	6	L2
2. a)	Discuss the stages of object oriented modeling.	10	L2
b)	List and explain the purposes of using models.	10	L1
	Unit – II		
3. a)	What are the uses of qualified association? Explain with required examples.	6	L2
b)	Compare and contrast bags and sequences.	6	L2
c)	Why association end names are important? Illustrate with an example.	8	L1
4. a)	Describe with a diagram, the basic UML syntax for modeling notation for classes.	6	L2
b)	How an association class participates in an association? Give an example.	6	L1
c)	Discuss inheritance in the context of disjoint classes and overlapping classes.	8	L2
	Unit – III		
5. a)	Summarize the stages of software development process.	9	L2
b)	Discuss the concept in preparing a problem statement.	6	L2
c)	Mention the steps in constructing application interaction model.	5	L1
6. a)	Briefly explain steps in constructing domain class model.	10	L2
b)	Discuss the steps involved in constructing domain state model.	10	L2
	Unit – IV		
7. a)	Discuss the problem that arise when integrating class libraries from multiple source.	9	L2
b)	Layers can be partitioned and partitions can be layered. Justify.	8	L4
c)	Discuss the two main reasons for implementing subsystems in hardware.	3	L2
8. a)	Discuss the qualities of good class libraries.	6	L2
b)	Discuss the concept of pattern and give out the benefits.	7	L2
c)	Differentiate the kinds of control flow in a software system.	7	L4
	Unit – V		
a)	Discuss all steps involved in class design.	9	L2
b)	Compare reverse engineering and forward engineering.	6	L2
c)	Discuss three approaches of implementing associations with an example.	5	L2
a)	How would you choose association traversal? Describe briefly.	8	L1
b)	Discuss briefly on reverse engineering tips needed while building class, state and interaction models.	6	L2
c)	When fine tuning of generalization is essential. How is it achieved?	6	L1

Bloom's Taxonomy, L* Level

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