

KADI SARVA VISHWAVIDYALAYA

B.E SEMESTER IV(CE/IT) EXAMINATION (May / 2014)

SUBJECT CODE : CE/IT (405)

SUBJECT NAME : Object Oriented Analysis and Design

DATE: _15/05/2014

TIME:10:30 a.m to 1:30 p.m

TOTAL MARKS: 70

Instructions:

- 1 Answer each section in separate Answer Sheet.
- 2 Use of scientific Calculator is permitted.
- 3 All questions are compulsory.
- 4 Indicate clearly, the options you attempted along with its respective question number.
- 5 Use the last page of main supplementary for rough work.

Section-1

- Q:1 (A) What are the different object-oriented methodologies? Explain any two in detail. 5
(B) Is composition a form of aggregation? Give example of composition and aggregation. 5
(C) Explain following characteristics and themes of object oriented systems:
Classification, identity, inheritance, encapsulation, polymorphism 5

OR

- (C) Define the purpose of following terms with suitable example and UML notations. 5
(i) Aggregation (ii) Multiplicity

- Q:2 (A) What is a one shot state diagram? Draw one shot state for chess game with entry and exit points. 5
(B) A simple digital watch has a display and two buttons to set it, the A button and B button. 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 hours, set minutes, display, etc. Within the sub modes, the capital 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 the watch. Also show the activity effects and do activities in the state diagram.

OR

- (A) What is the importance of use case diagram? Explain relationships between use cases with suitable example and proper UML notations. Draw use case diagram for an 'Online railway ticket reservation system'. 5
(B) What do you mean by an event in state diagram? Discuss various types of events. 5

- Q:3 (A) Prepare sequence diagram for booking a train ticket on line. Also Prepare sequence diagram for booking a train ticket on line that fails. 5
(B) Prepare an activity diagram for computing a restaurant bill. There should be a charge for each delivered item. The total amount should be subject to tax. There is a service charge of 18% for groups of six or more and 10% for smaller groups. Any coupons and gift certificates submitted by the customer should be subtracted. 5

Section-2

- Q:4 (A) Prepare a class diagram for a graphical document editor that supports grouping. Assume that a document consists of several sheets. Each sheet contains drawing objects, including text, geometrical objects and groups. A group is simply a set of drawing objects, possibly including other groups. A group must also contain at least two drawing objects. A drawing object can be a direct member of at most one group. Geometrical objects include circles, ellipses, rectangles, lines, and squares. 5

- (B) Explain the steps/criteria for finding right associations and right attributes for preparing domain class model in brief. 5
(C) Enlist and briefly explain different architectural styles. 5

OR

- (C) Describe the criteria for discarding unnecessary and incorrect classes. Give example to justify the answer. 5

- Q:5 (A) List out the decisions you make during system design and briefly explain the objectives of following:
 i)frame works ii) patterns iii) libraries iv) layers v) partition

(B) Explain the tasks involved in design optimization.

OR

(A) List and explain the steps to design algorithms with respect to class design.

(B) Explain the two ways in which downward recursion proceeds.

Q:6 (A) What is concurrency? Explain ‘aggregation concurrency’ and ‘concurrency within an object’ represented by state model with suitable example.

(B) Why reuse is considered an advantage of object oriented technology? One of the reusable thing, is library. Describe qualities of “good” class libraries.

OR

(A) Differentiate following with respect to analysis and design stages:
 (i) Domain analysis vs. Application analysis
 (ii) System design vs. Class design

(B) Discuss the concept of delegation to share behavior with example

All The Rest

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester-IV C.E./I.T.

Subject Code:-CE405/IT405

Subject name:-Object Oriented Analysis and Design

Date:- 8.11.14

Time:-

Total Marks:-70

Instruction:

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5. Use the last page of main supplementary of **rough work**.

Section-I

Q-1 (All compulsory)

- (A) Explain object model, state model and functional model. Also Explain [5] relationship between these models.
- (B) Define the following terms: [5]
(a)Qualified Association (b)Multiplicity (c)State (d)Guard condition
(e)Package
- (C) Explain Aggregation vs. Association with example. [5]

OR

- (C) Is composition form of aggregation? Give example of composition and [5] aggregation.

Q-2 Answer the following Questions.

- (A) Describe the guidelines for Use case Model. [5]
- (B) What is inheritance? List the different types of inheritance with example. [5]

OR

- (A) Briefly explain following characteristics and themes of object oriented [5] systems:
Classification, inheritance, encapsulation, polymorphism, synergy
- (B) Explain 'ordered', 'bags', 'sequences' in class diagram with suitable [5] example.

Q-3 Answer the following Questions.

- (A) Draw state diagram for the control of a telephone answering machine. [5]
- (B) What is the importance of adjustment of inheritance? Discuss the steps of [5] doing it.

OR

- (A) What is a constraint? Explain constraints on objects, constraints on [5] generalization sets and constraints on links.
- (B) Differentiate state and event. List and explain different types of events. [5]

Section-II

Q-4 (All compulsory)

- (A) What is concurrency? Explain 'aggregation concurrency' and 'concurrency within an object' represented by state model with suitable example. [5]
- (B) Prepare sequence diagram for booking a train ticket on line. [5]
- (C) Explain the purpose of activity diagram? In which situation activity diagrams are not necessary? [5]

OR

- (C) List and explain the steps of constructing domain class model. [5]

Q-5 Answer the following Questions.

- (A) Explain waterfall development and Iterative Development life cycle styles [5] for Object Oriented approach to software development.
- (B) What does one shot diagram represent? Show one shot diagram for chess [5] game.

OR

- (A) Briefly describe the steps for constructing a domain State model. [5]
- (B) Prepare an activity diagram for awarding marks to regular students. If the student has attended 80% classes, he is awarded minimum 5 marks. If the student has attended more than 80% classes, he is awarded minimum 10 marks. The students who have completed assignments are given 10 marks. Those who have completed 50% are given 5 marks and rests are given 0 marks.

Q-6 Answer the following Questions.

- (A) Explain following concepts with reference to system design:
 - (i) Reusable components and their use
 - (ii) Methods of breaking system into subsystems
- (B) Consider software that manages electronic music files. Prepare a use case [5] diagram and include the appropriate relationships for the use cases.
 - a. Play a song
 - b. Play a library
 - c. Randomize order
 - d. Delete a song
 - e. Destroy a song
 - f. Add a song

OR

- (A) Why interaction model is more important for application analysis? Briefly [5] explain the steps for preparing 'application interaction model'.
- (B) Explain the tasks involved in design optimization. [5]

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Section-I

Q-1 (All compulsory)

- (A) Explain object model, state model and functional model. Also Explain [5] relationship between these models.
- (B) Define the following terms: [5]
(a) Qualified Association (b) Multiplicity (c) State (d) Guard condition
(e) Package
- (C) Explain Aggregation vs. Association with example. [5]

OR

- (C) Is composition form of aggregation? Give example of composition and aggregation. [5]

Q-2 Answer the following Questions.

- (A) Describe the guidelines for Use case Model. [5]
- (B) What is inheritance? List the different types of inheritance with example. [5]

OR

- (A) Briefly explain following characteristics and themes of object oriented systems:
Classification, inheritance, encapsulation, polymorphism, synergy [5]
- (B) Explain 'ordered', 'bags', 'sequences' in class diagram with suitable example. [5]

Q-3 Answer the following Questions.

- (A) Draw state diagram for the control of a telephone answering machine. [5]
- (B) What is the importance of adjustment of inheritance? Discuss the steps of doing it. [5]

OR

- (A) What is a constraint? Explain constraints on objects, constraints on generalization sets and constraints on links. [5]
- (B) Differentiate state and event. List and explain different types of events. [5]

Section-II

Q-4 (All compulsory)

- (A) What is concurrency? Explain ‘aggregation concurrency’ and ‘concurrency within an object’ represented by state model with suitable example. [5]
- (B) Prepare sequence diagram for booking a train ticket on line. [5]
- (C) Explain the purpose of activity diagram? In which situation activity diagrams are not necessary? [5]

OR

- (C) List and explain the steps of constructing domain class model. [5]

Q-5

Answer the following Questions.

- (A) Explain waterfall development and Iterative Development life cycle styles for Object Oriented approach to software development. [5]
- (B) What does one shot diagram represent? Show one shot diagram for chess game. [5]

OR

- (A) Briefly describe the steps for constructing a domain State model. [5]
- (B) Prepare an activity diagram for awarding marks to regular students. If the student has attended 80% classes, he is awarded minimum 5 marks. If the student has attended more than 80% classes, he is awarded minimum 10 marks. The students who have completed assignments are given 10 marks. Those who have completed 50% are given 5 marks and rests are given 0 marks.

Q-6

Answer the following Questions.

- (A) Explain following concepts with reference to system design: [5]
- (i) Reusable components and their use
 - (ii) Methods of breaking system into subsystems
- (B) Consider software that manages electronic music files. Prepare a use case diagram and include the appropriate relationships for the use cases.
a. Play a song
b. Play a library
c. Randomize order
d. Delete a song
e. Destroy a song
f. Add a song

OR

- (A) Why interaction model is more important for application analysis? Briefly explain the steps for preparing ‘application interaction model’. [5]
- (B) Explain the tasks involved in design optimization. [5]

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester-IV C.E.I.T.

Subject Code:-CE/IT 405

Date:- 7-5-15

Subject name:-OBJECT ORIENTED ANALYSIS & DESIGN

Time:- 10:30 to 1:30

Total Marks:-70

Instruction:

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Section-I

Q-1 (All compulsory)

- (A) Is association class same as ordinary class? Explain with example. [5]
(B) Explain the types of model with their purpose in brief. [5]
(C) Differentiate state and event. List and explain different types of events. [5]

OR

- (C) Explain 'ordered', 'bags', 'sequences' in class diagram with suitable examples. [5]

Q-2 Answer the following Questions.

- (A) What is the purpose of class modeling? Explain following concept with example. [5]

- i) Aggregation versus association
ii) Aggregation versus composition

- (B) Describe guidelines for use case Models. [5]

OR

- (A) Define the purpose of following terms with suitable example and UML notations with respect to class model. (1) Qualified association (2) Association class (3) Metadata (4) Derived data (5) Package [5]

- (B) Create a class hierarchy to organize the following Windows system: Window, Scrolling Window, Panel, Canvas, Text Window, Scrolling Canvas, Button, Choice Item, Shape, Line, Closed Shape, Ellipse, Polygon. [5]

Q-3 Answer the following Questions.

- (A) What is concurrency? Explain following concept with example. [5]

- i) Aggregation concurrency

- ii) Concurrency within object

- (B) Explain Nested States. Draw the Nested states diagram for a phone line. [5]

OR

- (A) Explain State Diagram Behavior. [5]

- (B) Explain themes of object oriented systems in Brief. [5]

Section-II

Q-4 (All compulsory)

- (A) Prepare a sequence diagram for an online airline reservation system. [5]
(B) Describe the criteria for discarding unnecessary and incorrect classes. Give [5] example to justify the answer.
(C) What is inheritance? List the different types of inheritance and explain [5] how it encourages reusability and sharing.

OR

- (C) Explain how to choose a Software Control Strategy. [5]

Q-5 Answer the following Questions.

- (A) Explain the following terms in relation to class design. [5]
a). Refactoring b). reification.
(B) Prepare an activity diagram for awarding marks to regular students. If the [5] student has attended 80% classes, he is awarded minimum 5 marks. If the student has attended more than 80% classes, he is awarded minimum 10 marks. The students who have completed assignments are given 10 marks. Those who have completed 50% are given 5 marks and rests are given 0 marks.

OR

- (A) List and explain the steps of constructing application interaction model. [5]
(B) Explain waterfall development and Iterative Development life cycle styles [5] for Object Oriented approach to software development.

Q-6 Answer the following Questions.

- (A) What is the importance of adjustment of inheritance? Discuss the steps of [5] doing it.
(B) Why reuse is considered an advantage of object oriented technology? [5]

OR

- (A) What is the purpose of design optimization? Briefly discuss the tasks of [5] design optimization.
(B) List and explain the steps of constructing domain class model. [5]
