

Structured System Analysis and
Design (SSAD) Object Oriented
Analysis and Design (OOAD)

Software Testing

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Science Computer Science

TYBSc

University of Mumbai

Section I

- Design and software testing*
11/11/08
- N. B. :** 1) All questions are compulsory. Figures to the right indicate marks.
 2) Answers to two sections must be written & submitted separately & mixing of subsections is not allowed.
 3) Symbols have their usual meaning unless otherwise stated.
 4) Illustrations, in-depth answers & diagrams will be appreciated.

1. a) Draw a neat-labeled diagram with all activities of Incremental Model and state its advantages. (6)
- b) Write a note on Organisational & Cultural Feasibility. (5)
- c) State and explain the activities followed in SDLC. (6)

OR

1. p) Draw a neat diagram of the Spiral Model. List the activities involved in this model. (8)
 What are the drawbacks of using this model?
- q) State and discuss the Analysis Phase of SDLC. (5)
- r) Write a short note on Technical Feasibility. (4)

2. a) Write a note on structured walkthrough. (4)
- b) Define the following: (any 2) (5)
 - a. Stakeholders
 - b. +2 Rule
 - c. Black Hole and Miracle.
- c) If the volume of the sales is greater than Rs 10000 and advance collected is 50% or more than the commission is 16%. If the advance collected is less than 50% then it is 14%. For sales Rs 10000 irrespective of the advance collected, commission is 10%. For sales less than 10000 commission is 9% or 8% based on whether advance collected is 50% more or less respectively. (8)
Based on the narrative: 1) List the conditions 2) Develop a Decision Table based on the Decision Tree.

OR

2. p) Explain the columns of an event table. Why is it used? (6)
- q) Draw Context Level and DFD Fragments up to 2 levels for the following example: (7)

"Holy - Clinic is a clinic that treats patients. It has number of doctors that offer their services in the clinic. The management recruits the doctors. A patient coming to a clinic, first registers at a counter by paying some amount. Then he/she visits a particular doctor. For every patient, a case paper is generated. The clinic also keeps record of all the medical representatives visiting doctors. The doctor can suggest certain medicines. At the end of each month, the management gets the reports of patient's payments and to which doctors, they visited".

- r) Write a note on the following: (any 1) (4)
 - a) Temporal Event .
 - b) Questionnaires .

3. a) List and explain the two methods to develop structure chart. (5)

- b) Apply Normalization Rules on the following problem statement and decompose it into the tables. (7)

"A doctor manually maintains his patients records as listed below.
 PATIENT (National-Insurance-Number, Patient name, Gender, Address, Tel-No, Date-of-Last-Visit, Symptoms, Remark_by_Doctor,
 Medication_Details, Date_of_Hospitalization, Hospital_Name, Dr_Attended, Reason_for_Hospitalization)"

- c) What is Input Design? Explain the general guidelines followed for Interface Design. (4)

OR

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3. p) State any two differences between DBMS and RDBMS. Discuss in brief the 1st, 2nd, 3rd Normal Forms. (5)
- q) Discuss the steps in designing Relational Databases. (7)
- r) How will you measure the quality of structure chart? (4)

Section II

4. a) State what is activity diagram and its usage by providing proper example. (6)
- b) Write a brief note on Generalization, Specialization, Aggregation with examples using class diagram. (4)
- c) Depict a UML Use-Case Diagram for the following problem statement. (7)
- "The customer places an order in person or over telephone for home delivery. The order is accepted by the waiter and prepared by the chef. After the order is ready waiter serves it. The manager accepts orders on phone. The bill is generated for the placed order and after the customer does payment, a receipt is generated. The payment can be cash or by credit card."

OR

4. p) Point out and state the differences between the sequence diagram and the collaboration diagram. Depict the diagrams for both of them. (6)
- q) How are the relationships represented in ODBMS? What is one-to-one and one-to-many relationship in ODBMS? (5)
- r) List and explain the symbols used in the use case diagram with proper example. What is a scenario? (6)
5. a) State the different types of Control Structure Testing and discuss each of them. (6)
- b) What is Black Box Testing? Discuss its purpose. (6)
- c) Discuss 4-step strategy which has been proposed to test real time software? (5)

OR

5. p) Write a short note on (any 2): (6)
- 1) Verification & Validation 2) Integration Testing 3) Unit Testing
- q) State and discuss the seven testing principles. (7)
- r) Explain Cyclomatic Complexity in context with White Box Testing with an example. (4)
6. a) Describe the two different strategies for integration testing of OO system. What do you mean by Cluster Testing? (6)
- b) What is an overall approach to OO test case design, which has been defined by Berard? Discuss. (6)
- c) Write a note on Fault Based Testing. (4)

OR

6. p) Explain how Inheritance can complicate the testing process. (4)
- q) Discuss the three kinds of Partitioning Testing at the Class Level. (6)
- r) Write a short note on Unit Testing in OO context. (6)