

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

Software Testing

2009 April

Science Computer Science

TYBSc

University of Mumbai

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T.Y.B.Sc.

Computer Sci - Paper IV structured system  
 Analysis & Design object oriented & Software Testing. MC-7062  
 (3 Hours) [ Total Marks : 100

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

## Section I

1. (a) List the activities in the Spiral Model. Give any two drawbacks of this model. 7  
 (b) List the activities of Implementation Phase of SDLC. 5  
 (c) Write note on schedule feasibility. 5  
 OR
1. (p) List three problems faced in the Prototyping model. List any four points when this model can be used. 7  
 (q) List any five activities involved in the Analysis Phase of SDLC. 5  
 (r) Write note on Resource Feasibility. 5
2. (a) **Case Study :** 7  
 "Art Designers is a company, manufacture designer jewellery. On receiving an order from the client, the company clerk records the order in their Order book. The order is then send to the manufacturing department. The department manager studies the order and allocates the required designers for designing the piece. The manger also calculates the amount of time required for completing the order. The company then sends a quotation to the client indicating the date of delivery and the cost. On receiving a reply of approval from the client, the company begins to work on the order. At the end of every week, a report indicating the work status for all orders under processing is produced. Orders which are going against the schedule are listed and proper measures are taken to complete the order in stipulated time. On completion of the order, a bill is sent to the client along with the challan. At the end of every month, a report indicating pending payments is generated and a reminder letter is sent to the respective clients". Draw a proper context DFD on the basis of an Event Table drawn for the above case.  
 (b) Write note on Stakeholders of an Information System. 5  
 (c) Explain Black hole with proper example. 5  
 OR
2. (p) **Case Study :** 7  
 Liberty Library lends books to its members. The members are of two types—Yearly members and Life members. A Life member if not a defaulter in returning books, gets a video CD of a latest movie free. However if he/she is a defaulter, then he/she has to pay fine of Rs. 100. A Yearly member if not a defaulter, gets an audio CD of the latest album free. However if he/she is a defaulter, then he/she has to pay a fine Rs. 300. Draw Decision Tree and Decision Table for the above case.  
 (q) What is a Questionnaire ? List and explain any two type of Fixed format questionnaire. 5  
 (r) List two rules of DFD construction to avoid information overloading. 5
3. (a) What is Integrity control ? List any five Input Integrity controls. 6  
 (b) List and explain any five symbols used for drawing System flow chart. 5  
 (c) List five rules to reduce error for data input. 5

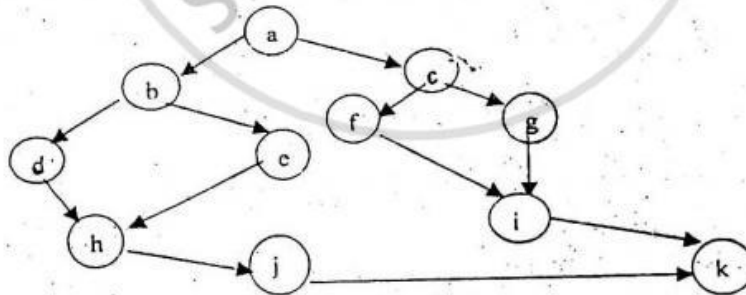
OR

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3. (p) Explain Referential Integrity. How automatic referential integrity is enforced in DBMS ? **6**  
 (q) Write a note on Transform analysis. **5**  
 (r) What is the meaning of Visibility in Interface designing ? Explain the following golden rules – (i) Offer Informative Feedback (ii) Strive for Consistency. **5**

### Section II

4. (a) "Gold Club announces membership. It maintains general information about members (member no, name, address, and contact no). There are special types of memberships—Silver (traveling in India) and Gold (traveling outside India). In case of Silver membership, data maintained is (member no, from place, to place, train no, date of travel, no of seats). In case of Gold membership, data maintained is (member no, from place, to place, plane no, airline no, date of travel, no of seats). Data about place is maintained in Place class. Data about Airline and Train are stored in Airline and Train classes". Draw a neat Class Diagram indicating cardinality. Also show the various OO concepts wherever possible. **7**  
 (b) Explain Generalization and Specialization with proper example. **5**  
 (c) Give ODL statements for One-to-One relationship. **5**  
 OR  
 4. (p) Write note on Transitional label of a State Chart diagram. What is Internal transition ? **7**  
 (q) Write note on Component diagram. **5**  
 (r) Give ODL statements for One-to-Many relationship. **5**  
 5. (a) What is Loop Testing ? List and explain any three types of Loop Testing. **7**  
 (b) List the Testing principals suggested by Davis. **5**  
 (c) Write note on Equivalence Partitioning. **5**  
 OR  
 5. (p) Explain Cyclomatic Complexity in Software Testing ? Compute cyclomatic complexity  $V(G)$  for following flow graph by using all 3 methods of computation. **7**



- (q) Write note on Smoke Testing. **5**  
 (r) Explain Alpha and Beta testing. Why they are required ? **5**  
 6. (a) Explain Deep and Surface structure testing. **6**  
 (b) Explain Multiple Class Testing. **5**  
 (c) Explain the impact of Object Oriented Programming on testing. **5**  
 OR  
 6. (p) Write note on Scenario-Based testing. **6**  
 (q) Explain Random testing with example. **5**  
 (r) What is Partition Testing ? Explain State-based and Attribute-based partition testing. **5**