

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

Software Testing

2009 October

Science Computer Science

TYBSc

University of Mumbai

- 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 any five weaknesses of the Structured Approach. What are the two main principles of Structured Design? 7
 (b) List the activities involved in the Planning Phase of SDLC. 5
 (c) Write note on Organizational and Cultural feasibility. 5
 OR
 1. (p) List 5 problems faced in Waterfall Model. List two points when this model can be used. 7
 (q) List any five activities involved in the Design Phase of SDLC. 5
 (r) Write note on Operational Feasibility. 5
 2. (a) Case Study : 7
 Visual Programmers is a software firm. The firm takes up projects in software development. When the client approaches the firm for developing software, the Administrative clerk of the firm records the clients information in a separate Client file. The project details are then sent to the EDP Manager. The manager studies the project and allocates the required resources. The number of software engineers required for the project is allocated and the information is stored in a project engineer file. The EDP manager also maintains information about what work is delegated to which engineer in the firm in the work delegation file. At the end of the week, the department produces a report of the status of the project. Also an end-of-week report indicating about the work done by every engineer is produced. At the end of the month a report indicating the list of pending projects is handed to the firm. Draw the O-diagram for the given case.
 (b) What is Work sampling ? List four advantages of using Observation as a fact finding technique. 5
 (c) Write note on Temporal events. 5
 OR
 2. (p) Case Study : 7
 "A1 is a martial arts academy. The academy has a policy of admission. According to this policy, student between the age 4 and 12 pays fees of Rs. 200. If the students pays the fees for the entire year, he/she get 5% discount and 2% if fees is paid for half year. Those in the age group of 13 and 30, pay the fees of Rs. 300. If the fees are paid for the entire year, a 6% discount is given and 2.5% discount if fees is paid for half year. Those above 30 years of age, pay fees of Rs. 500. On paying fees for the entire year a 6.5% discount is given and 3% discount if fees is paid for the half year." Draw a decision tree for the given case. Also express the policy of the academy by using Structured English.
 (q) Explain Miracle with proper example. 5
 (r) List five disadvantages of using Questionnaire as a fact-finding technique. 5
 3. (a) What is Referential Integrity ? How are foreign keys used for representing relationships ? How is automatic referential integrity enforced in DBMS ? 6
 (b) List and explain any five symbols used for drawing Structured chart. 5
 (c) What is the objective of Integrity controls ? List the category of users to develop access controls. 5

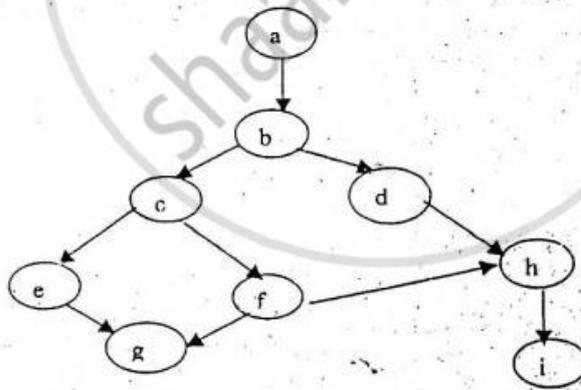
OR

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3. (p) What is the primary objective of output reports ? List four types of output reports for any Information system. 6
- (q) What is the meaning of Affordance in Interface designing ? Explain the following golden rules :— 5
- (i) Permit Easy Reversal of Actions
- (ii) Support Internal Locus of Control.
- (r) List five rules to reduce error for data input. 5

Section II

4. (a) Case Study : 7
- "STAR Garments is a company manufacturing garments on wholesale. Orders are taken in various ways. The order can be a telephone order, e-mail order or the client can visit the company and give the order in person. The details of the client are recorded in client class (Client no., name, address). General details of the order are recorded in class order (order no., date of order, client no.). For telephone order (tele no., std. code, charges per call) are maintained in telorder class. For e-mail order e-mail address, country) are maintained in eorder class. For in-person order (time of visit, discount given) are maintained in inperson class." Draw a neat Class Diagram indicating cardinality. Also show the various OO concepts wherever possible.
- (b) Explain message symbol in Sequence diagram with proper example. 5
- (c) Give ODL statements for Many-to-One relationship. 5
- OR
4. (p) Write note on Activity diagram. 7
- (q) Explain the OR state and AND state in State Chart diagram. 5
- (r) Give ODL statements for Many-to-Many relationship. 5
5. (a) What is meant by Cyclomatic Complexity in Software Testing ? Compute cyclomatic complexity $V(G)$ for following flow graph by using all three methods of computation. 7



- (b) Write note on BVA. 5
- (c) List the various approaches to testing Client Server Applications. 5
- OR
5. (p) List the seven characteristics of testable software. 7
- (q) How are the tests designed for Real-Time systems different from conventional tests ? List the four-step strategy for testing Real-Time systems. 5
- (r) Write note on Bottom-Up Integration. 5
6. (a) Explain with example the different types of Partitioning at Class level. 6
- (b) Write note on Scenario-Based Testing. 5
- (c) Explain the impact of Object Oriented programming on testing. 5
- OR
6. (p) Explain Surface structure and Deep structure testing in Object Oriented systems. 6
- (q) Explain Random Testing with example. 5
- (r) Write note on Multiple Class Testing. 5