Structured System Analysis and Design (SSAD) Object Oriented Anaylsis and Design (OOAD) Software Testing

2011 March

Science Computer Science

TYBSc

University of Mumbai

Con. 1285&(a)-11.   (OLD COURSE)   SK–5207-5208

(3 Hours)   [Total Marks : 100

N.B. 1. All questions are compulsory.
     2. Use separate Answer books for the two sections & submit them separately.
     3. Symbols have usual meanings unless otherwise stated.
     4. Illustrations, in-depth answers & diagrams will be appreciated.
     5. Use additional data if required, but state it clearly.

Section I

(6) 1.   (a)   Explain the working of incremental model and its advantages. 2   (7)
       (b)   Explain the method to evaluate economic feasibility. 2   (5)
       (c)   Explain the task performed in design phase. 2   (5)

OR

1.   (p)   Explain working of prototyping model. List its disadvantages?   (7)
       (q)   Write a short note on technical feasibility.   (5)
       (r)   State and explain tasks involved in implementation phase   (5)

2.   (a)   "Gift a Friend" has 10 retail outlets across the city. A customer can   (7)
choose a gift from the catalogue available. For cake booking
customer's basic information is recorded. The order details contain
the design code, quantity, weight, and date of delivery, and retail
outlet code number.
All the orders due on the next day of delivery are searched at the
Dispatch unit, and the gifts are prepared. The order is dispatched to
the respective outlets the very next day. Once the gift is delivered, a
transaction is recorded. At the end of the month transaction report
and sales report is generated.
Draw context diagram and event table for the above case study.

       (b)   Write a short note on interview as a fact finding method. List its   (5)
advantages.

       (c)   Explain the term miracle in DFD with example.   (5)

OR

(8) 2.   (p)   "Eat Fresh" operates on delivery of pizzas. The customer can choose   (7)
3 different size of pizza (single, medium, and large). If a customer
buys a large pizza, he gets either 50% discount on the second pizza
or he can get a coke free. If he buys a medium pizza, he gets 25%
off on the second pizza or Rs. 10 off on coke. If he buys a single
pizza, he can get Rs. 5 off on coke.
Draw a decision tree and decision table for the above case study. 4

       (q)   What are the advantages and disadvantages of observation as fact   (5)
finding method?

       (r)   What is stakeholder? List various stakeholder those need to be   (5)
involved in system requirement gathering 3

(7) 3.   (a)   Explain 1st, 2nd and 3rd normal form with example. 0   (6)
       (b)   Discuss the following golden rules   (5)
            (i) Support internal locus of control 0
            (ii) Permit easy reversal of actions 2
       (c)   List five symbols used in system flow chart. 5   (5)

OR

3.   (p)   How to evaluate quality of structured chart?   (6)
       (q)   What is integrity control? List the three objectives of integrity   (5)
controls.
       (r)   List the controls to be printed on data report.   (5)

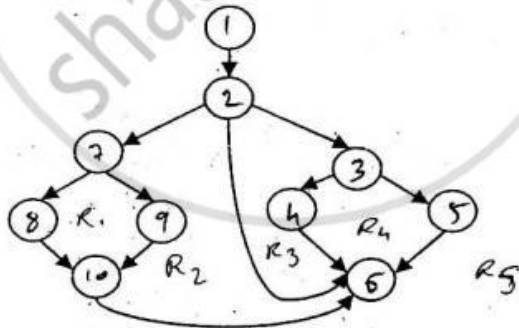**[TURN OVER**

Section II (9)

(2) 4. (a)   "HillTop" hotel management wants to launch their own website to   (7)
provide customer with a facility to book a room online in their hotel.
The customer can also call the hotel reception for booking They also
avail online availability of rooms and booking of the rooms. Before
the booking is made, the customer needs to provide his personal
information to the hotel. Booking is typically stored as booking date,
date of arrival, duration in days, number of people, and type of
rooms. Once the booking is done a unique booking number is
provided to the customer for their reference, which they need to
produce at the time of their arrival.

Draw a use case diagram for the above case study (b)

  (b)   Explain deployment diagram with example. *INTERNAL/EXTERNAL*   (5)

  (c)   Write a note on inheritance in class diagram. (1)   (5)

OR

4. (p)   Explain interaction diagrams in OO context   (7)

  (q)   Explain how to represent many to many relationship using ODL (5)
statement

  (r)   Write a short note on package diagram   (5)

(5) 5. (a)   List 7 characteristics of testable software. 3   (7)

  (b)   Write a short note on testing 1   (5)

  (c)   Explain regression testing in brief. 1   (5)

OR

5. (p)   Explain the concept of basis paths in white box testing. Calculate (7)
cyclomatic complexity for the following diagram using all the 3
formulae

  (q)   Write a note on control structure testing   (5)

  (r)   Explain bottom up integration testing.   (5)

6. (a)   Explain partition testing in detail.   (6)

  (b)   Write a note on scenario based testing with an example.   (5)

  (c)   Explain the terms Fault based testing.   (5)

OR

6. (p)   Explain unit testing in OO context (1)   (6)

(2) (q)   Explain how class hierarchy affects the testing in OO context(1)   (5)

  (r)   Write a short note on Random testing. (0)   (5)

(REVISED COURSE)

(3 Hours)   [Total Marks : 100]

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1.   Write short notes (Any four)   (20)
(a)   ACID properties
(b)   Sequences
(c)   General attributes of software metrics
(d)   Uncertainties in effort estimation
(e)   Deadlocks
(f)   CMM

2.   (a)   Attempt any 2-   (12)
i   State the properties of decomposition. Explain any one.
ii   What does the lock manager do? Explain the types of locks offered by lock manager.
iii Explain the functioning in Redo plan of ARIES.

(b)   Attempt any 2   (8)
i   What is closure set of functional dependency?
ii   Explain FDs in Third Normal Form.
iii With respect to schedule define terms: Conflict equivalent & conflict serializable.

3.   (a)   Attempt any 2   (12)
i   Assuming sales table consisting of columns zone, prodid, quantity. Write a PL/SQL code to accept zone & product id from user to display total sale of specified product & zone with appropriate labels.
ii   State different relational operations and explain any 2.
iii What is transaction in Oracle? Explain transaction management commands in SQL.

(b)   Attempt any 2   (8)
i   Explain general format of 'For loop' in PL/SQL.
ii   State & explain cursor attributes.
iii Write PL/SQL block to remove all rows of specified zone (consider above mentioned sales table).

4.   (a)   Attempt any 2   (12)
i   State the activities of project management process & explain them in brief.
ii   Explain the concept of LOC with example. How it is useful in estimation process?
iii What is risk management? Explain the activities involved.

[Turn Over

(b) Attempt any 2 (8)
  i As a new trend, state the stages of unified process. Also explain its objectives.
  ii State tools used in project scheduling & explain them in brief.
  iii 'Estimation using Use Case is problematic ' Justify the statement.

5. (a) Attempt any 2 (12)
  i State principles of software testing. Explain any two.
  ii Discuss advantages & disadvantages of Black box testing.
  iii What is cyclomatic complexity? Give one example.

(b) Attempt any 2 (8)
  i Explain the stages in static testing.
  ii Define terms - Error seeding, Test Plan
  iii How the results of Test case execution and analysis are useful?