BE/IT/Sem VII / Rev
Software Tes & Quali Assur. 9/12/10

Con. 5724–10. (REVISED COURSE) GT–8949

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. **1** is **compulsory**.
(2) Answer any **four** questions out of remaining **six** questions.

Q1 (5 marks each)

A. Who should define the acceptance quality attribute criteria of a test project? Justify your answer and give some Acceptance criteria.
B. Compare McCall's quality model with ISO 9126 quality model.
C. How many levels of test execution will you follow and describe them?
D. Explain Test Design Preparedness Metrics

Q2

A. Generate Decision Table based Test Cases for a payroll system of a person **10M**
(i) If the salary of a person is less than equal to Rs. 70,000 and expenses do not exceed Rs. 30,000 then 10% tax is charged by IT department.
(ii) If the salary is greater than Rs.60,000 and less than equal to Rs 2lakhs and expenses don't exceed Rs. 40,000 than 20% tax is charged by IT department.
(iii) For salary greater than Rs 2 lakhs, 5% additional surcharge is also charged.
(iv) If expenses are greater than Rs. 40,000 surcharge is 9%.

B. Explain with example scalability testing? **5M**
C. Explain Test Case Design effectiveness **5M**

Q3

A. Acceptance test cases executed in two phases, justify? **5M**
B. Draw Data Flow Graph and write du-path for variable x and y **10M**

```
/* pow(x,y) this program computes x to the power of y, where x and y are integers */
1.  void pow (int x, y)
2.  {
3.   float z;
4.  int p;
5.  if (y < 0)
6.  p = 0 – y;
7.  else p = y;
8.  z = 1.0;
9.  while (p != 0)
10. {
11.  z = z * x;
12.  p = p – 1;
13. }
14. if (y < 0)
15. z = 1.0 / z;
16. printf(z);
17. }
```

C. A software engineering group is developing a mission-critical software system that will launch laser-guided missiles to its destinations. This is a new kind of product that was never built by the company. As a quality assurance manager, which code review methodology—walkthrough or inspection—would you recommend? Justify your answer. **5M**

[TURN OVER

Q.4

A. Perform Mutation Testing with four mutants on given code and find Mutation Score **10M**

```
1. int max(int x, int y)
2. {
3. int mx = x;
4. if (x > y)
5. mx = x;
6. else
7. mx = y;
8. return mx;
9. }
```

B. Explain different metrics used in System Testing **10M**

Q5

A. Draw control flow graph for given code and show that branch coverage includes statement coverage **10M**

```
FILE *fptr1, *fptr2, *fptr3; /* These are global variables. */
int openfiles(){
/* This function tries to open files "file1", "file2", and "file3" for read access, and
returns the number of files successfully opened. The file pointers of the opened files
are put in the global variables.
*/
inti=0;
if(
((( fptr1 = fopen("file1", "r")) != NULL) && (i++) && (0)) ||
((( fptr2 = fopen("file2", "r")) != NULL) && (i++) && (0)) ||
((( fptr3 = fopen("file3", "r")) != NULL) && (i++)) );
return(i);
}
```

B. Explain Test Execution Strategy in detail **10M**

Q6

A. Explain with example load testing and stress testing ? **5M**

B. Suppose that you plan to purchase commercial off-the-shelf (COTS) components and integrate them with your communication software project. What kind of acceptance criteria will you develop to conduct acceptance testing of the COTS components **5M**

C. **Generate Boundary Value Analysis Test Cases For the Triangle Problem and write how many test cases can be generated?** **10M**

The triangle program accepts three integers, p, q and r as input. These are taken to be the sides of a triangle.

The integers p, q and r must satisfy the following conditions

C1: $1 \leq p \leq 300$
C2: $1 \leq q \leq 300$
C3: $1 \leq r \leq 300$
C4: $p < q+r$
C5: $q < p+r$
C6: $r < p+q$

The output of the program may be either of: Equilateral Triangle, Isosceles Triangle, Scalene or "Not a Traingle".

Q7

A. Differentiate structural and functional testing **5M**

B. Explain the five different views of software quality **5M**

C. Discuss the advantages and disadvantages of integration testing **5M**

D. What are the strengths and weaknesses of automated testing and manual testing? **5M**

lab BE IIT / Sem VII / Rev

DWM & BI

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Con. 6110–10.

(REVISED COURSE)

GT–8967

(3 Hours)

[Total Marks : 100

N.B.: (1) Question no. **1** is compulsory.
(2) Answer any **four** out of the remaining questions.

1. One of India's large Retail Departmental Chains, with annual revenues touching $2.5 billion mark and having over 3600 employees working at diverse locations, was keenly interested in a business intelligence solution that can bring clear insights on operations and performance of departmental stores across the retail chain. The company needed to support a data warehouse that exceeds daily sales data from Point of Sales (POS) across all locations, with 80 million rows and 71 columns.

(a) List the dimensions and facts for above application. 05
(b) Design Star schema and snow flake schema for the above application 05
(C) Design a BI application which will provide Retail Chain Company with features and performance that meet their objectives using any data mining technique. 10

2. (a) What are the Major issues in Data mining. 06
(b) Explain data Mining Task Primitives 06
(c) Explain Fact less fact table with suitable example. 08

3. (a) What is web mining and explain web content mining. 10
(b) Explain any one method of hierarchical clustering with an example. 10

4. (a) A database has four transactions. Let minimum support and confidence is 50%.

Tid	Items Bought
1	A,B,D
2	A,D
3	A,C
4	B,D,E,F

Find out the frequent item sets and strong association rules for above example. 05
(a) Explain multi dimensional association rules with example. 05
(b) Explain multilevel association rules. 05
(c) Explain constraint based association rule mining. 05

5. (a) Describe Data Discretization, Summarization with an example 07
(b) Explain Numerosity Reduction in data preprocessing 06
(c) Explain BIRCH method of clustering with an example. 07

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6. (a) Using given table . Create classification model using any algorithm and hence classify following tuple.<income =medium, credit =good> 10

Transaction Id	Income	Credit	Decision
1	Very High	Excellent	Authorize
2	High	Good	Authorize
3	Medium	Excellent	Authorize
4	High	Good	Authorize
5	Very High	Good	Authorize
6	Medium	Excellent	Authorize
7	High	Bad	Request ID
8	Medium	Bad	Request ID
9	High	Bad	Reject
10	Low	Bad	Call Police

(b) Explain K-means clustering and solve the following with K= 2
{2,25,10,15,5,20,4,40} 10

7.Write short notes on (**ANY TWO**) :– 20
(a) Spatial OLAP
(b) Association rule mining in Data stream
(c) Approaches in Text Mining
(d) Sequence Mining in transactional Data base

Labs

BE/IT/Sem VII/Rev

simulation & modelling

14/12/16

Cor. 6039-10.

GT-8964

(REVISED COURSE)

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory**.
(2) Out of remaining questions, attempt any **four** questions.
(3) Assume **suitable** data wherever required but **justify** the same.
(4) **All** questions carry **equal** marks.
(5) Answer to each new question to be started on a fresh page.
(6) **Figure** to the **right** in brackets indicate **full** marks.
(7) Use of statistical table is allowed,

1. (a) State when simulation is appropriate. **(05)**
   (b) Explain activity scanning approach. **(06)**
   (c) Design the generator for geometric distribution. **(05)**
   (d) At Sai service station, servicing of a car is performed in three stages. Each stage has exponential distribution of service time with mean service time 20 minutes. Find the probability that the car's servicing will take 50 minutes or less. Also find out the expected length of car's servicing. **(04)**

2. (a) Explain in detail an evaluation and selection technique for simulation software. **(12)**
   (b) Consider the following sequence of 40 numbers. **(08)**

0.67	0.31	0.53	0.91	0.80	0.27	0.61	0.49	0.76	0.85
0.62	0.28	0.55	0.77	0.38	0.65	0.29	0.55	0.83	0.92
0.09	0.33	0.24	0.07	0.30	0.54	0.43	0.66	0.71	0.52
0.11	0.36	0.12	0.78	0.95	0.44	0.50	0.19	0.22	0.38

Based on runs up and runs down, determine whether the hypothesis of independence can be rejected, where $\alpha = 0.05$.

3. (a) Explain the time shared computer model. **(05)**
   (b) Draw the event logic diagram for arrival event in single server queuing system. **(03)**
   (c) A baker is trying to determine how many dozens of bagels to bake each day. The probability distribution of the number of customers/day is given in table 1. **(12)**

Number of customers/day	8	10	12	14	16
Probability	0.35	0.25	0.20	0.14	0.06

Table 1 : – Probability distribution of number of customers/day.

Customers order 1, 2, 3, 4 or 5 dozen bagels according to the probability distribution given in table 2.

Number of dozen ordered / customer	1	2	3	4	5
Probability	0.2	0.3	0.2	0.1	0.2

Table 2 : - Probability distribution of bagels ordered by customer.

[TURN OVER

Bagels sell for Rs. 4.40 per dozen. They cost Rs. 3.40 per dozen to make. All bagels not sold at the end of the day are sold at half price to a local grocery store. Assume that the baker baked 20 dozens every day, simulate for 5 days and find out the total profit. Also, mentioned your suggestions to baker on the basis of current scenario. Random digits for number of customers/day and dozens ordered/customer is given table 3 and table 4 respectively.

R.D. for Customers/Day	34	53	97	72	20

Table 3 :– Random digits for bagel customers/days.

R.D. for Dozens Ordered / Customer	1	0	0	2	0	9	6	3	2	9	8	7	5	3	6	3	4	9	6	3	1	0	7	2	8	7	4
	8	5	1	7	1	3	5	0	4	0	1	8	2	4	5	9	2	6	3	0	9	0	0	8	1	5	6

Table 4 :– Random digits for dozens ordered/customer.

4. (a) A tool crib has exponential interarrival time and service time, and it serves a very large group of mechanics. The mean time between arrivals is 4 minutes. It takes 3 minutes on the average for a tool crib attendant to service a mechanic. The attendant is paid Rs. 10 per hour and the mechanic is paid Rs. 15 per hour. Would it be advisable to have a second tool crib attendant ? **(10)**

(b) State the role of probability and statistics in the area of simulation and modeling. **(04)**

(c) State and explain various ways to obtain information about a process if data is not available. **(06)**

5. (a) Explain in detail the method of batch means for interval estimation in steady state simulation. **(12)**

(b) Explain the cobweb model with suitable example. **(08)**

6. (a) Explain in detail verification of a simulation model. **(10)**

(b) Records pertaining to the monthly number of job-related injuries at chemical plant were being studied by an NGO. The value for the past 100 months were as follows- **(10)**

Injuries per Month	0	1	2	3	4	5	6	7
Frequency of Occurrence	30	20	15	5	6	10	4	10

Apply the chi-square goodness of fit test to these data to test the hypothesis that the underlying distribution is Poisson. Use a level of significance, $\alpha = 0.05$.

7. (a) Explain the convolution method for random variate generation and design the generator for Erlang distribution. **(06)**

(b) Derive the conservation equation and state its significance. **(05)**

(c) What is output analysis? State when it is used. **(03)**

(d) State and explain the properties of random numbers and give the method for generating pseudo random numbers. **(06)**

BE / IT / Sem VII / Rev

Elective - I Multimedia Sys

VT-Oct-10-14

Con. 5648–10. **(REVISED COURSE)** **GT–8976**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question **No. 1** is **compulsory**.
(2) Attempt any **four** questions out of the remaining **six** questions.

1. (a) What is Multimedia ? List different categories of multimedia software tools with proper example. **10**
   (b) Illustrate LZW compression and decompression for the following string :– **10**
   ABABBABCABABBA

2. (a) Explain Bilevel Image Compression Standards. **10**
   (b) Explain MPEG video coding. Give comparison between MPEG-1 and MPEG-2. **10**

3. Explain different techniques and terminologies used in Multimedia Networks. **20**

4. (a) List and explain different color models used in Images and Videos. **10**
   (b) Explain different broadcasting schemes for Video-on-Demand. **10**

5. (a) Explain different architectures for content organization in Multimedia Databases. **10**
   (b) Explain similarity based retrieval in Image Databases. **10**

6. (a) Write a short note on TV trees. **10**
   (b) What is media abstraction ? Explain with proper example. **10**

7. Write short note on (any **two**) :– **20**
   (a) Multimedia authoring tools
   (b) VRML
   (c) Audio Databases
   (d) Video Databases.

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