B.E. I-T. Sem VII (Rev) Nov-2013

5/12/13

Sub:- STQA

V-A4-II-Ex-13-G-16

Con. 9646-13. **LJ-14091**

(REVISED COURSE)

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

N.B. : (1) Solve any **five** questions out of **seven** questions.
(2) **All** questions carry **equal** marks.

1. (a) Explain difference between Validation and Verification. **8**
   (b) Explain difference between failure, error and fault. **6**
   (c) Explain the concept of Mutation testing. What are the assumptions made in Mutation testing ? **6**

2. (a) What are the limitations of control-flow based testing ? **5**
   (b) Compare CFG and DFG. **7**
   (c) What is data flow anomaly ? Explain why the presense of data flow anomaly does not imply that program execution will produce incorrect results. **8**

3. (a) Describe the circumstances under which you would apply white box testing, black box testing, or both the techniques to evaluate COTs components. **10**
   (b) Why should integration testing be performed ? What types of errors can this testing will reveal ? What is the difference between Unit testing and Integration testing ? **10**

4. (a) What are zero day attacks ? Discuss it's significance with respect to security testing. **6**
   (b) For each of the following situation justify whether it is hazard or mishap :— **10**
      (i) Water in the swimming pool becomes electrified.
      (ii) A car stops abruptly.
      (iii) A long distance telephone company suffers an outage.
      (iv) A nuclear weapon is destroyed in an unplanned manner.
      (v) A room fills with carbon di-oxide.
   (c) Expalin clearly the difference between Load testing and Stress testing. **4**

5. (a) What are the advantages and disadvantages of random testing ? **6**
   (b) What is test oracle ? What are the differences between a parametric oracle and statistical oracle ? **8**
   (c) Discuss the similarity between decision table based and category partition based testing methodology. **6**

6. (a) What are the essential items a system test plan should include ? **10**
   (b) What are the components of test automation infrastrucutre ? **10**

7. Write short notes on (any **four**) :— **20**
   (a) Metrics for monitoring test execution.
   (b) Difference between UAT and BAT.
   (c) Importance of DOS attack in Acceptance Testing.
   (d) Five different views of Software quality.
   (e) McCall's quality factors and quality criteria.

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11/12/13

SEM ~~VIII~~ VII SIMULATION & MODELING

JJ

NOV-DEC 2013

1 : 2nd half.13-Avi(aw)

Con. 9085-13. **(REVISED COURSE)** **LJ-14132**

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

N.B. : (1) Question No. **1** is **compulsory**.
(2) Out of **remaining** questions solve any **four**.
(3) Assume suitable **data** wherever **required**.

1. a) Discuss types of simulation models (5)

b) Compare random numbers and random variate (5)

c) How is Pokers test used for testing independence? (5)

d) Event scheduling algorithm. (5)

2. a) Explain the steps in simulation study in detail. (10)

b) An industrial chemical that will retard the spread of fire has been developed. The local sales representatives have determined from past experience 48% of sales call will result in an order.

i. What is the probability that the first order will call on 4^{th} sales call of the day?

ii. If 8 sales calls are made on a day, what is the probability of receiving exactly 6 orders?

iii. If 4 sales calls are made before lunch, what is the probability that one or less result in an order? (10)

3. a) Consider the following sequence of 5 numbers: 0.15, 0.94, 0.05, 0.51 and 0.29

Use the Kolmogorov- Smirnov test determine whether the Hypothesis of uniformity can be rejected, given α=0.05 and the critical value of D= 0.565 (10)

b) Explain Naylor and Finger validation approach. (10)

4. a) Explain data collection and analysis for input modeling (10)

b) What are long run measures of performance of Queuing system. . Assume: $R_0 = 10$, $d = 2$ and $S_0^2 = 25.30$. Estimate the long-run mean queue length, L_Q, within $\epsilon = 2$ customers with *90%* confidence (a = *10%*). From the table the value of $Z_{0.05}=1.645$. How many additional replications required?. (10)

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5. a) Explain the cobweb model in detail. (10)

b) Explain data collection and analysis for input modeling (10)

6. a) What is time-series input model? Explain AR(1) and EAR(1) model. (10)

b) A CNG station has two filling machines. The service time follows the exponential distribution with mean of 5 minutes and taxis arrives for service in Poisson fashion at rate of 15 per hour. Compute the steady state parameter of this M/M/C system. (10)

7. Write a Short Notes on:

i) Cost of inventory system (5)

ii) Poisson Process and distribution (5)

iii) Terminating and non terminating simulation. (5)

iv) Issues in simulation of Manufacturing System. (5)

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B.E Sem VII (IT)

DSIP

17/12/13

Ash7-D:\Data-52

Con. 9703-13. **LJ-14264**

(REVISED COURSE)

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

N.B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions out of **remaining** questions.
(3) Assume **suitable** data if **necessary.**

1. Attempt the following :– **20**
   (a) Explain the fundamental of Digital Image Processing.
   (b) What are different point processing techniques used for image enhancement?
   (c) What is segmentation? Explain why it is required?
   (d) What is Image compression?

2. (a) Classify the signal as energy or power signal :– **5**

$$x(n)=\begin{cases}\left(\frac{1}{2}\right)^n & n\geq 0\\ (2)^n & n<0\end{cases}$$

   (b) State whether system is linear / Non-linear, Time-Variant / Time-Invariant, Causal / Anticausal, Stable / Unstable :– **5**

   $y(n)=n\,x(n)$.

   (c) Let $x(n)=\{1,2,3,4\}$ **10**
   (i) Find $x[k]$
   (ii) Find DFT of $x_e(n)$ and $x_o(n)$ using $x[k]$.

3. (a) Let $x(n)=\{1,2,3,4,5,6,7\}$ and $h(n)=\{1,0,2\}$:– **10**
   - Find convolution using overlap add method.
   - Find convolution using overlap save method.

   (b) Given :– **10**

$$f=\begin{bmatrix}1 & 1 & 2 & 1\\ 2 & 1 & 1 & 2\\ 1 & 3 & 2 & 1\\ 2 & 1 & 2 & 1\end{bmatrix}$$

Find 2D Hadamard transform?

[TURN OVER

4. (a) Given :– **10**

$$f[x, y] = \begin{bmatrix} 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

$$h[x, y] = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$$

Find linear convolution?

(b) Grey Level Histogram of an image is given below, compute Histogram Equalization. Draw the Histogram of input and output image :– **10**

Grey Levels	0	1	2	3	4	5	6	7
No. of Pixels	790	1023	850	656	329	245	122	81

5. (a) Explain basic principles of detecting following in the images :– **10**

(i) Points
(ii) Lines
(iii) Edges.

(b) Given below is a table of eight symbol and their frequency of occurrence :– **10**

Symbol	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7
Frequency	0·25	0·15	0·06	0·08	0·21	0·14	0·07	0·04

Give Huffman code for each eight symbol. What is coding efficiency?

6. (a) Explain in detail Lossy image compression. **10**

(b) Explain following terms :– **10**

(i) Dialation
(ii) Erosion.

7. Write short notes on any **four** :– **20**

(a) Image Acquisition.
(b) Filters in frequency domain.
(c) Image segmentation.
(d) Walsh transform.
(e) Digital watermarking.

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11-11-13-DTP7-RM-20

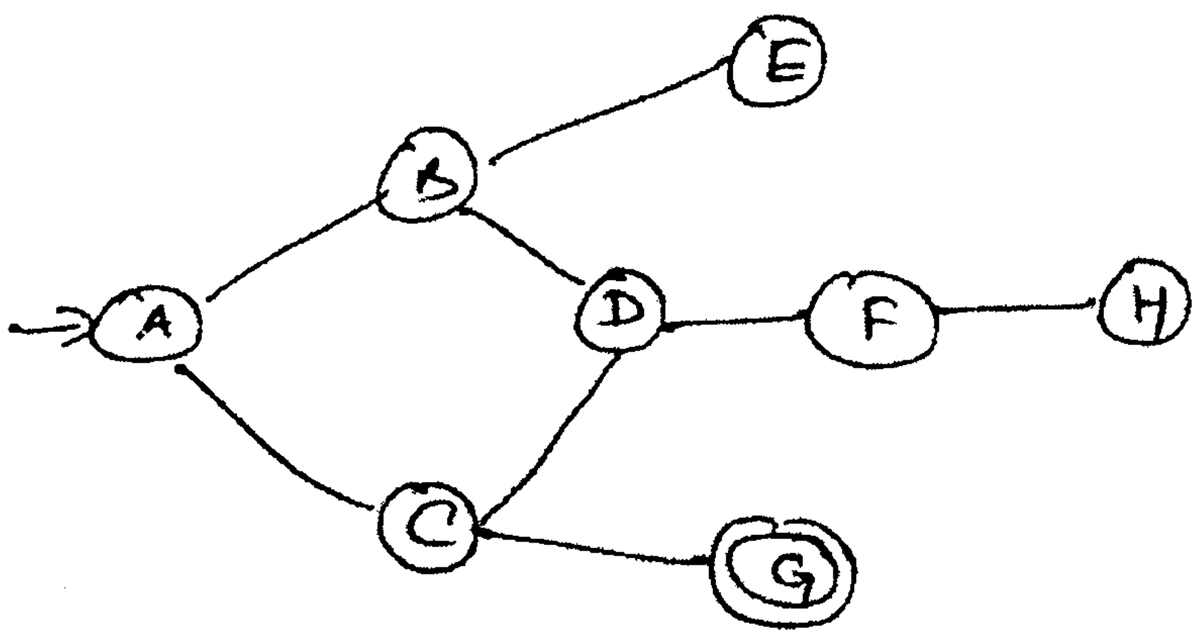
Con. 7734-13. **LJ-13960**

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

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

1. (a) Define in your own words : **10**
   (i) Intelligence
   (ii) Artificial Intelligence
   (iii) Rational Agent
   (b) Define various properties of task environments with examples. **10**

2. (a) Consider the following graph :- **10**



Starting from state A, execute DFS. The goal node is G. Show the order in which the nodes are expanded. Assume that the alphabetically smaller node is expanded first to break ties.

   (b) Solve Cryptoarithmetic problem. **10**

```
  E A T
+ T H A T
---------
  A P P L E
---------
```

3. Consider the following sentences :- **20**
   (a) John likes all kinds of food.
   (b) Apples are food.

[TURN OVER

(c) Chicken is food.

(d) Anything anyone eats and isn't Killed by is food.

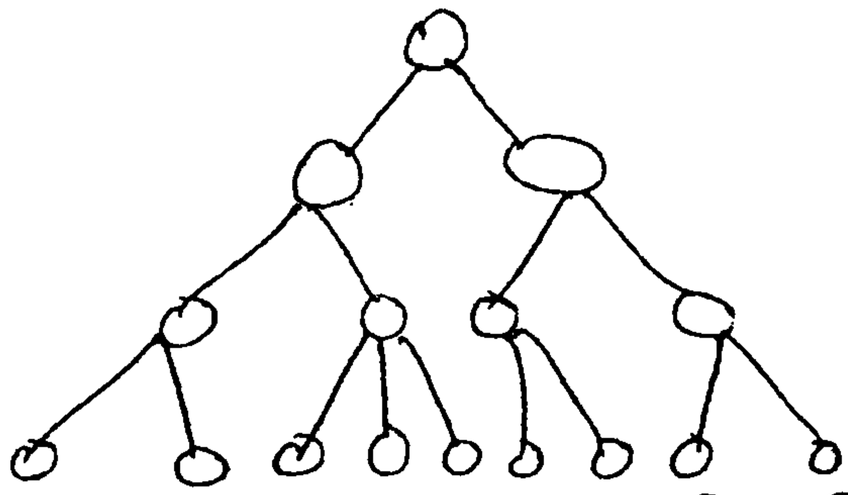
(e) Bill eats peanuts and is still alive.

(f) Sue eats everything Bill eats.

Translate these sentences into formulas in predicate logic. Prove that "John likes peanuts" using backward chaining. Convert the formulas into clausal form and prove above sentence using Resolution also.

4. (a) Explain various steps of Knowledge Engineering Process with example. **10**

(b) Explain Min-Max and Alpha Beta Pruning Algorithm with following example. **10**



0 1 2 1 0 -3 -5 0 2

5. (a) Explain various types of planning methods for handling indeterminacy. **10**

(b) Describe with a suitable example the inferencing process in Bay's Belief Network. **10**

6. (a) Draw and Explain Multilayer Feed Forward network. Explain reinforcement learning. **10**

(b) Explain the decision tree algorithm by using the example of an agent which needs to make a decesion about "Whether to wait for a table" in a restaurant. **10**

7. Write detail notes on any **two** :- **20**

(i) Ontology

(ii) Agent Communication

(iii) Applications of AI.

B.E (IT) Sem VII Rev.

DWM & BI

30/11/13

16

C:\data\SP\Con No. 14

Con. 8517-13. **LJ-14017**

Revised Course

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

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

1. Answer any **four** :–
   (a) Differentiate between DLAP and OLTP **5**
   (b) What is noisy data ? How to handle it. **5**
   (c) Explain constraint based association Rule mining. **5**
   (d) Why is tree pruning useful in decision tree induction. **5**
   (e) What is balanced score card. **5**

2. (a) Explain in detail HITS algorithm in web mining. **10**
   (b) What are issues regarding classification ? Differentiate between classification and prediction. **10**

3. (a) Explain Data Mining Premitives. **10**
   (b) Give the architecture of Typical Data Mining System. **10**

4. (a) Consider the following database with minimum support count = 60%. Find all frequent item set using Aprion and also generate strong association roles if minimum confidence = 50%. **10**

TID	**Items - brought**
T1	{M, O, N, K, E, Y}
T2	{D, O, N, K, E, Y}
T3	{M, A, K, E}
T4	{M, U, C, K, Y}
T5	{C, O, 0, K, i, e}

   (b) Explain multidimensional and multilevel association rules with an example. **10**

5. (a) What do you mean by preprocessing ? Why it is required. **10**
   (b) What is ETL process ? Explain in detail giving emphasis on Data Transformation. **10**

6. (a) Explain Bayesian classification. **10**
   (b) Explain periodic crawfer and Incremental Crawfer. **10**

7. Write short notes on any **two** :– **20**
   (i) Test Mining Approaches
   (ii) Numerority reduction
   (iii) Data Discretization and Sommarization.
