BE | IT | VII (R) DWM BI
26 | 11 | 12

— 2nd Half-12 mina-(c)-80

Con. 8391-12. KR-1089

(3 Hours) [Total Marks : 100

N. B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** from remaining **six** question.

1. Solve any **four** :—
   (a) What is noisy data ? How to handle it ? 5
   (b) What is market Segmentation ? 5
   (c) Explain fact less fact table with suitable example. 5
   (d) How FP tree is better than Apriori Algorithm. 5
   (e) Differentiate between Periodic Crawler and incremental Crawler. 5

2. (a) Explain multidimensional association rules with suitable example. 10
   (b) Explain spatial data cube construction and spatial OLAP with example. 10

3. (a) Explain Hoeffding Tree algorithm with example. 10
   (b) What is Web mining ? Explain web content mining with reference to presonalization, harvest system. 10

4. (a) What is clustering ? Explain requirements and applications in detail. 10
   (b) Explain Agglomerative Clustering with an example. 10

5. (a) Write difference between OLTP and OLAP explain different OLAP operations. 10
   (b) Explain Regression ? Explain Linear Regression with example. 10

6. (a) Explain HITS Algorithm in Web mining. 10
   (b) A database has four transitions. Let minimum support and confidence is 50%. 10

D =

T_{id}	Item
100	1, 3, 4
200	2, 3, 5
300	1, 2, 3, 5
400	2, 5
500	1, 2, 3
600	3, 5
700	1, 2, 3, 5
800	1, 5
900	1, 3

7. Write short note on any **two** :— 20
   (a) Issues in classification and explain any one technique of classification.
   (b) Sequence mining in transactional database.
   (c) Text mining approaches
   (d) Fraud detection.

WT-S.H.Exam. Nov.-12- 196

Con. 9725–12. **(REVISED COURSE)** **KR–1206**

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

N.B. : (1) Question No. **1** is **compulsory**.
(2) **All** questions carry **equal** marks.
(3) In **all** solve **five** questions.

1. (a) What is the difference between stress performance and scalability testing ? What is the difference between load testing and stress testing ? **10**
   (b) What is the difference between validation testing and verification testing ? **5**
   (c) Explain the difference between failure, fault and error. **5**

2. (a) Explain with suitable example the concepts of mutation testing, mutant, mutation score, killable mutant and staburn mutant. What do you mean by equivalent mutant ? **10**
   (b) The binary search routine is shown in the following program. Introduce two faults in this routine so that these go undetected by your test cases designed for the complete branch coverage, in CFG. **10**

```
int binarysearch (int x, int V[ ], int n)
    { int low, high, mid;
      low = 0;
      high = n–1;
      while (low < = high)/2;
      if (x < V [mid]
            high = mid – 1;
        else if (x > V[mid])
            low = mid + 1;
            else
              return mid;
            }
            return –1;
      }.
```

3. (a) Explain with suitable example the difference between 'Data Flow Graph' and 'Control Flow Graph'. **10**
   (b) What is 'Data Flow Anomaly' ? Explain with respect to state transition diagram of a program variable. **10**

4. (a) Describe difference between Black Box Testing and White Box Testing. **8**
   (b) Describe the difference between unit testing and integration testing. **6**
   (c) Discuss the advantages and disadvantages of top-down and bottom-up integration approaches, to integration testing. **6**

5. (a) What is a test oracle ? What are the differences between parametric oracle and statistical oracle ? **10**
   (b) Draw and explain state transition diagram of a test case. **10**

6. (a) Explain broad criteria of test automation tool evaluation. **10**
   (b) What are the objectives of acceptance testing ? What is the difference between UAT and BAT ? **10**

****

IT (STQA) Sem VII 1/12/2012

KR-1206

Q7. Write Short Notes (Any two) **20**

1. Application of ISO 9000 framework to an educational institute.
2. Defect life cycle.
3. System testing categories.
4. Interface errors in integration testing.

BE (IT) Rev VII
Simulation & Modeling.

Dec - 12

VI-S.H.Exam Dec.-12- 46

Con. 10096–12. **(REV COURSE)** **KR–1323**

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

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

1. (a) Briefly explain the steps in simulation study. **10**
   (b) Give an example for each type of model and state the one that leads to simulation. **10**

2. (a) Describe quencing system. What is the condition that leads to its stability ? **10**
   (b) Write the event scheduling algorithm. Give the system snapshot at time t. **10**

3. (a) Discuss various costs that are involved in Inventory system. Explain the policy and goal of inventory system. **10**
   (b) State the desirable features of simulation software. **10**

4. (a) Compare simulation language with programming language. **10**
   (b) What is the use of probability distribution in system simulation ? Give an example of discrete distribution and continuous distribution. **10**

5. (a) State the quencing notation, Queue discipline and Poisson process. **10**
   (b) State the steady state parameter of M/M/1. What would change it service time is not Markovian. **10**

6. (a) Why is it necessary to test the properties of random numbers ? How would you generate random numbers ? **10**
   (b) Using Inverse Transform Method derive random variates for exponential distribution. **10**

7. Write short notes on any **two** :– **20**
   (a) Cobweb Model
   (b) Manufacturing and material handling system
   (c) Supermarket model
   (d) Reliability system.

****

B E (IT) VII
Elective - A

Dec 12

51 : 2nd half.12-AM(i)

Con. 8425-12. **KR-1602**

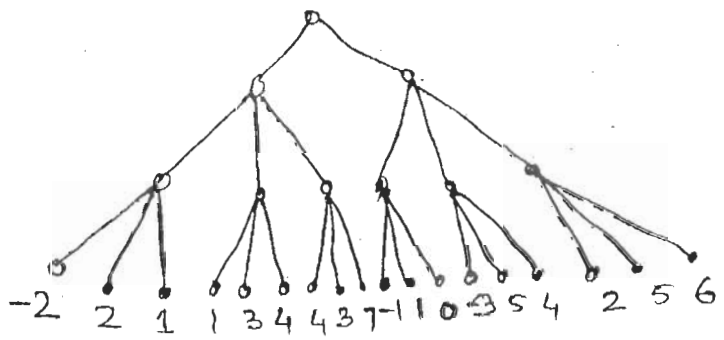
(3 Hours) [**Total Marks : 100**

N.B. : (1) Attempt Question No. **1**, which is **compulsory**.
(2) Attempt any **four** from **remaining** questions.

1. (a) What is AI ? Explain its components. 10
   (b) What is Rational Agent ? Explain Goal based Agent. 10

2. (a) What is PEAS descriptor ? Explain PEAS descriptor for Taxi Driver Agent. 10
   (b) Compare DFS and BFS with example. 10

3. (a) What is Hill Climbing Algorithm. Explain its problem and solution in brief. 10
   (b) Explain Min-Max and Alpha Beta pruning algorithm with following example :— 10



4. Consider following statements :— 20
   (a) Ravi Likes all kind of food.
   (b) Apple and Chicken are food.
   (c) Anything anyone eats and is not Killed is food.
   (d) Ajay eats peanuts and still alive.
   (e) Rita eats everything that Ajay eats.

   Prove that —
   Ravi Likes Peanuts using resolution and what food does Rita eat.

5. (a) From the given table find the probability of having "No cavity when toothache is there". 10

	toothache		~ toothache	
	Catch	~ Catch	Catch	~ Catch
Cavity	·108	·012	·072	·008
~ Cavity	·016	·064	·144	·576

   (b) Explain Planning Algorithm for Spare Tyre Problem. 10

6. (a) Explain Water Jug problem with State Space Search Method. 10
   (b) Explain Decesion Tree in brief. 10

7. Write short notes on any **two** of the following :— 20
   (a) Ontology
   (b) Agent Communication
   (c) Neural Network.

———————

B.E - Information Technology Sem - VII (Rev)
Digital Signal & Image Processing
17/12/12

28 : 2nd half.12-AM(j)

Con. 8462-12. **KR-2070**

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

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

1. (a) Classify the following DT System on linearity, time in variance causality **20**
   (i) $y(n) = nx(n)$
   (ii) $y(n) = e^{x(n)}$
   (iii) $y(n) = x^{(2n)}$
   (b) Consider the image given below. Calculate the direction of the edge at the centre point of the image.

$$f = \begin{bmatrix} 50 & 60 & 70 \\ 5 & 50 & 80 \\ 7 & 9 & 50 \end{bmatrix}$$

   (c) Show that the first difference of a chain code normalizes it tc rotation.
   (d) Prove that two dimensional DFT matrix is an unitary matrix.

2. (a) Find linear convolution of two sequences **4**
   $x(n) = \{1, 2, 3\}$ and $h(n) = \{1, ½\}$
   ↑ ↑
   (b) Find the energy of signal x(n) **6**

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

   (c) A particular digital image with 8 quantization level has following histogram. Perform histogram equalization. **10**

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

3. (a) What is morphology ? Name and explain the basic operation in morphology ? **10**
   (b) For the 3-bit 4 x 4 size image perform the following operation :— **10**
   (i) Negative
   (ii) Thresholding with T = 4
   (iii) Intensity level slicing with background $r_1 = 2$ and $r_2 = 5$
   (iv) Bit plane slicing for MSB and LSB plane
   (v) Clipping with $r_1 = 2$ and $r_2 = 5$

1	2	3	0
2	4	6	7
5	2	4	3
3	2	6	1

[TURN OVER

4. (a) Let $x(n) = \{1, 2, 3, 4, 0, 0, 0, 0\}$ 10
$\uparrow$
Find 8-point DFT of x(n)

(b) Given $f(x, y) = \begin{bmatrix} 5 & 6 & 7 \\ 8 & 9 & 10 \end{bmatrix}$ and $h(x, y) = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ 10
Find linear convolution of input image f(x, y) with filter h(x, y)

5. (a) Let $x(n) = 2\delta(n) + 3\delta(n-1) + 4\delta(n-2) + 5\delta(n-3)$ 4
Find four point DFT X(k). Using Fast Fourier Transform Flowgraph.

(b) Explain one level decomposition and reconstruction of digital image using Discrete Wavelength Transform. 6

(c) Find the arithmatic code word of the message : INDIA 10
Calculate the percentage of compression and Bits Per Pixel (BPP) of the compressed message.

6. (a) Given an input image f of size 3 × 3. Find the filtered image using median filter mask as given below : 10

$m = \begin{bmatrix} 0 & 1 & 0 \\ 1 & 1 & 0 \\ 0 & 1 & 0 \end{bmatrix}$ $R = \begin{bmatrix} R_1 & R_2 & R_3 \\ R_4 & R_5 & R_6 \\ R_7 & R_8 & R_9 \end{bmatrix}$ $f = \begin{bmatrix} 3 & 2 & 1 \\ 5 & 2 & 6 \\ 7 & 9 & 1 \end{bmatrix}$

(b) Write note on Discrete Cosine Transform (DCT) and its applications. Find DCT of given image 4 × 4 10

2	0	1	0
1	1	0	1
1	0	0	1
2	1	2	3

7. Write short notes on any **four** of the following :— 20
   (a) Digital Watermarking
   (b) Cossy Image Compression
   (c) Hadamard Transform
   (d) Content Based Image Retrieval
   (e) Region Based Segmentation.
