(3 Hours) [Total Marks : 80]

Note: 1. Question No.1 is compulsory
2. Attempt any **Three** questions out of remaining questions
3. Assume suitable data wherever necessary and state them clearly

Q1 a) For a Super market chain, consider the following dimensions namely product, store, [10]
time and promotion. The schema contains a central fact table for sales.
   i. Design star schema for the above application.
   ii. Calculate the maximum number of base fact table records for warehouse with the
   following values given below:
   - Time period – 5 years
   - Store – 300 stores reporting daily sales
   - Product – 40,000 products in each store (about 4000 sell in each store daily)

   b) Discuss: [10]
   i. The steps in KDD process
   ii. The architecture of a typical DM system

Q2 a) We would like to view sales data of a company with respect to three dimensions namely [10]
Location, Item and Time. Represent the sales data in the form of a 3-D data cube for the
above and Perform Roll up, Drill down, Slice and Dice OLAP operations on the above
data cube and Illustrate.

   b) A simple example from the stock market involving only discrete ranges has profit as [10]
   categorical attribute, with values {Up, Down} and the training data set is given below.

Age	Competition	Type	Profit
Old	Yes	Software	Down
Old	No	Software	Down
Old	No	Hardware	Down
Mid	Yes	Software	Down
Mid	Yes	Hardware	Down
Mid	No	Hardware	Up
Mid	No	Software	Up
New	Yes	Software	Up
New	No	Hardware	Up
New	No	Software	Up

   Apply decision tree algorithm and show the generated rules.

Q3 a) Illustrate the architecture of a typical DW system. Differentiate DW and Data Mart. [10]

   b) Discuss different steps involved in Data Preprocessing. [10]

Q4 a) Discuss various OLAP Models. [10]

   b) Explain K-Means clustering algorithm? Apply K-Means algorithms for the following [10]
   data set with two clusters. Data Set = {1, 2, 6, 7, 8, 10, 15, 17, 20}

TURN OVER

Q5 a)   Describe the steps of ETL process.

b)   Discuss Association Rule Mining and Apriori Algorithm. Apply AR Mining to find all
frequent item sets and association rules for the following dataset:

Minimum Support Count = 2

Minimum Confidence = 70%

Transaction ID	Items
100	1, 2, 5
200	2, 4
300	2, 3
400	1, 2, 4
500	1, 3
600	1, 3
700	1, 3, 2, 5
800	1, 3
900	1, 2, 3

Q6   Write Short notes on any four of the following:

i.   Updates to Dimension tables   [20

ii.   Metrics for Evaluating Classifier Performance

iii.   FP tree

iv.   Multilevel & Multidimensional Association Rule

v.   Operational Vs. Decision Support System

Q.P. Code : 724102

(3 Hours)   [Total Marks : 80

N.B. : (1) Q 1 is **Compulsory**
      (2) Solve any **3** from remaining Questions
      (3 Please specify your answers with neat sketches and Example wherever necessary
      (4) Assume any data if not specified

1.   Solve any **five** of the following.   20
     (a) What do you mean by response time?
     (b) What do you mean by direct manipulation and indirect manipulation
     (c) Discuss issues related to Long Term Memory and short Term Memory.
     (d) What do you mean by keyboard accelerators?
     (e) Explain importance of Text Messages with respect to communication with user.
     (f) What are the three levels of processing? Explain

2 (A) Give Brief description on GUI versus Web Page.   10
   (B) In the state of Maharashtra, Rationing Department want to provide self- 10
      help portal for its customers. The portal consists of Information about basic need supplies, Online application for ration cards, Schemes for Low income groups, Adding a name of family members, deletion of name, Complaints and other facilities. Being a Subject Matter Expert (SME) provide the detailed analysis and for the same provide the Interface that will be used by people in all Districts of Maharashtra

3. (A) What do you mean by Qualitative and Quantitative Research? State 10
      various interview technics?
   (B) Provide suitable Analysis and Interface Design for State Road Transport 10
      corporations Information KIOSK that will be installed on major Bus stands of Indian state and it will have Local National and International Language (English) consider Hindi or Marathi as a local Language and provide detailed analysis.

[TURN OVER

4. (A) Provide all factors of Interface design? Provide innovative web application by integrating the technologies that are used in Interface design.   10

   (B) Provide a systematic design analysis for Municipal Corporation's Mobile App; that provides information about the wards, their ward office, corporators in the ward, Schools Hospitals in the ward and other information of the Municipal Office, your analysis should consist of all necessary interface guidelines.   10

5. (A) What do you mean by persona? Mention steps in constructing persona   10

   (B) What are various methodologies adopted for Feedback and guidance? Consider multimedia, File Down load and Software Installation and state how we can create a dialog with user to communicate the Time factor for each one.   10

6.   Write Short Notes on.ANY **FOUR**   20
   (a) Human Centric Design
   (b) Designs for accommodating Users
   (c) Logo Design
   (d)   Menus in HMI
   (e) Graphics Icons and Images
   (f) Windows

_____

Q.P. Code : 735400

(3 Hours) [Total Marks : 80

N.B. : (1) Question No. **1** is **Compulsory**

(2) Attempt any **three** questions out of remaining **five** questions.

(3) Assume suitable data wherever required but justify the same.

(4) Assumption made should be clearly stated.

1. (a) Explain Data Flow computers with example. 5

(b) What is the basic task of scheduler? Define i) Latency, ii) Initiation 5
Rate, iii) Stage Utilization and iv) Forbidden Latency.

(c) What are the different models of middleware? 5

(d) What are the issues in designing a distributed system? 5

2. (a) A machine is run on many applications and the instruction mix is 10
collected. Loads/Store are 10%, Integer add/sub 15%, FP add/sub
50%, FP multiply divide 5% and others 5% and branches 15%. The
clock cycles consumed by these instructions are: Loads 2, Integer add/
sub 1, FP add/sub 5, FP multiply/divide 20, others 1. Find which
component of the architecture requires enhancement first. After
incorporating the enhancement which makes clock cycles requirements
as 2. Find the overall Speedup?

(b) What is SIMD Architecture? Explain with example SIMD Mesh 10
Connected Architecture.

3. (a) What is an interlock? Explain the following three different classes of 10
hazards :

(i) Control Hazards

(ii) Resource hazards

(iii) Operand hazards

(b) Explain a pipelined multiplication using Digit Products of Fixed Point 10
Multiplication Pipeline.

4. (a) Explain the difference between Data Centric and Client Centric 10
Consistency Models. Explain one model of each.

(b) Explain stream oriented communication with suitable example 10

[TURN OVER

B.E VIII Sem. Computer. CBGS. Parallel & Dist. Sys. 30/5/16

Q.P. Code : 735400

2

5. (a) Explain the distributed algorithms for Mutual Exclusion? What are the advantages and disadvantages of it over centralized algorithms? 10

    (b) Write a Suzuki-Kasami's Broardcast Algorithm. Explain with example. 10

6. (a) Compare Load sharing to task assignment and Load balancing strategies for scheduling processes in a distributed system. 10

    (b) What are the desirable features of good distributed file systems? Explain file sharing semantic of it. 10

_____