Exam.Code:0999
Sub. Code: 34966

2076
M.E. (Computer Science and Engineering)
First Semester
Elective - I
CS-8107: Business Intelligence
(For UIET)

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section*

x-x-x

Q1.

(a) Assume you are a project manager who has been sent to collect business requirements for a retail chain. Give a few examples of business requirements that you would have collected. (2)

(b) An enterprise has an enterprise-wide data warehouse. The data architect has the responsibility of maintaining the data warehouse. The data warehouse is periodically updated asynchronously. The data architect keeps track of the ETL process - When was it done? Was it an incremental update to the data warehouse?, etc. What according to you is the type of metadata that the data architect is maintaining? (1)

(c) What are the obstacles to Business Intelligence in an Organization? (1)

(d) What are the benefits of integrating social media information into BI applications?(1)

(e) What is a fact constellation? (1)

(f) Briefly explain data quality. (2)

(g) What is a balanced scorecard? (2)

Section A

Q2.

(a) Explain the need and role of BI in improving various business functionalities. (5)

(b) Design a data warehouse for a regional weather bureau. The weather bureau has about 1,000 probes, which are scattered throughout various land and ocean locations in the region to collect basic weather data, including air pressure, temperature, and precipitation at each hour. All data are sent to the central station, which has collected such data for over 10 years. Your design should facilitate efficient querying and on-line analytical processing, and derive general weather patterns in multidimensional space. (5)

Q3.

(a) What is concept hierarchy? Explain its importance in multidimensional cube (3)

(b) What is ETL? Explain the architecture of ETL. (4)

(c) List out the important characteristics of dimension table. Describe the same for a retail industry that has multiple stores at different parts of country. The design should include at least one fact table and two dimension tables. (3)

Q4.

(a) What is data integration? Describe the issues which are to be addressed during data integration. (3)

(b) A popular data warehouse implementation is to construct a multidimensional database, known as a data cube. Unfortunately, this may often generate a huge, yet very sparse multidimensional matrix. Present an example illustrating such a huge and sparse data cube. (2)

(c) Suppose that a data warehouse contains 20 dimensions, each with about five levels of granularity. (i) Users are mainly interested in four particular dimensions, each having three frequently accessed levels for rolling up and drilling down. How would you design a data cube structure to efficiently support this preference? (ii) At times, a user may want to drill through the cube, down to the raw data for one or two particular dimensions. How would you support this feature? (5)

Section-B

Q5.

(a) Explain various data visualization techniques in Decision Support System. (4)

(b) "You cannot manage what you cannot measure, and you cannot measure what you cannot define". Comment giving an example. (3)

(c) What is "fact based decision making"? Explain your answer with suitable example. (3)

Q6.

(a) Explain the various types of analysis an enterprise would carry? Give examples to support your comments. (5)

(b) There often exist multiple social networks linking a group of objects. For example, a student could be in a class, a research project group, a family, a neighborhood, and so on. It is often beneficial to consider their joint effects or interactions. Design an efficient method in social network analysis that may incorporate multiple social networks. (5)

Q7.

(a) Consider the database of an online retail Shoppe like Big Bazar. Use suitable business intelligence techniques and derive discount s for various items in the shop, for a particular week, to increase the profitability. Explain the techniques used for the same. (5)

(b) Write short note on Hadoop Architecture and Map reduce paradigm. (5)

x-x-x