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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B-Tech. CS-BAO	**Semester – V**
Subject (Course): Data Warehousing & Multidimensional Modelling	**Max. Marks : 100**
Course Code : CSIB 251	**Duration : 3 Hrs**
No. of page/s:3	

Section A
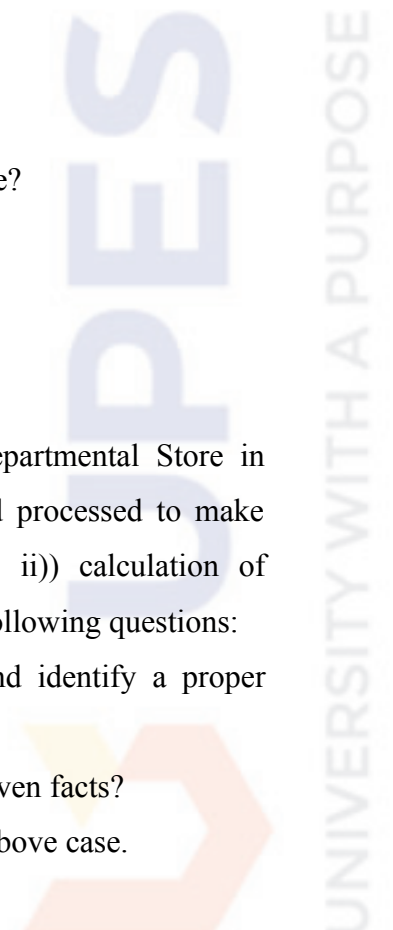
Answer all questions. [4x5=20]

1. Differentiate between Knowledge & Intelligence

2. What are the input systems to a DSS?

3. What is the difference between procedural and descriptive knowledge?

4. Under what conditions would you use ROLAP?

Section B

Answer any six questions. [6x10=60]

You have been appointed as a technical consultant to help setup a Departmental Store in Dehradun. There are lots of parameters which needs to be identified and processed to make decisions in i)identification of Location, ii) identification of products, ii)) calculation of profitability. Keeping in mind the above given scenario, please answer the following questions:

5. Explain in detail the initialization of decision making process and identify a proper strategy in the above scenario.

6. What would be a good design of Data Warehouse under the above given facts?

7. Identify and design 4 Star Schema and 4 Snowflake schema for the above case.

8. What would be your OLTP data model consideration?

9. Which type of decision model should be used and why?

10. Explain splitting and collapsing of dimension with a couple of example and explain the aggregation levels.

Answer all questions. [2X10=20]

The Fast Food industry is highly competitive, one where a very small change in operations can have a significant impact on the bottom line. For this reason, quick access to comprehensive information for both standard and on-demand reporting is essential. Exclusive Ore designed and implemented a data warehouse and reporting structure to address this requirement for Summerwood Corporation, a fast food franchisee operating approximately 80 Taco Bell and Kentucky Fried Chicken restaurants in and around Philadelphia. The Summerwood Data Warehouse now provides strategic and tactical decision support to all levels of management within Summerwood. The data warehouse is implemented in Microsoft SQL Server 2000, and incorporates data from two principal sources:

Daily sales information automatically polled by the TACO system DePol utility. Period based accounting information from the Dynamics (Microsoft Great Plains) accounting database. This data is automatically refreshed periodically (or on-demand if required) and is maintained historically over several years for comparative purposes. For reporting and analysis purposes, the data in the warehouse is processed into OLAP Cubes. The cubes are accessed through Excel by using BusinessQuery MD. Data can be analyzed (sliced and diced) by store, by company, by zone and area, by accounting year, quarter and period (as far back as 1996), and by brand and concept. The available cubes and some example analyses are shown below. While each represents an area of analytical focus, cross cube analysis is also possible.

PL Cube. Contains Profit & Loss, Cash Flow and EBIDTA statements for Summerwood. Amounts can be viewed for any period as a period, quarter-to-date, year-to-date, or rolling 13 period amount, and can be compared to either of two budgets, compared to the corresponding period from the prior year, or as a percent of sales.

BS Cube. Contains the Balance Sheet for Summerwood. Balances can be viewed as of any period, and can be compared to the preceding period or the corresponding period in the prior year.

SalesMix Cube. Contains daily sales of all menu items in all stores. In addition to the standard analysis parameters, this data can also be sliced and diced by brand, by item category or by menu item, by calendar year, month and week, and by pricing tier. This cube can be used to compute sales amounts and counts, costs and variance from list price.

SalesDayPart Cube. Contains sales amounts and counts at 15 minute intervals. In addition to the standard analysis parameters, the data in this cube can also be analyzed by calendar year, month and week, and by eight-hour, four-hour, two-hour, one-hour and 15 minute intervals, or by specific meal (e.g., lunch, dinner, breakfast, between-meals, etc.).

SalesOps Cube. Contains daily sales summary for each store. In addition to the standard analysis parameters, this data can also be sliced and diced by a comparable indicator, by calendar year, month and week, and by pricing tier. Gross sales, taxable sales, non-tax sales, manual over/under, deletions, labor, cash over/short, deposits and average check are available. Many amounts can be viewed optionally as variances, as a percent of sales, or summarized as week -to-date, period-to-date, year-to-date, or rolling 52-week amounts

ReportCard Cube. Contains the daily report card amounts. Some of these are also in the SalesOps cube. In addition, the Report Card contains speed-of-service and peak -hour information

Questions:
11. Identify 4 Data Cubes and their snowflake schema
12. Do a requirement analysis for data warehouse in the above scenario.

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Section A

Answer all questions. [4x5=20]

1. What is wisdom?

2. What are the different types of Knowledge?

3. What is expert system?

4. Explain MOLAP.

Section B

Answer any six questions. [6x10=60]

5. Explain the Model of Spatial DSS with example.

6. What are the identifier in a MD model?

7. What are the different consideration for creating star and snowflake schema?

8. What is granularity and aggregation in DWDH ?

9. Explain requirement analysis for data warehousing with example.

10. Explain splitting and collapsing of dimension with examples.

Section C

Answer all questions. [2X10=20]

Business Problem

The client business included pre-clinical toxicology operations using multiple vendor data collection source systems, with no way to carry out common reporting.

Key Issues

How do we move to a centralized data warehouse to streamline reporting and analysis activities within toxicology operations?

What technologies are appropriate for an EDW in the pre-clinical space?

What data model accommodates today's business and provides flexibility for future growth?

Value Delivered

d-Wise defined a data collection repository for pre-clinical toxicology data encompassing 7 domains with multiple collection systems including Xybion, Cerner, ADP, spreadsheet data and standard SAS tables. d-Wise then mapped the existing operational systems to the 7 domains in the EDW data model, and defined the interface for reporting on the new centralized repository. SAS ETL and Informatica technologies were employed in the warehouse build process. The Java-based reporting solution was implemented using DocBook and Arbortext for PDF report output. d-Wise designed the data warehouse and articulated the technical implementation strategy and assumed the technical leadership of the implementation phase of the project with outsourced implementation resources.

Technologies Used

Oracle PL/SQL, Informatica, SAS, Java, XML, Arbortext, CDISC SEND, C, Fortran

Questions:

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