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Question Paper Code:U8304

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Professional Elective

21ITV304 – DATA WAREHOUSING

Computer Science and Engineering

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Mention some of the benefits of Data warehousing. CO1- U
2. Why do data warehouses continue to grow in size, storing huge amounts of data? Give any three reasons CO1- U
3. Give an example of where OLTP is suitable and OLAP is not. CO1- U
4. List out the OLAP operations in multidimensional data model. CO1- U
5. What is the role of metadata repository in data warehouse? CO1- U
6. Why is Partitioning strategy used in data warehouse? CO1- U
7. Suppose that a college data warehouse consists of four dimensions course, student, staff, department and two measures count and charge, where charge is the fee that a department charges a student for offering a course. Draw a star schema diagram for the data warehouse CO2-App
8. Can you convert the star schema to a snowflake schema? Justify your answer and design a snowflake schema if it is possible. CO2-App
9. Define Query Manager. CO1- U
10. Differentiate System Manager and Process Manager. CO1- U

PART – B (5 x 16= 80 Marks)

11. (a) Illustrate the architecture of a data warehouse using a neatly labeled diagram. Explain the flow of data from various source systems to the end-users, highlighting the role of each component CO1- U (16)
- Or
- (b) Describe the various issues to be considered when designing and implementing a data warehousing environment. CO1- U (16)

12. (a) Design an ETL workflow for telecom company which wants to process call logs, enrich them with customer data, and perform advanced analytics. Explain each step and how the data is processed before being loaded into the data warehouse. CO2-App (16)

Or

- (b) Find i) Roll Up ii) Drill Down from the below diagram. CO2-App (16)

Timequarter	Location		
	Mumbai	Delhi	Kolkata
Q1	340	604	38
Q2	680	583	10
Q3	535	490	50

Item (types)

13. (a) Describe the different categories of metadata used in data warehouse systems. How does each category serve specific functions in data management? CO1- U (16)

Or

- (b) Explain how data standardization and normalization can be carried out in a data warehouse to ensure consistency, accuracy, and uniformity of data across multiple sources, and describe the importance of these processes in maintaining data quality CO1- U (16)

14. (a) Discuss the role of process architecture in enhancing the performance and scalability of a data warehouse, and describe the different types of architectures used. CO1- U (16)

Or

- (b) Discuss the main categories of data warehouse tools—ETL, OLAP, and Reporting—explaining their purpose and significance with examples." CO1- U (16)

15. (a) Discuss in detail about the System Manger of a data warehouse. CO1- U (16)
 (i) System configuration manager (8)
 (ii) System scheduling manager (8)

Or

- (b) Explain in detail as Query manager architecture in process architecture with neat diagram. CO1- U (16)