## SELECTED TOPICS OF RECENT TRENDS IN INFORMATION TECHNOLOGY

| **Paper Code: ETIT-432** | **L** | **T/P** | **C** |
|---|---|---|---|
| **Paper: Selected Topics of Recent Trends in IT** | **3** | **0** | **3** |

**INSTRUCTIONS TO PAPER SETTERS:** **MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

*Objective: To understand data warehousing and its types, design and concepts of Big Data.*

**UNIT I Data Warehousing**

**Introduction to Data Warehousing:** Evolution of Data Warehousing, Data Warehousing concepts, Benefits of Data Warehousing, Comparison of OLTP and Data Warehousing, Problems of Data Warehousing.

**Data Warehousing Architecture:** Operational Data and Data store, Load Manager, Warehouse Manager, Query Manager, Detailed Data, Lightly and Highly summarized Data, Archive/Backup Data, Meta-Data, architecture model, 2-tier, 3-tier and 4-tier data warehouse, end user Access tools.

**[T1][No. of Hours 10]**

**UNIT II Data Warehousing Tools and Technology**

**Tools and Technologies:** Extraction, cleaning and Transformation tools, Data Warehouse DBMS, Data Warehouse Meta-Data, Administration and management tolls, operational vs. information systems.

OLAP & DSS support in data warehouse.

**Distributed Data Warehouse:** Types of Distributed Data Warehouses, Nature of development Efforts, Distributed Data Warehouse Development, Building the Warehouse on multiple levels.

**[R1][R2][No. of Hours 12]**

**UNIT III Types of Data Warehouses & Data Warehouse Design**

Host based, single stage, LAN based, Multistage, stationary distributed & virtual data-warehouses.

**Data warehousing Design:** Designing Data warehouse Database, Database Design Methodology for Data Warehouses, Data Warehousing design Using Oracle, OLAP and data mining: Online Analytical processing, Data mining.

**[T1][R1][No. of Hours 10]**

**UNIT IV Introduction to Big Data**

**Big Data:** Definitions, characteristics, Challenges of Conventional Systems, Web Data, Evolution Of Analytic Scalability, Analytic Processes and Tools - Analysis vs Reporting, Modern Data Analytic Tools, Statistical Concepts: Sampling Distributions, Re-Sampling, Statistical Inference, Prediction Error.

**[T2][R3][R4][No. of Hours 12]**

**Text Books**


[T1] Paul Raj Poonia, "Fundamentals of Data Warehousing", John Wiley & Sons, 2003.

[T2] Adam Jorgensen, James Rowland-Jones, John Welch, Dan Clark, Christopher Prices, Brian Mitchell "Microsoft Big Data Solutions" Wley India.


**Reference Books**


[R1] W. H. Inmon, "Building the operational data store", 2nd Ed., John Wiley, 1999.

[R2] Kamber and Han, "Data Mining Concepts and Techniques", Hartcourt India P. Ltd., 2001

[R3] Paul Zikopoulos, Dirk deRoos, Krishnan Parasuraman, Thomas Deutsch, James Giles, David Corrigan, Harness the Power of Big Data The IBM Big Data Platform, Tata McGraw Hill Publications, 2012

[R4] Zikopoulos, Paul, Chris Eaton, Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data, Tata McGraw Hill Publications, 2011