Total No. of Questions : 8]

SEAT No. :

P452

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[6003]-557

T.E. (Artificial Intelligence and Machine Learning)

DATA MINING AND WAREHOUSING

(2019 Pattern) (Semester-II) (318553)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain the k-means and DBSCAN clustering techniques with examples. **[8]**

b) Explain the concept of data, information, and knowledge in the context of BI. **[6]**

c) Explain the role of a data warehouse in BI systems. **[4]**

OR

Q2) a) Describe the design and implementation aspect of OLTP in the context of data mining and warehousing. **[8]**

b) Define Business Intelligence (BI) and its components. **[6]**

c) What are the business applications of BI? **[4]**

Q3) a) Explain the need for data warehousing in decision support systems. Discuss the characteristics of a data warehouse. **[7]**

b) Explain the three-tier data warehouse architecture. **[6]**

c) What are the trends in data warehousing? **[4]**

OR

Q4) a) Compare and contrast operational databases and data warehouses. Describe the components of a data warehouse. **[7]**

b) What is a data mart? Discuss its role in data warehousing. **[6]**

c) Describe the conceptual modeling of a data warehouse. **[4]**

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Q5) a) Explain the ETL process in data warehousing and its significance. **[8]**

b) Write short note on data reduction strategies. **[6]**

c) Describe applications of Data warehouse. **[4]**

OR

Q6) a) What are the techniques for discretization and concept hierarchy generation for numerical and categorical data in data warehousing? **[8]**

b) Describe the role of metadata in data warehousing. **[6]**

c) Give an overview of the data life cycle and its stages. **[4]**

Q7) a) Describe the different schemas used for representing multidimensional databases, including stars, snowflakes, and fact constellations. **[7]**

b) What are OLAP operations in the multidimensional data model? **[6]**

c) What is the difference between a fact table and a dimension table in a multidimensional database? **[4]**

OR

Q8) a) Compare and contrast the different types of OLAP tools, including ROLAP, MOLAP, and HOLAP. **[7]**

b) Define the concept hierarchies in the context of a multidimensional data model. **[6]**

c) Discuss the need for OLAP. **[4]**