

MCA-IV Semester (Set-2)**Paper Code – MCA-401****Paper Title –Data Warehousing and Data Mining**

Roll No. _____

Time: 3 Hours

Max. Marks: 100

Note: Attempt five questions, selecting ONE question each from Section – A, B, C, and D. Section E is compulsory.

Section – A

- 1 (a) What is data warehouse? What is its need? Explain the steps of data-preprocessing? 10
- (b) Differentiate between Conceptual Model and Implementation model for Spatial Data? 10
- 2 (a) What are the differences between a spatial level, a spatial level with spatial attributes, and a conventional level with spatial attributes? 9
- (b) Give an example of each of the following hierarchies: balanced, unbalanced, and generalized spatial hierarchies. 6
- (c) Define the various topological relationships in terms of the boundary, interior, and exterior of spatial values. 5

Section - B

- 3 (a) Explain the various temporality types supported by the MultiDim model. 5
- (b) Does a temporal MultiDim schema include a time dimension? 5
- (c) Explain the role of synchronization relationships in temporal fact relationships? 6
- 4 (a) Describe the various temporal data types, giving for each one of them an example of its use. 6
- (b) What are temporal databases? Discuss different ways of interpreting the time frame associated with the facts contained in a temporal database. 12

Section - C

- 5 (a) How does backpropagation work? Write the neural network learning algorithm for classification, using the backpropagation. 8
- (b) Why are data mining functionalities used? Define following types of functionalities with help of example: 12
- i) Characterization and discrimination
 - ii) Classification
 - iii) Prediction
 - iv) Clustering
 - v) Association and Corelation
- 6 (a) What are Bayesian classifiers? Explain briefly Baye's theorem. Also explain how Naïve Bayesian classifier works? 8
- (b) Write short note on following classification methods: 12
- i) K-nearest neighbor
 - ii) Fuzzy set approach

Section - D

- 7 (a) Explain k-mean and k- medoid partition method? Illustrate the strengths and weakness of k-mean in comparison with k-medoids algorithm? 12
- (b) Write a note on Density based method: DBSCAN 8
- 8 (a) What is prediction? Given an account on the regression method in prediction? 10
- (b) What is clustering? Brefly describe the partition and hierarchical clustering methods. Give example in each case. 10

Section – E(Compulsory Question)

2*10

- 9** Attempt all part
- I** What is MDDB?
- II** Name spatial data types.
- III** Explain temporal granularity?
- IV** What are temporal hierarchies?
- V** Define Data mining?
- VI** What are the typical requirements of clustering data mining.
- VII** State various evaluation criteria that are essential for classification?
- VIII** What is cluster analysis?
- IX** Define Binary Variable and Nominal with example
- X** What is Pattern based data minig?

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