Subject Code: H0501/R13

M. Tech –II Semester Regular/ Supply Examinations, October, 2015

DATA WAREHOUSING AND DATA MINING.

(Common to CS and CS&E)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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1. a) What are the Steps involved in data preprocessing
   b) What is the Data quality? Discuss.

2. a) What is the linear SVM? How it is used in classification?
   b) Discuss the model over-fitting.

3. a) Explain the concept hierarchy.
   b) Discuss the Apriori algorithm with an example.

4. a) Discuss the Naïve Bayesian Classification with an example.
   b) Explain the ANN (Artificial Neural Networks) classification.

5. a) Discuss the F-P Growth Algorithm with an example
   b) Discuss the cluster evaluation

6. a) Explain the Agglomerative Hierarchical clustering with an example
   b) Explain the DB Scan clustering

7. a) Discuss the Proximity based outlier detection
   b) Discuss the Density based outlier detection.

8. Write short notes on the following
   a) Web usage mining
   b) search engines,

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Subject Code: H2202/R13

M. Tech –II Semester Regular/ Supply Examinations, October, 2015

TRAFFIC FLOW ANALYSIS

(Transportation Engineering)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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1. (a) Given that 40 vehicles pass a given point in 1 minute and traverse a length of 1 kilometer, what is the flow, density, and time headway?
   (b) Describe and explain the negative exponential distribution of low traffic model, with an example?

2. (a) The morning peak flow on a freeway is 2200 veh/hr and the directional capacity is 3600 veh/hr. At 8:00 a.m. an accident occurs on the freeway resulting in the closure of the entire road for 8 minutes. At 8:08 a.m., the freeway is partially opened with a capacity of 1600 veh/hr. The site is cleared totally by 8:38 a.m. and full capacity is restored. Assuming the system to be D/D/1 system, compute the queue dissipation time, total delay, average delay and the longest queue size.
   (b) Draw the fundamental diagrams of speed-flow, flow-density and speed-density, and explain their characteristics?

3. (a) Derive an expression used for determination of shock-wave speed with standard notations?
   (b) Define and compare the Pipe's model and Forbes' model used for car following models.

4. (a) Consider the following: Arrival rate $\lambda = 0.6$ and service rate $\mu = 1.0$; compare mean response times by M/M/1 and D/D/1 queues.
   (b) Write short note on Blocks, Anti Blocks, Gaps and Non-gaps

5. (a) Explain the types of Statistical Distributions used in traffic analysis. Giving the probability density functions, explain the parameters to be estimated in case of Poisson distribution, Negative Exponential Distribution and Shifted Exponential distribution. Discuss about the situations in which they are applicable
   (b) Write the details of Vehicle Generation by shifted negative exponential distribution?

6. (a) Explain the basic steps involved in the development of a microscopic model. Draw a flow diagram of a microscopic traffic simulation model.
   (b) Explain the Static models of simulation (i) Deterministic user equilibrium and (ii) Stochastic user equilibrium

7. (a) Write the factors affecting gap acceptance for pedestrians and also state how to define a critical pedestrian gap?
   (b) Explain the activities involved with building traffic simulation models?

8. (a) Define microscopic and macroscopic study of traffic stream characteristics?
   (b) In a gas station there is one gas pump. Cars arrive at the gas station according to a Poisson process. The arrival rate is 20 cars per hour. Cars are served in order of arrival. The service time (i.e. the time needed for pumping and paying) is exponentially distributed. The mean service time is 2 minutes.
   (i) Determine the distribution, mean and variance of the number of cars at the gas station.
   (ii) Determine the distribution of the sojourn time and the waiting time.
   (iii) What is the fraction of cars that has to wait longer than 2 minutes?

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