

IVth SEMESTER

MBA

END SEMESTER EXAMINATION

May-2019

MGI-10

E-Learning and Knowledge Management

Time: 3:00 Hours

Max. Marks: 60

NOTE: Question 1 is compulsory. Attempt any 5 questions from the remaining. Assume Suitable missing data, if any

Q1. Answer the questions following:

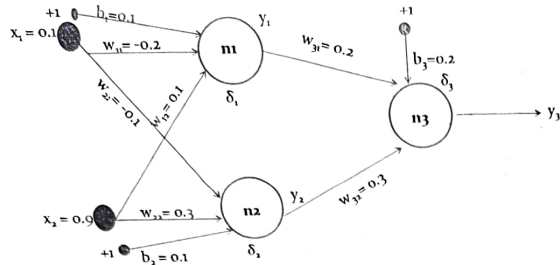
- (i) What do you understand by cross-validation? Explain its types. [3]
- (ii) Why accuracy is not a suitable performance metric to evaluate a classifier developed from imbalanced data. [3]
- (iii) Differentiate between tacit and explicit knowledge. [3]
- (iv) Differentiate between data, information and knowledge with the help of a example. [3]

Q2. a) Consider the following dataset for a credit card promotion company. The credit card company has authorized a new life insurance promotion. We are interested in building a classification model for deciding whether to send the customer promotional material. Build a Naïve Bayes classifier and predict the label of the following record. $X = (MP=Y, WP=Y, CCI=N, S=F)$. [6]

Customer Id	Magazine Promotion (MP)	Watch Promotion (WP)	Credit card Insurance (CCI)	Gender (G)	Life Insurance Promotion
1	Y	N	N	M	N
2	Y	Y	Y	F	Y
3	N	N	N	M	N
4	Y	Y	Y	M	Y
5	Y	N	N	F	Y
6	N	N	N	F	N
7	Y	Y	Y	M	Y
8	N	N	N	M	N
9	Y	Y	Y	M	N
10	N	Y	N	F	Y

b) Explain with the help of an schematic diagram various steps to develop a prediction model. [6]

Q3. Perform a complete forward and backward sweep of the feedforward network shown below using the back-propagation algorithm. The activation function in all the neurons are log-sigmoid functions. Assume target output = 0.9, $\eta = 0.25$. [12]



- (i) What is the entropy of above collection of training examples w.r.t the +ve class?
(ii) What are the information gain of a1 and a2 relative the these training examples?
b) How the knowledge is created in an organization? Explain the steps involved in knowledge creation. [6]

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- Q4. a) How the knowledge is created in an organization? Explain the steps involved in knowledge creation. Also, explain the Knowledge Management System Life Cycle. [6]
b) What is the problem of learning with the imbalanced data? What are the various ways to deal with this problem? Explain any one technique with the help of an example. [6]

- Q5. a) What is bias and variance? Also, discuss bias-variance trade-off with the help of an example. [6]
b) Describe the various components of knowledge management. [6]

- Q6. a) What do you understand by unsupervised learning? Explain any two examples of unsupervised learning. [6]
b) Consider the following data points. A1(2; 10); A2(2; 5); A3(8; 4); B1(5; 8); B2(7; 5); B3(6; 4); C1(1; 2); C2(4; 9). The distance function is Euclidean distance. Use the k-means clustering to cluster the above data set (use $k = 2$). [6]

- Q7. a) Consider the training examples shown in the table for a binary classification problem. [6]

Instance	a1	a2	a3	Target class
1	T	T	1.0	+
2	T	T	6.0	+
3	T	F	5.0	-
4	F	F	4.0	+
5	F	T	7.0	-
6	F	T	3.0	-
7	F	F	8.0	-
8	T	F	7.0	+
9	F	T	5.0	-