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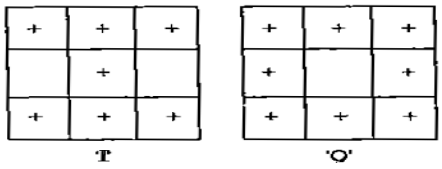
Dr. Ambedkar Institute of Technology

(An Autonomous Institution, Aided by Government of Karnataka
Affiliated to Visvesvaraya Technological University, Belgaum & Approved by AICTE, New Delhi)
BDA Outer Ring Road, Near Jnana Bharathi Campus, Mallathahalli, Bengaluru-560056, Karnataka

Department of Computer Science & Engineering

Sixth Semester B.E. Degree (Autonomous) Continuous Internal Evaluation (CIE – II) 2021

Date : 21/06/2021	**Sub. Title : Machine Learning**	**Timings : 1.30-2.30**
Day : Monday	**Sub. Code :18CS62**	**Time duration : 60 Mins**
Branch : CSE		**Max marks : 25**
Semester : 6	**CIE – II**	**Staff in-charge:** **Asha K N** **Asha Rani K P**

Q. No.		**Note : Answer ALL the questions**	Marks	Course Outcome	**Blooms Level**
1.	a)	Implement AND-NOT function using McCulloch-Pitts neuron model. (Use binary data representation)	**5 M**	**CO3**	**L3**
	b)	Using the Hebb rule, find the weights required to perform the following classifications of the given input patterns shown in Figure. The pattern is shown as 3 x 3 matrix form in the squares. The "+" symbols represent the value "1" and empty squares indicate "-1." Consider "I" belongs to the members of class (so has target value 1) and "O" does not belong to the members of class (so has target value -1).  'I' 'O' **Figure** Data for input patterns.	**5 M**	**CO4**	**L3**
2.	a)	Explain Backpropagation Neural Network Architecture and its Algorithm.	**5 M**	**CO3**	**L2**
	b)	Discuss the Naïve Bayes classifier. Consider the following data table where *Play* is a class attribute. Humidity | Outlook | Windy | *Play* L N N T L N Y T H Y N T H Y Y F L Y N F L Y Y T H N N F Show how Naïve Bayesian method is used to classify the following test data Humidity | Outlook | Windy H Y N	**5 M**	**CO4**	**L3**
		OR			
	c)	What is Bayes theorem and maximum posterior hypothesis? As you know, Covid-19 tests are common nowadays, but some results of tests are not true. Let's assume; a diagnostic test has 99% accuracy and 60% of all people have Covid-19. If a patient tests positive, what is the probability that they actually have the disease?	**5 M**	**CO4**	**L3**

QUIZ	Note : Answer ALL the questions							10X0.5=05 Marks
1.	In which ANN, loops are allowed?							
	A	FeedForward ANN	B	FeedBack ANN	C	Both A and B	D	None
2.	What is perceptron?							
	A	a single layer feed-forward neural network with pre-processing	B	an auto-associative neural network	C	a double layer auto-associative neural network	D	a neural network that contains feedback
3.	A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 3, 2 and 1 respectively. What will be the output?							
	A	30	B	40	C	50	D	60
4.	Where can we use the Bayes rule?							
	A	To increase the complexity	B	To decrease the complexity	C	To solve queries	D	To answer the probabilistic query
5.	Examples of Naïve Bayes Algorithm is/are							
	A	Spam filtration	B	Sentimental analysis	C	Classifying articles	D	All of the above
6.	Backpropagation can be defined as _____							
	A	It is another name given to the curvy function in the perceptron.	B	It is the transmission of errors back through the network to adjust the inputs.	C	It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn.	D	None of the above
7.	Name the input function received by neurons, which is also known as the neuron's internal state.							
	A	Weight	B	Bias	C	Activation or neuron's activity level	D	None
8.	A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 10, 5 and 20 respectively. The output will be:							
	A	238	B	76	C	119	D	123
9.	What is Hebb's rule of learning							
	A	The system learns from its past mistakes	B	The system recalls previous reference inputs & respective ideal outputs	C	The strength of neural connection get modified accordingly	D	None of the mentioned
10	What is ART in neural networks?							
	A	Automatic Resonance Theory	B	Artificial Resonance Theory	C	Adaptive Resonance Theory	D	None of the mentioned

Faculty Incharge:
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