JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B.Tech-V Semester (ECE)

COURSE CODE(CREDITS): 20B1WEC532 (03)   MAX. MARKS: 35

COURSE NAME: Introduction to Machine Learning

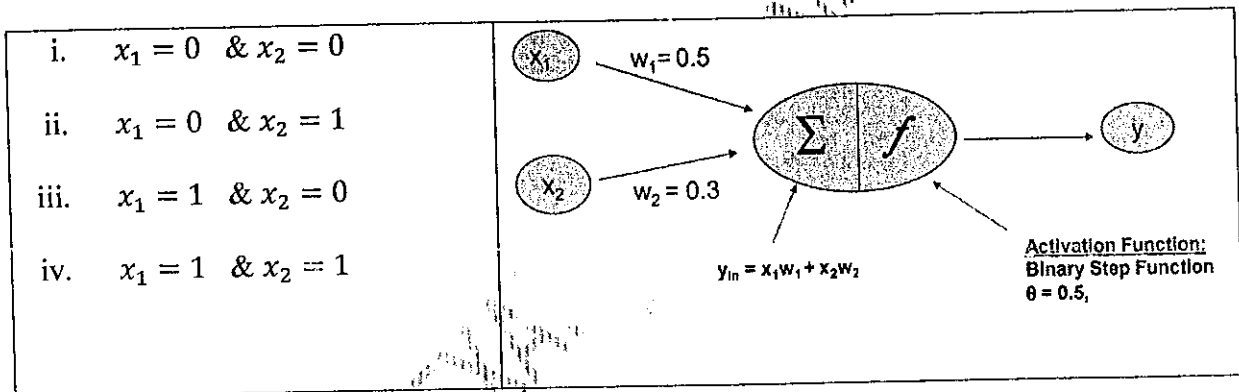COURSE INSTRUCTORS: Dr. Sunil Datt Sharma

MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. What will be the output "y" for the inputs for the given figure?   [06 Marks, CO-3]

i. $x_1 = 0$ & $x_2 = 0$	
ii. $x_1 = 0$ & $x_2 = 1$	
iii. $x_1 = 1$ & $x_2 = 0$	
iv. $x_1 = 1$ & $x_2 = 1$	

$w_1 = 0.5$

$w_2 = 0.3$

$y_{in} = x_1 w_1 + x_2 w_2$

Activation Function:
Binary Step Function
$\theta = 0.5$,

Q2. Explain the different types of activation functions and write their mathematical expressions.
[06 Marks, CO-3]

Q3. Suppose there is a candidate who has a job offer and wants to decide whether he should accept the offer or Not. So, to solve this problem, the decision tree starts with the root node (Salary attribute by ASM). The root node splits further into the next decision node (distance from the office) and one leaf node based on the corresponding labels. The next decision node further gets split into one decision node (Cab facility) and one leaf node. Finally, the decision node splits into two leaf nodes (Accepted offers and Declined offer). Draw the decision tree diagram to take an appropriate decision.   [06 Marks, CO-5]

Q4. Write the at least three difference between Parameter and Hyper parameter of model?
[06 Marks, CO-4]

Q5. Write remedies to avoid over fitting and under fitting?   [05 Marks, CO-2]

Q6. For the data given in Table, Using Naïve Bayes' model take the decision for the statement " If the weather is sunny, then the Player should play or not"?   [06 Marks, CO-5]

S.N.	Outlook	Play
0	Rainy	Yes
1	Sunny	Yes
2	Overcast	Yes
3	Overcast	Yes
4	Sunny	No
5	Rainy	Yes
6	Sunny	Yes
7	Overcast	Yes
8	Rainy	No
9	Sunny	No
10	Sunny	Yes
11	Rainy	No
12	Overcast	Yes
13	Overcast	Yes