Ahsanullah University of Science and Technology
Department of Computer Science and Engineering
4th Year 2nd Semester Quiz-2 (Set-A)
Course No: CSE 4213 Course Title: Pattern Recognition
Time: 30 minutes Full Marks: 10
Roll: Name:

1. Let a minimum error rate classification achieved by the use of following discriminant functions: $g_i(x)=\ln P(x|\omega_i)+\ln P(\omega_i)$ and consider the multivariate normal case with covariance matrix, $\sum_i = \sum$. Convert this discriminant function to its general form $g(x) = w^t x+w_0$. **(5)**

2. Suppose you are given the following set of data with three Boolean input variables e, f and g, and a single Boolean output variable C. **(5)**

e	f	g	C
0	0	0	Pos
0	0	1	Neg
0	1	1	Neg
0	1	1	Neg
0	0	1	Pos
1	0	1	Pos
1	0	1	Neg
1	0	1	Neg
1	1	1	Pos
1	0	1	Pos

assume we are using a naive Bayes classifier to predict the value of C from the values of the other variables. According to the naive Bayes classifier, find the value of ***P*(e = 0, f = 1, g = 0).**

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Department of Computer Science and Engineering
4th Year 2nd Semester Quiz-2 (Set-B)
Course No: CSE 4213 Course Title: Pattern Recognition
Time: 30 minutes Full Marks: 10
Roll: Name:

1. Let a minimum error rate classification achieved by the use of following discriminant functions: $g_i(x)=\ln P(x|\omega_i)+\ln P(\omega_i)$ and consider the multivariate normal case with covariance matrix, $\sum_i = \sum$. Convert this discriminant function to its general form $g(x) = w^t x+w_0$. **(5)**

2. Suppose you are given the following set of data with three Boolean input variables a, b, and c, and a single Boolean output variable K. **(5)**

a	b	c	K
1	0	1	1
1	1	1	1
0	1	1	0
1	1	0	0
1	0	1	0
0	0	0	1
0	0	0	1
0	0	1	0

assume we are using a naive Bayes classifier to predict the value of K from the values of the other variables. According to the naive Bayes classifier, find the value of ***P*(a = 1, b = 1, c = 0).**