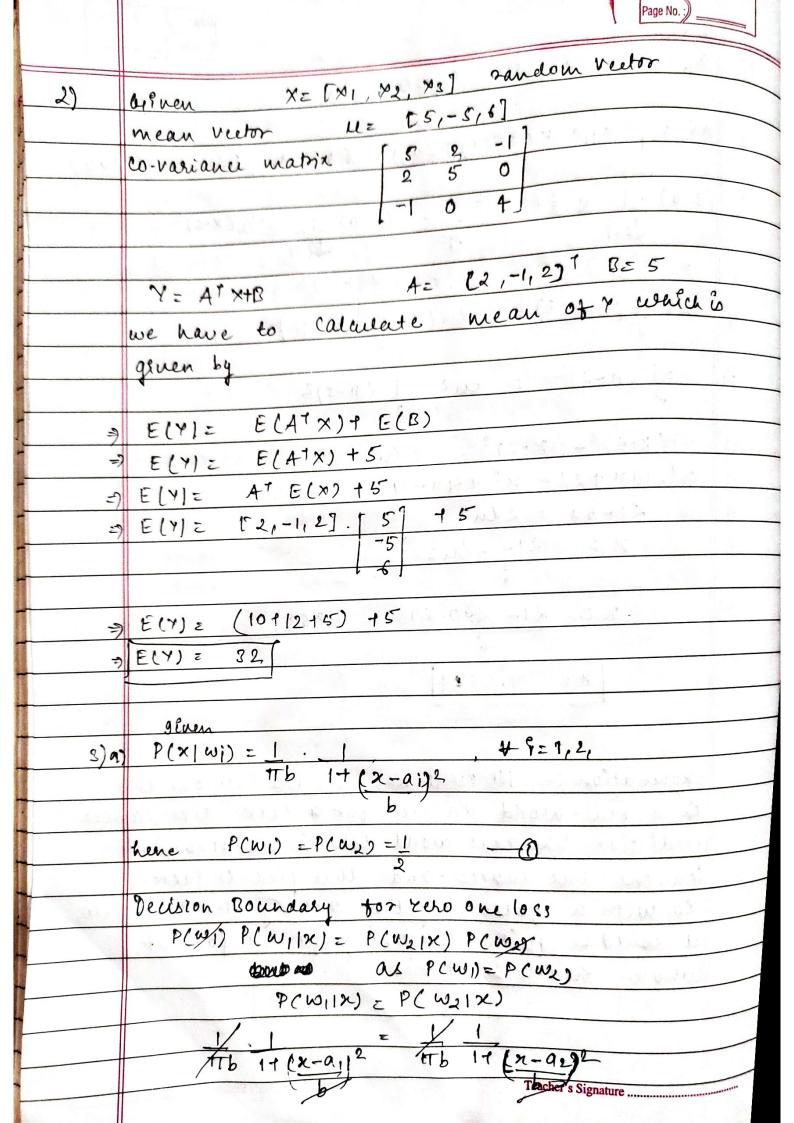
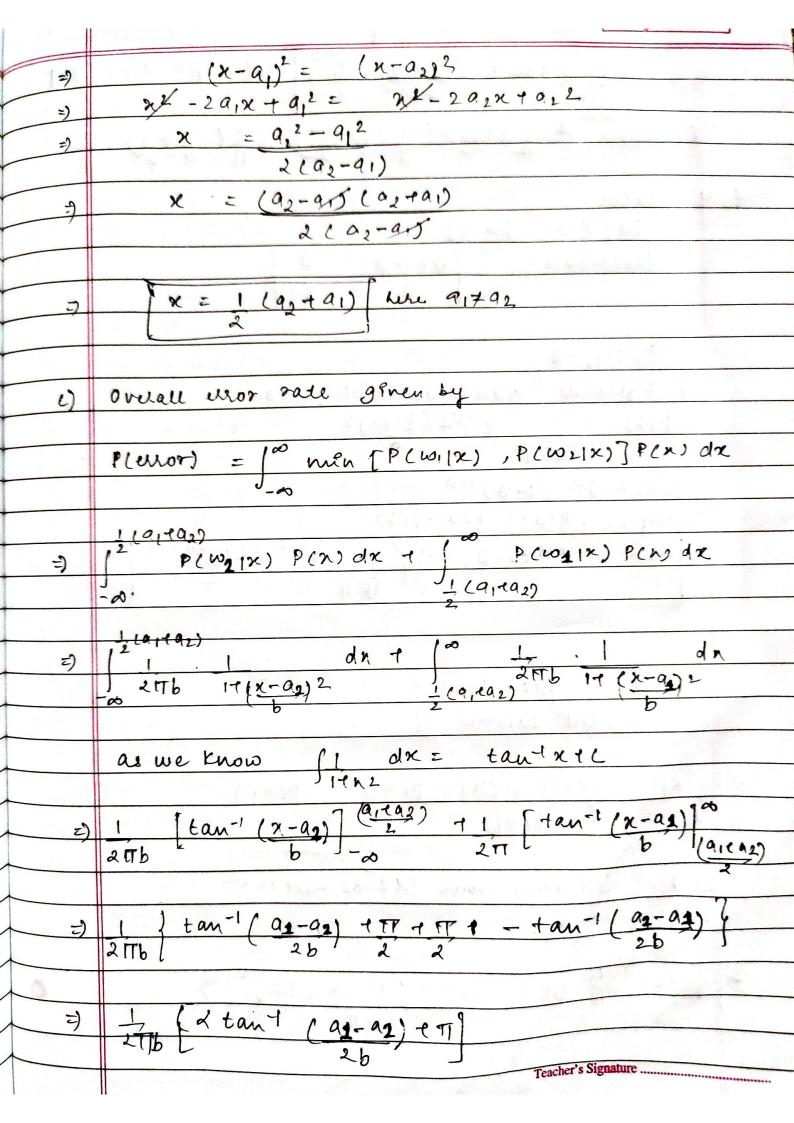
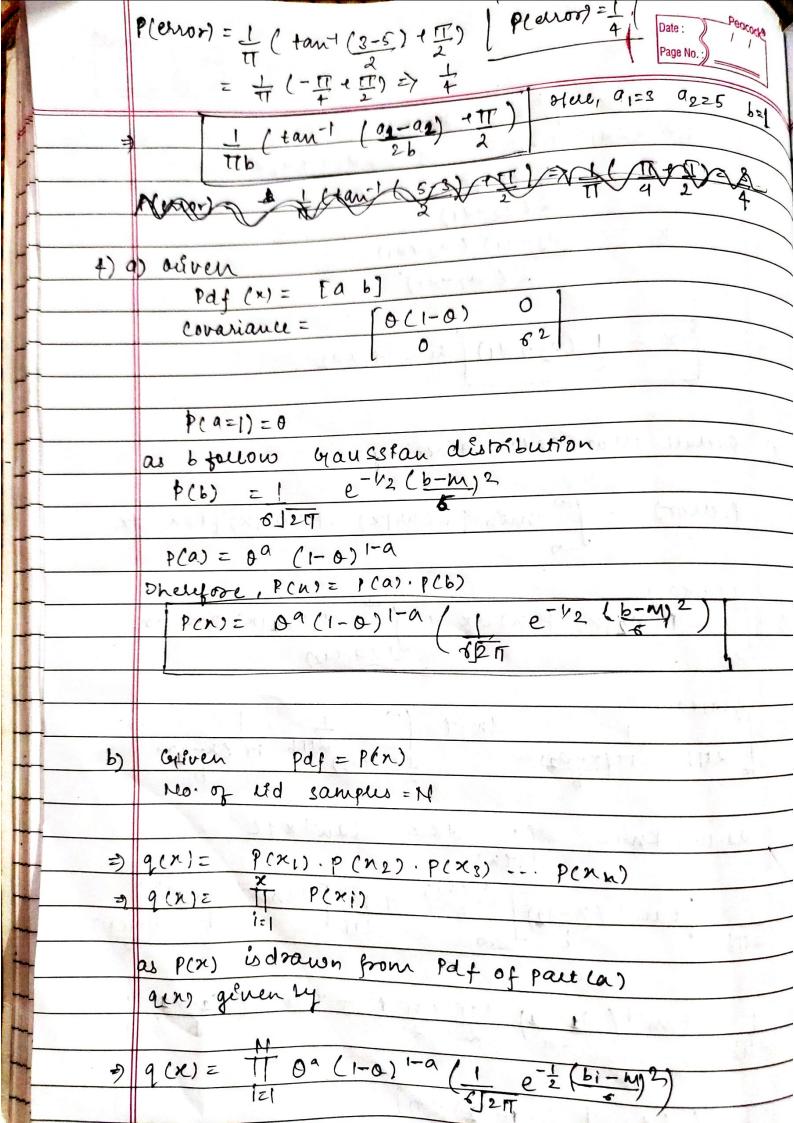
20103	dae
20193	Date : Pedcock
	SML Assignment-1 Page No.)
υŋ	Cylinen $P(w_1) = 1$ $P(w_2) = \frac{3}{4}$
	P(XIW) = N(2,1) P(XIWL) = N (5,1)
	1 18 belli ben ne
17.2	Decision boundary for normal distribution given by $f(X) = \frac{1}{6J24} \left( \frac{x-y}{6} \right)^{2}$
	$\frac{f(x)=1}{6J2U} = \frac{2\sqrt{5}}{6}$
	therefore
	$P(x w_1) = N(2 1) = 1 e^{-\frac{1}{2}(x-2)^2}$
	1217
	P(x1w2)= N(5,1)= 1 e-1(x-5)2
	Jet
	the telephone to the same of t
	for tero-one loss
	P(XIWI) P(WI) = P(XIW2) P(W2)
=	$\frac{1 \cdot 1/e^{-\frac{1}{2}(x-2)^2} = 1/e^{-\frac{1}{2}(x-s)^2}}{\cancel{4}} = 1/e^{-\frac{1}{2}(x-s)^2} \cdot \frac{3}{\cancel{4}}$
- 1 v (Lake F	7 KT 52T 4
=)	$e^{\frac{1}{2}(h-2)^{-}} = 3$ . $e^{-\frac{1}{2}(h-5)^{-2}}$ (tacing log on both the
)	$e^{-\frac{1}{2}(N-2)^2} = 8$ . $e^{-\frac{1}{2}(N-5)^2}$ (tacing log on both the $-\frac{1}{2}(N-2)^2 = \frac{1}{2}(N-5)^2$
=)	$-(x-2)^{2} + (x-5)^{2} = 2 \ln 8$ $(x-5)^{2} - (n-2)^{2} = 2 \ln 8$
3	$x^2 + 25 - 10x^2 - (n^2 + 4 - 4x) = 20$
3)	$n^2 + 25 - 10x - (n^2 + 4 - 4x) = 2 ln s$ $n^2 + 25 - 10x - n^2 - 4 + 4x = 2 ln s$
=)	21-69 = 2 lns
7	X = 21-2lys
	x = 3.1338
	Total 1 av
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II

91) A1= 2, A21=3, A11=0, A22=0 > 100(12, - >11) P(x1w1) P(w1) = (>12->22) P(x1w2) P(w2) (3-0)·1/e-1(x-2)21 = (2-0)·1/e-1/2(x-5)2.3  $3 \cdot e^{-\frac{1}{2}(n-2)^2} = 2.8 \cdot e^{-\frac{1}{2}(n-5)^2}$ = ln(2,-1 (n-5)2) = ln(2,-1 (n-5)2)  $= \frac{-1(n-2)^2}{2} = \frac{\ln 2 - 1(n-s)^2}{2}$  $(x-5)^2-(x-2)^2=2\ln 2$ 21-10x+25-25+4n-4 = 2lus 21-64 = 2 lus x = 21-2lu2 n = 21-2×0.693 = 3.269 -) ne 8.2689 Explanation: - ND, well not we the relo-one loss En a real-world dataset for a task like cancel prediction. The real world data is unsalanced, if Someone has cancer and this predicts false, so with a falle negative vate greater man telo, it could be quite concerning for the patient, whose health is at risk.







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=)	en (q(x)) = {   a; en(0) + (1-a;) en(1-0) +
	h ( - ) - 1 ( bi-m ) 2
	as we have to maximize pm so differentating writ
	do and equating to o.
*	$\frac{d \ln(q(n)) = 0}{do}$
=)	d (aim(o)+ (1-ai)en(1-o))+ ln(1)-1(bi-m)2)=0
=)	d ( aien(0) + (1-ai) ln(1-0)) =0
<i>z</i> )	$\frac{N}{2} \left( \begin{array}{ccc} a_1 & - & (1-a_1) \\ -a_1 & -a_2 \end{array} \right) = 0$
,	i=1 0 (1-0')
(۲	$\frac{1}{0(1-0)} = \frac{1}{1-0} = \frac{1}{1-0} = \frac{1}{1-0} = \frac{1}{1-0}$
	0(1-0) i=1
3)	1 M (0,1-00, -0 + 00, 0) =0
	Q(1-0) i=1
	<b>₩</b>
=)	£ (91-0) =0
	iq N
2)	Que & Z ai - NO = 0
,	14
7	0 z 1 5 a;
	N 17
- 11	