Linkage Disequilibrium

1.) For a	a 1,000 c	hromoso	mes the follo	wing haplotyp	oes were obser	ved.		
	A_1B_1	<u>200</u>						
	A_1B_2							
	A_2B_1	350						
	A_2B_1 A $_2B_2$	400						
a) What	is the all	lele frequ	ency for the	A_1 allele and	A ₂ allele			
b.) Wha	it is the a	llele freq	uency for the	B ₁ and B ₂ all	ele			_
					ler linkage equ	ıilibrium		_
				1	8 1			
-	$P_{12} = A_1 F$	32						
	$P_{21} = A_2 F$	3 ₁						
	$P_{22} = A_2 F$	3 ₂						
		J						
2) Plea	se answe	r the foll	owing for the	above proble	m			
2.) 1 Ica	se answe	i the follo	owing for the	above proble	111.			
D=								
D'=								
r ² —								
1 —								
Is there	statistica	1 avidana	o that Marlza	r A and Dara	in linkage dis	aguilibeine		c
								·
X-=			p-value=					
A	•~							
<u>Answei</u>	<u>'S</u>							
1 \ F	1 000		.1 0.11		1	1		
1.) For	a 1,000 c	hromoso	me the follow	ing haplotype	es were observ	red.		
	4 D	200	(0.2)					
	A_1B_1	<u> 200</u>	(0.2)					
			(0.05)					
	A_2B_1							
	A_2B_2	<u>400</u>	(0.4)					
a) What	is the all	lele frequ	ency for the	A_1 allele and .	A_2 allele $\underline{\hspace{1cm}}$ A	<u>1=0.25</u>	$\underline{ }$ $ $	<u>5</u> .
b.) Wha	it is the a	llele freq	uency for the	B ₁ and B ₂ all	ele <u>B₁=(</u>	0.55	$\underline{}_2 = 0.45$	•
c.) Wha	t are the	expected	haplotype fre	equencies und	ler linkage equ	ıilibrium?		
	$P_{11} = A_1 I$	$3_1 = 0.1$.375					
	$P_{12} = A_1 E$	$3_2 = 0.1$	125					
	$P_{21} = A_2 F$	$B_1 = 0.6$	4125					
	$P_{22} = A_2 I$							
2.) Plea	se answe	r the foll	owing for the	above proble	m.			
$D = \underline{}$			_	0.0175=0.0625				
	$\frac{(0.4 \ 0.)}{0.0625/0}$	/ \	/	.01/5 0.002.				
$r^2 = -$	0.0023/0	.1145-0.	<i></i>					
	<u>0.004</u>							
Ia thana	statistics	1 ovidana	on that Manles	r A and Dama	in linkaga dia	aguilibeine	Mos	9
$X^2 =$	84 2		e ınaı Marke n-value<0		in linkage dis	cquiiioriulii _	<u>yes</u>	<u>_</u> '
	(34 /		D=VAIIIC>	, , , , , , , , , , , , , , , , , , , ,				