SUM 06 Lab Exam 1 Key NOTE: Your printout only contains your multiple choice score (out of 50 pts). You must add your short answer score to come up with your total score

1	E	6	A	11	B	16	B	21	C	26		31		36	
2	A	7	D	12	B	17	A	22	C	27		32		37	
3	C	8	E	13	D	18	D	23	E	28		33		38	
4	C	9	D	14	D	19	B	24	C	29		34			
5	D	10	A	15	A	20	A	25	B	30		35			

1. (2) Yes this was really worth 2 pts.

2. P ----11 Map units ----S ---22 m.u. ----R. From the double recombinants you know that the S locus is in the middle. (the allele that looks different in the double recombinant relative to the parental chromosome is the one that is in the middle). Rewrite the parental chromosomes to match the correct order and write out the allelic combinations that result from a cross over between P and S.

3. Pathway order is:

M5 → M1, M3 → M2 → M4, M6

X → K → U → Y → W

4. Need to address the fact that base (NaOH) hydrolysis of the chromosomal DNA converts it into smaller pieces (or lose the association with the cell wall/membrane) and it would remain in the supernatant, following centrifugation. This would contaminate the plasmid DNA with chromosomal DNA.

5. The rate for the light appears to be about 0.4 O.D. units/minute but because the dark control shows that some reduction is not due to light. The correct value is 0.3 O.D. units/min.

6. White lawn (1 pt for each word).

7. No- no meiosis or haploid only, etc.

8. ½ X 0.19. 1 pt for the 1/2 , 1 pt for the multiplication (X), 2 pts for the 0.19 (they need to show work for the linked genes).

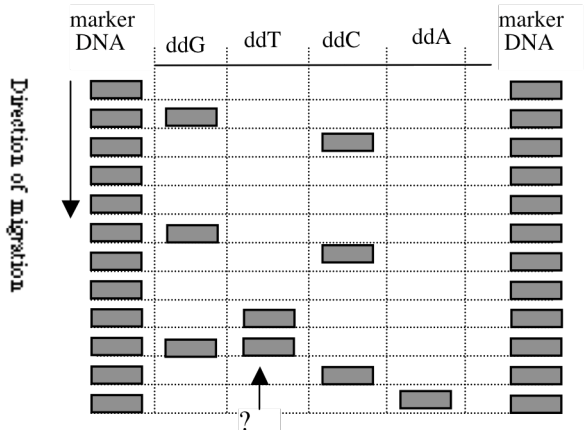
	0.3 dE+	*0.3 d+E*	*0.2 dE*	*0.2 d+E+*
0.3 d+E+	*0.09*	*X*	*0.04*	*0.06*
0.3 dE	*X*	*X*	*X*	*X*
0.2 d+E	*X*	*X*	*X*	*X*
0.2 dE+	*X*	*X*	*X*	*0.04*

8. Second number 8, whoops. Water, NADP+ , Stroma . 1 pt each.

9. 1 pt for each pair of homologs: female $\frac{Ea^+}{Ea}$; $\frac{pb^+}{pb}$ Male: $\frac{Ea^+}{Ea}$; $\frac{pb}{pb}$

b. Genetically unlinked for 2 pts.

10. Value is about 8 mM (1 pt for 8, 1p t for units (mM)).



11. The ? means the band may or may not appear depending upon if ddT are in excess.

12. Need to indicate shading for Ea for uncatalyzed rxt and Ea for catalyzed rxt and show there are more molecules with sufficient energy when Ea is lowered by the enzyme. Refer to the enzyme tutorial.