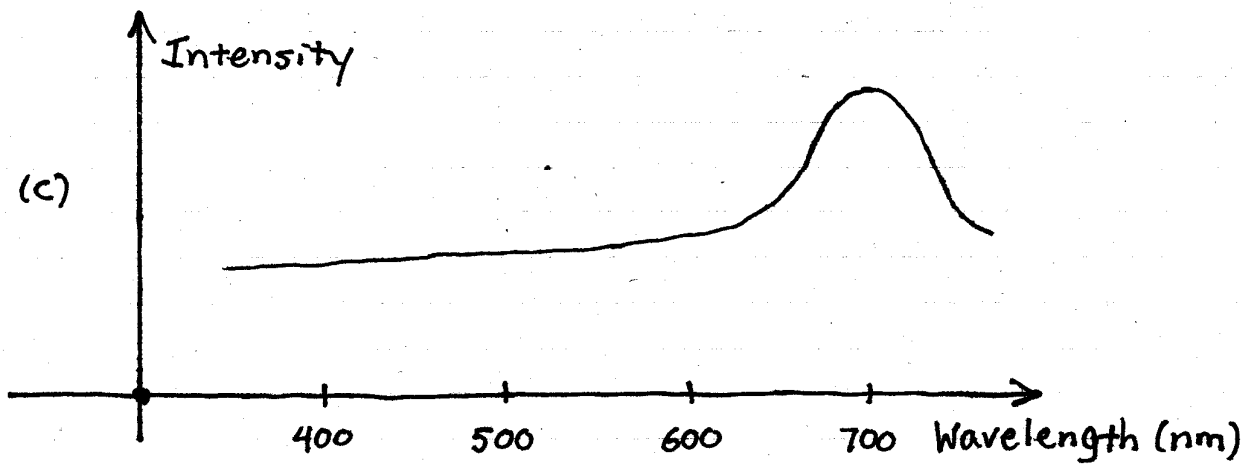
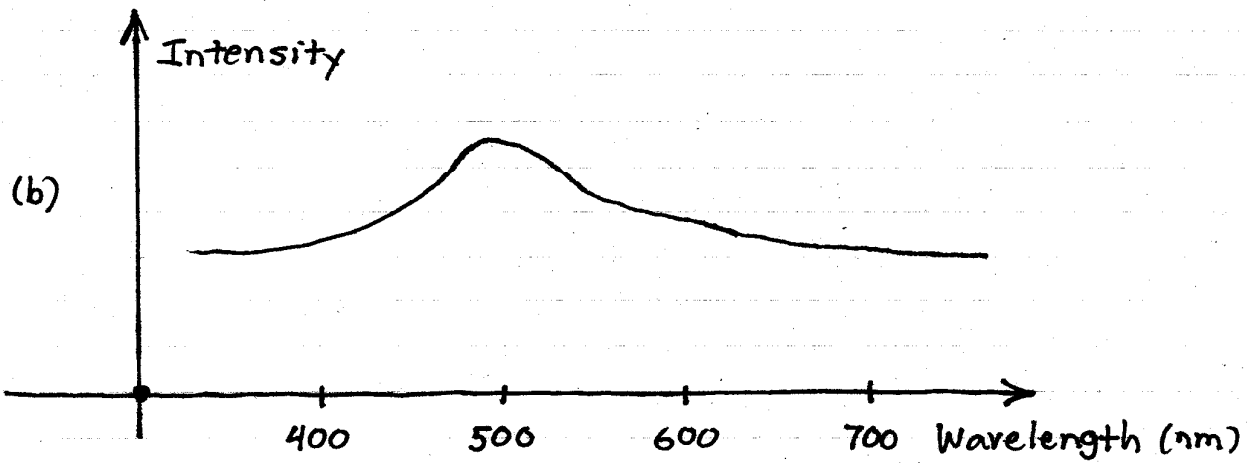
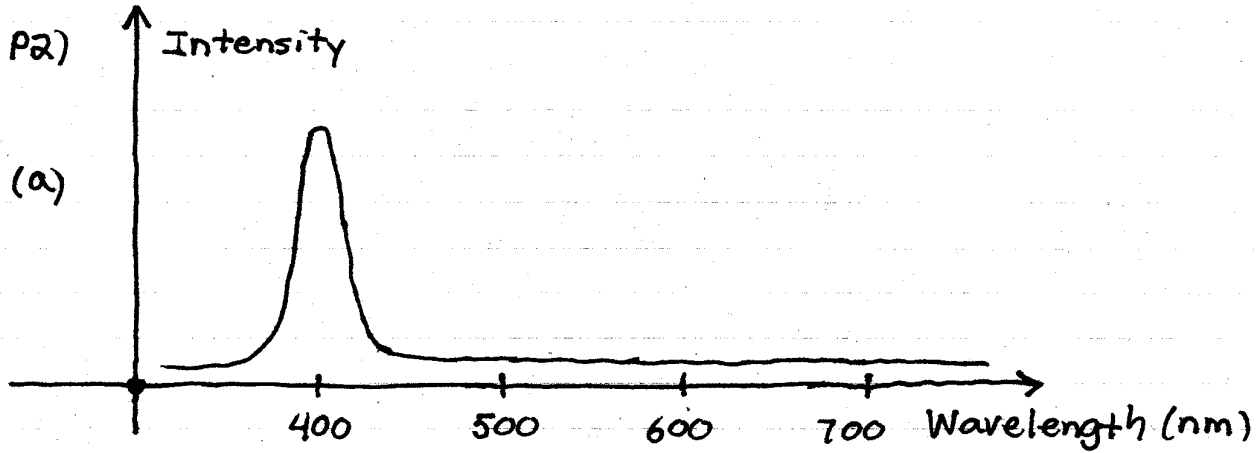
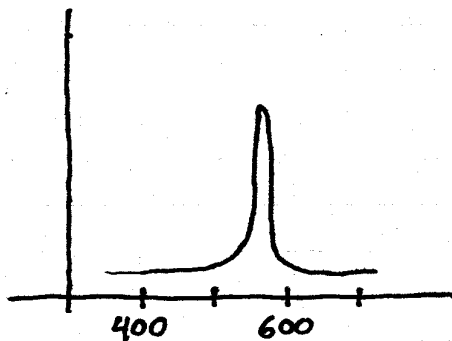


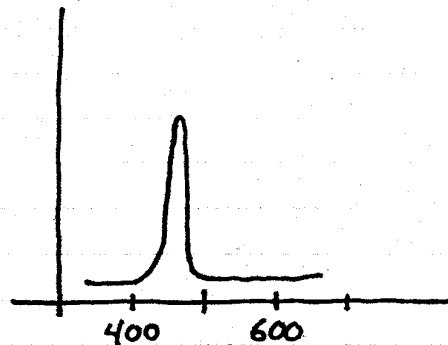
PH332 - Chapter Nine Solutions



P5) Yellow ($\lambda = 570 \text{ nm}$)



Blue ($\lambda = 460 \text{ nm}$)



P9) (a) Complementary colors are two colors that, when added together, produce white.

(b) From page 245

blue ($\lambda = 460 \text{ nm}$) and yellow ($\lambda = 570 \text{ nm}$)

green ($\lambda = 490 \text{ nm}$) and red ($\lambda = 650 \text{ nm}$)

P10) (a) $\lambda \cong 493 \text{ nm}$

(b) $\lambda \cong 572 \text{ nm}$

(c) $\lambda \cong 489 \text{ nm}$

(d) The complement of $\lambda = 700 \text{ nm}$ is $\lambda \cong 493 \text{ nm}$, and the complement of $\lambda = 400 \text{ nm}$ is $\lambda \cong 572 \text{ nm}$. Therefore, there are no complementary colors for colors between 493 nm and 572 nm . This range of wavelengths corresponds to green.

P17) (a) All colors fall on each area.

(b) The color that reaches the eye is the color that is reflected.

(c) The other colors were absorbed.

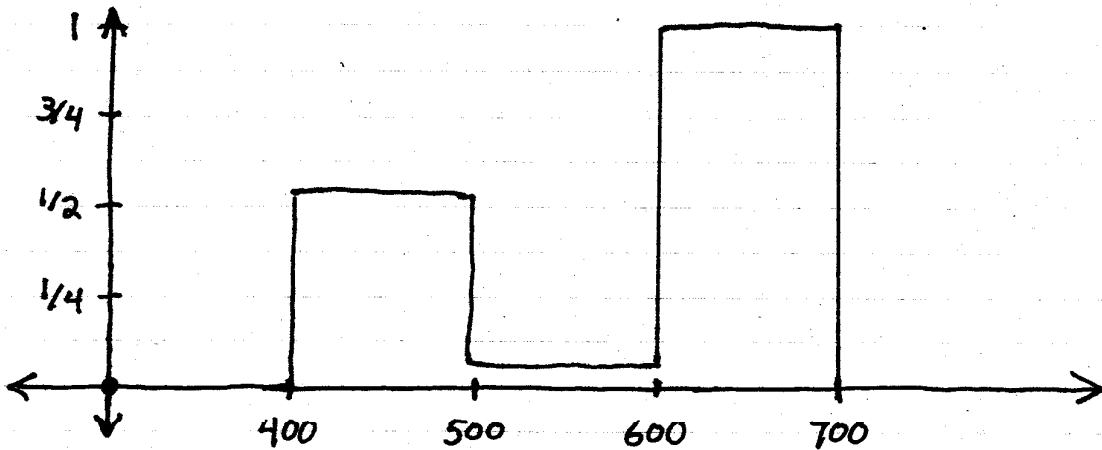
P18) (a) All colors fall on each filter.

(b) The color that enters the eye is the color that is transmitted.

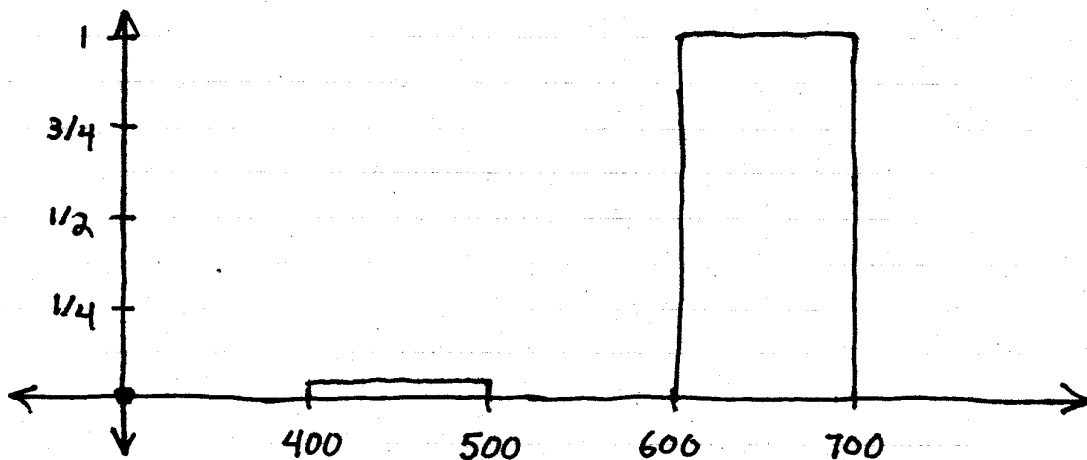
(c) The other colors were absorbed.

PM1) (a) The transmitted light will be a mixture of red and blue, which will be perceived as purple.

$$(b) \quad 1 \times 1 = 1 \quad \frac{3}{4} \times \frac{3}{4} = \frac{9}{16} \quad \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$$



$$(c) \quad (1)^{10} = 1 \quad \left(\frac{3}{4}\right)^{10} = 0.0563 \quad \left(\frac{1}{4}\right)^{10} = 0.000000954$$



(d) The color of the transmitted light will be red.