1.) γ -Aminobutyric acid (GABA) is a major neurotransmitter functioning in your brain at this moment. What nonessential amino acid is GABA synthesized from?

$$-\mathbf{O} \qquad \qquad \mathbf{CO}_2$$

$$-\mathbf{O} \qquad \qquad \mathbf{NH}_3$$

$$\mathbf{H}^+ \qquad \qquad \mathbf{P}$$

$$\mathbf{A} \qquad \qquad \mathbf{NH}_3$$

$$\mathbf{H}^+ \qquad \qquad \mathbf{P}$$

$$\mathbf{A} \qquad \qquad \mathbf{N} \qquad \mathbf$$

2.) The GABA synthesis reaction uses a PLP dependent enzyme, which forms the following intermediate. Add electron-pushing arrows to the structure to indicate how this PLP cofactor contributes to this reaction.

3.) If you drink sucrose-sweetened COKE (sucrose is a disaccharide of glucose and fructose) for lunch, diagram (with words) how your brain will synthesize GABA.

FYI (if you've started sneezing with the warm weather):