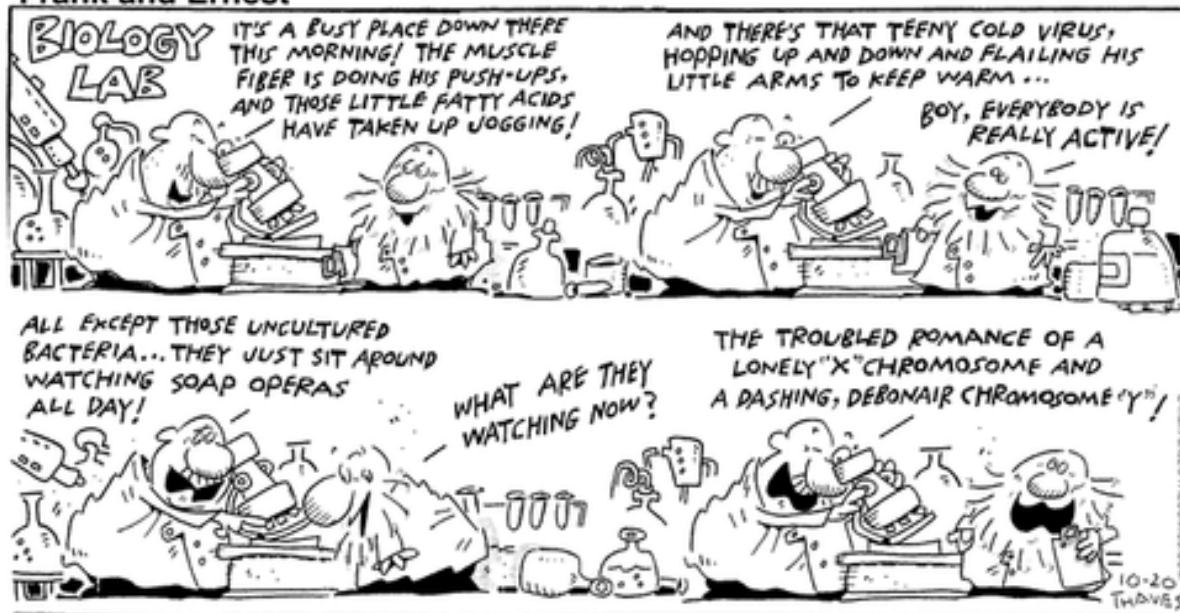


Recitation 11 Problems

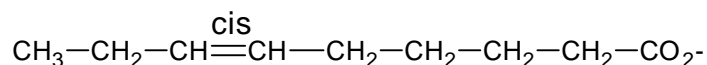
Frank and Ernest



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WARM UP QUESTION (Note this is NOT the same question from last time)

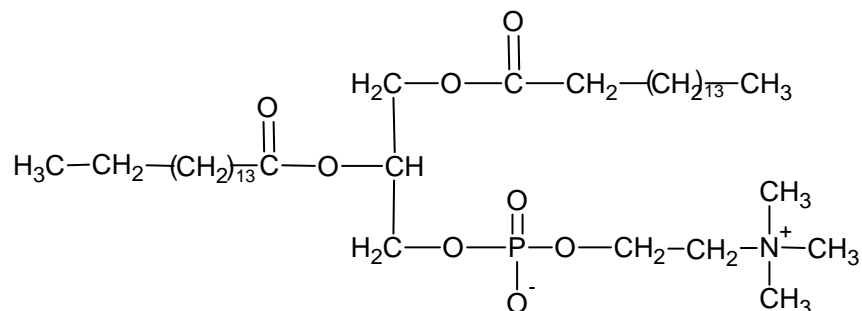
How many net mols of ATP could be generated by the complete oxidation (to CO₂) of one mol of the following fatty acid? Please use structural formulas to show how the acid is metabolized and give a complete explanation to indicate how much ATP can be produced. Note: If you believe the TCA cycle is involved, there is no need to show the individual reactions of the cycle.



Recitation 11 Problems

QUESTION 1: FINISH AT HOME (Problem Set 10, 2002)

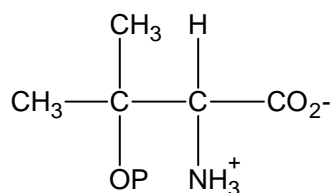
- (A) Show how glyceraldehyde-3-P could be used to provide all of the carbons in the biosynthesis of the species of phosphatidyl choline shown below. Please indicate which, if any, coenzymes and cosubstrates may be needed for individual enzymatic steps. In presenting your answer, there is no need to use structural formulas, except for the final assembly of the compound from its component parts.



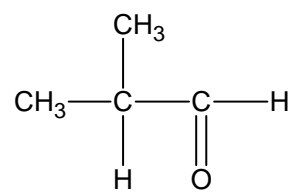
- (B) If glyceraldehyde-3-P is radioactively labeled on the third carbon (the one attached to the phosphate group), where would the radioactivity be found in the phosphatidyl choline

QUESTION 2

Assume that Compound A can be converted to Compound B through the action of a **single** enzyme. Please indicate clearly the proposed reaction mechanism and all proposed enzyme-bound intermediates.



A

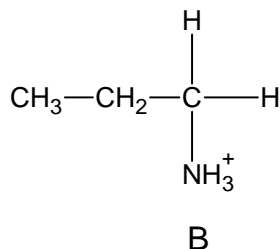
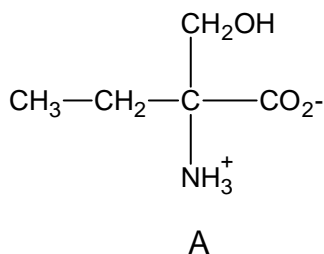


B

Recitation 11 Problems

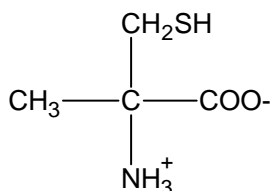
QUESTION 3

Assume that Compound A can be converted to Compound B through the action of a **single** enzyme. Please indicate clearly the proposed reaction mechanism and all proposed enzyme-bound intermediates.



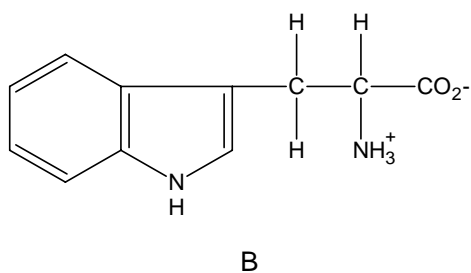
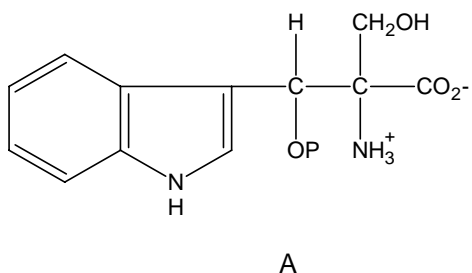
QUESTION 4

Assume that the compound shown below can be converted to acetone through the action of a **single** enzyme. Describe the mechanism you would use to accomplish such a transformation.



QUESTION 5

Assume that Compound A can be converted to Compound B through the action of a **single** enzyme. Describe the mechanism you would use to accomplish such a transformation.



Recitation 11 Problems

QUESTION 6

Assume that the compound shown below can be converted to 2 mols of CO₂ and 2 mols of activated formaldehyde. Describe the mechanism(s) you would use to accomplish such a transformation.

