

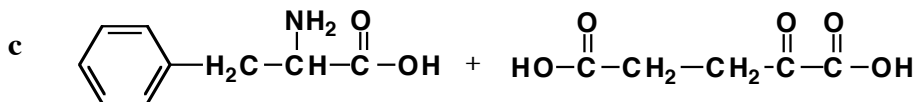
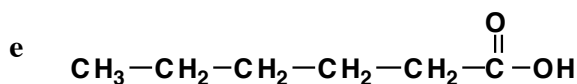
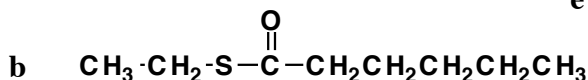
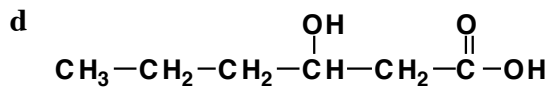
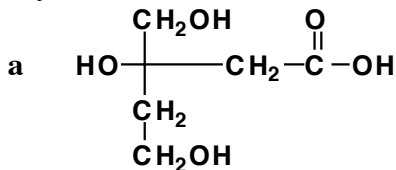


CHEMISTRY 260 BIOCHEMISTRY  
Exam 3 PRACTICE QUESTIONS  
ANSWERS

2) Give the enzyme reaction name for the enzyme that would catalyze each of the following reactions. Indicate if any coenzymes are needed.

- |                                      |                |                                    |
|--------------------------------------|----------------|------------------------------------|
| a) reductase (NADPH/H <sup>+</sup> ) | b) lipase      | c) kinase (ATP, Mg <sup>+2</sup> ) |
| d) polymerase                        | e) dehydratase | f) peptidase                       |
| g) dehydrogenase (FAD)               | h) phosphatase | i) isomerase                       |

3) Draw the structures of the product molecule(s) for each of the following reactions. Indicate if any coenzymes are needed.



4) a) Determine the values of  $K_M$  and  $v_{\max}$  for each of the following plots.

MM graph  $v_{\max} = 0.22 \mu\text{mol}/\text{min}$ ; then  $K_M = 60 \text{ mM}$

LBP  $v_{\max} = 0.80 \mu\text{mol}/\text{min}$ ; and  $K_M = 60 \text{ mM}$

- b) If  $v_{\max}$  for an enzyme reaction is 2.34 micromoles/sec, what percentage of enzyme is ES when the initial velocity = 1.17 micromoles/sec? [ES] is 50% of total  
when initial velocity = 2.00 micromoles/sec? [ES] is 85% of total  
when initial velocity = 0.444 micromoles/sec? [ES] is 19% of total

5) COUPLING - ATP PRODUCTION

Use  $\Delta G^0$  values from your handouts to answer the following questions.

- |   |  |
|---|--|
| a) 94 moles ATP/mole glucose; 31 Mole ATP | b) 321 moles ATP/mole palmitic; 106 moles ATP            |
| c) 7.3 moles ATP/mole NADH; 2.4 moles ATP | d) 6.6 moles ATP/ mole FADH <sub>2</sub> ; 2.2 moles ATP |

6) COUPLING - ATP USE

Use  $\Delta G^0$  values from your handouts to answer the following questions.

- |                   |                    |                   |                   |
|-------------------|--------------------|-------------------|-------------------|
| a) -2.5 kcal/mole | b) -12.4 kcal/mole | c) +0.2 kcal/mole | d) -5.3 kcal/mole |
|-------------------|--------------------|-------------------|-------------------|