

ORGANIC PRACTICE TEST 2 SOLUTIONS

1.

(a) $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{NH}_2$	(b) $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{CH}_3$	(c) $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}^- \text{K}^+$
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2.

- (a) ethyl butanoate
- (b) 1,2-propanediol
- (c) methyl propene

3.

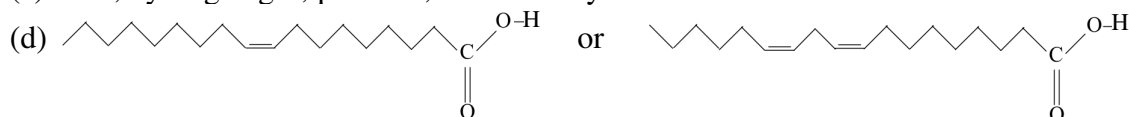
- (a) The bromine would be decolourised
- (b) Alkene, addition reaction (double bond becomes a single bond and the Br atoms covalently bond to carbons)

4.

- (a) More alkene groups means the chains will be less ordered, so they are not able to pack as closely together. This weakens the effect of dispersion forces between the molecules, leading to a lower melting point than if the alkene groups were not present.

- (b) Plants or fish

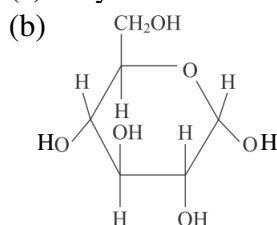
- (c) Heat, hydrogen gas, pressure, nickel catalyst



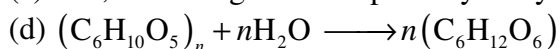
- (e) It would.

5.

- (a) Polysaccharide



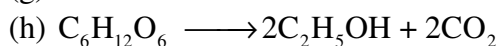
- (c) It is, due to high ratio of polar hydroxyl groups to carbons. Water can form hydrogen bonds with glucose.



- (e) It is a polyhydroxy aldehyde.

- (f) It will not. It does not contain an aldehyde functional group.

- (g) Fermentation.



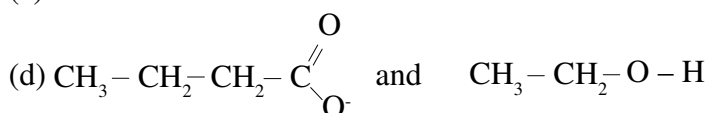
- (i) The rate of reaction increases until the enzyme begins to be destroyed, at which point the rate of reaction will decrease.

6.

- (a) Esterification or condensation

- (b) It acts as a catalyst

- (c) Ethanol and butanoic acid.



- (e) Salt is more soluble than molecular form, due to strong ion-dipole attraction. (Increased opportunity for hydrogen bonding with water)

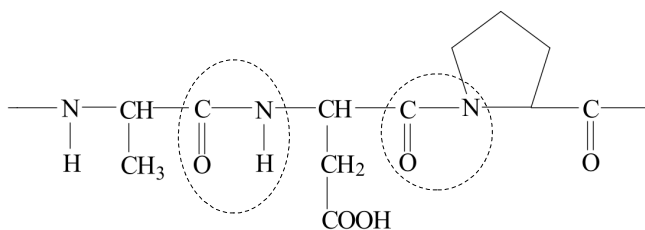
7. Add sodium carbonate solution. This forms two layers, separate with a separating funnel. The organic layer is the ketone. Acidify the aqueous layer with hydrochloric acid. This forms two layers, separate with a separating funnel. This organic layer is the carboxylic acid.

8.

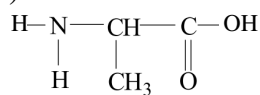
(a) Amino acids.

(b) 3

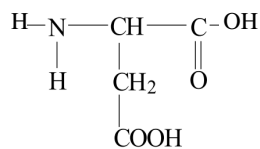
(c) (either one of)



(d)



or



or

