

891.

Dr. Jekyll & Al D. Hyde
[85 marks]

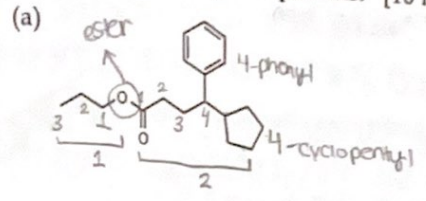


51 = #1

75/85 88! 😊

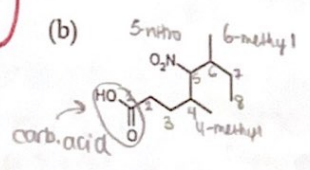
Communication [20 marks] (20) wow!

1. Name the following compounds. [10 marks]



propyl 4-cyclopentyl-4-phenylbutanoate

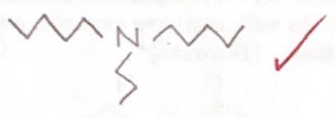
10



4,6-dimethyl-5-nitrooctanoic acid

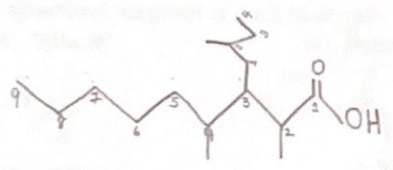
2. Draw structures for the following compounds. [10 marks]

(a) dipentyl propylamine



(b) 3-(2-methylbutyl)-2,4-dimethylnonanoic acid

10



Making Connections [7 marks] (5)

3. The digestion of protein in humans is done largely in the stomach by gastric juices, which are strong acids. Why is this step of digestion critical? [3 marks]

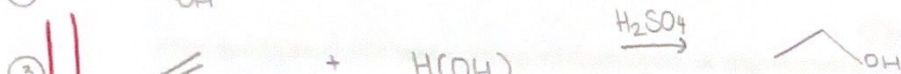
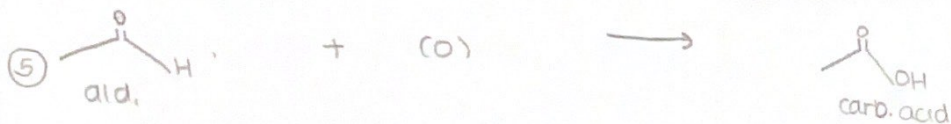
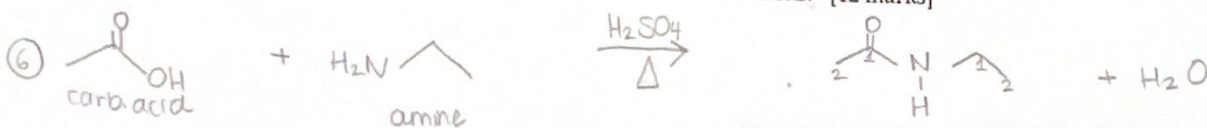
This step of digestion is critical because the gastric juices ^{how?} in the stomach, take the food we've ate and break it down for our intestines to digest ^{the nutrients} and continue on the digestion process.

4. Plastics, which are addition polymers, are often used for food containers. List and discuss two properties that make plastic ideally suited to this purpose. [4 marks]

- ① Plastics are unreactive, and chemically stable. This is because they are held together by C-C saturated bonds and these bonds are chemically stable than double C=C bonds. Because plastics are chemically stable they are unreactive. They also resist breakage, bc they are held together by V.W.F over along chain which add up, and hold the chain pretty well.
- ② Plastics can be moulded into different shapes, and they will retain that shape. When plastics are heated the molecular motion, increases, and the bonds become a little loose allowing them to slip past one another, and be flexible and being moulded into shapes.
different

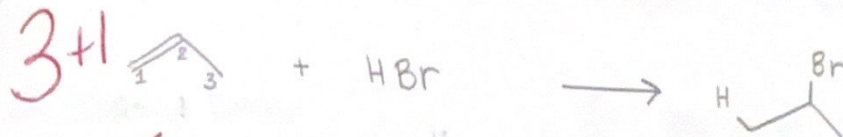
Inquiry [24 marks] 23

5. Write structural reaction equations to show the synthesis pathway for N-ethyl ethanamide. An unlimited amount of an alkene of your choice is the starting material. As well, you have available any inorganic materials you deem necessary. Include all pertinent conditions. [12 marks]

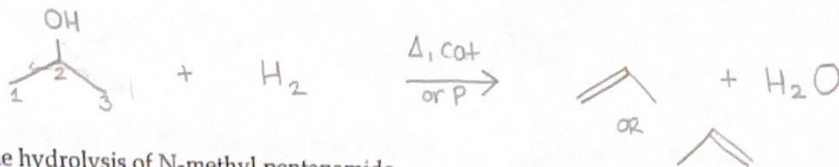


6. Write structural diagram equations to illustrate each of the following reactions. Include all pertinent conditions. [12 marks]

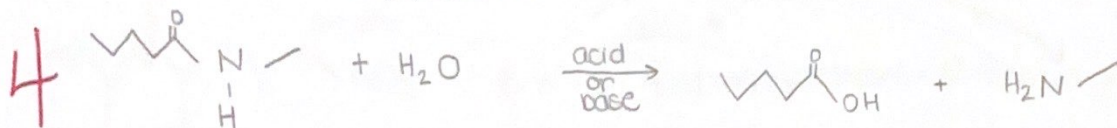
(a) the hydrohalogenation of propene



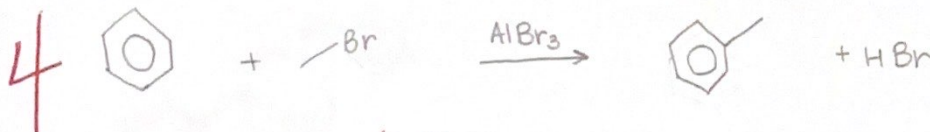
(b) the hydrogenation of a secondary alcohol



(c) the hydrolysis of N-methyl pentanamide



(a) the alkylation of benzene with bromomethane



Knowledge & Understanding [6 + 28 = 34 marks]

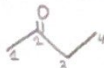
7. Arrange the following compounds in order of decreasing boiling point and explain your reasoning. Include a structural diagram of each molecule. [3 marks] H to L

(a) butane



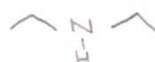
- Non polar
- No HB

(b) butanone ketone



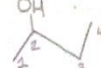
- No HB
- polar

(c) diethyl amine



- HB
- polar

(d) butan-2-ol



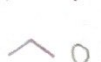
- polar
- HB

3 In order → D, C, B, A

Butan-2-ol is more polar than diethylamine so that's why D is before C b/c they both have HB but di is more polar. Butanone was third b/c it doesn't have HB but it is polar unlike butane which is last b/c it's NP and doesn't have HB.

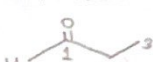
8. Which of the following compounds is the most soluble in a non-polar solvent? Explain fully and include a structural diagram of each molecule. [3 marks]

(a) methyl ethyl ether



- polar
- No HB

(b) propanal



- polar
- No HB

(c) propanoic acid



- polar
- HB

3 A

would be most soluble since it is the one out of the 3 which is the least polar b/c (c) is the strongest polar w/ HB, and (b) is a double oxygen w/ carbon which is stronger, and more polar than (a).