

Level: 2nd year.
Matter :Biochemistry
Date : 13/01/2024
Duration: 90min

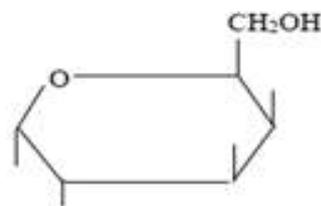
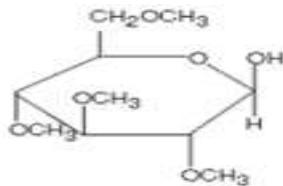
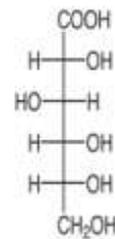
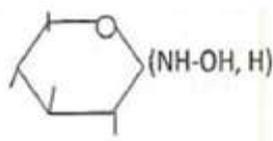
First Name :
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Registration number :

First Semester Exam (Ordinary Session)

Exercise 01: Glucides

Part one:

-Name of the following structures A-D:



Part two:

After methylation of all the hydroxyls of a diholoside followed by hydrolysis hydrochloric acid, we identify in the hydrolyzate:

- 2, 3, 4, 6 –tetramethyl-D-glucose
- 1, 3, 4, 6 –tetramethyl-D-fructose

1-What is diholoside?

2-What was the nature of the connection between the 2 simple oses? (carbon number involved in the osidic bond)

3-Is this diholoside reducing or not and why?

Exercise 02: Lipides

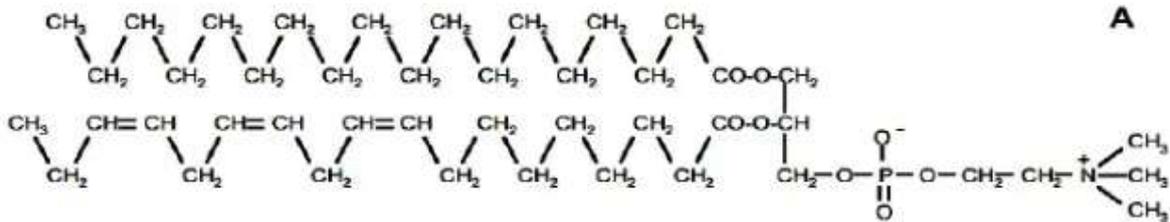
Oil is formed from a **homogeneous** triglyceride whose **saponification index** is equal to 570mg. Determines the molar mass of the triglyceride and what fatty acid is present in this oil?
PM KOH=57.

Part two:

.Which class of lipids does molecule A belongs to? What are the major constituents of this molecule?

-molecule A is amphiphilic? Why and is amphoteric molecules why?

-determine action 4 specific phospholipases A1, A2, C and D in molecule A



Exercise 03: Proteins

After acid hydrolysis of a tetrapeptide (**different AA**), we obtain 3 amino acids. After the action of the **carboxypeptidase**, **Ala** is obtained. The action of **trypsin** gives two dipeptides A and B. aspartic acid and Ala are obtained after hydrolysis of B.

-Give the sequence of this peptide.

Exercise 04: Enzymology

Curve **A** represents the results of a kinetic study of the activity of an enzyme E on a substrate S under well-defined conditions.

1. a) Calculate the **K_m** of the **enzyme** for its substrate.

b) Calculate the **V_{max}** the **enzyme**

- Curve **B** represents the results of kinetics obtained under the same conditions but in the presence of an **inhibitor** in the incubation medium.

c) What **type of inhibition** can this inhibitor be classified into? **Justify** your answer.

