

APOLLO

# Carbohydrates and lipids

## HL

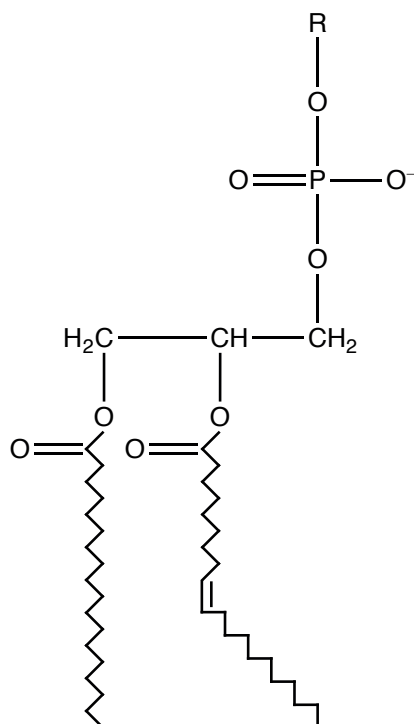
Biology

First assessment 2025

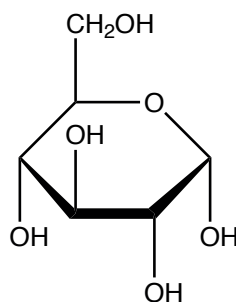
7 questions | questions

3. Which of these molecules is amphipathic?

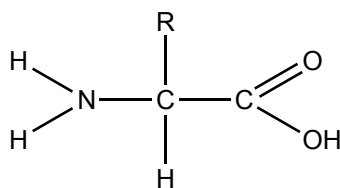
A.



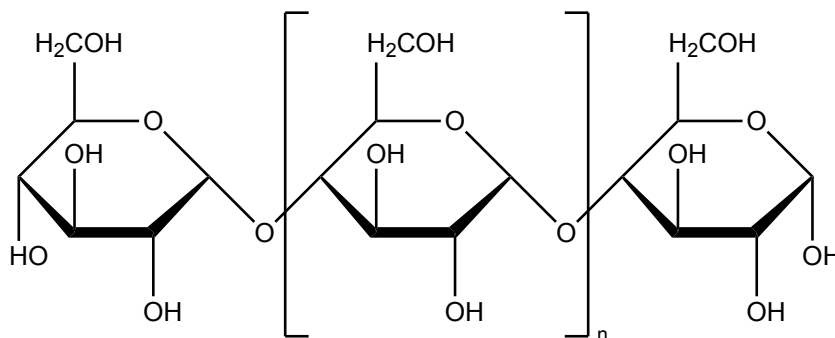
B.



C.



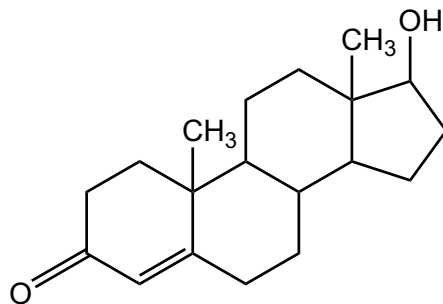
D.



Turn over

- 3.** What is the function of cellulose in plant cells?
- A. It increases the strength of cell walls.
  - B. It is a source of energy for plants.
  - C. It maintains the structure of the vacuole.
  - D. It increases the permeability of the cell membranes.

3. A simplified diagram of molecule X is shown.

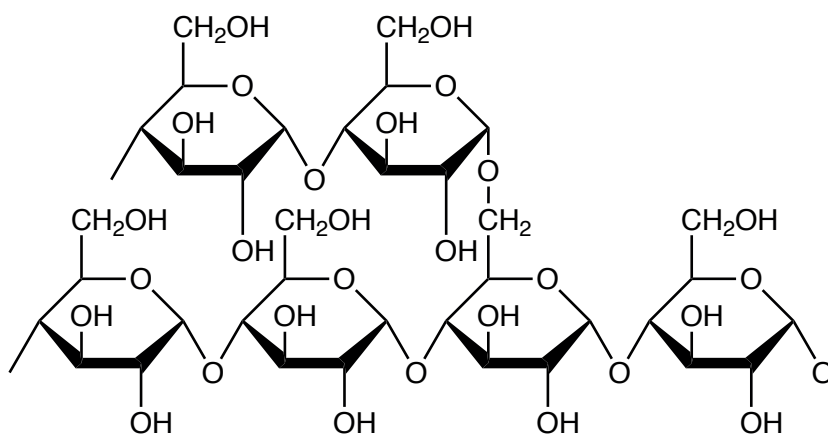


What describes molecule X?

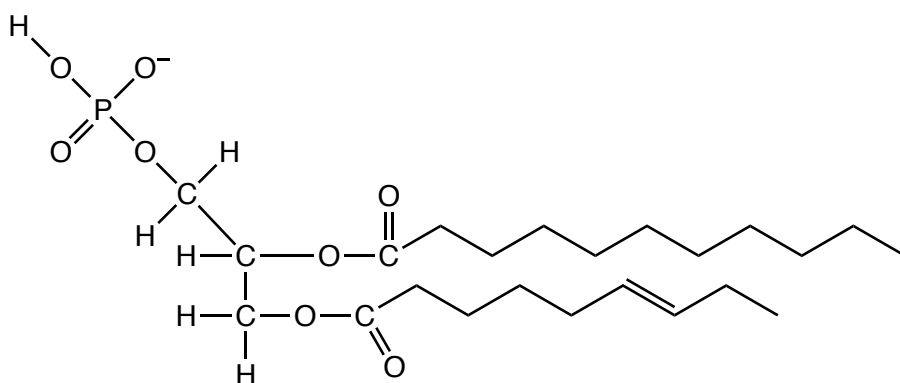
- A. Lipid able to pass through the bilayer of membranes
- B. Lipid used for energy storage in mammals
- C. Carbohydrate transported in the blood
- D. Carbohydrate used for energy storage in plants

3. Which molecular diagram shows a phospholipid molecule?

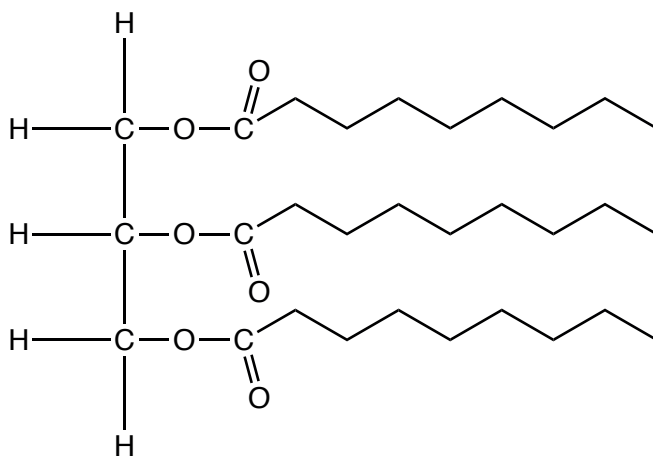
A.



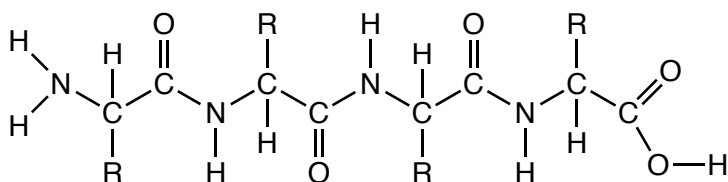
B.



C.



D.



Turn over

## Section B

Answer **two** questions. One additional mark is available for the construction of your answers for each question. Answers must be written within the answer boxes provided.

8. Monosaccharides can be used to make polysaccharides, and can also be combined with other types of carbon compound to form molecules such as nucleotides.
- (a) Using named examples, explain the relationships between the structure of carbohydrates and their properties and functions in cells. [7]
- (b) Outline, with examples, the wide range of uses of adenosine triphosphate (ATP) in cells. [5]
- (c) Distinguish between the roles and locations of reduced hydrogen carriers in aerobic respiration and photosynthesis. [3]

4. Which molecules are produced during the hydrolysis of a triglyceride molecule?
- A. Water and glycerol
  - B. Fatty acids and glycerol
  - C. Water and fatty acids
  - D. Water and lipids

5. The structure of monomers affects the structure and function of the polymers they form. Which row describes the structural features of polysaccharides made from alpha-glucose and beta-glucose?

|    | Monomer                       | Polymer             | Shape of polymer                          |
|----|-------------------------------|---------------------|-------------------------------------------|
| A. | alpha-glucose<br>beta-glucose | starch<br>cellulose | unbranched, straight<br>branched, helical |
| B. | alpha-glucose<br>beta-glucose | starch<br>cellulose | branched, helical<br>unbranched, straight |
| C. | alpha-glucose<br>beta-glucose | cellulose<br>starch | branched, helical<br>unbranched, straight |
| D. | alpha-glucose<br>beta-glucose | cellulose<br>starch | unbranched, straight<br>branched, helical |

Turn over