

FOOD ADDITIVES – TOPIC TEST 1

QUESTION 1

A particular brand of margarine contains the food additive tertbutylhydroquinone. It acts as an antioxidant. The most likely reason why this substance is added to this food is to:

- A Protect the margarine from microbial growth
- B Improve the energy content of the margarine
- C Prevent the margarine from being spoiled due to reaction with atmospheric oxygen
- D Improve the flavour of the margarine

QUESTION 2

A surfactant molecule is best described as:

- A A molecule that stabilizes emulsions
- B A molecule that causes mixtures to separate into different layers
- C A molecule with 2 hydrophobic tails
- D A molecule with a hydrophobic head and long hydrophilic tail

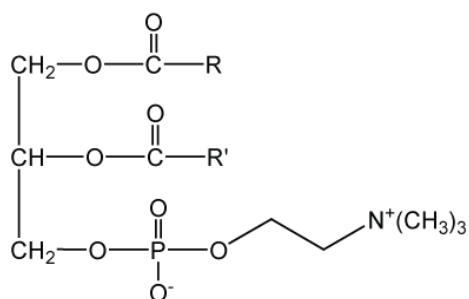
QUESTION 3

Which of the following food additives would be the least likely to be excluded from a processed food?

- A Texture modifying agents
- B Artificial colouring
- C Flavour enhancers
- D Preservatives

QUESTION 4

Lecithin is commonly used in foods as emulsifying agent. Its chemical structure is shown below;



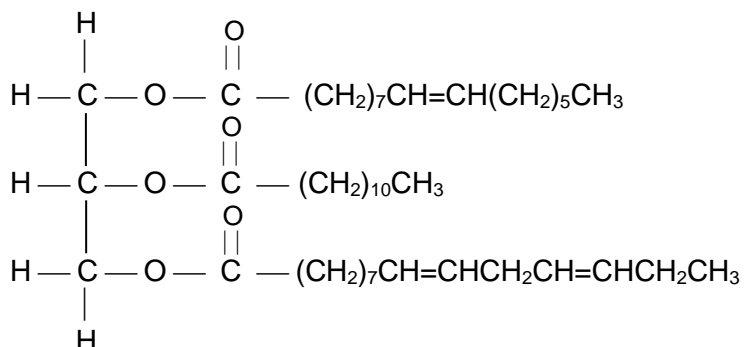
- (a) What types of foods require emulsifiers?

- (b) What features make this molecule suitable as an emulsifier? Clearly label these features on the above structure.

QUESTION 5

Fats are very vulnerable to oxidation from the atmosphere.

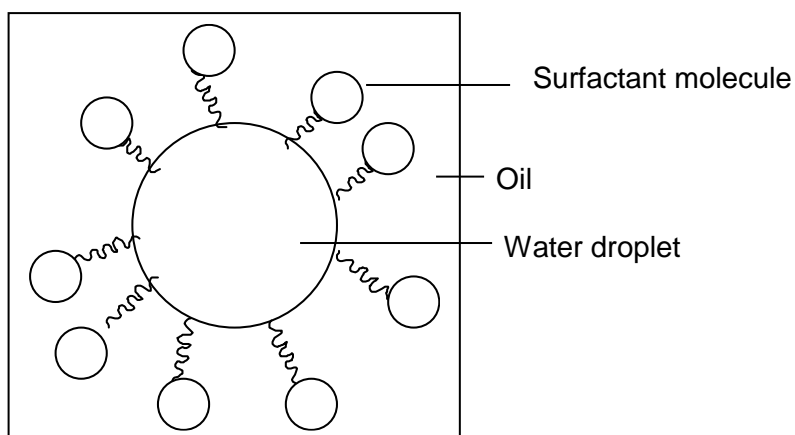
- (a) Which part/s of the fat structure below is most susceptible to oxidation. Circle these on the diagram below.



- (b) Name a naturally occurring substance that could be used to protect foods from being spoiled in this manner.

QUESTION 6

The following diagram was drawn by a student to show the formation of an oil in water emulsion. Discuss the errors in this diagram, redraw it and label it correctly (Hint: There is no need to change the diagram just change the labels around).



SOLUTIONS

QUESTION 1 Answer is C

QUESTION 2 Answer is A

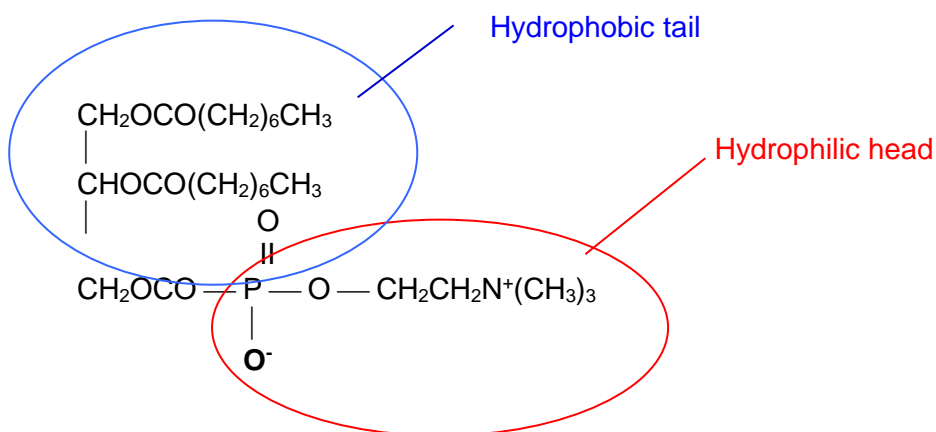
QUESTION 3 Answer is D

QUESTION 4

(a) Foods that contain oil based and water based components requires emulsifiers.

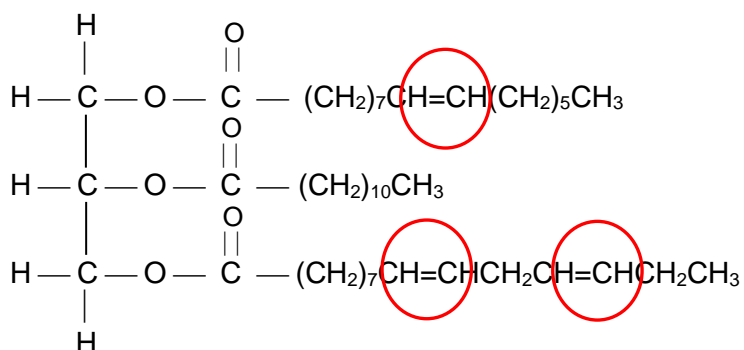
(b) This molecule has a long hydrophobic tail and a charged polar head so it is able to act as a surfactant molecule and stabilize an emulsion.

(c)



QUESTION 5

(a) The double bond between carbon atoms:



(b) Vitamin C (ascorbic acid) found in citrus fruits like lemons.

QUESTION 6

An oil in water emulsion has more oil than water so there would not be oil drops suspended through out water as is shown by the student's diagram. The hydrophobic tails should not be attracted towards the water drop and the hydrophilic head should not be attracted towards the oil.

CORRECT DIAGRAM

