

BIOLOGY
 Topic Questions

LW3 - TRIGLYCERIDES (PART 2)

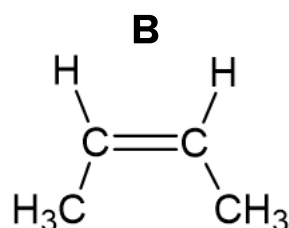
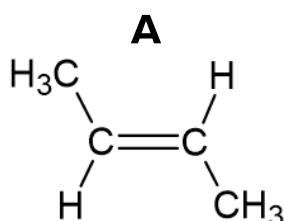
- Q1) a)** What is an unsaturated fatty acid? [1 mark]
- b)** Which **two** of the following statements are incorrect? [2 marks]
- A** Unsaturated lipids have a lower melting point than saturated lipids
- B** Saturated lipids can pack closer together than unsaturated lipids
- C** Saturated lipids have at least one double/triple bond
- D** Cis-unsaturated lipids have 'straight' fatty acid chains

- Q2) a)** Do saturated or unsaturated lipids have a higher melting point? [3 marks]
 Explain your answer.
- b)** Use your answer to the previous question to explain why oils are usually made from unsaturated lipids. [2 marks]

Q3) A student adds 2cm³ of 95% ethanol to 2 spatulas of crushed food sample in a test tube and shakes the tube vigorously. They leave it to settle for 2 minutes and then pour the solution into another test tube containing 2cm³ of distilled water. A white emulsion layer is observed at the top of the solution.

- a)** Which of the following can be concluded from this experiment? [1 mark]
- A** Lipids are not present in the food sample
- B** Saturated lipids are present in the food sample
- C** Lipids are present in the food sample
- D** Unsaturated lipids are definitely not present in the food sample
- b)** Small lipid droplets are found suspended in the water upon closer inspection. Explain why these droplets do not dissolve in the water. [3 marks]
- c)** Explain the action of the ethanol added to the food sample? [2 marks]

- Q4) a)** Which of the following is a trans molecule? [1 mark]



- b)** Explain why trans-unsaturated lipids are indigestible in humans. [2 marks]
- c)** Why does this make trans-unsaturated lipids harmful in humans? [2 marks]

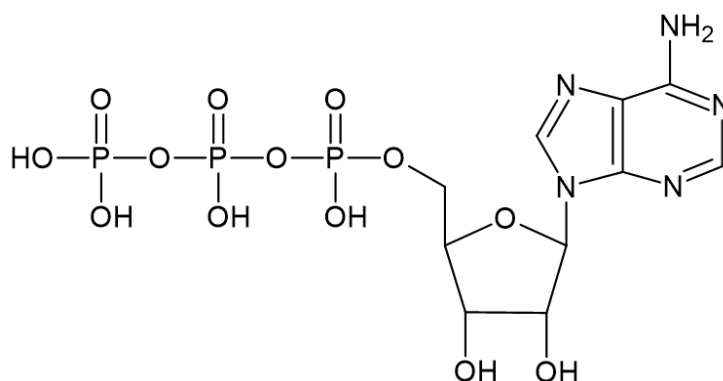
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- Q5) a)** Describe 2 important things lipids are used for in humans. **[2 marks]**
- b)** Why are lipids a good energy store in animals? **[1 mark]**
- c)** By what mechanism are triglycerides broken down in cells? **[1 mark]**

Q6) Energy is required to break each phospho-anhydride bond in ATP.

- a)** Explain how energy is released by the removal of each phosphate group even though energy is required to break the phospho-anhydride bonds holding them. **[3 marks]**
- b)** Label the three groups of the ATP molecule below. **[3 marks]**



- Q7) a)** Fats such as lard and butter are solid at room temperature. A student says that they must be made of mostly saturated lipids. Do you agree? Explain your answer. **[3 marks]**
- b)** Determine if each of the following statements are true or false. **[3 marks]**

	True	False
A A clear solution after the emulsion test indicates the presence of lipids	<input type="radio"/>	<input type="radio"/>
B Triglycerides need to first be broken down into glycerol and fatty acids to produce energy	<input type="radio"/>	<input type="radio"/>
C Lipids produce around 4 times the energy per unit mass compared to carbohydrates and proteins	<input type="radio"/>	<input type="radio"/>

[Total 35 marks]