

BIOLOGY
Worksheet

LW8 - THE FLUID MOSAIC MODEL

Q1) The membrane of cells is described as having a 'fluid mosaic' structure.

a) Describe what is meant by the 'fluid mosaic model'.

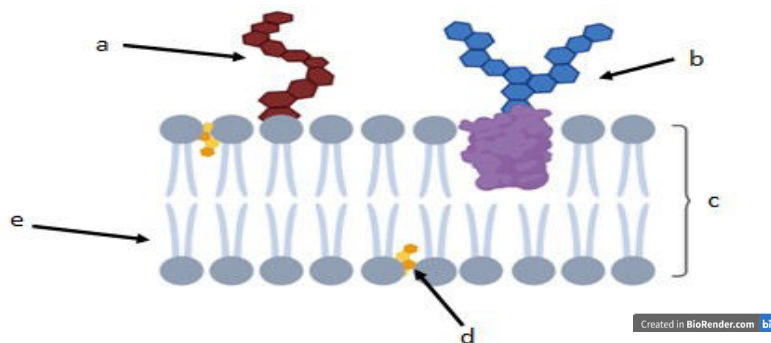
[2 marks]

b) Which of these molecules is not found within the cell membrane?

- A** Phospholipids
- B** Cholesterol
- C** Triglycerides
- D** Channel protein

[1 mark]

c) Label the diagram below:



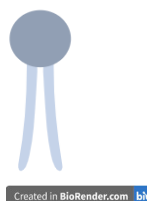
[5 marks]

Q2) Phospholipid molecules are described as being both hydrophobic and hydrophilic.

a) What is meant by the terms 'hydrophobic' and 'hydrophilic'?

[2 marks]

b) Label the hydrophobic and hydrophilic regions of the phospholipid below:



[2 marks]

c) Describe how the structure of phospholipids relates to their function in cell membranes.

[5 marks]

Q3) Cholesterol is a vital molecule in cell membranes.

a) What are the two main functions of cholesterol in the cell membrane?

[3 marks]

b) Which statement about cholesterol is incorrect?

A At high temperatures cholesterol decreases the fluidity of the cell membrane

B Cholesterol sits within the core of the cell membrane between phospholipids

C The role of cholesterol is dependent on the temperature

D Cholesterol decreases the fluidity of the cell membrane at low temperatures

E Molecules of cholesterol are a type of lipid

[1 mark]

Q4) The main role of channel proteins is to form pores filled with water and transport them through the cell membrane.

a) Explain why this is important.

[2 marks]

b) Which statement about carrier proteins is correct?

A Carrier proteins are extrinsic proteins

B It is specific to the molecule it is transporting

C Substances can only be transported through carrier proteins via osmosis

D The role of carrier proteins is to allow small ions through the cell membrane

[1 mark]

Q5) Glycolipids and glycoproteins have very similar functions in the cell membrane.

a) One role of glycolipids and glycoproteins is they can stabilise the cell membrane

Explain how they do this.

[1 mark]

b) Give another role of glycolipids and glycoproteins excluding their ability to stabilise the cell membrane.

[2 marks]

c) Where are glycolipids and glycoproteins located in the fluid mosaic model?

[1 mark]

[TOTAL 28 marks]