4.1 Fluid Mosaic Membranes

Question Paper

Course	CIE A Level Biology
Section	4. Cell Membranes & Transport
Topic	4.1 Fluid Mosaic Membranes
Difficulty	Easy

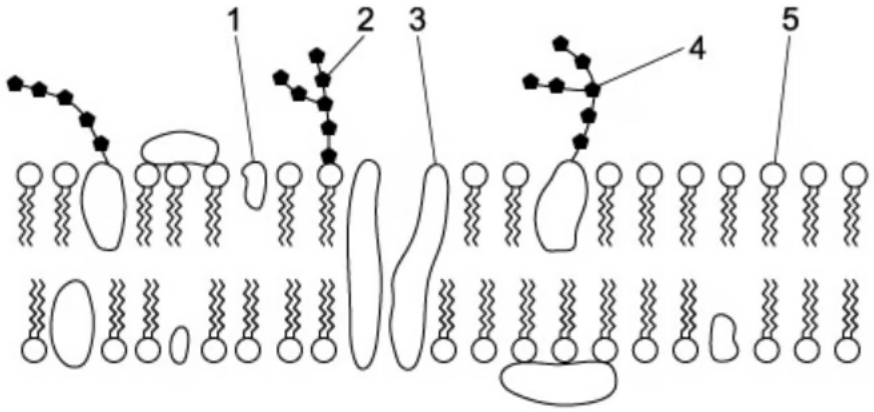
Time allowed: 20

Score: /10

Percentage: /100

Question 1

Which row correctly labels this diagram of a cell surface membrane?



	cholesterol	glycoprotein	glycolipid	protein	phospholipid
A	3	2	4	1	5
B	5	3	2	4	1
C	1	4	2	3	5
D	5	2	4	3	1

[1 mark]

Question 2

Which molecules found in the cell surface membrane are involved in cell recognition?

A. proteins, glycoproteins, glycolipids

B. phospholipids, cholesterol, proteins

C. cholesterol, glycolipids, phospholipids

D. glycoproteins, proteins, phospholipids

[1 mark]

Question 3

Triglycerides and phospholipids include the following structures:

1 glycerol linked to fatty acids

2 saturated fatty acid chains

3 hydrophobic fatty acid chains

Which structures cause the cell surface membrane to form a phospholipid bilayer?

A. 1 and 2

B. 2 only

C. 2 and 3

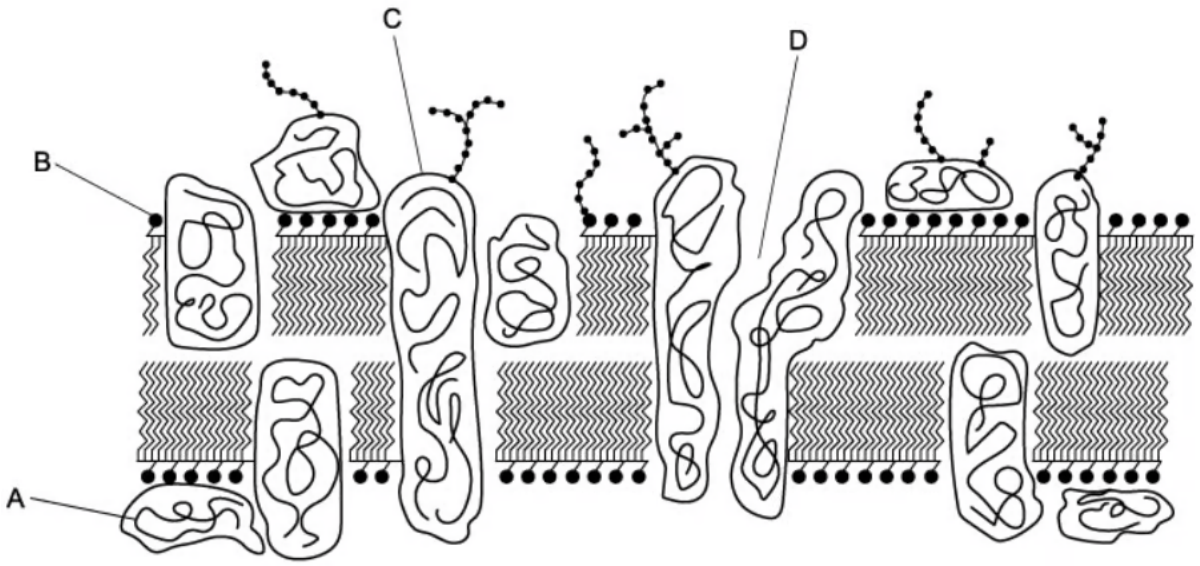
D. 1, 2 and 3

[1 mark]

Question 4

The fluid mosaic model of membrane structure is shown in the diagram.

Which labelled structure enables a hormone to recognise its target cell?



[1 mark]

Question 5

What is the function of cholesterol in the cell surface membrane?

A. to provide hydrophilic channels

B. to regulate membrane fluidity

C. to assist active transport

D. to assist facilitated diffusion

[1 mark]

Question 6

Which of the following statements about the fluid mosaic model of membrane is correct?

A. The more unsaturated the fatty acid tails of the phospholipid, the more fluid the membrane.

B. The higher the temperature, the less fluid the membrane.

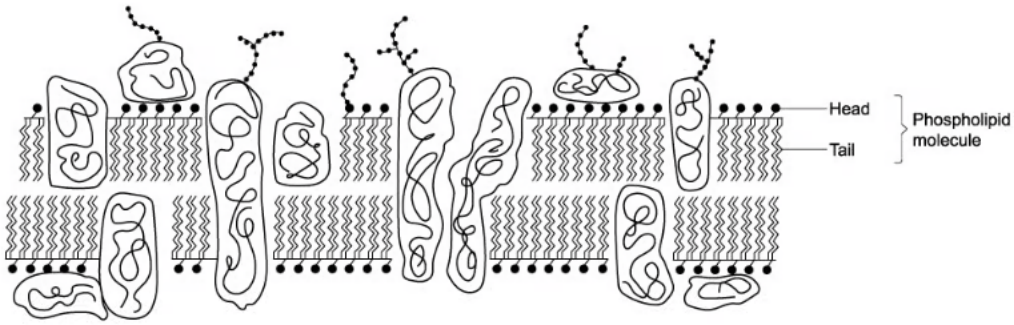
C. The lower the temperature, the more fluid the membrane.

D. The less unsaturated the fatty acid tails of the phospholipid, the more fluid the membrane.

[1 mark]

Question 7

A section of a cell surface membrane is shown in the diagram below.



Why are the phospholipid molecules arranged as shown?

A. The tails are hydrophilic and point away from water molecules.

B. The tails are hydrophobic and point towards water molecules.

C. The heads are hydrophilic and point towards water molecules.

D. The heads are hydrophobic and point away from water molecules.

[1 mark]

Question 8

Which of the following decreases the fluidity of the cell surface membrane?

1 double bonds between carbon atoms in the fatty acid chains
2 cholesterol
3 fatty acids having longer chains

A. 1 and 2

B. 2 only

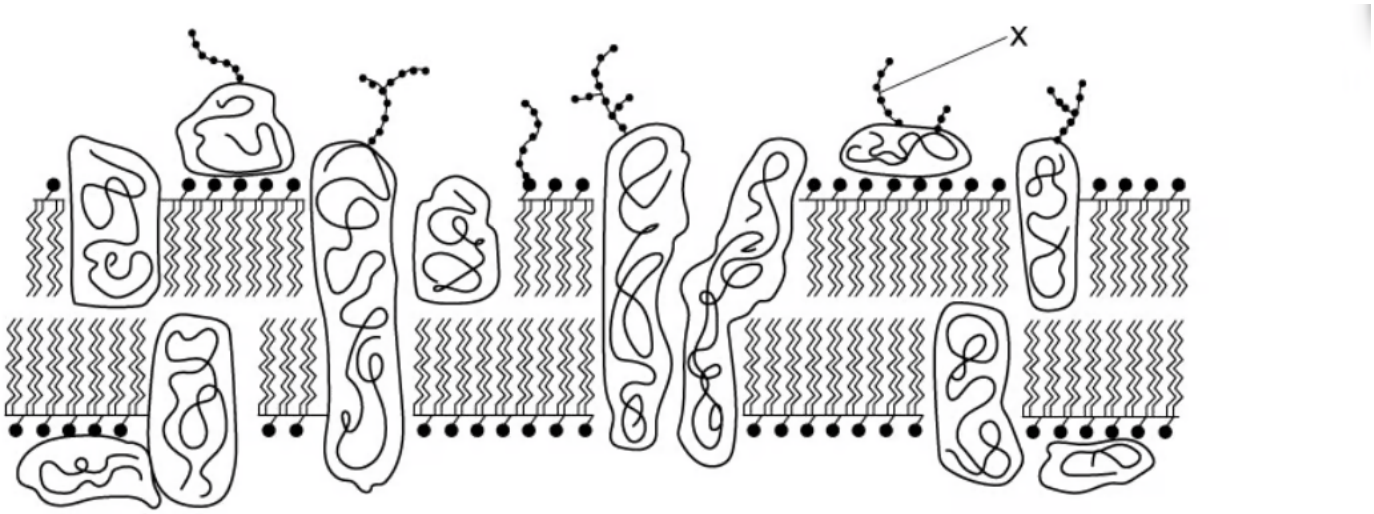
C. 2 and 3

D. 3 only

[1 mark]

Question 9

A section of a cell surface membrane is shown in the diagram below and a molecule is labelled X.



What is molecule X made from?

A. amino acids

B. nucleotides

C. monosaccharides

D. fatty acids

[1 mark]

Question 10

If a membrane protein is temporarily attached to the membrane it is called 'peripheral'. If it is permanently attached to the membrane it is called 'integral'.

Integral proteins can either be described as 'intrinsic', if they extend across the whole bilayer, or 'extrinsic' if they are found in only one side of the bilayer.

What best describes a channel protein?

A. a peripheral intrinsic membrane protein

B. an integral intrinsic membrane protein

C. a peripheral extrinsic membrane protein

D. an integral extrinsic membrane protein

[1 mark]