



CHEMISTRY ONLINE
— **TUITION** —

Phone: +442081445350

www.chemistryonlinetuition.com

Email: asherrana@chemistryonlinetuition.com

BIOLOGY

FOUNDATIONS IN BIOLOGY

Level & Board	OCR (A-LEVEL)
TOPIC:	BIOLOGICAL MOLECULES - LIPIDS
PAPER TYPE:	QUESTION PAPER - 2
TOTAL QUESTIONS	08
TOTAL MARKS	/19

ChemistryOnlineTuition Ltd reserves the right to take legal action against any individual/ company/organization involved in copyright abuse.

Biological Molecules: Lipids - 2

1.

Also included in phospholipid molecules are fatty acids.

(a) Describe how phospholipids' fatty acids enable the creation of membranes. **(2)**



2.

Lipoproteins are approximately spherical particles found in blood that carry lipids.

A simplified illustration of a lipoprotein's largest region can be found in Fig. 21.

I am Sorry !!!!!

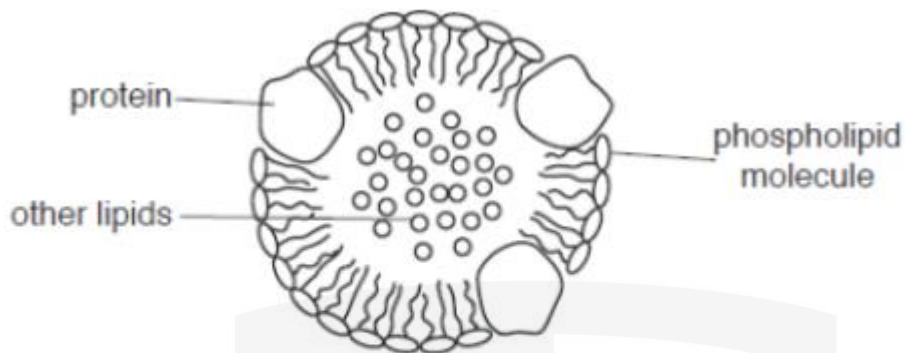


Fig. 21

Determine how many phospholipid molecules are present on the lipoprotein's outer surface (Fig. 21).

(a) Assume that the lipoprotein's entire surface is covered in the protein and phospholipid pattern seen in Figure 21.

Apply the following formula: The sphere's surface area is $4\pi r^2$. **(2)**

CHEMISTRY ONLINE
— TUITION —

I am Sorry !!!!!

High density lipoproteins are lipoproteins that have more protein in the outer layer and fewer phospholipids in the inner layer. Low density lipoproteins are lipoproteins that include more phospholipids than protein.

(b) Explain to your audience how lipids can make aquatic organisms more buoyant using the facts provided. **(2)**



3.

(a) Select the word from the list that best fits the passage to finish it. **(6)**

CHEMISTRY ONLINE
TUITION

I am Sorry !!!!!

bile carbon hydrogen insoluble

nitrogen oxygen permeability production solid soluble

stability storage vitamins

Lipids have many roles in living organisms. Some are used for energy in adipose cells. Unsaturated fatty acids contain at least one double bond between two atoms and so contain fewer atoms. All lipids are in water so need to be transported in the blood by lipoproteins.

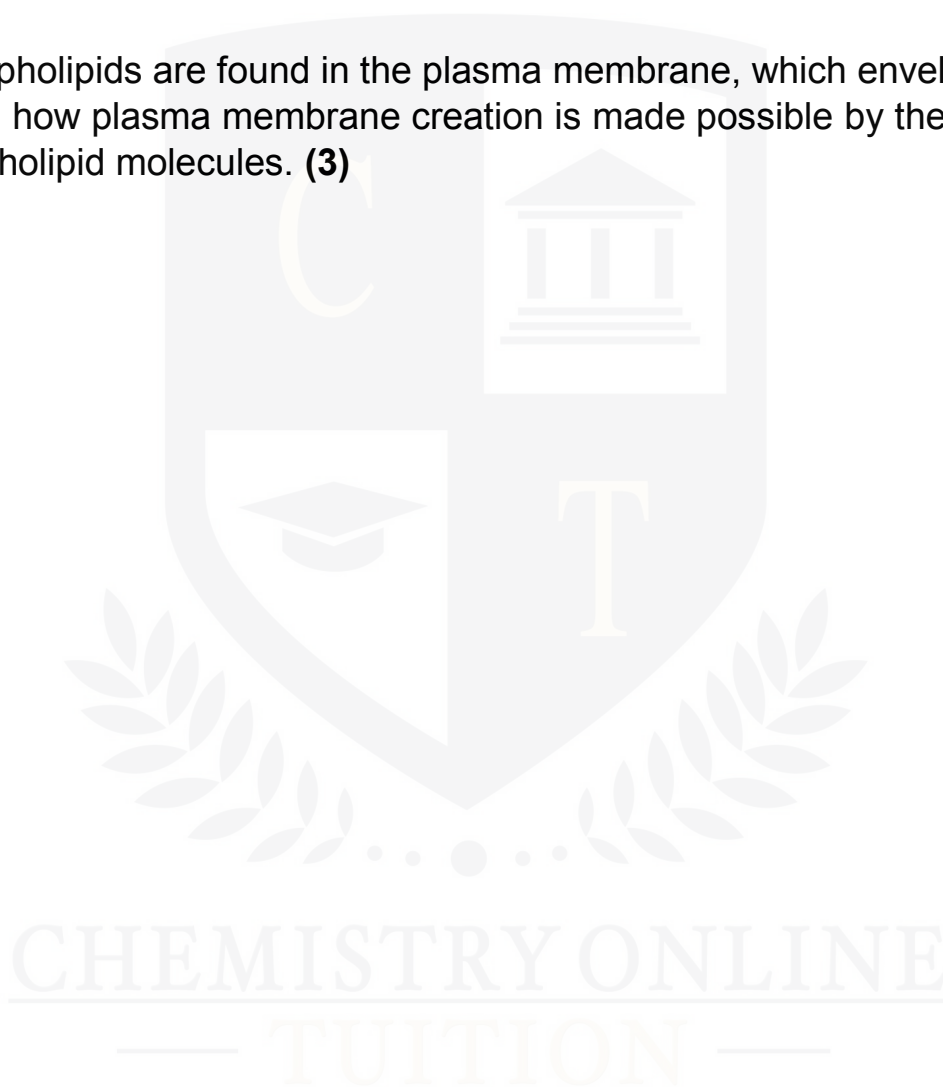
Cholesterol molecules increase the of membranes, and cholesterol is also used to synthesise steroid hormones and

(b) One class of lipid molecule that is susceptible to hydrolysis processes is triglycerides. Give an explanation of hydrolysis using the structure of triglyceride molecules as an example. **(2)**

I am Sorry !!!!!

4.

(a) Phospholipids are found in the plasma membrane, which envelops cells. Describe how plasma membrane creation is made possible by the structure of phospholipid molecules. **(3)**



I am Sorry !!!!!

5.

(a) Being neither polar nor charged, lipids are a broad class of compounds that are insoluble in water.

Phospholipid heads are ___(1)___, which enables them to form membranes. Fatty acids are also present in ___(2)___ and are a component of the membrane. Energy storage in the form of ___(3)___ is possible with lipids. Certain hormones share structural similarities with ___(4)___ and are lipids as well. Which row displays the missing words in the proper order? (1)

	1	2	3	4
A	hydrophilic	glycolipids	triglycerides	cholesterol molecules
B	hydrophilic	triglycerides	cholesterol molecules	glycolipids
C	hydrophobic	cholesterol molecules	triglycerides	bile
D	hydrophobic	cholesterol molecules	triglycerides	glycolipids

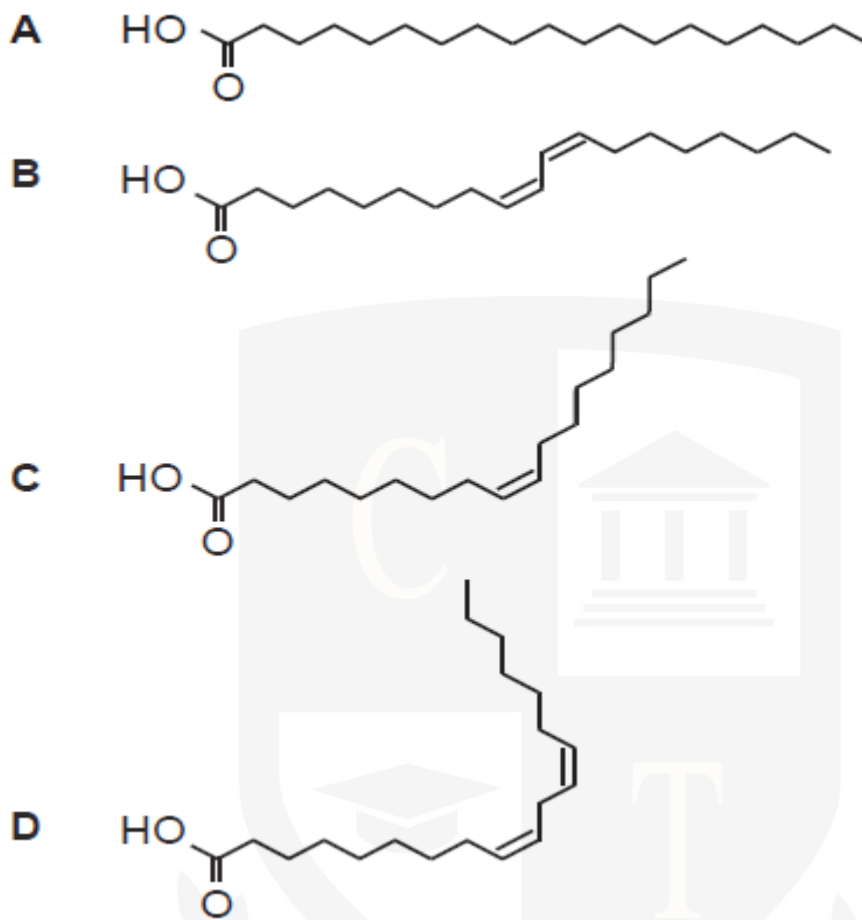
6.

(a) Vegetable oil contains oleic acid, a monounsaturated fatty acid.

Out of A through D, which one is the proper structure for oleic acid? (1)

CHEMISTRY ONLINE
— TUITION —

I am Sorry !!!!!



8.

(a) The enzyme human pancreatic lipase hydrolyzes fatty acid-glycerol bond breakage.

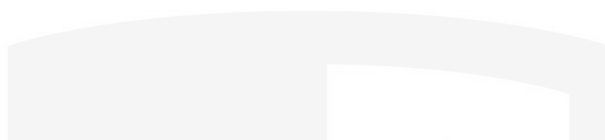
What term is used to describe this response? (1)

A Condensation

B Esterification

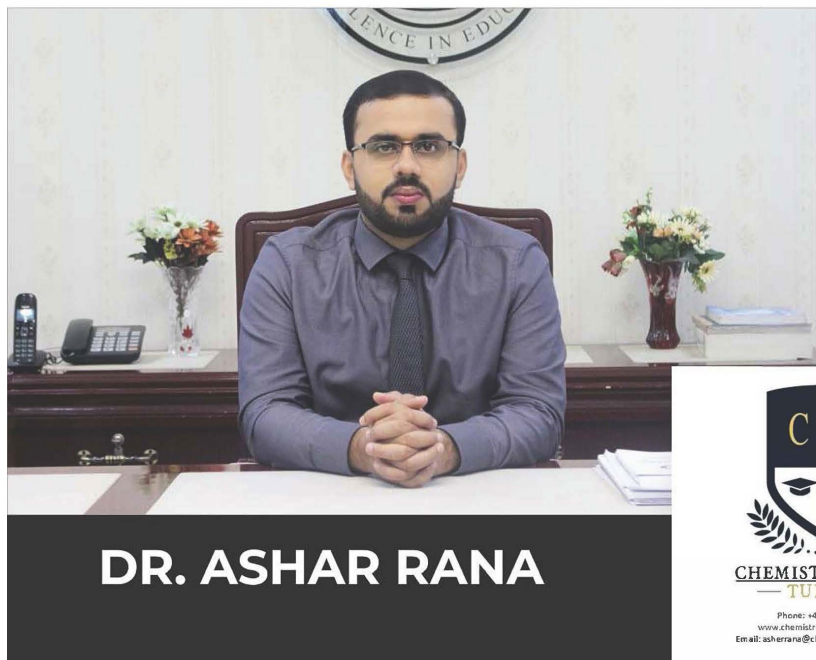
C Hydration

D Hydrolysis



 www.chemistryonlinetuition.com

 asherrana@chemistryonlinetuition.com



DR. ASHAR RANA



- Founder & CEO of Chemistry Online Tuition Ltd.
- Tutoring students in UK and worldwide since 2008
- Chemistry, Physics, and Math's Tutor

...and more subjects to come

...and more subjects to come

CONTACT INFORMATION FOR CHEMISTRY ONLINE TUITION

- UK Contact: 02081445350
- International Phone/WhatsApp: 00442081445350
- Website: www.chemistryonlinetuition.com
- Email: asherrana@chemistryonlinetuition.com
- Address: 210-Old Brompton Road, London SW5 OBS, UK