CHEMISTRY ONLINE
TUITION

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BIOLOGY

FOUNDATIONS IN BIOLOGY

Level & Board	OCR (A-LEVEL)
TOPIC:	BIOLOGICAL MOLECULES - LIPIDS
PAPER TYPE:	SOLUTION - 1
TOTAL QUESTIONS	07
TOTAL MARKS	/31

Biological Molecules: Lipids - 1

1.

(a) Formula M because high ratio of hydrogen to oxygen / N has approximately 2 H to 1 O

(b)

Hydrophilic head and hydrophobic tails

Hydrophobic part / tails, repelled / AW, by water

Head / hydrophilic part, forms H bonds with water

Idea that medium outside / inside plasma membrane is aqueous

Idea that hydrophobic nature of tails results in their facing towards each other

2.

(a)

Single bond between oxygen on glycerol and carbon on fatty acid

Double bonded oxygen on first carbon of the fatty acid

(b) Easter

(c) Water

3.

(a)

carbohydrates:

Glucose polymers so can release glucose for respiration for energy release

Large insoluble molecules so do not affect water potential

1-4 glyc. bonds - easy to break and release glucose

Coiled/compact so take up small space in cell

Amylose/amylopectin no/few branches as plants need less rapid release of glucose

Glycogen highly branched for rapid release

Lipids:

More C-C bonds so contain more energy per molecule in less space

Insoluble so do not affect water potential

Animal fats are saturated and harder so also used as insulation/protection

Fatty acids are long carbon chains which can be broken down to release two carbon groups animal's fats saturated and have role in protection too

4.

(a) Any appropriate bond circled

(b) Glycerol

5.

(a)

Energy source for respiration / respiratory substrate

Energy storage

Thermal insulation

Electrical insulation

Buoyancy

Idea of physical protection

(b)

Fewer hydrogens / more double bonds / less saturated, gives lower melting point

Fewer hydrogens / less saturated more kinked, chain / molecule

Molecules less uniformly packed together so lower temperature needed for melting

I am Sorry !!!!

6.

(a) D

7.

(a) B

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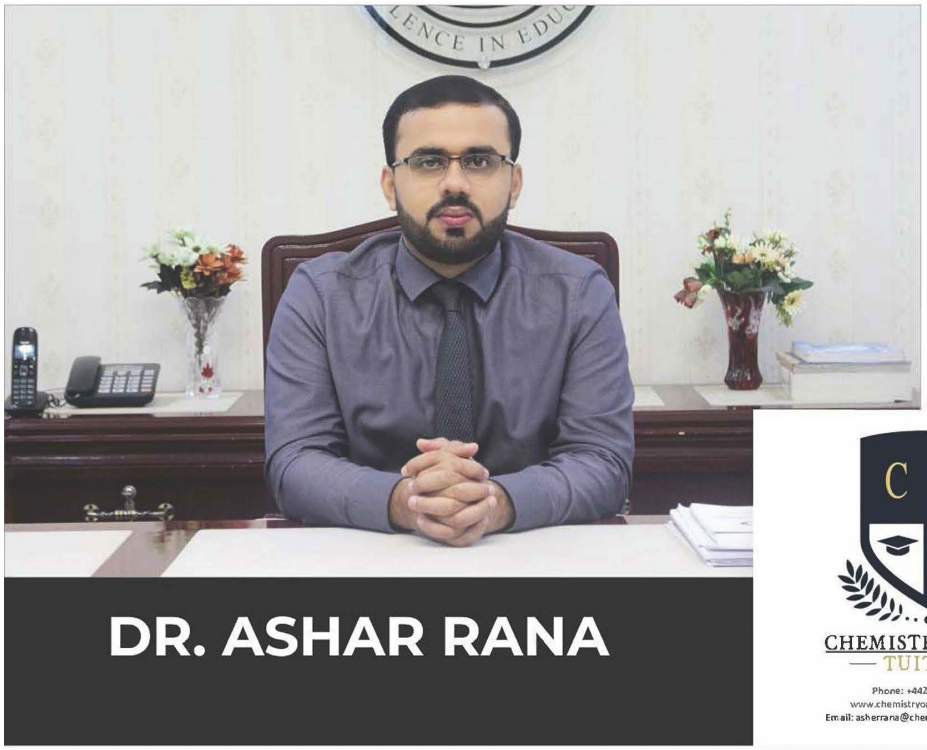

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- Tutoring students in UK and worldwide since 2008
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I am Sorry

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