Exampro A-level Biology (7401/7402)

Name:

Class:

Lipids MS

Author:

Date:

Time: **34**

Marks: **27**

Comments:

M1.(a) 1. Crush / grind;

2. With ethanol / alcohol;

3. Then add water / then add to water;

2. Water must be added <u>after</u> ethanol for third mark.

4. Forms emulsion / goes white / cloudy;

4. Do not accept carry out emulsion test.

3

(b) (i) 4 / four;

1

(ii) 1. Phosphate / PO_4;

"It" refers to phospholipid.

2. Instead of one of the fatty acids / and two fatty acids;

1. Accept minor errors in formula. Do not accept phosphorus / phosphorus group.

2

(iii) 1. Double bonds (present) / some / two carbons with only one hydrogen / (double bonds) between carbon atoms / not saturated with hydrogen;

Answer refers to unsaturated unless otherwise clearly indicated.

May be shown in appropriate diagram.

2. In (fatty acid) **C** / 3;

2

[8]

M2. (a) (i) in case normal coffee differs in some other way / to control concentration of caffeine;

1

(ii) not telling them what the drink contained / purpose of experiment;

1

(b) (i) able to continue for longer; *(not just increases performance)*
(disqualify if also refers to fatty acids and glycerol)

1

(ii) breakdown of fats;
at increased rate / by mobilisation of fat stores;

2

(c) (i) idea that volumes of oxygen and carbon dioxide the same;
reference to equal moles, or quotient as 1 divided by 1 / or 6 by 6;

2

(ii) glycogen is a carbohydrate / broken down to glucose, linked to RQ;
with no caffeine, RQ nearer 1.0 / less carbon dioxide exhaled and more oxygen inhaled (or vice versa) / with caffeine higher proportion of fats / fatty acids respired;
increased time to exhaustion suggests slower use of glycogen:

3

[10]

M3.(a) **Two** suitable suggestions;
Eg

1. (Are mammals so) likely to have same physiology / reactions as humans;
2. Small enough to keep in laboratory / produce enough milk to extract;
3. (Can use a) large number;

Ignore references to ethical issues

2 max

(b) 1. Hydrolysis of lipids produces fatty acids;

2. Which lower pH of mixture;

2

(c) 1. (Bile-activated lipase / it) increases growth rate (of kittens);

2. Results for formula with lipase not (significantly) different from breast milk / are (significantly) different from formula milk alone;

3. Showing addition of (bile-activated) lipase is the likely cause (of increased growth);

4. Lipase increases rate of digestion of lipids / absorption of fatty acids;

3 max

[7]

M4. Standard deviation shows there is overlap of the 2 data sets;
Small sample of wild salmon so may not be representative of population;

[2]