

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

Q1.

- (a) 1. Attaches to the enzyme at a site other than the active site;
Accept 'attaches to allosteric/inhibitor site'
2. Changes (shape of) the active site
OR
Changes tertiary structure (of enzyme);
3. (So active site and substrate) no longer complementary so less/no substrate can fit/bind;
Accept 'no longer complementary so less/no enzyme-substrate complexes form'
Accept abbreviations of enzyme-substrate complex.
- (b) (With inhibitor) increase substrate/lipid (concentration) does not increase/affect/change rate of reaction
OR
(With inhibitor) increase substrate/lipid (concentration) does not increase/affect/change lipase activity
OR
High substrate (concentration) does not overcome inhibition
OR
High substrate (concentration) does not meet maximum rate of reaction/lipase activity;
Ignore references to competitive inhibitors.
- (c) (Maximum length) 8-10 (μm);
(Uncertainty) ($\pm$) 2 (μm);
- (d) 1. Emulsification;
Ignore 'micelles'
2. (Cannot be seen) **due to** resolution (of optical microscope);
Ignore reference to magnification.
For 'resolution' accept 'wavelength of light'.

3

1

2

2

[8]

Q2.

(a)

Cell wall component	Plants	Algae	Fungi	Prokaryotes
Cellulose	✓	✓		
Murein				✓
Chitin			✓	

1st 2 columns correct (Plants and Algae) = 1 mark

3rd column correct (Fungi) = 1 mark

4th column correct (Prokaryotes) = 1 mark

Accept alternative symbols that clearly indicate the box but are not ticks eg X.

If answer clearly crossed out read box as blank.

3

- (b)
- Negative correlation (between fibre eaten per day and risk of cardiovascular disease);
Accept positive correlation with reduced risk
 - Original/current fibre intake (of student) not known;
Accept 'it depends on original/current fibre intake'.
 - (Idea of) significance linked to (2x) standard deviation overlap (at 10 g day⁻¹ change);
This is for the correct concept, ignore stated values.
Ignore reference to probability and chance.
 - If current intake between 5 and 30 (g day⁻¹) then (eating 10 g more results in a significant) decrease in risk
OR
If current intake between 30 and 50 (g day⁻¹) then (eating 10 g more results in) **no** significant decrease in risk;
Accept stated values between 5 and 30 for (significant) decrease in risk.
Accept stated values between 30 and 50 for no significant decrease in risk.
Ignore stated values less than 5 or more than 50.
 - Correlation does not mean causation
OR
Another **named** factor may be involved;
Examples of named factors -smoking, exercise, age, sex, genes, other aspects of diet.
 - Little evidence/data for higher mass of fibre per day;
 - Large (2x) standard deviation at high/low mass of fibre makes (mean) less precise
OR
Large (2x) standard deviation at high/low amounts of fibre means there is a greater uncertainty;
For 'precise' accept reliable or description of precise/reliable.
 - No statistical test (to show if differences are significant);

4 max

(c) (Advantage)

- Over longer period so more representative
OR

Diet over 24 hr may not be representative

OR

Diet may vary during the year/from day to day

OR

Person more likely to be honest on questionnaire (rather than speaking to nurse)

OR

More cost effective **because** fewer people/nurses required;

Only credit reference to 'honesty' once.

(Disadvantage)

2. Relies on (long term) memory so may not be accurate

OR

Recall of 24 hr diet likely to be more accurate

OR

Estimation (from FFQ) may be less accurate (than details of last 24hrs)

OR

Person may be more honest when being interviewed;

*For 'accurate' accept **only** 'valid' or 'close to true value'.*

Accept examples of 'estimation (from FFQ)' eg frequency of eating may not give mass of fibre, type of food may not give mass of fibre, no information on portion size to give mass of fibre. These must all be accompanied by idea of reduced accuracy.