Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B1 Cell Biology

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Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Mark Schemes

Q1.

(a) concentration of salt solution

1

(b) (water / solution on the tube / tubing) would affect / increase the mass

allow the results would not be valid

1

(c) $\frac{0.96}{15.54} \times 100$

1

6.17 (760618...)(%)

1

6.2 (%)

*allow answer written in **Table 1***

allow correct conversion to one decimal place from students' incorrect percentage change calculation using figures from 0.0 Concentration of salt solution in mol/dm^3

1

(d) all 4 points plotted correctly

allow a tolerance of ± ½ a small square
*allow **1** mark for 3 points plotted correctly*
ignore attempt to plot a point for 0 mol/dm^3

2

line of best fit

ignore extrapolation

1

(e) value from student's line of best fit

allow a tolerance of ± ½ a small square

*if no line of best fit drawn allow **1** mark for an answer in the range*

1

[9]

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Q2.

Level 3: The method would lead to the production of a valid outcome. All key steps are identified and logically sequenced.

5-6

Level 2: The method would not necessarily lead to a valid outcome. Most steps are identified, but the plan is not fully logically sequenced.

3-4

Level 1: The method would not lead to a valid outcome. Some relevant steps are identified, but links are not made clear.

1-2

No relevant content

0

Indicative content

Method 1
- place ruler on (microscope) stage
- focus on (scale on) ruler
- measure diameter / width of field of view
- in millimetres
- replace ruler with slide
- focus on cells
- use same magnification
- estimate / count number of cells that fit (lengthwise) across field of view
- (to calculate mean length of onion cells):
  divide diameter / width of field of view by (estimated) number of cells
  or
  divide diameter / width of field of view by 3 cells

Method 2
- focus on cells
- note magnification
- take a photograph of the image
- calculate a mean:
  - measure length of several cells (3 or more) cells on the photograph
  - add all image lengths together and divide total by number of cells (to calculate mean cell image length)

OR
  - measure the length of one cell
  - calculate the real size
  - repeat for other cells (3 or more)
  - calculate the mean real size
- (mean) size of real cell = (mean cell) image size / magnification

General points
- focus under low power first
- using focusing knob
- then focus at ×100 magnification
- reference to how total magnification is calculated
- equation:

(mean) size of real cell = (mean cell) image size / magnification

For **Level 2** attempt at a method to measure cells plus an indication of how to calculate mean length

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For **Level 3** suitable method and calculation of mean length.

[6]

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Q3.

(a) both have a cell membrane

1

both have cytoplasm

1

(b) any **one** from:

- fever
  - *allow high temperature*
  - *allow sweating / chills*
- abdominal / stomach cramps
  - *ignore vomiting / sickness / diarrhoea*
  - *ignore feel unwell unqualified*
  - *ignore rashes*

1

(c) penicillin

allow phonetic spelling

1

(d) any **one** from:

- only a few bacteria killed so live bacteria continued to reproduce
  - *allow bacteria reproducing when course started*
- time delay before antibiotic reached bacteria
  - *allow takes time (for antibiotic) to travel through the body*
- time delay before antibiotic could kill bacteria
  - *allow takes time (for antibiotic) to work*

1

(e) there were fewer toxins in the body than at day 0

1

(f) to reduce / prevent resistant strains / bacteria developing

ignore references to bacteria becoming immune

or

to reduce / prevent antibiotic resistance (in bacteria)

allow because they will get better without taking any antibiotics
ignore body will fight the infection unqualified
allow some infections are caused by viruses
allow because they have been told not to by NHS / NICE

1

(g) B

1

(h) D

1

[9]

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