Practice Question Set For A-Level
Subject : Biology
Paper-1 Topic: 2 Cells

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Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

(a) 2;

*Accept glucose **and** fructose*

1

(b) 1. **Heat** with Benedict's (solution/reagent);

Ignore water bath unqualified
Ignore warm
Accept Fehling's for Benedict's
Reject if heat with acid

2. Red (colour/precipitate);

*Accept green **OR** orange **OR** brown **OR** yellow*
Ignore emulsion

3. (Because) glucose/fructose is/are reducing sugars

OR

(Because) glucose/fructose is/are detected;

Reject if sucrose is detected

3

(c) 1.6 / 1.62;

Accept 2

1

(d) 1. Molasses/solution has a lower water potential

OR

Water (in beaker) has higher water potential;

*Accept more negative for lower **OR** less negative for higher*
Accept Ψ for water potential

2. Water moves in (across) partially/selectively permeable <u>bladder</u>;

Accept semi-permeable

3. Increased (molasses/solution) <u>volume</u>

OR

Decreased air <u>volume</u>;

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(e) Suggested change

1. Diluted (molasses)

OR

Decreased (molasses) concentration

OR

Increased (molasses) water potential

OR

Decreased water potential gradient;

Ignore reduced temperature

Accept less negative for increased

Accept Ψ for water potential

2. (Reduction by) 80% / 5 times

OR

(Reduction to) 20%

OR

(Used) 1 in 5 molasses to water

OR

(Used) 1 : 4 molasses to water;

Accept description of 1 : 4 ratio, eg 20 (cm^3) molasses (added) to 80 (cm^3) water

OR

*Accept fivefold **OR** factor of 5 for 5 times dilution*

2

[10]

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Q2.

(a) Max **two marks** for prophase

(In prophase)

1. Chromosomes/chromatids (continue to) condense;
   Accept chromatin for chromosomes
   *Accept shorten **OR** thicken **OR** coils **OR** a description of condensing for condense*

2. Chromosomes/chromatids (become/are) visible;
   *Accept appear **OR** form **OR** present **OR** distinct for visible*

3. Chromosomes attach to spindle (fibres)

   OR

   Chromatids attach to spindle (fibres)

   OR

   Centromeres attach to spindle (fibres);

(In anaphase)

4. Centromeres divide/split;

5. Chromosomes/chromatids moved/pulled to opposite poles/sides/ends;
   Reject homologous chromosomes moved to opposite sides

4 max

(b) Number of cells in mitosis ÷ Total number of cells (in field of view);
   Accept cells 'with visible chromosomes' for 'in mitosis'
   Reject if x100

1

(c) 1. Strong/significant negative (correlation);

2. (Because probability of) correlation occurring by chance is less than / < 0.05 / 5%

   OR

   (Because) more than / > 0.95 / 95% (probability) that correlation is not due to chance;
   Accept relationship for correlation
   *Reject 'statistical test' **OR** 'results' **OR** 'differences' are significant/not due to chance*

3. Reject null hypothesis;

2 max

(d) 1. More/larger proportion of cells in mitosis closer to tip

   OR

   Fewer/lower proportion of cells in mitosis further from tip;

2. More/larger proportion of cells in interphase further from tip

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OR

Fewer/smaller proportion of cells in interphase closer to tip;

3. No cells in mitosis at/after 2 (mm)

OR

All cells in interphase at/after 2 (mm);

Ignore references to cytokinesis

Accept a named stage of mitosis

Accept G1 ***OR*** *S* ***OR*** *G2 for interphase*

3

[10]

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