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

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Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Mark Schemes

Q1.

(a) 1. Mass of cells/tissue

OR

Abnormal cells/tissue;
Accept idea of large number of cells in a lump/clump/cluster for 'mass'

2. Uncontrolled mitosis/cell division;
Ignore growth

2

(b) 1. Count cells in mitosis in field of view;
Max 1 if 'field of view' not mentioned

2. Divide this by total number of cells in field of view;
Max 1 if 'field of view' not mentioned

3. Repeat many/at least 5 times

OR

Select (fields of view) at random;
Accept 'multiple' for 'many'
Ignore 'several'

3

Ignore conversion of MI into a percentage.

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Q2.

(a) 1. Unknown/new/different microorganism/pathogen/microbe/bacteria (introduced);
Ignore chemical contaminant

2. (these bacteria) use food source/space

OR

(these bacteria) produce toxins;
Accept description of competition for other resources

2

(b) Correct answer, for 2 marks = 480 000;;

Accept for 1 mark,

96 000 (correct number mm^{-3})

120 (correct number in 0.000 25 mm^3 undiluted)

OR any one of

0.2 ×5 $\frac{3}{15}$ (correct dilution factor)

OR

Evidence of dividing by 0.000 25
4.8×10^5 = 2 marks

2

(c) Correct answer for 3 marks, 3 bars given

1. Correct labelling of x axis;

eg culture **1**, culture **2** and culture **3**

OR

1,2,3 **and** (bacterial) culture;

2. Height of culture 2 bar about <u>one fifth</u> height of culture **1** bar;

3. Height of culture **3** bar higher than culture **2** bar **and** lower than culture 1 bar;

If 2 bars given **OR** if histogram given **OR** if graph given, accept for 2 marks,

1. Correct labelling of x axis;

2. Correct relative height of 2 bars/coordinates;

eg height of culture **2** about <u>one fifth</u> height of culture **1**

OR

height culture **3** above height of culture **2**

If no bar chart/histogram/graph given, accept for 1 mark,

1. Correct labelling of x axis;

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For labelling of x axis
*Accept 'no substance' for culture **1***
*Accept 'substance **J**' for culture **2***
*Accept 'substance **K**' for culture **3***
Accept 'substance' for culture

3

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Q3.

(a) 1. Four bands (upper epidermis, palisade, spongy, lower epidermis)

Ignore waxy cuticle and vascular bundle/xylem/phloem

Give benefit of doubt for use of printed box as borderlines of drawing bands.

2. Band widths must look similar to photograph;

Ignore waxy cuticle and vascular bundle/xylem/phloem

Give benefit of doubt for use of printed box as borderlines of drawing bands.

Reject if cells drawn

*Reject if lines are overlapping **OR** sketched*

Ignore stomata and air spaces

Must be at least 3 bands shown

3. Correct label of one tissue;

Accept (upper/lower) epidermis/palisade mesophyll/spongy mesophyll/vascular bundle/xylem/phloem

Accept cells for mesophyll

Reject stoma

Reject waxy cuticle

Reject cell

3

(b) 1. SDs do not overlap for (mean) shelf life

OR

SDs do not overlap for (mean) transpiration rate

OR

SDs do overlap for (mean) number of stomata;

2. Shelf life significantly longer/different in April;

Accept converse for December

Accept equivalent statements to significance in terms of chance, e.g. for 4. 'difference in (mean) transpiration rate is not due to chance…'

3. No significant difference in (mean) number of stomata so unlikely/not linked to shelf life;

Accept equivalent statements to significance in terms of chance, e.g. for 4. 'difference in (mean) transpiration rate is not due to chance…'

4. Significant difference in (mean) transpiration rate so (likely) linked with shelf life;

Accept equivalent statements to significance in terms of chance, e.g. for 4. 'difference in (mean) transpiration rate is not due to chance…'

4

If no marks awarded, allow 1 mark max for (mean) transpiration rate affects shelf life

(c) **Mark in groups** of either 1., 2. and 3. **OR** 4., 5. and 6.

1. Reduce light intensity;

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*Accept a description of reducing light intensity, e.g. use a cupboard **OR** turn off lights*

2. Stomata close;

3. (So) decreased (rate of) evaporation/transpiration;

4. Increase humidity

OR

Prevent/reduce air movement (around cut flowers);
Accept description of reducing air movement; e.g. close windows

5. Reduces water potential gradient (between plant and air);
Accept Ψ symbol for water potential

6. (So) decreased (rate of) evaporation/transpiration;

3 max

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