Practice Question Set For A-Level
Subject : Biology
Paper-2 Topic: 7 Genetics populations evolution and ecosystems

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

Mark Schemes

Q1.

(a) 1. (Colonisation by) pioneer species;

2. Pioneers/species/organisms change the environment/habitat/conditions/factors;
Accept example of change e.g. forms soil/humus/organic matter/nutrients.
Must convey idea of change being caused by pioneers/species/organisms

3. (Environment becomes) less hostile for other/new species
OR
(Environment becomes) more suitable for other/new species
OR
(Environment becomes) less suitable for previous species;
Accept previous species out-competed.

4. Change/increase in diversity/biodiversity;
Ignore increase in genetic diversity.

5. (To) climax community;

4 max

(b) 0.155;
Accept standard form e.g. 15.5 x 10^{-2}

1

(c) 1. Answer of 180/178/177.5 = **2 marks**;;
Ignore any numbers following 177.5

2. Incorrect answer but shows use of numbers 57 **and** 127 (with decimal points in any position) within the calculation = **1 mark**;

2

[7]

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Q2.

(a) 1. Use a grid
OR
Divide area into squares/sections;

Accept use of tape measures/map/area with coordinates.

Accept Belt transect.

2. Method of obtaining random coordinates/numbers e.g. calculator/computer/random numbers table/generator;

If transect method used accept quadrats at regular intervals or current mark point 2.

3. Count number/frequency in a quadrat/section;

Accept % cover in quadrat/section.

Ignore amount/abundance.

4. Large sample **and** calculate mean/average number (per quadrat/section);

*Accept large sample **and** calculate mean %.*

*Accept large sample **and** method of calculating mean.*

Accept many/multiple for large sample but ignore several.

If a specific number is given it must be 10 or more.

5. Valid method of calculating total number of sundews, e.g. mean number of plants per quadrat/section/m^2 multiplied by number of quadrats/sections/m^2 in marsh;

Do not allow 'scale up' without further qualification.

Do not award if % cover determined.

5

(b)

***Mark in pairs** 1 and 2, or 3 and 4.*

Ignore carbohydrates, lipids or named carbohydrate/ lipid.

1. Digestion/breakdown of proteins;

2. Provides amino acids
OR
(Sundew can) produce a **named** (organic) nitrogen-containing compound e.g. proteins, amino acids, DNA, ATP;

Ignore if nitrate or ammonium ions given as products.

3. Digestion/breakdown of **named** (organic) phosphate-containing compound e.g. DNA, RNA;

4. Provides **named** (organic) phosphate-containing product e.g. nucleotides
OR
(Sundew can) produce a **named** phosphate-containing compound e.g. ATP, DNA;

Accept phosphate as a named product.

2 max

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Q3.

(a) 1. Method of randomly determining position (of quadrats) e.g. random numbers table/generator;

Ignore line/belt transect

2. Large number/sample of quadrats;

Accept many/multiple

Ignore point quadrat

If a specified number is given, it must be 20 or more

3. Divide total percentage by number of quadrats/samples/readings;

3

(b) 1. Beach grass is the pioneer (species);

2. Pioneers/named species change the (abiotic) environment/habitat/conditions/factors;

Must convey idea of change being caused by a species

Accept example of change e.g. more humus

3. (So) less hostile for named species
OR
(So) more suitable for named species;

4. Conifer/hardwood trees represent climax community;

4

(c) Trees block/reduce (sun)light;

Reject 'blocks' all of the light

1

(d) 1. (NPP) remains constant;

2. GPP/photosynthesis **and** respiration constant;

Accept GPP/photosynthesis equals respiration

OR

3. (NPP) low/decreases;

4. Less light so less photosynthesis/GPP;

Reject no photosynthesis

Mark in paired statements

1 and 2 or 3 and 4

2

[10]

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