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 : 28 Marks **Time : 28 Minutes**

Q1.

(a) (i) What is meant by an *abiotic* factor?

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(1)

(ii) Do abiotic factors exert a density-dependent or a density-independent effect on a population? Using an example, explain your answer.

Effect _____

Explanation _____

_____

(1)

(b) Describe how you would collect the necessary data to estimate the size of a population by the mark-release-recapture technique.

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(3)
(Total 5 marks)

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Q2.

Glaciers are masses of moving ice. When glaciers shrink, the thick covering of ice gradually disappears to leave behind bare land. Land exposed by a shrinking glacier in Alaska became covered by dense forest in 150 years.

(a) Explain how succession resulted in the formation of the forest.

(4)

(b) In areas of poor drainage the soil is waterlogged. In these areas the climax community is bog dominated by the moss, *Sphagnum*. Explain why bog is described as the climax community.

(1)

(c) Waterlogged soils lack oxygen. Suggest why trees are unable to survive in waterlogged soils.

(2)

(d) The water and soil in *Sphagnum* bogs are usually acidic. Suggest why *Sphagnum* is not fully decomposed after it dies.

(3)

(Total 10 marks)

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Q3.

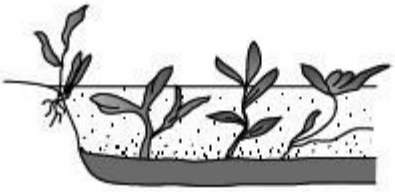
(a) The diagram shows a number of stages in an ecological succession in a lake.



Stage 1
Microscopic plants and animals



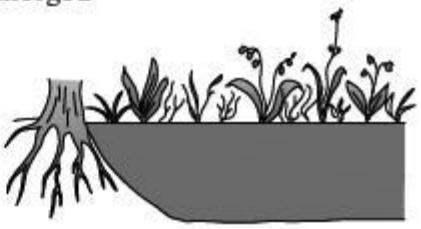
Stage 2
Layer of mud and organic matter settles on the bottom. Submerged plants appear.



Stage 3
Plants growing on surface and edges of pond. Submerged plants die out.



Stage 4
Build up of mud and organic matter forms a marsh.



Stage 5
Community of land plants

Explain how the diagrams illustrate the features of an ecological succession.

(6)

(b) Several small rivers flow into this lake. These rivers flow through forested areas. Explain how deforestation might affect the process of succession in the lake.

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(2)

(c) **Stage 5** illustrates the final stage of succession which is known as the climax community. During this stage the number of different species in the habitat and the size of each population remain fairly constant. Explain what limits the size of populations in a climax community.

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(5)

(Total 13 marks)

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