

**QB365 Question Paper Software**  
**12th Standard - Biology**  
**Ecosystem Case Study Questions**

Exam Time: 00:30 Hrs

Date: 2025-10-14

Total Marks: 8

**Questions:**

**Case Study Questions**



Pyramids of Biomass of two types are shown in the diagram given above.

Answer the following questions.

(a) Identify the type of ecosystems in which the pyramid of biomass A and B occur, respectively.

(b) Why is the pyramid A inverted and B upright?

2. Read the following passage and answer the questions given below.

A group of students go for an educational trip in the forest. In forest they observed many microorganism and insects accumulated on the wooden log. The process of breaking down of complex organic matter into inorganic substances like water, carbon dioxide and nutrients is called decomposition. Detritus is the raw material for decomposition.

(i) What can be the correct definition for leaching?

**(a) The process that lead to accumulation of dark coloured, amorphous, colloidal substance**

**(b) The process by which water-soluble inorganic nutrient goes down into soil horizon and precipitated as unavailable salts**

**(c) The process of degradation of humus by microbial action**

**(d) The process of breakdown of detritus into smaller particles by detritivorus**

(ii) The rate of decomposition is faster in the ecosystem due to the following factors except

**(a) detritus is rich in sugars**

**(b) warm and moist environment**

**(c) presence of aerobic soil microbes**

**(d) detritus rich in lignin and chitin**

(iii) Which one of the following process during decomposition is correctly described?

**(a) Fragmentation carried out by organism such as earthworm**

**(b) Humification lead to the accumulation of dark coloured substance humus, which resistant to microbial action and decomposer at very fast rate**

**(c) Catabolism is last step in the decomposition, occurs under fully anaerobic condition**

**(d) During leaching water soluble inorganic nutrients arise to the top layers of soil**

(iv) **Assertion (A) :** The rate of decomposition of detritus is reduced in the regions of

high altitude.

**Reason (R) :** It happens due to immobilisation of nutrients.

**(a) Both A and R are true and R is the correct explanation of A**

**(b) Both A and R are true, but R is not the correct explanation of A**

**(c) A is true, but R is false**

**(d) A is false, but R is true**

**(v) Assertion (A) :** The catabolism is the process that allows degradation of detritus into simple organic material by the action of bacterial and fungal enzymes.

**Reason (R) :** Catabolism helps to convert detritus into simpler inorganic compounds.

**(a) Both A and R are true and R is the correct explanation of A**

**(b) Both A and R are true, but R is not the correct explanation of A**

**(c) A is true, but R is false**

**(d) A is false, but R is true**

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## Answers Key:

### Case Study Questions

1. (a) A - Aquatic/Marine/Sea ecosystem.

B - Grassland/Forest ecosystem.

**(b) In a sea (A)**

(i) The pyramid of biomass in a sea is inverted; this is because the biomass of consumers like fishes far exceeds that of the producers, i.e., phytoplanktons.

**In a forest (B)**

(i) The pyramid of biomass in a forest is upright; this is because, the biomass of producers is higher than that of primary consumers (herbivores) and that of herbivores is greater than that of carnivores.

2. (i) **(b)**

(ii) **(d)**

(iii) **(a)**

(iv) **(a)**

(v) **(a)**