**INTERACTION AND INTERDEPENDENCE WITHIN THE ENVIRONMENT**

**Question 1**

1. A group of organisms of the same species, living in a definable habitat and are free to interbreed.
2. Made up of different populations that interact within the same area.
3. An area where the biotic components (plants and animals) interact with the abiotic components (water/soil/gases etc.)
4. Part of Earth and its atmosphere in which organisms live.
5. Is the study of an ecosystem.

**Question 2**

1. Abiotic factors are the non-living components of an ecosystem. For example, water. Soil etc.
2. Water/soil/sunlight/temperature/wind/gases.
3. Light is the primary source of energy that is required by plants to undergo photosynthesis.
4. Sun loving plants, like the Cactus, require lots of sunlight for photosynthesis.

Shade loving plants, like the fern, do not require lots of sunlight for photosynthesis.

1. Diurnal animals are active during the day. Nocturnal animals are active at night.
2. Water is a requirement for photosynthesis in plants.
3. Animals need water for digestion, transport of food, gases and waste products.
4. a) hydrophytes grow in water. Able to float in water. E.g. water lily; water hyacinth.

b) mesophytes survive in soil that has moderate amounts of water. E.g. Rose/sunflower

c) xerophytes survive in soil that has very little water. E.g. Cactus

**Question 3**

Wind plays a role in pollinating certain flowers.

Wind plays a role in seed dispersal in some plants.

Wind causes movement of water vapour which condenses to form rain/snow/hail

**Question 4**

1. Hibernation occurs in animals when they are dormant (inactive) and go into a deep sleep

to avoid the harsh environmental conditions.

1. Bear
2. Temperatures are too low.

Food and water is scarce

1. Exothermic animals do not control their body temperature. Hence their body temperature fluctuates according to the outside temperature. E.g. lizards/snake

Endothermic animals maintain a constant body temperature. Hence their temperature in not affected by the outside temperature. E.g. Bear/cow/humans

**Question 5**

|  |  |
| --- | --- |
| **SOIL TYPE** | **PROPERTIES** |
| Sand | Has coarse particles |
|  | Poor water retention |
|  | Less nutrients and well aerated |
|  | Not suitable for plant growth |
| Loam | Has a mix of fine and coarse particles |
|  | Moderate water holding capacity |
|  | Has humus with lots of nutrients and moderate air |
|  | Suitable for plant growth |
| Clay | Has very fine particles |
|  | Retains lots of water |
|  | Not suitable for plant growth |

**Question 6**

1. Nitrogen - 78%

Oxygen - 21%

Carbon dioxide – 0,03%

1. a) Altitude refers to the height above sea level. High altitudes are colder than low altitude.

b) Slope refers to how steep an area is. Very steep slopes have less vegetation.

c) Aspect refers to the direction aslope is facing. In the southern hemisphere, south facing slopes are cooler than north facing slopes.

**Question 7**

1. C
2. D
3. A
4. F
5. B
6. E

**Question 8**

1. CARROTS/GRASS/GRAIN
2. RABBIT/MOUSE/GRASSHOPPER
3. FOX/OWL
4. GRASS/GRAIN GRASSHOPPER BIRD FOX
5. FOX OWL BIRD
6. a) birds: their population will decrease since their source of food has been eliminated.

 Hence the birds will die of starvation or fly away.

b) grasses: their population will increase since there are no grasshoppers to eat the grass.

 7.

FOX ……………………….TERTIARY CONSUMER

BIRD …………………… SECONDARY CONSUMER

 GRASSHOPPER …………… PRIMARY CONSUMER

 GRASS/GRAIN …… PRODUCER

 DIAGRAM OF AN ENERGY PYRAMID

8. Energy decreases

**Question 9**

1. a) carries toxic materials such as pesticides, industrial wastes and sewage into sensitive

 ecosystems that can cause death amongst organisms.

b) causes rivers and lakes to dry out. Hence less water is available to plants and animals.

 causing them to die.

c) will force animals to move out of their natural habitat. Plant will die.

 2.

* release of toxic chemicals into rivers and dams
* release of hot water into rivers and dams
* throwing plastic and litter
* release of nutrients and pesticides
* throwing of cigarette stumps that cause veld fires
* poaching
* deforestation

**Question 10**

1. (a) better grip on ice and for insulation.
2. Prevents sinking in snow
3. Reduces heat loss
4. Insulation against cold
5. Camouflage to help hunt prey
6. - long eyelashes to keep out sand getting into eyes.

- thick eyebrows to shield eyes from sun.

- nostrils can close. This prevents sand from entering.

- board feet prevent foot from sinking in the sand.

- fat stored in hump is broken down for energy purposes.

**Question 11**

1. Plants that are not indigenous or native to an area.
2. No natural enemies to control their numbers.

Able to reproduce quickly and easily.

Produce many seeds and hence spread rapidly.

1. Mechanical control- involves removing plants by hand or machine.

Chemical control-use of herbicides to kill alien plants

Biological control- introduction of an animal that will destroy the alien plant

 **Question 12**

1. Found in areas where the soil is covered by water for most of the year
2. - provides an area for wildlife animals to survive in times of drought.

- acts as a sponge by taking in water so that it protects the surrounding areas from flooding.

- serves as a breeding area for fish and water birds.

- serves as a habitat for threatened plant and animal species.

- allow for scientific research to be done.