

1. **Q1. Fill the blanks with suitable words**

2. In Diptera insects like flies, the second pair of wings are modified to a pair of small club-shaped organs called **halters**.
3. **Insects** are the dominant group of organisms on earth, in terms of both taxonomic diversity and ecological function.
4. Thorax is made up of three segments: 1. **Prothorax** 2 **mesothorax** and 3 **metathorax**.
5. Zone of effective insect temperature is **10-35**, while; The freezing point of most insects is between **-100 °C to -2°C**.
6. **Climate change** is defined as Change in climate over time, either due to natural variability or as a result of human activity.
7. Insect Mouthparts fall into two basic types: 1 **chewing** and 2 **sucking**.
8. **Interspecific interactions** take place between different insect species like **competition**, **mutualism**, **predation**, **commensalism** and **parasitism**.
9. **Antennae** are organs of smell, but serve other functions in some insects.
10. **Aestivation** is a period of suspended activity in individuals occurring during seasonal high temperatures or in dry season.
11. the insects colours of **light** colours absorb less radiations, than the **darker color**.

Q. Insects are considered as ecologically successful organisms, discuss.

12. small size
13. exoskeleton

- 14. metamorphosis
- 15. camouflage
- 16. flight

Q. Give an example for the followings:

- 17. Interspecific interactions: **ants many other insects.**
- 18. Lethal temperature: **-5°C to -14°C, and 50°C to 60°C**
- 19. Commensalism: **Pseudoscorpions hitching ride on a fly leg**
- 20. Insectivorous plants: **pitcher plant, venus flytrap, bladderworts and sundews**
- 21. Insect having elytra: **beetle, coleoptera**
- 22. Typical insect: **grasshopper**
- 23. Symbiosis: **beetle that lives in the termite, Ants and aphids**
- 24. Abiotic factor: **ph, temp....**
- 25. Heterothermic insect: **moth and bee**
- 26. Cryoprotective compounds: ***glycerol, sorbitol and erythritol***

Q. Answer A or B:

- 27. Write about ecological importance of insects
- 28. The main source of water is food for most of the insects. What are other sources
 - a. **The main source of water is food for most of the insects. The quantity of water depends on type of food intake by insects. Those feeding on the succulent tissues of the plants have sufficient water whereas those that feed on dry food have little water. For arid zone insects the main source of water is obtained from metabolic process in the body. Some insects obtain water by absorbing it from the soil and atmosphere. The terrestrial insects living in dry areas obtain water by oxidation of the food within the body. Even fat is oxidised to produce water under certain conditions.**

Q. Fill the blanks with suitable words:

29. Climate Change is defined as “Change in climate over time, either due to natural variability or as a result of human activity.
30. Major Pest Categories are 1. Weeds 2. Invertebrates 3. Vertebrates and 4. Plant Diseases.
31. Herbivore Functional Groups includes: 1. Chewers, 2. miners and borers, 3. gall-formers, 4. sap-suckers and 5. seed predators and frugivores.
32. Adventive (exotic) - organisms in a specified area that did not evolve there, but arrived from somewhere.
33. Importance of plant defense against herbivory to humans are in 1. Agriculture, 2. Pharmaceutical and 3. Biological pest control
34. Escaping or avoiding and Secondary metabolites are Strategies to defend against damage caused by herbivores
35. Idioblast found in a common houseplant dieffenbachia that can cause paralysis “dumb cane as the first line of defense.
36. The distribution, abundance, physiology, behaviour and ecology of all insect species will be affected by climate change.
37. Three groups of organisms can be used in a biological control program.
38. Climate changes can produce indirect effects on insect species via more direct effects on abundance of food resources, competitors, enemies and mutualists.

39. Natural enemies have been successful in controlling arthropods and weeds in freshwater ecosystems.
40. Herbivory can dramatically alter ecosystem structure and function over large areas.
41. The intensity of herbivory determines its effects on plant communities.
42. Biological control is The use of living organisms to suppress the population of a specific pest organism, making it less abundant or less damaging than it would otherwise be.
43. Mechanical defenses can be described as morphological or physical traits that give the plant a fitness advantage by deterring herbivores from feeding, including Spines and thorns, Prickle, Spine, Trichome and Idioblast.