Sexual Reproduction in Flowering Plants

Q.1 How is pollination affected in Vallisneria?
Ans. In Vallisneria, the female flowers reach the surface of water by the long stalk. The male flowers are released from the plant and float on the water surface; later they release the pollen grains. The pollen grains are passively carried by the water currents. Some of them reach the female flowers and their stigmas resulting pollination. The pollen grains are protected from getting wet by a mucilaginous coating on them.

Q.2.Explain the difference between vegetative cells and generative cell?
Ans.

Vegetative cell	**Generative cell**
It is much larger than the generative cell.	It is much smaller and floats in the cytoplasm of vegetative cell.
It has abundant food reserves and a large irregular nucleus.	It has dense cytoplasm and a prominent round nucleus.
It does not divide any further.	It undergoes mitosis to form two male gametes.

Q.3. Differentiate between albuminous and non-albuminous seeds.
Ans.

Albuminous seeds	**Non-albuminous seeds**
These are the seeds in which the endosperm is present, as it is not completely used up by the developing embryo. - Eg., wheat, maize, sunflower	These are the seeds in which the endosperm is absent as it is completely used up by the developing embryo. - Eg., pea, groundnut.

Q.4. Mention the similarity between autogamy and geitonogamy. List the advantages and disadvantages of self-pollination.
Ans. Similarity- In both the cases, pollen grains come from the same plant. So they are genetically similar.
Advantages of self-pollination:
i) In self-pollination, there is no diversity in the genes and therefore the purity of the race is maintained.
ii) The plants do not depend on external factors for pollination and even smaller quantities of pollen grains produce a good success rate in getting pollinated.
Disadvantages of self-pollination:
i) Since there is no mixing up of genes, there are no new characters or features that are introduced into the offspring.

ii) Self-pollination is said to reduce the vigor and vitality of the race as there are no new features introduced.

Q.5. List the different types of pollination depending upon the source of the pollen grain. What are the adaptations flowers possess to ensure self pollination?
Ans: Pollination can be classified into three different types based on the source of pollen grains. They are:
i) **Autogamy:** It is defined as the transfer of pollen grains from the anther to the stigma of the same flower in the same plant.
ii) **Geitonogamy:** It is defined as the transfer of pollen grains from the anther of one flower to the stigma of another flower on the same plant.
iii) **Xenogamy:** It is defined as the transfer of pollen grains from the anther to the stigma of a different plant.
Adaptations
i) The pollen and stigma of a flower mature at the same time.
ii) The anther and the stigma should be close to each other.