

CBSE Test Paper 03

Ch-9 Strategies for Enhancement in Food Production

1. Artificial mutation can be created by
 - a. Gamma radiation
 - b. X-ray radiation
 - c. Alpha radiation
 - d. UV radiation
2. An organism used as bio-fertilizer for raising soybean crop is
 - a. Azotobacter
 - b. Azospirillum
 - c. Nostoc
 - d. Rhizobium
3. The thousands of plants obtained through micro-propagation called soma clones because
 - a. These plants are grown together
 - b. These plants are taller than usual plant
 - c. These plants are wild
 - d. These plants will be genetically identical
4. Breeding crops with higher levels of minerals, vitamins or higher protein and healthier fats is called
 - a. Bio fortification
 - b. Micro propagation
 - c. Bio magnification
 - d. Somatic hybridization
5. Pusa RH-10 is a
 - a. Long stapled coloured variety of Cotton
 - b. High yielding variety of Sunflower
 - c. Lysine rich amber coloured Wheat variety
 - d. Long and scented grained variety of Rice
6. Breeding crops with higher levels of vitamins and minerals or higher protein and healthier fats is called
 - a. Tissue culture

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- b. Bio-fortification
 - c. Single cell protein
 - d. Gametogenesis
7. Write the names of two semi dwarf and high yielding rice varieties developed in India after 1966.
 8. How are fishes helpful in controlling diseases? Give some examples.
 9. The semi dwarf variety of wheat which is high yielding and disease resistant.
 10. Name a sugarcane variety that is native to North India and South India.
 11. A banana herb is virus infected. Describe the method that will help in obtaining healthy banana plant from diseased plant.
 12. Honey collection improves when beehives are kept in crop fields during flowering seasons. Explain.
 13. What is mutation? List the steps how mutation breeding is carried out in agricultural crops?
 14. What is meant by the term 'breed'? What are the objectives of animal breeding?
 15. Discuss the role of fishery in enhancement of food production.

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Answer

1. a. Gamma radiation, **Explanation:** Mutation is the sudden change in the base pair of genome naturally or artificially. Gamma radiation is used to create artificial hybridization in plants to create variations.
2. a. Azotobacter, **Explanation:** Bio-fertilizers are used to grow plants without using chemical fertilizers. Certain bacteria and fungi have ability to increase nitrogen or other nutrients in the soil. Azotobacter is used as bio-fertilizers for raising soybean crop.
3. d. These plants will be genetically identical, **Explanation:** The method of producing thousands of plants through tissue culture is called micro-propagation. All these plants will be genetically identical to original plant from which they are grown.
4. a. Bio fortification, **Explanation:** Bio fortification is the idea of breeding crops to increase their nutritional value. This can be done either through conventional selective breeding, or through genetic engineering.
5. d. Long and scented grained variety of Rice, **Explanation:** Pusa RH-10 is a rice variety having long and scented grains. This plants mature in less time and have resistance to a number of disease.
6. b. Bio-fortification, **Explanation:** Bio-fortification is the breeding of crops with higher levels of vitamins and minerals to improve public health. Nutritional quantity is increased for protein, vitamins and minerals.
7. "Jaya" and "Ratna" are two semi dwarf and high yielding rice varieties developed for green revolution in India after 1966.
8. Diseases like malaria, yellow fever, filarial etc. that are spread through mosquitoes can be controlled by larvivorous fish mosquito Example: Gambusia, Panchax
9. Sonalika is developed from high yielding, semi-dwarf, fertilizer responsive wheat variety.
10. ◦ **North India Variety :** Saccharum barberi is a strong-growing species of grass

in the genus *Saccharum*, the sugarcane. It originates from northern India and has been exported to other countries and grown for the production of sugar.

- **South India Variety** : *Saccharum officinarum*, sugarcane, is a large, strong-growing species of grass in the genus *Saccharum*. It originated in southern India and is now cultivated in tropical and subtropical countries worldwide for the production of sugar and other products.

11. To obtain a healthy banana plant from diseased, apical or axillary meristematic tissues can be used. Extract the meristem and grow it in vitro to obtain virus free banana plants. Meristematic rich zones remain in continuous state of cell division, so they are never get affected by virus infection. These tissues as an explant are placed on nutrient/ culture medium.
12. Bees are the pollinators of many crops. Keeping beehives in crop fields during flowering period increases pollination and improve the honey yield. It is beneficial both for crop yield and honey yield.
13. Mutation is the sudden change in the character of an organism. It is heritable.

Steps of mutation breeding:

- i. Inducing mutations through mutagens
 - ii. Screening of plant materials for desired traits
 - iii. Multiplication of selected plants
 - iv. Hybridisation of selected plants
 - v. Testing and release as a variety.
14. A group of animals related by descent and similar in most characters like general appearance, features, size etc. is termed as breed.
 - The main objectives of animal breeding are:
 - a. Improved growth rate
 - b. Increased production of milk, meat, egg, wool, silk etc. with superior quality.
 15. A large section of the Indian population uses fish and many other aquatic animals such as crabs, lobsters, prawns etc. as food. The fish serve as a cheap source of protein, has very little fat, carries a good amount of minerals, vitamins and iodine. Thus fishery plays significant role in enhancement of food production.