Solution SAQ - 1:
Plants as food are gift of nature to humans and most animals. Different parts of plants, such as root, stem, leaf, flower and fruit are consumed by humans in the form of cereals, vegetables, spices and fruits. Animals produce milk, egg, meat, etc. which also supplement our food requirements.
Solution SAQ - 2:
Green revolution is the high production of food grains. The objectives of crop improvement are:
(i) Crop production management.
(ii) Crop variety improvement.
(iii) Crop protection management.
Solution SAQ - 3:
The cereals provide us with carbohydrates. The pulses provide us with proteins. Fruits and vegetables give us carbohydrates, protein, fat, vitamins, minerals and lots of fibers.
Solution SAQ - 4:
The basic objective of mixed cropping is to minimize the risk and insure against the crop failure due to abnormal conditions.
Criteria for the selection of crops for mixed cropping:
(i) The different crops to be grown together are so selected that the products and waste materials from one crop stimulates the growth of the other crop.
(ii) Care is taken to select crops that do not compete with each other for light, nutrients and water.
Solution SAQ - 5 :
Mixed Cropping:
(i) It aims to minimize the risk of crop failure.
(ii) Seeds of two crops are mixed before sowing.
(iii) It involves no set pattern of rows of crops.
Intercropping:
(i) It aims to increase the productivity per unit area.
(ii) Seeds of two crops are not mixed.
(iii) It involves set pattern of rows of crops.
Solution SAQ - 6:
Advantages of mixed cropping:
(i) The risk of total crop failure due to uncertain monsoon is reduced.
(ii) Chances of pest infestation are greatly reduced.
(iii) Fertility of the soil is improved by growing two crops simultaneously.
Disadvantages of mixed cropping:
(i) Seeds of two crops are mixed before sowing and there is no definite pattern for sowing the seeds.
(ii) Products of different crops are harvested, threshed, marketed and consumed in mixed form.
Solution SAQ - 7:
Intercropping is the practice of growing two or more crops simultaneously in a same field in definite row patterns with the objective of increasing productivity per unit area.
Mixed Cropping:
(i) It aims to minimize the risk of crop failure.
(ii) Seeds of two crops are mixed before sowing.
(iii) It involves no set pattern of rows of crops.
Intercropping:

(i) It aims to increase the productivity per unit area.
(ii) Seeds of two crops are not mixed.
(iii) It involves set pattern of rows of crops.
Solution SAQ - 8:
Disadvantages of crop rotation: Crops of the same family should not be repeatedly grown in the same field. This practice will promote build up of diseases and insect pests and decrease the similar nutrients from the soil.
Solution SAQ - 9:
Criteria for the selection of crops for crop rotation:
(i) Availability of moisture through rain or irrigation.
(ii) Status of nutrients in the soil.
(iii) Duration of crop - short or long.
Solution SAQ - 10:
Leguminous crops are required in crop rotation as they are used to increase the soil fertility. Those crops which require high fertility level may be grown after growing legumes. They also replenish the soil with nitrogen content.
Solution SAQ - 11:
The three steps involved in hybridization are:
(i) Introduction - This refers to the transportation of crop plants from the place of cultivation to the place where they were grown earlier.
(ii) Selection - This process involves the selection of most desirable offspring of a variety of plant for controlled propagation.
(iii) Hybridisation - It involves the crossing between genetically dissimilar plants to produce a new kind. Crossing may be between two different varieties (intervarietal cross - breeding) or between the two different species of the same genus (inter specific cross - breeding) and between different genera (intergeneric cross - breeding).
Solution SAQ - 12:
Plant breeding means production of new varieties or strains by a programme of artificial selection spanning several generations of the organism concerned.
It involves hybridization and mutation breeding.
(i) Hybridisation - It involves the crossing between genetically dissimilar plants to produce a new kind. Crossing may be between two different varieties (intervarietal cross - breeding) or between the two different species of the same genus (inter specific cross - breeding) and between different genera (intergeneric cross - breeding).
(ii) Mutation breeding - The breeding that takes place through various mutagens.
Solution SAQ - 13:
Biological method of weed control involves the deliberate use of insects or some other organisms which consume and specifically destroy the weed plants.
Example - Opuntia can be controlled by using cochineal insects in Maharashtra.
Solution SAQ - 14:
Plant disease Occurrence Transmission:
(i) Blast Rice Air-borne
(ii) Rust Wheat Air-borne
(iii) Wilt Chick pea Soil-borne
(iv) Stem rot Pigeon pea Water-borne
(v) White rust Rice Mustard Air-borne
Solution SAQ - 15:
The ways by which the insects attack the crop plants are:
(i) The chewing insects destroy all sorts of crop plants. They cut the root, stem and leaf of the crop plants by the help of their chewing mouth parts.
(ii) Sucking insects suck the cell sap from various parts of the plant. They make fine punctures in the skin of plants with their needle - like, hollow beaks and suck the sap.

(iii) The internal feeders live inside the plant parts. They make holes in the developing grains.
Solution SAQ - 16:
Controlling insect pests:
(i) Root cutting type of insects is controlled by mixing insecticides in the soil.
Example - Chloropyriphos.
(ii) Stem and leaf cutting type of insects can be controlled by dusting or spraying the contact insecticides.
Example - Malathion, lindane and thiodan.
(iii) All sap sucking insects can be controlled by spraying systematic insecticides.
Example - Dimethoate and metasystox.
Solution SAQ - 17:
(a) Example of narrow leaved rabi season weeds are - Cyperus rotundas and Wild sorghum.
(b) Example of broad leaved kharif season weeds are - Amaranthus viridis and Trianthema.
Solution SAQ - 18:
The various methods of weed control are:
(i) Mechanical methods - These include uprooting, weeding with trowel or khurpi, hand hoeing, interculture, ploughing, burning and flooding.
(ii) Cultural methods - This includes the proper bed preparation, timely sowing of crops, intercropping and crop rotation.
(iii) Chemical methods - Herbicides and weedicides are sprayed on weeds to destroy weeds like - 2, 4 - D.
(iv) Biological methods - Biological method of weed control involves the deliberate use of insects or some other organisms which consume and specifically destroy the weed plants. Example - Opuntia can be controlled by using cochineal insects in Maharashtra.
Solution SAQ - 19:
Effect of weeds on crop plants:
(i) The growth of weeds in the crop fields is harmful because they compete with the crops for nutrients, water, space and light.
(ii) The weeds spread crop pests and diseases by acting as alternate host to insects and microorganisms.
(iii) Some weeds may produce toxic substances which may interfere with the growth of crop plants.
(iv) During harvesting weeds get mixed with crop's produce to downgrade its quality.
Solution SAQ - 20:
Crop's pest is any destructive organism which causes great economic loss by destroying crop plants or products obtained from them.
These can be controlled by the use of pesticides or biocides which includes insecticides, weedicides and fungicides. These chemicals are sprayed on crop plants or used for treating seeds and soil.
Solution SAQ - 21:
Insect resistant varieties are advantageous as they do not get infested with pests. Their genes are modified so pests cannot harm them. Therefore, pesticides are not used to protect them diseases which are toxic in nature and cause environmental pollution.

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