

24. The differences between Broilers and Layers with respect to their purpose of breeding and daily food requirement are as follows :

- The purpose of breeding of broilers are for meat and layers are for egg laying poultry.
- The daily food requirement or ration of Broilers are rich in protein with adequate fat. They are fed with supplementary feed rich in Vitamin A and K for good growth rate. The egg laying birds utilise more fibrous cheaper diets formulated using agricultural byproducts.

The necessary steps taken to prevent the occurrence of infectious diseases in poultry farm are as follows—

- (i) Proper cleanliness, sanitation and spraying of disinfectants at regular interval.
- (ii) Appropriate vaccination to prevent the occurrence of infectious diseases.

Therefore, proper hygienic conditions in housing and poultry feed are necessary for prevention and control of diseases.

25. Composite fish culture is the most prevalent and advantageous system of fish culture. In this system, a combination of five or six fish species is used in a single fish pond.

27. Differences :

Fumigation	Spraying
(i) The process of spreading fumes of the pesticides is called fumigation.	(i) The process of spraying pesticides by manually or machines is called spraying.
(ii) In fumigation, a person does not come in contact with fumigants.	(ii) In spraying, a person may come in contact and inhale it and can be affected by irritation of skin and eyes and vomiting, etc.
(iii) The pesticides are used in less volume and are used directly to the stored grains.	(iii) The pesticides are used in large volume but are not used directly to the stored grains.
(iv) Fumigants are volatile, e.g., Aluminium phosphate.	(iv) Pesticides used for spraying are not volatile, e.g., BHC, Malathion.

28. The excessive use of nitrate fertilisers on agricultural fields may affect human life as follows :

- (i) The water in contact with such a soil becomes rich in nitrates. Such water cannot be purified for drinking purposes.
- (ii) Excess of nitrates reaching rivers, lakes and ponds lead to excessive growth of microorganisms causing depletion of oxygen, leading to the death of fish and therefore, lesser fish would be available.

29. Difference : Weeds have smaller narrow leaves while wheat plant has longer and broader leaves.

Effect of Weeds : Weeds compete with the crop plants for absorbing the nutrients from the soil and sunlight from the atmosphere and thus affect the crop yield.

Removal of weeds : Weeds are removed by three methods:

- (i) By hands and using simple tools.
- (ii) By chemicals called weedicides.
- (iii) By biological control methods of weeds.

30. Role of fertilisers:

- (i) They provide *macronutrients* like N, P, K, S and Mg, *micronutrients* like Cu, B, Mn for the proper growth and development of plants.

Examples : Catla is a surface feeder, Rohu feeds in the middle of the pond (column feeder), Mrigal and common carp feed at the bottom and grass carp feeds on aquatic plants in the pond.

Advantages:

- (i) The different species of fishes do not compete for food among them as they have different types of food habits.
- (ii) Food available in all parts of the pond is utilised due to their food habits.

Important Questions

26. We irrigate our crop for the following reasons:

- (i) To supply water to plants for the process of photosynthesis.
- (ii) It helps in absorption of nutrient elements by the plants from soil.
- (iii) Irrigation provides moisture to the soil which helps in germination of seeds.
- (iv) Two essential elements hydrogen and oxygen are provided to the plants from water present in the soil.
- (v) Irrigation by providing moisture to the soil, promotes the growth of roots in crop plants.

- (ii) They provide these nutrients in specific quantity.
- (iii) They are readily soluble in water and immediately absorbed by the plants.

Role of irrigation:

- (i) It provides water supply to the plants which is very much essential for life processes like photosynthesis.
- (ii) It is applied in certain frequency and quantity for specific crops, e.g., Paddy needs more water.
- (iii) It is applied in certain frequency and quantity for specific type of soils, e.g., Sandy soil needs more frequent irrigation.

Effect when fertilisers are used in excess :

Excess of nitrogenous fertilisers from the soil are washed away into water bodies like pond, encourage more algal growth and oxygen depletion. This is called eutrophication.

Effect when irrigation is used in excess :

Excess irrigation affects the respiration of roots if it is done before harvesting.

31. Biotic factors responsible for damaging food grains during storage are as follows:

Harmful effects of weeds :

- (i) Weeds compete for food, space and light with main crop plants.
- (ii) Weeds germinate and grow faster, early flowering and they mature early than the cultivated crop. Thus weeds take up all the nutrients from soil. The main crop will be weak and yield will be less.

Weed Control : The various methods of weed control are :

- (i) **Mechanical Methods :** Uprooting, weeding, hand hoeing, interculture, ploughing, burning and flooding.
- (ii) **Cultural Methods :** Proper seed bed preparation, timely sowing of crops, intercropping and crop rotation.
- (iii) **Chemical Methods :** Spraying of chemicals like herbicides or weedicides. e.g., atrazine, isoproturon, etc.
- (iv) **Biological Control :** Use of insects or some organisms which consume and destroy the weed plants.

18. Intercropping is the process of growing two or more crops simultaneously on the same field in a definite pattern. A few rows of one crop alternate with a few rows of a second crop.

Example: Soyabean + maize or finger millet (bajra) + cowpea (lobia).

Differences :

Mixed Cropping	Intercropping
(i) It has target to minimise risk of crop failure.	(i) It has target to increase productivity per unit area.
(ii) Seeds of two crops are mixed before sowing.	(ii) Seeds of two crops are not mixed.
(iii) It involves no set pattern of rows of crops.	(iii) It involves set patterns of rows of crops.

Advantages of Intercropping:

- (i) It ensures maximum utilisation of the nutrients supplied.
- (ii) It also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. In this way, both crops can give better returns.

19. Manures are organic substances obtained through the decomposition of plant wastes like straw and animal wastes like cow dung. The decomposition is brought about by the action of microbes.

Advantages of Manures:

- (i) Manures enrich the soil with nutrients.
- (ii) Manures add organic matter to the soil, which improves soil texture and increases water holding capacity and drainage in soil.

Ordinary manure is obtained by decomposing plant and animal waste. Green manure is obtained by growing green plants which are then mulched by ploughing.

20. India is a very populous country and its population is still growing. Requirement of food is also increasing every year to feed this growing population. Additional farming land is not available in the country to increase production. It is therefore necessary to increasing crop yield to meet the growing demand for food. The major groups of activities for improving crop field are —

- (i) Crop variety improvement.
- (ii) Crop production improvement
- (iii) Crop protection management

Out of the above three activities crop variety improvement is most important. Yield of crop cannot be improved by production improvement and protection management if the variety of crop is not good.

21. The factors responsible for storage losses in agricultural produces are mainly of two types :

- (i) Biotic factors such as insects, rodents, birds, mites and bacteria.
- (ii) Abiotic factors such as moisture content, temperature and humidity.

Control measures:

The grains which are meant for human consumption should be exposed to sun or fumigated.

- (i) **Chemical control:** Spraying of insecticides by mechanical sprayer.
- (ii) **Fumigation:** Insecticide solution is converted into fumes to kill the insects.
- (iii) **Plant products:** Vegetable or mineral oil are used in small quantity to grains to protect from insect pests. Neem kernel powder, crushed dried fruit of black pepper or cloves is also used in controlling insects.

Preventive measures:

- (i) Drying
- (ii) Maintenance of hygiene
- (iii) Prophylactic treatment
- (iv) Improved storage structures.

22. (i) Two exotic breeds of cow are Jersey and Holstein-Friesian.

(ii) Two popular variety of marine (salt water) fish are mackerel and pomphret.

(iii) One indigenous breed of fowl is Aseel and one exotic (foreign) breed of fowl is Leghorn.

23. (a) **Vermicompost** is the process in which the compost is prepared by using earthworms to hasten the process of decomposition of plant and animal refuse.

(b) Advantages of composite fish culture :

- (i) The different species of fish do not compete for food among them having different types of food habits.
- (ii) Food available in all parts of the pond is utilised due to their food habits.

(c) Pasturage is the land for pasture. Pasturage of flora is the type of crop or other plants from which bee collects nectar and pollen to produce honey.

Green Manure : This practice includes growing or ploughing and mixing of green crops with soil to improve physical structure and soil fertility.

Green manure supplies nitrogen and phosphorus to the soil.

12. (a) An example for exotic breed of poultry is Leghorn and indigenous breed of poultry is Aseel.
An example for indigeneous breed of milk cattle is Red Sindhi and for exotic breed is Brown Swiss.
- (b) Two shell fish are prawns and mussels.
13. **Control Measures against Pests attacking Stored Grains** : The grains which are meant for human or animal consumption, should be exposed to sun or fumigated. The various control measures are :
- (i) **Chemical Control** : Insecticides can be applied by spraying over the gunny bags containing food grains by a manual or mechanical sprayer.
- (ii) **Fumigation** : In this method, the insecticide solution is converted into fumes to kill the insects. These insecticides are called fumigants. Fumigants occur in three states—liquid, solid and gaseous.

(iii) **Plant Products** : The practice of adding small quantity of vegetable oil or mineral oil to grains or legumes to protect them from insect pests and mixing of neem kernel powder, crushed dried fruit of black pepper or cloves is also effective in controlling insects.

14. (a) The three ways by which pests attack the plants are as follows :
- (i) **Chewing insects** : They cut and chew root, stem and leaves of the plants with the help of their chewing type of mouth parts. e.g., grasshoppers, locusts, etc.
- (ii) **Sucking insects** : They suck the cell sap from different parts by the plants with the help of their piercing and sucking mouth parts. e.g., aphids, leaf hoppers, etc.
- (iii) **Borer insects** : They bore and enter different plant parts and feed on the plant tissues. e.g., sugar cane borer, cotton ball weevil, etc.
- (b) The chemical used in control of pests are insecticides like chloropyrphos, malathion, etc.
- (c) Excessive use of chemicals should be avoided since they can be poisonous to many plant and animal species and cause environmental pollution.

15. **Differences :**

Manure	Chemical Fertiliser
(i) A manure is a natural substance obtained by the decomposition of animal wastes and plant residues.	(i) A fertiliser is a man-made substance. It is an inorganic salt or an organic compound.
(ii) It contains small amounts of essential plant nutrients such as nitrogen, phosphorus and potassium.	(ii) It is very rich in plant nutrients such as nitrogen, phosphorus and potassium.
(iii) It adds great amount of organic matter in the form of humus in the soil.	(iii) It does not add any humus to the soil.
(iv) Nutrients present in the manure are absorbed slowly by the crop plants since manure is not soluble in water.	(iv) Being soluble in water, a fertiliser is readily absorbed by the crop plants.
(v) It is not nutrient specific and tends to remove general deficiency of the soil.	(v) It is nutrient specific and can provide specifically nitrogen, phosphorus and potassium to the soil.
(vi) It is voluminous and bulky, so it is inconvenient to store, transport, handle and apply to the crop.	(vi) It is compact and concentrated so it is easy to store, transport and apply to the crops.
(vii) A manure is cheap and is prepared in rural homes or fields.	(vii) A fertiliser is costly and is prepared in factories.

Fertilisers have the following advantages over manures :

- (i) Fertilisers have high concentration of nutrients than manures.
- (ii) Fertilisers are highly specific in their effects.
16. **Hybridisation** : This refers to crossing between genetically dissimilar plants.
This crossing may be of three types:
- (i) **Intervarietal**: i.e., cross-breeding between two different varieties.
- (ii) **Interspecific**: i.e., cross-breeding between two different species of the same genus.

(iii) **Intergeneric**: i.e., cross-breeding between different genera.

17. **Weeds** : They are the small-sized unwanted plants which grow along with a cultivated crop in a field. Based on the morphology of plants, weeds are classified into two types :
- (i) Narrow leaf weeds, e.g., Wild sorghum, Wild oat.
- (ii) Broad leaf weeds, e.g., *Amaranthus viridis*, *Trianthema*.

- (i) The shelter should be well ventilated.
- (ii) The shelter should protect the cattle from rain, cold and heat.
- (iii) The floor of the shed needs to be sloping so as to stay dry.

3. Differences between:

<i>Kharif</i>	<i>Rabi</i>
These crops are grown in rainy season	These crops are grown in winter season

Kharif crops are grown from July to October month. Rabi crops are grown from November to April. Example of Kharif crop is Paddy. Example of Rabi crop is Mustard

4. Advantages of Manures :

- (i) Manures enrich the soil with nutrients.
- (ii) Manures add organic matter to the soil, which improves soil texture and increases water holding capacity and drainage in soil.

Manure increases the water holding capacity in sandy soil. In clayey soil, large quantity of organic matter help in drainage and avoid water logging.

5. Three different ways in which crop can be attacked by insect pests are:

Chewing: Here, pests cut and chew root, stem and leaves of the plants with the help of their chewing type mouth parts.

Sucking: In this method, pests suck the cell sap from different parts of the plants with the help of their piercing and sucking mouth parts.

Boring: Here, insects bore and enter different plant parts and feed on the plant tissues.

Control measure: Spraying insecticide.

Preventive measure: Use of resistant variety of seeds

- 6. (a) Diseases reduce milk production in dairy animals.
- (b) A healthy cattle feeds regularly and has a normal posture.
- (c) Concentrates are low fibre but they contain relatively high levels of proteins and other nutrients.

7. Animal Husbandry : It is the science of rearing, feeding, caring, breeding and utilisation of animals. In other words, it is the scientific management of animal livestock.

Milch Animals : The milk-producing animals or breeds such as cows, buffaloes, goats and camels are known as milch animals.

Draught Breeds : They are strong, sturdy and are the "beasts of burden". These breeds produce less milk.

Roughage : It is a coarse and fibrous food with low-nutrition, such as green fodder, silage, hay and legumes.

Concentrates : These are the substances which are rich in one or more nutrients. Cotton seeds, oil seeds, oil cakes and some cereals like gram and bajra are some typical concentrates.

- 8. (a) **Inland fishery :** It consists of fisheries in freshwater and brackish water. Most of the fish production is through aquaculture practices.

Marine fishery : India's marine fishery resources include 7500 km of coastline and the deep seas beyond it. Popular marine fish varieties include pomphret, mackerel, tuna, sardines and Bombay duck. Marine fish are caught using many kinds of fishing nets from fishing boats. The modern technologies for catching more fish include echosounders and use of satellite. Some marine fish of high economic value are also farmed in sea water. This includes finned fishes like mullets, bhetki and pearl spots, shellfish such as prawns, mussels and oysters.

- (b) There are two ways of obtaining fish. One is from natural resources, which is called **capture fishing**. The other way is by fish farming which is called **culture fishery**.

- (c) Apiculture is the rearing, care and management of honey bees for obtaining honey, wax and other substances.

Aquaculture is the rearing, care and management of fishes for fish production.

9. Two Indian breeds of cow are

- (i) Red Sindhi – medium sized cows with red colour.
- (ii) Sahiwal – large sized and heavier built animals.

Food Requirements of Milch Animals : These are of two types :

- (i) Maintenance requirement, which is the food required to support the animal to live in a healthy life, and
- (ii) Milk producing requirement, which is the type of food required during the lactation period.

- 10. (a) Kharif crops is grown during the month from June to October.

- (b) Four factors for which crop variety improvement is done are as follows :

- (i) **Higher Yield :** To increase the productivity of crop per acre.

- (ii) **Improved Quality :** Quality consideration such as baking quality, protein quality, oil quality and preserving quality of crop products vary from crop to crop.

- (iii) **Biotic and Abiotic Resistance :** Crop on production can go down due to biotic and abiotic stresses under different situations. Varieties, resistant to these stresses, can improve crop production.

- (iv) **Change in Maturity Duration :** The shorter the duration of the crop from sowing to harvesting, the more economical is the variety.

- 11. Manures are classified based on the kind of biological material used vermicompost and green manure.

Vermicompost : It is the process when compost is prepared by using earthworms to hasten the process of decomposition of plants and animal refuse. Here the earthworms help to breakdown the wastes. This activity along with the excreta of the worms makes the compost rich in nutrients.

after two years are called two year rotation crop and so on.

31. The choice of crops for rotation depends upon the following factors :

- (i) Moisture in the soil
- (ii) Duration of the rainy season
- (iii) Type of soil
- (iv) Risk assessment, e.g., failure of rains or excessive rains, etc.

32. (a) Higher yield.

(b) Better quality.

(c) To develop disease, insect, pest resistant varieties.

33. The need of sustainable agriculture is to fulfil the basic needs of growing population. The population is increasing at a very high rate and natural resources are depleting day by day. Moreover the occupation of 70% population in our country is agriculture.

34. Varietal improvement means the improvement in varieties available in the market. Each variety is improved day by day in terms of production, taste, size and shape, etc. So, to improve the variety of a crop by scientific means is called varietal improvement and it leads to green revolution.

35. (i) Rinderpest

(ii) Foot and mouth disease.

36. (i) Improvement of breeds of the domesticated animals.

(ii) Increasing the yield of foodstuff such as milk, eggs and meat.

37. We obtain animal food mainly from :

(i) milk-yielding or milch animals

(ii) egg-laying birds

(iii) meat-providing animals.

38. The food requirement of dairy animals is of two types :

(a) Maintenance requirement : For support to perform the basic functions of body and life.

(b) Milk producing requirement : The food required during lactation period.

39. Indian breeds of cows are Sahiwal and Gir. Indian breeds of buffalo are Murrah and Mehsana.

40. Proper cleaning and a shelter of milk-yielding animals such as cows and buffaloes is important due to the following reasons—

(i) For clean and hygienic milk.

(ii) For good health of the animals.

41. Poultry includes birds like chicken, hen, ducks, geese and turkey. These birds provide good source of animal food in the form of eggs and meat.

NCERT Questions

42. Crop production goes down due to biotic factors like diseases, insects and nematodes.

Crop production also goes down due to abiotic stresses like draught, salinity, water logging, heat, cold and frost.

43. The desirable agronomic characteristics for crop improvement are:

(i) Tallness and profuse branching for fodder crops.

(ii) Dwarfness in cereals.

44. Macronutrients are carbon, nitrogen, hydrogen, phosphorus, oxygen, potassium and sulphur. They are so called because macronutrients are required in large quantities.

45. Preventive measures and biological control methods are preferred for protecting crops because they are safe methods and do not cause environmental pollution. They not only prevent the stored food materials from getting spoiled, infested by insects, bacteria and microorganisms but also prevents crops from toxic effects of chemicals which are added to control the pests.

46. Artificial insemination is used for improving cattle breed because this method is very economical and reliable. In this method selective breeding is possible and semen of a single bull can fertilise 3,000 cows. Semen of bull can be easily transported to remote places.

47. The low fibre foodstuff is the feed of fowl. When these fowls are consumed by humans as meat they have high nutritious animal protein. Thus, it is said that poultry is India's most efficient converter of low fibre food stuff into highly nutritious animal protein food.

48. Advantages of Composite fish culture:

(i) The different species of fishes do not compete for food among them having different types of food habits.

(ii) Food available in all parts of the pond is utilised due to their food habits.

49. Good animal husbandry practices benefit farmers in the following ways :

(i) It helps the farmers to improve the breeds of domesticated animals. These breeds have resistance power to diseases, have increased life span and lactation period.

(ii) It helps the farmers to increase the yield of foodstuff.

50. The benefits of cattle farming are as follows:

(i) The cattle farmers get milk from cattle.

(ii) The farmers use cattle for various draft purposes in agricultural operations like ploughing, levelling etc.

SHORT ANSWER TYPE QUESTIONS (II)

Previous Years' Questions

1. **Crop Rotation** : It is defined as the practice of growing of different crops on a piece of land in a pre-planned succession.

Depending upon the duration, crop rotation is done for different crop combinations. If crop rotation is done

properly then two or three crops can be grown in one year with good harvests.

Availability of moisture and irrigation facility should be kept in mind in choosing plants for crop rotation.

2. Management practices to be considered in designing shelter for cattle are:

|| 3 MARKS

10. Hybridisation in plants refers to crossing between genetically dissimilar plants. It has been used to develop number of improved varieties of plants of HYV (High Yielding Variety).

In these two varieties of crops, each possessing at least one desired character are selected, for example, one with high yield and other one with disease resistant character. The two varieties with desired character are cross-breed to incorporate the desired characters in one variety.

Important Questions

11. To maintain the soil fertility, regular dose of nutrients in the form of fertilisers are added. These fertilisers provide the necessary nutrients to the soil, thereby increasing the fertility of soil.

12. High doses of chemical fertilisers increase the crop production but when excess of these chemicals are washed off through irrigation, rainfall and reach the river and other water bodies, they disturb the ecosystem and lead to eutrophication.

13. The chemicals used are sprayed on the crop to prevent diseases which leads to environmental pollution. Thus, some part gets penetrated in grains and is harmful to animals and human beings.

14. Various methods to control weeds are :

(a) **Mechanical method:** Uprooting weeds with Khurpi or hand ploughing, burning and flooding.

(b) **Cultural method:** Proper seed bed is prepared and seed is sown timely and intercropping and crop rotation is done.

(c) **Chemical method:** Chemicals known as herbicides or weedicides are sprayed, e.g., 2,4-D; etc.

(d) **Biological method:** Some living organisms are introduced into the field which exclusively feed on weed, e.g., *Opuntia* can be controlled by *Cochineal* insect and Aquatic weeds by fish carp.

15. (i) Plants require nutrients to grow. Fertilisers provide the required nutrients to the soil and thus help to improve crop production.

(ii) The use of appropriate fertiliser also corrects the acidity of the soil.

16. Fertilisers are grouped on the basis of the nutrients they provide to the soil.

Fertilisers have been grouped into the following groups :

(i) Nitrogenous fertilisers

(ii) Phosphate fertilisers

(iii) Potassic fertilisers, and

(iv) Complex fertilisers.

17. Major part of rain water runs off to the sea. If this water is collected in storage reservoirs, tanks and inter-basin transfers, we can use this water for irrigation purposes during dry season.

18. *Kharif* crops are more susceptible to infestation by pests because the humid and warm conditions at that time are favourable for infestation.

19. *Amaranthus* and wild oat are common weeds found in rice and wheat fields.

20. The process of removing weeds from a crop field is called weeding. It can be done either by hand-picking or by using certain tools.

The common tools are :

(i) Trowel (*Khurpa*).

(ii) Harrow (a big comb-like implement).

Harrow can be used even in the standing crops. Harrow can be used only before sowing or transplanting.

21. In the biological method, some insects or organisms are dropped into the crop field. These organisms selectively eat away the weeds without harming the crop-plants.

Example: *Cochineal* insects can be used to control *Opuntia* weeds.

22. The living organisms which influence the agriculture and food are termed biotic factors.

Examples :

(i) Rodents (rats), Birds, Animals.

(ii) Insects, Worms, Bacteria, Yeast, Moulds.

(iii) Enzymes present in the food material.

23. High moisture content and high temperature at the time of storage of any food material will decrease the life of food material due to :

(i) growth of microorganism.

(ii) increased enzymatic spoilage of food.

24. Natural and non-living factors which affect the agriculture and food are called abiotic factors. Two abiotic factors which affect the food materials during storage are temperature and moisture.

25. Fertilisers are classified as :

Nitrogenous fertilisers – Urea

Phosphatic fertiliser – Triple superphosphate

Potassic fertiliser – Potassium chloride.

Complex fertilisers – NPK.

26. The various factors which lead to spoilage of food grains are :

(i) **Biotic factors**, e.g., insects, rodents, birds, etc.

(ii) **Abiotic factors**, e.g., moisture content, temperature, etc.

27. (i) **Mixed farming**

(ii) **Mixed cropping**

(iii) **Crop rotation**, and

(iv) **By using improved varieties.**

28. Basic objectives in mixed cropping are :

(i) to minimise the risk of crop failure

(ii) to maintain the fertility of the soil

(iii) to earn more money.

29. The basis of selecting the component crops in mixed cropping is that the two crops should not compete for the sunlight, same kind of nutrients and water. Instead, the component crops should be complementary to each other.

30. Crop rotation is classified on the basis of duration of rotation.

For example, if the crop is rotated after one year, then it is called one year rotation crop, and those rotated

49. Fishes are obtained by capturing fish from natural resources (like fresh and marine water) called capture fisheries and by culturing using various culture methods, called culture fisheries.
50. Manures and fertilisers are major sources of nutrients of plants, therefore, the deficiency of plant nutrients and organic matter in the soil is made up by adding

- manures and fertilisers to the soil of crop fields.
51. For increasing production, common in poultry, fisheries and bee keeping is that in all the rearing and breeding of birds (fowl), fishes and honey bees is done scientifically by man. Best breed of animals are used in poultry, fisheries and bee keeping so that we get high yield and are disease-resistant.

SHORT ANSWER TYPE QUESTIONS (I)

Previous Years' Questions

1. **Weeds** : They are the small-sized unwanted plants which grow along with a cultivated crop in a field. Control of weeds is economically very important as they can severely reduce crop yields by competing for light, water and nutrients.

Based on the morphology of plants, weeds are classified into two types :

- (i) Narrow leaf weeds, e.g., Wild sorghum, Wild oat.
- (ii) Broad leaf weeds, e.g., *Amaranthus viridis*, *Trianthema*.

2. (a) Concentrates are the substances which are rich in one or more nutrients. Cotton seeds, oil seeds, oil cakes and some cereals like gram and bajra are some typical concentrates.

(b) Worms and flukes.

3. **Advantages of Intercropping** :

- (i) It ensures maximum utilisation of the nutrients supplied.
- (ii) It also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. In this way, both crops can give better returns.
- (iii) Soil erosion is effectively arrested.
- (iv) It helps to maintain soil fertility.

Example : Soyabean + maize or finger millet (bajra) + cowpea (lobia).

4. When the immune system of the body first see an infectious microbe; it responds against it and remembers it specifically. Next time that microbe enters the body and the immune system responds with great vigour and eliminates the infection more quickly. This is the basic principle of vaccination.

5. **Mixed Cropping** is the practice of growing two or more crops simultaneously on the same piece of land. Some mixed cropping practices are :

- (i) Soyabean + Pigeonpea
- (ii) Wheat + Mustard

Advantages of Mixed Cropping :

- (i) The risk of total crop failure due to uncertain monsoon is reduced.
- (ii) Farmers tend to harvest a variety of produce such as cereal, pulses or vegetables or fodder to meet the various requirements of family or of an agricultural farm.

6. (i) The use of pesticides and fertilisers over a long period of time on soil can be detrimental to soil quality, which makes the soil too alkaline or too acidic thereby destroying the soil fertility. The microorganisms in the soil are harmed by the fertilisers and they also pollute the underground water, lakes and rivers, which renders the water unfit for human consumption and kills aquatic life.

(ii) Humus constitutes the organic component of soil and formed by the decomposition of plant and animal remains and has a complex and variable chemical composition. It can hold water and improves the water-retaining properties of soil, therefore, enhancing soil fertility.

7. Two disadvantages of fertilisers are as follows :

(i) Sometimes fertilisers get washed away due to excessive irrigation and are not fully absorbed by the plants. This excess fertiliser then leads to water pollution.

(ii) Continuous use of fertilisers in an area can destroy soil fertility because the organic matter in the soil is not replenished and microorganisms in the soil are harmed by the fertilisers used.

8. The flora found around apiary to collect honey and pollen grains is called pasturage.

The value or quality of honey depends upon the pasturage. The adequate quantity of pasturage or flora determines the quality as well as taste of honey, since the pollen grains and nectar serve as protein food for bees.

9. **Differences** :

Micronutrients	Macronutrients
(i) They are the essential elements utilised by plants in small quantities.	(i) They are the essential elements used by plants in large quantities.
(ii) The seven essential nutrients form the micronutrients — Iron, Manganese, Boron, Zinc, Copper, Molybdenum and Chlorine.	(ii) The six essential nutrients form the macronutrients — Nitrogen, Phosphorus, Potassium, Calcium, Magnesium and Sulphur.

|| 2 MARKS ||

VERY SHORT ANSWER TYPE QUESTIONS

|| 1 MARK ||

Previous Years' Questions

1. Organic farming
2. Berseem and Sudan grass are examples of fodder crop.
3. The essential elements utilised by plants in large quantities are called macronutrients. The six essential nutrients that form the macronutrients are Nitrogen, Potassium, Calcium, Magnesium and Sulphur.
4. For increasing production, common in poultry, fisheries and bee keeping is that in all the rearing and breeding of birds (fowl), fishes and honeybees is done scientifically by man. Best breed of animals are used in poultry, fisheries and bee keeping so that we get high yield and are disease-resistant.
5. Earthworm is used in the preparation of vermicompost.

Important Questions

6. (i) Nitro phosphate (ii) Potassium sulphate.
7. (i) Nature of crop
(ii) Nature of soil where crop is grown.
8. (i) Canal system (ii) Tanks
(iii) Wells (iv) River valley system
(v) River lift system.
9. Diseases may be :
(i) Soilborne (ii) Soilborne
(iii) Waterborne (iv) Airborne
10. They compete with the crops for nutrients and water in the fields. This leads to poor yield and quality of produce.
11. The crops which require higher nutrient inputs during the growth are grown in green manured fields, e.g., rice, sugarcane, maize, cotton, etc.
12. Carbon from carbon dioxide, oxygen from air and water, hydrogen from water.
13. Leguminous crop.
14. NPK.
15. Amaranthus and Wild Oat.
16. Air.
17. Rice weevil and Khapra beetle.
18. Tanks are small storage reservoirs which store the runoff of rain water. These tanks thus act as a small local source of water supply.
19. Manures and fertilisers.
20. (i) Rust (ii) Smut.
21. Heterotrophs.
22. *Aspergillus*
23. Mixed cropping.
24. To minimise the risk against crop failure due to adverse weather conditions.
25. All the crop combinations grown in mixed cropping can also be grown in intercropping.
26. Because the soil nutrients taken up by one crop are replenished by the rotation of crops.

27. The legumes can fix-up the atmospheric nitrogen into the soil in the form of nitrates. Thus, legumes can replenish nitrogen of the soil.
28. 1 : 2 means, the row pattern with one row of the main crop and two rows of the intercrop.
29. If both the crops in mixed cropping are of the same kind, they will compete for basic needs such as sunlight, nutrients, water, etc. As a result both the crops will suffer in crop-yield.
30. Mixed farming, using improved varieties of crops, crops rotation.
31. Milch breeds provide milk while draught breeds are used in agricultural operations.
32. Poultry birds become more healthier and they lay more eggs.
33. Roughage-fodder, concentrate-cereal grains.
34. Good feed maintains good health and increases milk yield of cattle.
35. It helps in protection from heat, cold, rain and predators.
36. (i) Foot and mouth disease
(ii) Rinderpest.
37. Aseel and Basara.
38. Cow, Holstein-Friesian.
39. Roughage includes straw and cellulose while concentrates are oil cake, oil seeds rich in fat, proteins, minerals and vitamins in cattle feed.
40. Murrah breed yields more milk.
41. HYV of Cow : Jersey and Karan Fries.
42. Cross breeds are developed by mating the bulls of exotic breeds and cows of our indigenous breeds.
43. By developing new breeds with the desired characteristics, viz., high milk yield, fast growing and more egg producing.
44. It can be done by selective breeding. It is done by cross-mating between two different breeds, each having some desired characteristics.
45. We get vitamins, minerals alongwith small quantities of protein, carbohydrate and oil.
46. Weather, soil quality and availability of water resources are agronomic conditions, which affect cultivation practices and crop yield.
47. The basic objective in mixed cropping is that it reduces risk and gives some insurance against failure of one of the crops.

NCERT Questions

48. Plants obtain carbon and oxygen from air, hydrogen from water and remaining thirteen elements from soil through root absorption.

- (i) **Enzymes:** Food material contain enzymes which spoil the food by their action. They are active at high temperature. Meat, fruits, fish, vegetables, etc., should be stored at low temperature so that the enzymes may be inactive.
- (ii) **Microbes:** Microorganisms like bacteria, moulds grow in stored food if the moisture content is high and at high temperature. They spoil the food forming toxic substances.
- (iii) **Insects:** Insects like weevil, grain borer, khapra beetle, etc., infest the food grains on storage at high temperature and water content more than 14%. They spoil in different ways producing toxic substances as well as forming cocoon, laying eggs and damaging nutrient content.
- 32. The abiotic factors responsible for the damage of food grains during storage are:**
- (i) **Moisture:** Moisture content more than 14% makes the microbes to attack and insects to infest the grains.
- (ii) **Temperature:** Rise of temperature or storage at more temperature increases the chances of insect infestation. It also accelerates the growth of microorganisms like bacteria and fungi.
- (iii) **Humidity:** Humidity increases the growth of fungi and moulds. Safe storage is possible at less humid places.
- 33. The practice of growing different crops, usually a cereal crop alternatively to a leguminous crop on the same land in a pre-planned succession is called crop rotation.**
- Significance :**
- (i) The fertility of the soil is maintained.
- (ii) The crop yield is increased.
- (iii) It helps in controlling plant diseases.
- 34. We can meet the future food needs:**
- (i) by practicing mixed cropping.
- (ii) by practicing crop rotation.
- (iii) by using HYV of crops.
- (iv) by proper management and use of land under cultivation.
- (v) by using natural and man-made resources judiciously.
- 35. The food requirements of cattle and poultry birds vary according to the age, health, nature of work and special conditions like lactation period.**
- A calf needs more food and nutrition than an old cow.
 - The optimal food requirements of a cattle can be worked out by studying the internal structure and functioning of the rumen and nutritional quality of their feeds and fodder. The milk yield of an animal is largely determined by the kind of feed given to it.
 - The feed of poultry birds also needs essential nutrients like carbohydrates, proteins and minerals. The feed for larger poultry farm contains mashed cereals like bajra, wheat and maize, rice, beans and groundnut cake.
- 36. In spite of the large population of cattle in our country, milk production is meagre because of :**
- (a) the poor quality of feed given to the milch cattles.
- (b) the storage of feed and fodder.
- (c) most of the cattle are indigenous breeds.
- 37. The steps that should be taken to improve production of food from animal sources in our country are :**
- (i) Improved varieties of animal and poultry should be developed.
- (ii) Proper health care of the animals must be taken in each village.
- (iii) The government organisations should encourage farmers to form co-operative organisations for producing animal food and products.
- 38. Diseases of cow :** Foot and mouth disease and cowpox.
Diseases of poultry : Chick pox and Aspergillosis.
Diseases of fish : Infectious Pancreatic Necrosis and Viral Haemorrhagic Septicemia.
- 39. The production of food from animal sources has increased in last few decades by following new techniques in animal breeding. Operation Flood and Silver Revolution have increased the production of milk, and egg in last two decades. Simultaneously, the production of fish and meat has also increased. India is now ranked 8th among the fish producing countries. Out of the total fish obtained from Indian Ocean about 45% are produced in India.**
- 40. The criteria for selection of the crop of mixed cropping are :**
- (i) **Duration of Crop:** Out of two crops one is of long duration and another is of short duration.
- (ii) **Growth habit:** One should be tall growing and other is short growing.
- (iii) **Root pattern:** One is deep-rooted and other is shallow-rooted.
- (iv) **Water need:** One needs comparatively lesser amount of water whereas other needs more water.
- (v) **Nutrient demand :** The nutrient requirements should also be different.
- 41. The desirable traits for which improved varieties are developed by cross-breeding programmes between indigenous and exotic breeds are as follows :**
- (i) Number and quality of chicks.
- (ii) Dwarf broiler parent for commercial chick production.
- (iii) Summer adaptation tolerance to high temperature.
- (iv) Low maintenance requirements.
- (v) Improvement in hen housed for egg production and reduction in the size of the layer with ability to utilise more fibrous diet formulated using agricultural by-products.
- Advantages of exotic breeds:**
- (i) They are small in size and eat less as compared to indigenous variety.
- (ii) They mature easily.
- (iii) They yield more eggs and meat.
- 42. The important considerations to obtain good quality and higher yield of honey are:**
- (i) **Pasturage/Crop:** Quality of honey depends upon the pasturage available for the nectar and pollen collection.
- (ii) **Beehive :** A beehive is made of wooden chamber for egg laying and honey collection.
- (iii) **Apiary location:** Apiary means setting up of a number of beehives in good and desirable location in such a systematic manner which allows maximum nectar and pollen collection.