Improvement in Food Resources

Q.1 What is meant by agriculture?

Agriculture is the cultivation of food crops in the field for food requirements.

Q.2 Why is there a need to improve the production from agriculture and animal husbandry?

There is a need to introduce production efficiency of crops and livestock because

- Rapid increase in population

- No major scope of increasing area of land under cultivation

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Q.3 What is meant by white revolution?

Increase in the production of milk and milk products is known as white revolution. White revolution led to better and efficient production and availability of food. Dr Varghese Kurian is considered as the father of white revolution .

Q.4 What is meant by crop plants or crops?

The plants grown and tended or cared for in a field are known as crop plants or crops.

Q.5 What do we get from cereals, pulses, fruits and vegetables?

(i) Cereals provide us with carbohydrates. Also, they are a rich source of energy.

(ii) Pulses give us proteins.

(iii) Fruits and vegetables are a rich source of vitamins and minerals. A small amount of proteins, carbohydrates, and fats are also present in them.

Q.6 What are the effects of 'revolutions like green revolution, white revolution' on the environment?

There are more chances of causing damage to our natural resources to the point of destroying their balance completely.

Improvement in Crop Yields

Q.7 What are fodder crops?

Crops which serve as food for the livestock is called fodder crops. E.g Berseem, oats or sudan grass.

Q.8 What are Kharif crops and rabi crops. Give examples:

Kharif crops: The crops grown in rainy season are called as Kharif crops. They are grown from June to October. E.g Paddy, Soya bean, pigeon pea and maize.

Rabi crops: The crops grown in winter season are called Rabi crops. They are grown November to April. E.g. Wheat, gram, peas, and mustard

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Q.9 How was increase in food production possible in India?

Increase in food production in India has been possible by introducing new farming practices. The new practices are introduced at three stages in farming and seed selection, nurturing the crops, plants and protecting the ground and harvested crops. Thus, the major groups of activities for improving crop yields can be classified as:

- Crop variety improvement

- Crop production improvement

- Crop protection management.

Q.10 Define hybridization.

Hybridisation refers to the crossing of two individuals with different useful traits in order to bring them together in a progeny. The new organism thus obtained is called a hybrid and has better characters as compared to either of the parents.

Q.11 What are the factors for which variety improvement is done ?

Higher yield: *To increase the productivity of the crop per acre.*

Improved quality*:* quality depends on the type of crop, for e.g. baking quality of protein in pulses, quality (colour, taste) of oil from oil seeds and preserving quality in fruits and vegetables.

***Biotic and abiotic resistance**:* Biotic (living factors) like pathogens, insects and nematodes and abiotic factors (non-living factors) like water logging, salinity, drought, heat, cold and frost have a negative impact on crop production. A crop resistant to these factors gives a better produce

***Change in maturity duration**: The shorter the duration of the crop from sowing to harvesting, the more economical is the variety. Such short durations allow farmers to grow multiple rounds of crops in a year. Short duration also reduces the cost of crop production. Uniform maturity makes the harvesting process easy and reduces losses during harvesting.*

***Wider adaptability**:* Such a trait is desirable as the same crop variety can be grown in different conditions.

***Desirable agronomic characteristics**:* Depends on crops

For fodder crops- Tallness & profuse branching are desirable

For cereal crops- dwarf variety is desirable since fewer nutrients would be consumed.

Q.12 What are the various types of food plants?

The various types of Food Plants are

Crops-Cereals- Wheat, Rice, Maize, Millets, Sorghum(provide carbohydrates for energy)

Pulses- Gram, Pea, Black gram, green gram, pigeon pea, lentils(provide proteins).

Oil Seeds- Soyabean, groundnut, sesame, castor, mustard, linseed, sunflower(provide fats)

Vegetables, spices and fruits provide mainly vitamins & minerals

Fodder crops - Berseem, Oat, sudan grass

Q.13 How can a crop variety be improved?

We can improve a crop variety by-

(i) Hybridization

(ii) Making GMO's (genetically modified crop)

(i) Hybridisation refers to crossing between genetically dissimilar plants. This crossing may be

(a)**Intervarietal**: Between different varieties e.g. Two varieties of wheat - one is disease resistant and the other is high yielding. Crossing/hybridization may result in a variety that is both high yielding and disease resistant.

(b) **Inter specific**: Plants belonging to two different species of the same genus are crossed.

(c)**Intergeneric:** Plants belonging to two different genera (singular genus) are crossed.

(ii) Making GMO's

GMO is a genetically modified crop (organism). A gene for a desirable character is introduced in a plant using scientific technique. The resultant plant is a GMO.

Q.14 What are the conditions to be fulfilled for new varieties of crops to be accepted?

For New varieties of crops to be accepted, it is necessary that:-

(a) Variety produces high yield under different conditions

(b) Farmers to be provided with good quality seeds of a variety

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Q.15 What are features that are kept in mind by the scientists while making new varieties of crops?

When new varieties of crops are made by scientists, the main features kept in mind are:

(a) Crop should give high yield in different climatic conditions.

(b) The seeds provided should be of the same variety and should germinate under same conditions

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Q.16 What is meant by a nutrient?

A nutrient is food or chemicals that an organism needs to live and grow or a substance used in an organism's metabolism which must be taken in from its environment.

Q.17 What are the sources of nutrients in plants?

Source of nutrients are-

- Plants get nutrients from air, water and soil

- There are 16 nutrients required by plants

- Three nutrients namely carbon and oxygen is supplied by air, hydrogen and oxygen from water and the rest from soil.

Q.18 What are the two types of nutrients?

Out of the 13 nutrients that the plants obtain from soil, six are required in large quantities, for their growth and development, are therefore called macro-nutrients. Nitrogen, phosphorus, potassium, Calcium, Magnesium and sulphur are the macro-nutrients.

The other seven nutrients are used by plants in small quantities and are therefore called micro-nutrients. They are iron, boron, manganese, zinc, copper, molybdenum and chlorine.

Q.19 How can we enrich the soil to increase the yield?

The soil can be enriched by supplying the necessary nutrients in the form of manure and fertilizers.

Q.20 Difference between manure and fertilizers:

Manure	Fertilizer
Manure is a natural or an organic substance obtained by the decomposition of plant and animal wastes. This is done by microbes, earthworms, fungus etc.	Fertilizer is a synthetic substance or an inorganic compound. Fertilizers are artificially prepared in industries using various chemicals
Not nutrient specific-supply nutrients to soil but specific amount or type of nutrient is difficult to determine	Nutrient specific-Supply specific nutrients in specific quantities.
Bulky and voluminous, hence difficult to store.	Compact, use very less space and therefore easy to store.
Manure provides a lot of organic matter to the soil. It is slowly absorbed by the plants.It also improves soil texture and water holding capacity of the soil.	Fertilizer does not provide any humus to the soil. It is quickly absorbed by the plants. Fertilizers have no such effects on soil texture and water holding capacity of the soil.
Crop productivity is increased only to some certain extent. Manures are cheaper than fertilizers	Crop productivity is increased many folds by its use. They are expensive
No side effects of manure are absorbed.	Chemicals in fertilisers are washed away to the nearby water bodies, causing soil and water pollution.

Q.21 On the basis of the kind of biological material used, how are manures classified?

Based on the kind of biological material used, manure can be classified as:

(i) **Compost and vermin-composting:** The process in which farm waste material like livestock excreta (cow dung etc.), vegetable waste, animal refuse, domestic waste, sewage waste, straw, eradicated weeds etc. is decomposed in pits is known as composting. The compost is rich in organic matter and nutrients. Compost is also prepared by using earthworms to hasten the process of decomposition of plant and animal refuse. This is called vermi-compost.

(ii) **Green manure**: Prior to the sowing of the crop seeds, some plants like sun hemp, bersem, cow-pea or guar are grown and then mulched by ploughing them into the soil. These green plants thus turn into green manure which helps in enriching the soil in nitrogen, phosphorus and other organic compounds.

Q.22 What are the advantages of using vermin-compost?

Advantages: Vermi-compost is a preferred nutrient source for organic farming. It is eco-friendly, non-toxic, consumes low energy input for composting and is a recycled biological product

Q.23 What are the disadvantages of using fertilizers?

Disadvantages of Fertilizers over Manures

Chemical fertilizers when used in proper amounts promote the growth of plants and boost the crop yield. However, the excessive use of fertilizers has many serious disadvantages. Some of these are discussed below:

(a) The excessive use of nitrogenous fertilizers concentrates nitrates in the soil and water. Nitrate rich water is unfit for drinking, and is rather difficult to treat. When nitrate rich water is carried off into surface water bodies such as ponds, rivers and lakes it proliferates (accelerates) the growth of alga. These algae consume dissolved oxygen from water and thus deplete the water of its oxygen content leading to the death of useful aquatic life such as fish. Such an increase in the growth of algae in the lakes, ponds etc. resulting in the reduction of oxygen content in water is called EUTROPHICATION. Eutrophication thus destroys the life supporting environment in lakes and ponds.

(b) Excessive use of fertilizers over a long period may affect the **alkalinity or acidity of the soil** and may adversely affect the crop production.

(c) Continuous use of fertilizers in an area can destroy soil fertility because the organic matter in the soil is not replenished and micro-organisms in the soil are harmed by the fertilizers used.

Q.24 What do we mean by 'organic farming'?

Organic Farming : Organic farming is the cultivation of crops without the use of chemicals as fertilizers, herbicides, pesticides, etc and with a maximum input of organic substances with healthy cropping systems.

In organic farming, the following are used and considered important:

1.**Bio-agents** to increase fertility- eg. Blue green algae

2.**Biopesticides**: Neem leaves and turmeric

3.**Biological method of pest control**: Certain insects/animals are introduced in the farmland that selectively feed on the pests but do not harm the soil or the crops.

4.**Healthy cropping systems**: Mixed cropping, intercropping and crop rotation are also use to get better production.

Q.25 What are the advantages of organic farming?

Advantages of organic farming:

i) Organic farming is free from synthetic chemicals. Therefore, it is an environment friendly method of farming.

ii) Sustains soil fertility

iii) Organically grown crops have high nutritional value than the conventionally grown crops.

iv) Organic farming offers an inexpensive farming technique to the small and marginal farmers.

v) It generates higher income from exports as there is a huge demand in the international markets for organic crops.

vi) These cropping systems are beneficial in insect, pest and weed control besides providing nutrients.

vii) The farm waste is effectively recycled and crops are grown in a manner that is environment friendly.

Q.26 Identify the limitations found in organic farming:

Limitations of organic farming:

a) It offers lesser yield than conventional farming. Therefore productivity of organic farming is lower than that of organic farming.

b) The popularity of organic farming depends on the awareness and willingness of the farmers to adopt this technology. Due, to lower productivity, farmers lack initiative to adopt organic farming technique.

c) The inadequate infrastructure and problem of marketing are the major concerns that need to be addressed to promote organic farming.

d) Due to lesser yield, this type of farming is not financially viable for the small and marginal land holding farmers.

Q.27 Define the term 'irrigation'

The supply of water to crop plants by means of canals, reservoirs, wells, tube wells etc is known as irrigation.

Q.28 What is rain-fed farming?

Agriculture that relies on direct rainfall is referred to as rain-fed farming.

Q.29 On what factors does the irrigation of crop plants depend on?

The irrigation of crop plants depends on –

a) Nature of crop plants: The water requirement of different crops is different during various stages of their growth and maturation. For example, paddy needs standing water, whereas wheat and cotton requires less water.

b) Nature of soil: Irrigation depends on the nature of soil in which crop is grown. For example, sandy soil needs irrigation more frequently whereas clayey soil needs less water.

Q.30 Mention some of the fresh initiatives taken to increase the water availability for agriculture.

Two new irrigation systems have been developed to save water and increase the availability of water to the crops. These are:

a) **Drip irrigation system**: Here, water is supplied to the roots of the plants directly in a drop wise This prevents unnecessary wastage of water.

b**) Sprinkler system**: Here water is sprinkled over the crops like it happens in rain. So, water is absorbed by the soil in a better way

c) Rain water harvesting

d) **Water shed management:** here, small check dams are built that increase groundwater levels and also prevent soil erosion and prevent wastage of rain water.

Q.31 What is the importance of irrigation?

There are many benefits or rather importance attached to irrigation-

- Water supplies two essential elements to the crop plants namely, hydrogen and oxygen.

- Irrigation of crops provides moisture to the soil for the germination of seeds. Seeds do not grow in dry soil.

- The roots of the crop plant cannot grow well in dry soil. Irrigation loosens the soil and supports the growth and elongation of the roots.

- Water at the time of irrigation dissolves the nutrients present in the soil. These nutrients dissolved in water are easily absorbed by the roots of the plants.

Q.32 What are the various types of irrigation systems adopted to supply water to the fields in India?

Several irrigational systems are adopted to supply water to the fields depending upon the kinds of water resources available-

a) **Wells:** This system is based on the availability of ground water. In the well irrigation system, wells are constructed wherever exploitable ground water is present.

There are two types of wells: Dug wells and tube wells.

Dug wells tap water from water bearing strata in lower levels of soil.

Tube wells, however, tap water from deeper strata. Water from these lower layers is lifted by pumps to the surface for irrigation.

b) **Canals:** are a network of channels that connect the field to a water body/ water source that may be a river, a water reservoir or a dam.

c) **River Lift Systems**: This is required in areas where canal flow is insufficient. Water is directly drawn from the rivers to irrigate the fields in close vicinity.

d) **Tanks :** Tanks are small water reservoirs that store run-off from small catchment areas.(A catchment area acts like a funnel, collecting all the water within the area covered by the basin and channelling it into a waterway.)

Q.33 What are the different ways of growing crops that can be used to give maximum benefit?

(a) Mixed Cropping: Mixed Cropping is growing of two or more crops simultaneously on the same piece of land. It is also known as **multiple cropping**. This reduces risk and gives some insurance against failure of one of the crops

(b) Inter Cropping: Intercropping is the agricultural practice of cultivating two or more crops in the

same space at the same time in a definite pattern. The crops are selected such that their nutrient requirements are different. This ensures maximum utilisation of the nutrients supplied, and also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. This way, both crops can give better returns

Intercropping also uses the practice of sowing a fast growing crop with a slow growing crop, so that the fast growing crop is harvested before the slow growing crop starts to mature

(c) Crop rotation: It is the practice of growing a series of dissimilar types of crops in the same area in sequential seasons for various benefits such as to avoid the build up of pathogens and pests that often occurs when one species is continuously cropped. Depending upon the duration, crop rotation is done for different crop combinations. The availability of moisture and irrigation facilities decides the choice of the crop to be cultivated after one harvest. If crop rotation is done properly then two or three crops can be grown in a year with good harvests.

Q.34 Name some of the successful mixed cropping practices?

Some successful mixed cropping practices are-

Soyabean + pigeon pea

Maize + urad dal (black gram)

Groundnut + sunflower

Wheat + Chick Pea

Q.35 What are the advantages associated with the practice of mixed cropping?

Advantages of Mixed cropping-

i) No risk of crop failure

ii) Variety of produce

iii) Increase in yield

iv) Improvement in soil fertility

v) Minimising Pest Damage.

vi) Less input in terms of labour

Q.36 What type of plants is selected for mixed cropping and intercropping?

Crops are chosen whose nutrient requirements are different so that maximum utilisation of the soil nutrients takes place. Also, their water needs, rooting patterns etc are different.

Q.37 What are advantages in practicing intercropping?

Besides the advantages mentioned for mixed cropping, Intercropping has the following additional advantages:

i) It makes optimum utilization of resources such as sunlight, land and water.

ii) Application of pesticides and fertilizers is more convenient due to well defined patterns of

iii) Harvesting of crops is also easier

Q.38 How does crop rotation restore soil fertility?

Cereal plants cannot utilze nitrogen directly from the air, whereas leguminous crops possess the ability of fixing nitrogen from air to form nitrogen compounds in the soil. Thus, if a cereal crop is grown in a field then most of the nitrogen present in the soil are absorbed and the soil becomes deficient in nitrogen and this reduces soil fertility. If the next crop grown is a leguminous crop, then it utilizes atmospheric nitrogen to form nitrogen compounds in the soil. As a result, the deficiency of nitrogen in the soil is restored. Hence, the soil becomes ready for the next crop.

In the root nodules of leguminous crops, the nitrogen fixing bacteria *Rhizobium* are present which can fix atmospheric nitrogen into nitrates which is utilised by plants for synthesis of proteins.

Q.39 What is the basis for the selection of crops followed during crop rotation?

The selection of crops and their varieties is done on the basis of

i) Moisture conditions

ii) Length of the rainy season, i.e. irrigation

iii) Type of soil

iv) Risk involved

Q.40 Why is removal of weeds from cultivated fields during the early stages of crop growth essential for a good harvest?

Weeds compete for food, space and light. Weeds take up nutrients and reduce the growth of the crop. Therefore, removal of weeds from cultivated fields during the early stages of crop growth is essential for a good harvest.

Q.41 What are weeds?

Weeds are unwanted plants in the cultivated field, for example, Xanthium (gokhroo), Parthenium (gajar ghas), Cyperinus rotundus (motha).

Q.42 What are the ways in which insect pests attack the plants?

Insect pests attack the plants in three ways:

i) They cut the root, stem and leaf

ii) They suck the cell sap from various parts of the plant

iii They bore into stem and fruits.

They thus affect the health of the crop and reduce yields.

Q.43 What causes diseases in plants and how are they transmitted?

Diseases in plants are caused by pathogens such as bacteria, fungi and viruses. These pathogens can be present in and transmitted through the soil, water and air

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Q.44 How are weeds, insects and diseases controlled in plants?

One of the most commonly used methods is the use of pesticides, which include herbicides, insecticides and fungicides. These chemicals are sprayed on crop plants or used for treating seeds and soil.

The methods used for Weed control are: mechanical removal, use of herbicides, summer ploughing (fields are ploughed deep in summers to destroy weeds and pests.)

Q.45 What are the methods that are followed for preventing the growth of weeds?

Preventive methods such as

- Proper seed bed preparation

- Timely sowing of crops

- Intercropping

- Crop rotation.

- The use of resistant varieties,

- Summer ploughing, in which fields are ploughed deep in summers to destroy weeds and pests.

Q.46 What are the preventive methods practised against the infection of pests?

Some other preventive measures against pests are

- The use of resistant varieties

- Summer ploughing, in which fields are ploughed deep in summers to destroy weeds and pests

- Use of pesticides.

Q.47 What are the factors responsible for storage losses?

Factors responsible for such losses are

i) Biotic— insects, rodents, fungi, mites andbacteria

ii) Abiotic— inappropriate moisture and temperatures in the place of storage

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Q.48 What are the negative effects caused on the grains by the biotic and abiotic factors that causes storage losses?

The biotic and abiotic factors that causes storage loss also create negative effects on the grains in the following ways-

(i) Causes degradation in quality

(ii) loss in weight

(iii) poor germinability

(iv) discolouration of produce,

(v) leading to poor marketability

Q.49 What are the preventive and control measures that are used before grains are stored for future use?

Prevention and control methods used before grains are stored:

- Cleaning of produce before storage

- Drying of produce first in sunlight and then in shade to reduce moisture content

- Fumigation using chemicals (fumigants) to kill pests.

Q.50 What is biological pest control?

In this method, some birds, insects etc are deliberately put in the affected field. They destroy the pests in the field.

Animal Husbandry

Q.51 Define animal husbandry:

The Animal husbandry is the scientific management of animal livestock. It includes various aspects such as feeding, caring, breeding and disease control.

Q.52 Give the purposes of cattle farming:

Cattle husbandry is done for two purposes—

- Milk

- Draught labour for agricultural work such as tilling, irrigation

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Q.53 What are the two different species of Indian cattle?

Indian cattle belong to two different species, *Bos indicus* -cows, and *Bos bubalis* - buffaloes

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Q.54 Cattle's are classified into different types on the basis of their utility. What are they?

On basis of their utility, cattle are classified into two types namely milch animals and drought animals-

- Milch animals or dairy animals produce milk. Males of this type are not useful for working on farm.

- Draught animals are used for carrying out agricultural work like tilling, irrigation and carting. Cows belonging to this category are poor milk-yielding varieties.

Q.55 How can milk production in cattle be increased?

Milk production can be increased by increasing the lactation period. To increase production of milk, cows and buffaloes are cross-bred with bulls from high-yielding foreign breeds. Jersey, Karan-Fries, Karan-Swiss, Friesion-Sahiwal are some of the high milk-yielding cows developed in this way. Murray is a high-yielding buffalo developed by cross-breeding.

Q.56 What are the food requirements of diary animals?

The food requirements of dairy animals are of two types-

(a) Maintenance requirement, which is the food required to support the animal to live a healthy life

(b) Milk producing requirement, which is the type of food required during the lactation period.

Q.57 Explain about food requirements of diary animals:

Diary cattle require feed for both growth and milk production. It is important to provide a balanced and sufficient diet for optimal and high quality production.

Animal feed includes:

(a) Roughage are coarse and fibrous straw materials having a low nutrient content such as carbohydrates, fats, minerals, proteins and vitamins. Animals get roughage in their feed from substances like hay(straw of cereals) and fodder.

(b) Concentrates, which are low in fibre and contain relatively high levels of proteins and other nutrients. They contain relatively smaller amounts of crude fibre and high amount of proteins and other nutrients. This type of feed is easily digestible and it helps the animal in increasing body weight.

Besides roughages and concentrates, certain feed additives containing micronutrients are also supplied in the diet of the cattle to promote the health and milk output of dairy animals.

Q.58 What is meant by poultry farming?

Poultry farming is the practice of raising poultry such as chicken, turkeys, fowl, ducks and geese for the purpose of meat or egg for food.

Q.59 What are layers?

Layers are egg laying birds. They start laying eggs at the age of 20 weeks. They are fed with high fibre content.eg grit of stones for calcium and grains for fibre.

Q.60 What are concentrates?

Concentrates are rich in nutrients with very little fibrous or cellulose matter. They are rich in carbohydrates, proteins, fats, minerals and vitamins. E.g., oil cakes, grains etc.

Q.61 What are the management practices for cattle farming?

Management practices for cattle include cleaning, sheltering and feeding.

Management practices for cattle include cleaning, sheltering and feeding.

a) Cleaning involves periodic washing to get rid of dirt and loose hair.

b) Shelter facilities include well ventilated roof sheds which protect cattle from rain, cold and sun.

c) Feeding of cattle includes supply of uncontaminated and balanced diet.

d) Cattle should be protected from diseases. Diseases in cattle are caused by both external and internal parasites. External parasites live on the skin and cause skin diseases. Internal parasites affect the stomach and intestinal parts.

e) Infectious diseases are caused by pathogens like bacteria, viruses and fungi. Sheds should be cleaned and disinfected regularly. Vaccination against various diseases should be provided to farm animals. Vaccination should be given against various diseases.

Q.62 What are the benefits of cattle farming?

The benefits of cattle farming are-

- Milch cattle are used for the production of milk.

- Draught cattle are used for labour connected with agriculture-tilling, irrigation and carting.

- Cattle farming increases the overall income of the farmers and also raises their standard of living.

- Animal wastes can be used as manure for enriching the soil

- Cow-dung can be used for the production of biogas

- It also provides employment to many people.

- Since this dairy industry is not reliant on rainfall, development is possible even on days when the elements are very dry and hot.

Q.63 What is the need for animal husbandry?

Need for animal husbandry-

a) To increase milk production.

b) To increase milk production.

c) To increase egg production.

d) To increase meat production

e) To increase fish production

Q.64 What are desirable traits for which the improved breeds are developed in poultry birds?

Variety improvement are focused on to develop new varieties for the following desirable traits—

(i) Number and quality of chicks

(ii) Dwarf broiler parent for commercial chick production

(iii) Summer adaptation capacity/tolerance to high temperature

(iv) Low maintenance requirements

(v) Reduction in the size of the egg-laying bird with ability to utilise more fibrous cheaper diets formulated using agricultural by-products.

Q.65 What are the various breeds of cows?

Breeds of Cow -

(a) Indigenous breeds- These are the local or desi breeds and they have long lactation period. E.g.,RED SINDHI and SAHIWAL.

(b) Exotic breeds- These are the Foreign breeds. They show resistance to diseases eg-JERSEY and BROWN SWISS.

(c) Hybrid breeds-are the offspring's of cross between indigenous and exotic breeds to get desirable character.

Q.66 What are the different breeds of poultry?

Breeds of poultry are-

- Indegenous breeds eg Aseel

- Exotic breeds eg Leghorn

Q.67 What are Broilers?

Broilers are the birds raised for meat production. They require high protein and fat and vitamin A and K rich diet

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Q.68 What are the practices adopted to take care of the poultry birds?

The following practices are needed to take care of for birds-

(a) Hygenic conditions in housing.-proper sanitation and spraying of disinfectants.

(b) Protection form diseases-they suffer from diseases caused by virus, bacteria, fungi. Appropriate vaccination can prevent the occurrence of infectious diseases and reduce loss of poultry during an outbreak of disease.

c) Management of temperature.

Q.69 What are common management techniques practiced in poultry farming?

Management practices for poultry farming are elucidated-

- Maintaining optimum temperature

- Providing hygienic housing conditions

- Providing a protein-rich diet with high levels of vitamin A and K, and

- Preventing and controlling pests and diseases.

Q.70 What are true or finned fishes?

True /finned fish are the ones that include marine & freshwater fish such as pompret, tuna, cod, catla, prawns, rohu, mrigal,etc.

Q.71 What are the two ways of obtaining fishes?

There are two ways of obtaining fish-

(i) CAPTURE FISHERY- Done from natural resources both marine and freshwater with the help of boats and nets.

(ii) CULTURE FISHERY- Fish farming of economically valuable varieties of finned and shell fish.

Q.72 What is meant by mariculture?

The practice of rearing and culturing marine fish, ie:- fish found in seas and oceans is called MARICULTURE

Q.73 What are the advantages of cross-breeding of cattle?

Advantages of cross-breeding

Cross-breeding helps in the development of certain desired characteristics in animals.

- To increase milk production

- To increase resistance against diseases.

- To enhance the varieties with longer lactation period.

- To rely on less amount of quality feed.

Q.74 What are the two types of fishery?

Fin fishery- includes capturing, management and exploitation of cartilaginous and bony fish

Shell fishery- capturing, management and exploitation of crustaceans(crabs, prawns etc) and molluscs (oyster, mussels etc)

Q.75 Distinguish between Marine fisheries and Inland fisheries:

Marine fisheries:

- A marine fishery resources include7500 km of coastline and the deep seas beyond it

- Marine fish are caught-

(a) Traditional methods-These include fishing nets and gear operated vessels.

(b) Modern methods- These include use of satellites and echo-sounders to locate the schools of fish in the open sea

- Popular marine fish varieties include pompret, mackerel, tuna, sardines, and Bombay duck.

Inland fisheries:

- Inland fisheries deal with fresh water resources (includes canals, ponds, reservoirs and rivers). Brackish water resources, where seawater and fresh water mix together, such as estuaries and lagoons are also important fish reservoirs

- Capture fishing is also done in such inland water bodies, the yield is not high.

Q.76 What is meant by composite fish culture?

Intensive fish farming is done in composite fish culture. Both local and imported fish species are used in such systems. In such a system, a combination of five or six fish species is used in a single fishpond. These species are selected so that they do not compete for food among them having different types of food habits. As a result, the food available in all the parts of the pond is used. As Catlas are surface feeders, Rohus feed in the middle-zone of the pond, Mrigals and Common Carps are bottom feeders, and Grass Carps feed on the weeds, together these species can use all the food in the pond without competing with each other. This increases the fish yield from the pond.

Q.77 Composite fish culture is highly advantageous. Why?

Advantageous of composite fish culture-

- These fishes do not compete for food

- The food available in all the parts of the pond is used.

- Five or six fish species of fishes are reared together

- It gives very high yield.

Q.78 What is blue revolution?

Increase in the production of fish, shellfish, prawns, crabs and shrimps through culture fishery is has brought a revolution. This revolution is fish food is called blue revolution.

Q.79 State one major disadvantage of composite fish culture:

One problem with composite fish culture is that many of these fish breed only during monsoon.

Q.80 What is apiculture?

The practise of keeping or rearing, caring and management of honey bee on a large scale for obtaining honey and wax is called apiculture. The place where bees are kept is called apiary.

Q.81 What are the different varieties of honey bee used in bee keeping?

The different varieties of honey bee used in bee keeping are-

(a) Indigenous varieties-

Apis cerana indica , commonly known as the Indian bee,

Apis dorsata, the rock bee

Apis florae, the little bee. An Italian bee variety

(b) Exotic varieties:

Apis mellifera, the Italian bee

Apis adamsoni, south African bee

Q.82 On what factors does the quality and quantity of the honey depend on?

The value or quality of honey depends upon the pasturage, or the flowers available to the bees for nectar and pollen collection.

The kind of flowers available will determine the taste of honey.

So, the more of the abundance of flora and for longer duration, the better will be the quantity and quality of honey.

Q.83 Why are Italian bee varieties preferred?

They are preferred as-

They are gentle in nature. They sting somewhat less.

They have high honey collection capacity.

They stay in a given beehive for long periods, and breed very well.

Q.84 Farmers use bee-keeping as an additional income generating activity. Give two reasons

As bee-keeping needs low investments, farmers use it as an additional income generating activity.

Does not require complex technologies and techniques to start with

Bees usually look after themselves, with little need for tendering.

Q.85 Why livestock needs to improve?

As the population and living standard of the people are increasing, there is an increase in demand of animal food and so livestock production also needs to improve.

Q.86 What do you understand by lactation period?

Lactation period is the duration of milk production between the birth of a young one and the next pregnancy.

Q.87 What type of diseases affects the cattle?

Cattle suffer from a number of diseases. They are affected by parasitic and infectious diseases. The parasites of cattle may be both external parasites and internal parasites. The external parasites live on the skin and mainly cause skin diseases. The internal parasites like worms, affect stomach and intestine while flukes damage the liver. Infectious diseases are also caused by bacteria and viruses.

Q.88 Which method of variety improvement of poultry is commonly used?

Variety improvement of poultry involves hybridization (cross- breeding)of indigenous varieties and exotic breeds.

Q.89 What is the main cause of disease in poultry animals?

Poultry fowl suffer from a number of diseases caused by virus, bacteria, fungi, parasites, as well as from nutritional deficiencies.

Q.90 Mention 5ways to prevent occurrence of disease in cattle:

(i) Maintaining cleanliness in cattle sheds

(ii) Providing nutritive food and clean drinking water

(iii) Regular check-up of domestic animals for diseases.

(iv) Vaccinating domestic animals against such diseases.

(v) Disposing wastes and dead animals properly.

Q.91 What are the difference between broilers and layers and their management:

BROILERS	LAYERS
Broilers have fast growth rate, therefore they need protein rich food with sufficient fat	Layers need less proteins and fats in their food.
VitaminA and K are provided in larger quantities	Sufficient nutrients, minerals and vitamins have to be provided
Do not require much space and lighting	They need enough space and lighting
Broilers are raised for 6-7 weeks in the poultry farm	Layers begin to lay eggs after about two months.

Value Based Question :

Q.1 Rajesh had just finished his studies in Agriculture College Jabalpur. In the meeting next morning, the farmers very discussing how to increase the crop production. One farmer suggested the use of fertilizers. Since most of the farmers in the village were poor and could not afford to buy fertilizers. The Sarpanch asked Rajesh to give his suggestions. Rajesh asked to farmers to dig pits in their fields and put plant stubble, animal refuse and earthworms into it and loosely cover it with leaves and leave it for 3-4 months he also suggested that they choose 2-3 crops which do not compete with each other and sow them in precise patterns.

(1) What is prepared in the pit with plant stubble, animal refuse and earthworms? What is its importance?

(2) What is the method of cropping pattern suggested by Rajesh? What are its benefits?

(3) What are the disadvantages of using excess fertilizers in the long run?

(4) What value of Rajesh is highlighted here?

(1) Compost is being prepared in the pit.

Importance of compost-

- **Compost** increases the biological diversity of soil, improves water adhesion, reduces erosion and improves soil fertility.

- **Compost** helps increase the yield of many agricultural crops.

- **Compost is a substitute for chemical fertilizers** in field cultivation and the nitrogen, phosphorous and potassium it contains balances the concentration of its nutrients. The characteristic slow release of compost substances enables the plant to absorb more nutrient material before it seeps into the ground.

- By composting, you can also help to reduce the amount of waste that is being directed into our landfills

(2) The method of cropping pattern suggested by Rajesh is inter Cropping.

The crops are selected such that their nutrient requirements are different. This ensures maximum utilisation of the nutrients supplied, and also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. This way, both crops can give better returns.

(3) Disadvantages of Chemical Fertilizers:-

- Excessive use of fertilizers over a long period may affect the **alkalinity or acidity of the soil** and may adversely affect the crop production.

- Continuous use of fertilizers in an area can destroy **soil fertility.**

- Run-offs can lead to water pollution making the water unfit for human use.

(4) Rajesh displays-

- Indepth knowledge agriculture

- Concern for farmers.

Q.2 A farmer noticed the poor growth of his crops. To his dismay, he found Xanthium and Parthenium are also growing along with paddy in the fields. He decides to remove them from his field as he was aware that the removal of weeds during the early stages of crop growth from cultivated fields is essential for a good harvest.

(1) What are such plants called? How the presence of these list plants affect the crop field?

(2) List any 4 methods of controlling them.

(3) What value of the farmer is shown here?

(1) The plants that the farmer found growing in the field along with the plants are called weeds. Weeds compete with the paddy plants for food, space and light and take up nutrients and reduce the growth of the crop(paddy)

(2) Mechanical removal, use of herbicides, summer ploughing (fields are ploughed deep in summers to destroy weeds and pests), intercropping.

(3) The farmer-

Shows his knowledge about agriculture

Knack of noticing every minute detail in whatever work he does..