Chapter 1
Production and Management of Crops

ASSIGNMENT FOR SA AND FA

1. Match the following:
   1. Honey                      poultry
   2. Green manure               hybridization
   3. Duck                      wheat
   4. Cereal                    ayurvedic medicine
   5. High-yielding varieties nitrogen and phosphorus

2. Multiple choice questions:
   1. Sowing of seed by hand is called:
      (a) weeding     (b) broadcasting     (c) harvesting     (d) transplantation
   2. Which of the following is a plantation crop?
      (a) Cotton       (b) Wheat       (c) Coffee       (d) Rice
   3. Which of the following organism is not a pest?
      (a) Locust       (b) Earthworm       (c) Rat       (d) Crow
   4. Which of the following is added to maintain fertility of the soil?
      (a) Antibiotics     (b) Manure     (c) Weedicides     (d) All of these
   5. Which of the following methods of cultivation will result in the loss of soil fertility?
      (i) Crop rotation      (ii) Shifting cultivation      (iii) Use of chemical fertilizers in excess
      (a) (i) and (ii)      (b) (ii) and (iii)      (c) (i) and (ii)      (d) all of these
   6. Which of the following crop will enrich the soil with nitrogen?
      (a) Apple       (b) Potato       (c) Rice       (d) Pea
   7. ___________ rich diet should be given more to milk cattle to get useful food products.
      (a) Fats       (b) Carbohydrates       (c) Proteins       (d) Water

3. Very short answer questions:
   1. _______________ are bulky and difficult to store and spread in the field.
   2. Plants and animals are _______________ in order to get varieties for better yield of the product.
   3. _______________ plants need to be partially submerged in water.
   4. Dairy animals are reared for obtaining products, like paneer, cheese, etc. True or false?
   5. Pesticides are used to kill organisms that can harm the crop plants. Is it true?
   6. Levelling is the process of loosening and turning of soil. Do you agree?
   7. The Latin word that means ‘cultivation’ _______________
   8. Cultivation of fruits, vegetables and ornamental plants _______________
   9. A simple implement used for weeding and loosening soil, pulled by animals _______________
4. **Short answer questions:**
   1. What is manuring and how is it useful?
   2. What is seed drill?
   3. What do you understand by transplantation?
   4. Why are earthworms used in vermicomposting?
   5. How is farmyard manure prepared?
   6. What is mixed cropping? Give examples.
   7. How are high-yield varieties of crops obtained?
   8. Describe the term field fallow in one or two sentences.

5. **Long answer questions:**
   1. Explain the broad classification of the term agriculture.
   2. Briefly describe various agricultural implements used for ploughing and sowing seeds.
   3. What precautions need to be taken before sowing?
   4. What are the modern methods of irrigation?
   5. Explain some domesticated animals according to their utility.
   6. Explain the term zaid.

6. **HOTS questions (Higher Order Thinking Skills):**
   1. Can winnowing be done while sitting on the ground?
   2. How are dams helpful for agriculture?
   3. What is organic farming?

**ASSIGNMENT FOR FA**

A. **Classroom activities**
   1. Growing crops and their protection is a laborious work. It demands money, physical efforts, time, working in hard conditions, etc. To understand the efforts made by farmers while following various farming practices, conduct the following activity in the classroom:
      (i) Make a list of various agricultural practices used by farmers while growing crops.
      (ii) Divide your class in different groups of 6-7 students each, according to the farming steps. For example, soil preparation group, manuring group, etc.
      (iii) Let each group discuss about its assigned farming step in detail. Focus on requirements, money, season of a particular crop, irrigation, and other difficulties, etc.
      (iv) After this inter-group discussion, organise a combined group discussion.
     (v) Note down the difficulties and efforts carried out by the farmers while applying these practices. Now you realise the hard work of a farmer. Think about the times you have wasted food in your plate or tiffins!
   2. On the basis of the above activity, make a PowerPoint presentation or prepare a seminar on your assigned farming step. Make it interesting by using tables, flow charts, pictures and other tools.

B. **Conversation activity**
   Form groups of 4-5 students each in the classroom. Organise a group discussion activity on the following topics:
   1. Organisms like earthworms are considered as ‘farmer’s friend’.
2. Why is there a need of applying chemical fertilizers in the agricultural fields?
3. How are traditional methods of irrigation different from modern methods of irrigation?
4. Disadvantages of using weedicides in the fields.

C. Exploration activities
1. Selecting good quality, viable seeds is an important part of crop production. A government organisation called National Seeds Corporation (NSC) is involved in the production of good-quality agricultural seeds. Find out about NSC laboratories in our country, their mode of functioning, etc.
2. India became an exporter of food grains, in addition to fulfilling our country’s requirements, after successful launch of ‘Green Revolution’. Dr. M.S. Swaminathan and Dr. B.P. Pal initiated Green Revolution in India. Find out about their contribution in agriculture sector that led to this immense success.

D. Experiments/Projects
1. Like agriculture, animal husbandry is also a vast sector which is a big source of animal food and other useful products for us. Considering this, make projects on the following topics:
   (i) Apiculture
   (ii) Pisciculture
   (iii) White Revolution
   (iv) Silver Revolution
2. There has been tremendous progress in agricultural practices after independence. Collect information about the changes occurred in last 50 years in this sector. You may compile the collected information in decades to make it in sequence.

E. Fun activity
Words related to this chapter are hidden in the following word grid. Find these words and you can rank yourself on the basis of number of words you have searched. The ranking/score is given below:

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V M O A T D H E K L I C A T T L E
E S P R I N K L E R R W G P G F C
G E H W I N N O W B R A A B I P
E F C E H K R A I F I D G S L
T H R E S H I N G S G N C D R H O
A A O D F A R M E R A T U Y A A U
B R P L O H G I A T I L L I N G
L V A C O M B I N E I N T W N G H
E E E K S E E D H O T U D E K S
W S O I L R S O W I N G R E G G H
A T R A H A T M A N U R E T S H A
T I F E R T I L I S E R F O O D R
E N I S R O G E N U T R I E N T E
R G R A N E R Y R H I Z O B I U M
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Word search ranking pattern:
1. Up to 10 words  – Medium
2. Up to 20 words  – Good
3. Up to 30 words  – Super
Chapter 2

Microorganisms

ASSIGNMENT FOR SA AND FA

1. Match the following:
   1. Tuberculosis   incubator
   2. Smoking        high heat processing
   3. Canning        protozoa
   4. Amoebiasis     meat products
   5. Microwave      bacteria

2. Multiple choice questions:
   1. Which of the following groups is not related to microorganisms?
      (a) Algae   (b) Angiosperms  (c) Bacteria    (d) Fungi
   2. Which of the following is destroyed by pasteurization of milk?
      (a) Bacteria (b) Fats        (c) Proteins    (d) Vitamins
   3. The protozoan that has chlorophyll is:
      (a) amoeba  (b) euglena      (c) paramecium (d) plasmodium
   4. The vector of malaria fever is:
      (a) aedes    (b) anopheles   (c) culex      (d) all of these
   5. Which of the following diseases is caused by protozoa?
      (a) Filarisis  (b) Measles    (c) Sleeping disorder (d) Tetanus
   6. How is algae different from fungi?
      (a) Algae is heterotrophic.  (b) Algae is autotrophic.
      (c) Algae is parasitic.      (d) Algae is saprophytic.
   7. Which of the following characteristics cannot be used to differentiate bacteria?
      (a) Size        (b) Shape      (c) Habitat     (d) Nutrition

3. Very short answer questions:
   1. Disease causing microorganisms are called ________________.
   2. Meat products are preserved by the process of ________________.
   3. Whooping cough is a disease caused by a virus. True or false?
   4. Jams can be preserved by adding preservatives. Is it true?
   5. ________________ form of bacteria are comma shaped.
   6. Disease caused by eating spoiled food ________________
   7. Mode of nutrition of algae ________________
   8. Suspension of weak germs ________________

4. Short answer questions:
   1. Why should we keep a handkerchief on the nose and mouth while sneezing?
   2. Why are antibiotics not effective against cold and flu?
   3. Why are children given vaccination? How does a vaccine work?
   4. How are vaccines different from antibiotics?
   5. Which preservation methods would you choose for the following food products?
      (a) Fruit salad    (c) Raw (green) mango
      (b) Fresh milk     (d) Spinach and cottage cheese (palak paneer)
6. How is curd formed? What are the benefits of eating curd?
7. What is food poisoning and how can it be prevented?

5. **Long answer questions:**
   1. What is fermentation? Mention its uses in daily life.
   2. Explain the process of pasteurization.
   3. Debate the advantages and disadvantages of fresh versus preserved food.
   4. Draw neat labelled diagrams of the following: (a) Bacteria (b) Virus
   5. Discuss the various forms of bacteria.
   6. Name the methods of preservation of food commonly used at your home. Describe any one.
   7. Explain the role of yeast in the field of food industry.
   8. Discuss the role of microbes in cleaning the environment.

6. **HOTS questions (Higher Order Thinking Skills):**
   1. We cannot use boiling milk for setting curd. Why?
   2. Vaccines are given to humans and animals for protection against diseases. Do plants also need vaccines?
   3. Microorganisms like bacteria and fungi keep the Earth clean. How?

**ASSIGNMENT FOR FA**

**A. Classroom activities**

1. Microbes or microorganisms are very useful in making various food items. Everyday in our home, we enjoy eating different foods in which microbes are somewhere involved. Form groups of 5-6 students each. Each one of you bring at least one food item in which microbes are used in preparation. Sit in groups during lunch break and notice what these food items are. Now find out which microbe is involved in a particular dish. What role does it play in the making of that food? Discuss with your teacher about your findings.

2. Microorganisms cause various kinds of diseases in humans, plants and animals. To know about this in detail, divide your class in the following groups:
   - **Group A** – Diseases caused by microbes in humans
   - **Group B** – Diseases caused by microbes in animals
   - **Group C** – Diseases caused by microbes in plants

   Let each group conduct research on their respective topic. Try to collect maximum diseases that are caused by a particular microbe, for example, bacteria, virus, fungi, etc. Now based on the collected information, organise the following:
   - (i) A seminar or PowerPoint presentation
   - (ii) Poster presentation
   - (iii) Quiz competition

**B. Conversation activity**

Microorganisms cause communicable diseases. They require some transmission agent to enter the body of a living organism.

Discuss in the class which pathogens cause the following diseases, and how do they enter our body? Let each student participate in the discussion.

Diseases caused by microbes:

(i) Cholera  
(ii) Typhoid  
(iii) Malaria  
(iv) Polio  
(v) Common cold  
(vi) Ringworm  
(vii) Athlete’s foot
C. **Exploration activities**

1. Pasteurisation is a technique in which milk is heated to about 65°C for 30 minutes or to 72°C for 15 minutes, followed by rapid cooling below 10°C. This kills most of the bacteria present in milk and prevents it from spoilage. A scientist named Louis Pasteur discovered this technique. He discovered many things related to microbial world that are useful to humans. Find out what his other contributions are.
2. Mushrooms are large sized fungi that grow along roads, in gardens and wastelands. Among the different types of mushrooms, Agaricus is a palatable mushroom. Find out about its farming methods, season and conditions in which it is grown.

D. **Experiments/Projects**

1. Alexander Fleming is well known for the discovery of an antibiotic called penicillin. Sir Ronald Ross discovered that a malarial parasite plasmodium is transmitted by female anopheles mosquito. Prepare a detailed project on the discoveries of Alexander Fleming and Sir Ronald Ross.
2. Understand the process of fermentation by the following experiment:
   (i) Take two similar test tubes and mark them as A and B. Keep them in a test tube stand.
   (ii) Put equal amount of water, and some sugar in both of them.
   (iii) Add a spoonful of yeast powder in test tube B.
   (iv) Now take two balloons and inflate them partially and equally. Fix them on the mouth of each test tube. Leave for 3-4 hours and observe.
   (v) You will notice that the balloon of test tube B blows up while that of test tube A deflates. This is because the test tube B contains yeast cells that consumed sugar and produced carbon dioxide during the process. This carbon dioxide gas filled the balloon.

   We can test that the inflated balloon contains carbon dioxide gas by the following experiment:
   (a) Take a test tube and fill it half with limewater.
   (b) Remove the inflated balloon from test tube B in a way that it does not deflate.
   (c) Fix this balloon on the test tube containing limewater. Observe what happens. You will observe that limewater turns milky. This confirms the presence of carbon dioxide in the balloon.

E. **Fun activity**

Given below are some words in jumbled form. You have studied these words in the chapter. Unscramble them to find the correct word and write one line on each:

1. **T R A C B I E A**
2. **L M U O D**
3. **B G Y I C R O M O L O I**
4. **C R E B O M I**
5. **Z O O A T R O P**
6. **R U V S I**