

### **13. AGRICULTURE (Code No. 068)**

Agriculture has been the prime enterprise for the National Economy of this country for centuries and that is why India is called Agrarian country. This sector also provides maximum employment to the people of this country. Agriculture is the production of food and fiber, ever since its advent. It has undergone several paradigm changes. The major landmark in Agriculture happened during 1960s when the country witnessed Green Revolution. Which boosted the crop production. Use of short duration crop varieties, fertilizers, pesticides and agricultural tools and expansion of area under irrigation were important interventions brought in Agriculture. Livestock is an integral part of Agriculture in India. Their by-products are used to build and maintain soil fertility along with plant protection. The animal products such as meat, milk and eggs are the source of nutrients in human diet as well.

Several emerging dimensions of contemporary Agriculture such as organic agriculture and animal husbandry practices are now getting attention. Food processing, value addition and preservation have been the focus of policies formation in recent times which are helpful in minimizing the wastage in Agriculture. This is helping in better income realizing through marketin of value added products. The income from Agriculture can also be increased by associating in subsidiary enterprises such as mushroom production, bio-pesticides, bee-keeping, vermi-culture etc.

#### **Objectives:**

The board objectives of teaching Agriculture at Senior Secondary level are:

- To help the students to comprehended the facts and importance of Agriculture.
- To expose the students to crop production, animal husbandry, horticulture etc.
- To familiarize the students with waste management and physical environment in Agriculture
- To expose the students to find better income and avenue generating avenues of agriculture and its associated activities.

**AGRICULTURE (Code No. 068)**  
**CLASS XII (THEORY) 2018-19**

**One Theory Paper**  
**Unit Wise Weightage**

**70+30=100 Marks**  
**Time: 3 hours**

SECTION		Periods	Marks
I	<b>Advanced Crop Production and Organic Farming</b> Unit - I Advanced Crop Production Unit - II Organic Farming	42 24	25
II	<b>Post-Harvest Management , Food Processing and Value Addition</b> Unit III: Post-Harvest Management Unit IV: Food Processing and Value Addition	12 52	25
III	<b>Subsidiary Enterprises of Agriculture</b> Unit V: Subsidiary Enterprises in Agriculture	40	20
	Practical	50	30
		220	100

**SECTION – I**

**Total periods – 66**

**Unit- I: Advance Crop Production**

**42 Periods**

- Food production including horticultural crops and its importance in the economy and nutritional security.
- Soil fertility, productivity and concept of essential plant nutrients. Classification of essential plant nutrients.
- Roles and functions of essential plant nutrients, their important deficiency symptoms.
- Soil samplings and its processing. Introduction to soil pH and Organic Carbon.
- Introduction to manure, fertilizers, Bio-fertilizers, their methods of application. Concept of Integrated Nutrient Management (INM).
- Concept of soil moisture availability various irrigation methods. Concept of precision and pressure irrigation - Drip and sprinkler irrigation.
- Methods of insect pest and disease management - Chemical, Biological and Mechanical. Concept of Integrated Pest Management (IPM).

**Unit - II: Organic Farming**

**24 Periods**

- Concept, history and importance of Organic farming.
- Present status and contribution in the National economy.
- Important food products grown organically. Important Government Schemes for the promotion of organic farming in our country. Kitchen gardening.

**SECTION-II****Total periods -64****Unit III: Post Harvest Management****12 Periods**

- Post harvesting management of fruits, vegetables and flowers, cereals, pulses and oilseeds.  
Status of food processing in our country.
- Important Government schemes for food sector.

**Unit IV: Food Processing and Value Addition****52 Periods**

- Principles and methods of food processing and preservation. Benefits of food processing.
- Important value added products from fruits, vegetables, cereals, pulses and oil seeds.  
Preparation of jam, jelly, ketchup, morabba, pickles, marmalade.
- Packaging, quality standards and their marketing including export.
- Flowers and their harvesting: important processed flower products, packaging, storage and their marketing.
- Concept of safe food and important food regulations.

**SECTION-III****Total Periods - 40**

- Important subsidiary enterprises based on Agriculture including Horticulture and their importance in the socio-economic status of an individual.
- Mushroom, their nutritional status and methods of production
- Beekeeping and its important usage and importance of Honey, Wax and Royal jelly.
- Landscaping, development and maintenance of lawns and avenue gardens.
- Preparation of Bio-pesticides (plant based), Organic manures (composts) and Vermicomposting.
- Setting up nurseries and marketing of plant sapling and important Govt. Schemes for the support of these enterprises.

**AGRICULTURE (Code No. 068)  
CLASS XII (PRACTICAL) 2018-19**

**One Practical Paper****30 Marks****Time: 3 Hours****Unit Wise Weightage****(Periods 50)**

<b>Section</b>		<b>Periods</b>	<b>Marks</b>
I	Advance Crop Production and Organic Farming	22	08
II	Post-Harvest Management, Food Processing and Value Addition	14	06
III	Subsidiary Enterprises in Agriculture	14	06
IV	Collection and Visit Report		05
V	Viva Voce		05
	<b>Total</b>	<b>50</b>	<b>30</b>

## **SECTION: I**

### **Unit I: Advance Crop Production and Organic Farming**

**22 Periods**

- (a) Soil sampling and determination of Soil pH.
- (b) Determination of soil organic carbon content.
- (c) Preparation of nursery and seed beds.
- (d) Seed treatment with fungicides and Bio-fertilizers.
- (e) Identification of different types of chemical fertilizers, composts, bio-fertilizers.
- (f) Calculation of fertilizer requirement of crops (for wheat, rice and maize) based on their nutrient needs.
- (g) Preparation of FYM and Compost.
- (h) Uses of sprayers and dusters for pest control and nutrient spray.
- (i) Determination of moisture content of crop seeds (wheat, rice, maize and mustard).
- (j) To find out 100-grain weight of crop seeds (wheat, rice, maize and mustard).
- (k) Visit to a crop field and compare healthy plant with a diseased and insect affected plant.
- (l) Identification of different types of Insecticides, Fungicides and Herbicides.

## **SECTION: II**

### **Unit II: Post-Harvest Management, Food Processing and Value Addition**

**14 Periods**

- (a) Visit to Bakery Unit, Local Chakki.
- (b) Preparation of Jam, Jelly, ketchup and Morabba
- (c) Drying of fruits, vegetables and flowers.
- (d) Preparation of pickles.
- (e) Identification of fresh and aged vegetables and fruits.
- (f) Visit to cold storage and record the storage of various fruits and vegetables.
- (g) Harvesting and packaging of flowers.
- (h) Preparation of flower arrangements such as garland and rangoli.
- (i) Visit to a flower mandi and record the activities in the mandi.
- (j) Visit to a local fruit market and record the activities in the market.

## **SECTION: III**

**14 Periods**

### **Unit III: Subsidiary Enterprises in Agriculture**

- (a) Preparation of plant based bio-pesticides (neem)
- (b) Visit to Mushroom production unit.
- (c) Visit to nearby apiary and record the process of beekeeping.
- (d) Observe the characteristics of different bee products (honey and wax).
- (e) Visit to a vermicomposting unit.
- (f) Observe the characteristics of compost.

**Notes:**

1. The students have to prepare a report on the visits recording their observations on the subject.
2. In case of practical of fruit and vegetable preservation and methods of production of value added products from fruits and vegetables, the student will have to write the procedure adopted and the necessary precautions to be taken in the answer sheet provided.

**SECTION – IV****Report on the Visits**

The student has to prepare a report of their visit to different organizations and submit to Subject teacher for the evaluation. The report must contain the student's original work and observations.

**SECTION – V****Viva Voce**

Students can be asked questions based on:

- (i) Identification of objects.
- (ii) Visit Report analysis.
- (iii) Experiences in their field visits, etc.

A range of 5 to 10 questions can be asked depending on the response of the student. Evaluation  $5 \times 1 = 5$  or should be based on number of questions answered. Evaluator should stick to the time and  $\frac{1}{2} \times 10 = 5$  number of questions.

**AGRICULTURE (Theory) (Code No. 068)**  
**DESIGN OF THE QUESTION PAPER**  
**CLASS – XI 2018-19, CLASS –XII 2018-19**

Time: 3 hrs.

Marks: 70

S.No	Typology of Questions	Learning Outcomes & Testing Skills	Very Short Answer-1 Mark	Short Answer-I 2 Marks	Short Answer-2 3 Marks	Long Answer 5 marks	Marks	%
1	Remembering(Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles, or theories, Identify, define, or recite, information); Map skill based questions (Identification, location)	<ul style="list-style-type: none"> <li>• Reasoning</li> <li>• Analytical Skills</li> </ul>	3	1	1	1	13	19%
2	Understanding- (Comprehension –to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase information)		3	1	3	2	24	34%
3	Application (Use abstract information in concrete situation, to apply knowledge to new situations; Use given content to interpret a situation, provide an example, or solve a problem)		2	-	2	2	18	26%
4	High Order Thinking Skills (Analysis & Synthesis- Classify, compare, contrast, or differentiate between different pieces of information; Organize and/or integrate unique pieces of information from a variety of sources)		-	1	1	1	10	14%
5	Evaluation- (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)		1	2	-	-	5	7%
<b>TOTAL</b>			<b>9X1=9</b>	<b>5X2=10</b>	<b>7X3=21</b>	<b>6X5=30</b>	<b>70</b>	<b>100%</b>

**Note:** No Chapter wise weightage, care should be taken to cover all chapters.