

**SUBJECT: PRODUCER/GROWER AND PROCESOR OF SPICES, MEDICINAL & AROMATIC PLANTS (SMAG)**  
**CLASS XII**  
**SEMESTER III**

**THEORY**

**FULL MARKS:20**

**[MCQ Type (1 Mark) Question]**

| UNIT | Topic                                                               | No of periods assigned | Marks     |
|------|---------------------------------------------------------------------|------------------------|-----------|
| 1    | Introduction                                                        | 3                      | 2         |
| 2    | Classification of SMAG                                              | 4                      | 5         |
| 3    | Commercial cultivation of important spice crops                     | 12                     | 5         |
| 4    | Commercial cultivation of important MAP crops                       | 12                     | 3         |
| 5    | Processing, value-added products, packaging and marketing of spices | 7                      | 2         |
| 6    | Processing, value-added products, packaging and marketing of MAP    | 7                      | 3         |
|      | <b>Total</b>                                                        | <b>45</b>              | <b>20</b> |

**DETAIL SYLLABUS**

| UNIT | Topic / Sub Topic                                                                                                                                                                                                                                                                                                           | No of periods assigned |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 1    | <b>Introduction:</b> Scope and importance and present scenario of spices cultivation; scope, importance and present scenario of cultivation of medicinal & aromatic crops; use of various spices, medicinal & aromatic plants                                                                                               | 3                      |
| 2    | <b>Classification of SMAG:</b> Classification of different spices on the basis of nature of plant/life span/ family/growing season/parts used; classification of different medicinal and aromatic plants on the basis of nature of plant/life span/family/growing season/parts used                                         | 4                      |
| 3    | <b>Commercial cultivation of important spice crops:</b> Improved cultural hints on soil, climate, varieties, propagation, nursery technique, transplanting, nutrient management, irrigation, weeding, intercultural operations, harvesting and yield of blackpepper, turmeric, chilli, onion, coriander and vanilla         | 12                     |
| 4    | <b>Commercial cultivation of important MAP crops:</b> Improved cultural hints on soil, climate, varieties, propagation, nursery technique, sowing, transplanting, nutrient management, irrigation, weeding, intercultural operations, harvesting and yield of kalmegh, tulsi, aloe vera, ashwagandha, stevia and citronella | 12                     |
| 5    | Processing, value-added products, packaging and marketing of spices: Economic importance of processing of spice crops; proper stage and period of harvesting; post-harvest operation and value-added products of blackpepper, post-harvest operation and value-added products of turmeric                                   | 7                      |
| 6    | <b>Processing, value-added products, packaging and marketing of MAP:</b> Economic importance of processing of medicinal & aromatic plants; proper stage and period of harvesting; post-harvest operation and value-added products of kalmegh, tulsi, aloe vera, citronella and stevia                                       | 7                      |
|      | <b>Total</b>                                                                                                                                                                                                                                                                                                                | <b>45</b>              |

**SUBJECT: PRODUCER/GROWER AND PROCESOR OF SPICES, MEDICINAL & AROMATIC PLANTS (SMAG)**  
**CLASS XII**  
**SEMESTER IV**

**THEORY**

**FULL MARKS: 30**

**[SAQ (2 Marks) and LAQ Type (4 Marks) Question]**

| UNIT | Topic                                                               | No of periods assigned | Marks     |
|------|---------------------------------------------------------------------|------------------------|-----------|
| 1    | Commercial cultivation of important spice crops                     | 20                     | 10        |
| 2    | Commercial cultivation of important MAP crops                       | 20                     | 10        |
| 3    | Processing, value-added products, packaging and marketing of spices | 15                     | 6         |
| 4    | Processing, value-added products, packaging and marketing of MAP    | 10                     | 4         |
|      | <b>Total</b>                                                        | <b>63</b>              | <b>30</b> |

**DETAIL SYLLABUS**

| UNIT | Topic                                                                                                                                                                                                                                                                                                                                    | No of periods assigned | Marks     |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| 1    | <b>Commercial cultivation of important spice crops:</b> Soil, climate, variety, propagation, nursery technique, transplanting, nutrient management, irrigation, weeding, intercropping operations, harvesting and yield of ginger, garlic, fenugreek, nigella, bay leaf and curry leaf                                                   | 20                     | 10        |
| 2    | <b>Commercial cultivation of important MAP crops:</b> Soil, climate, variety, propagation, nursery technique, sowing, transplanting, nutrient management, irrigation, weeding, intercropping operations, harvesting and yield of sarpagandha, basak, periwinkle, isabgol, poppy and lemongrass                                           | 20                     | 10        |
| 3    | <b>Processing, value-added products, packaging and marketing of spices:</b> Post-harvest operation and value-added products of ginger; post-harvest operation and value-added products of seed spices; packaging and storing of spices and oil extraction of spices                                                                      | 15                     | 6         |
| 4    | <b>Processing, value-added products, packaging and marketing of MAPs:</b> Post-harvest operation and value-added products of sarpagandha, basak, periwinkle, isabgol, poppy, lemongrass; post-harvest operation and oil extraction of lemon grass; post-harvest operation and oil extraction of citronella; packaging and storing of oil | 10                     | 4         |
|      | <b>Total</b>                                                                                                                                                                                                                                                                                                                             | <b>63</b>              | <b>30</b> |

**PRACTICAL**  
**CLASS XII**

**FULL MARKS: 40(Practical) + 10 (Project)**

**NO. OF PERIODS ASSIGNED: 144 (120 for Practical+24 for Project)**

**DETAIL SYLLABUS**

| Sl. No.            | Topic                                                                                                                                                                                       | No. of periods |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>SEMESTER I</b>  |                                                                                                                                                                                             |                |
| 1                  | Preparation of district-wise map of West Bengal for important spice, medicinal and aromatic crops; Preparation of state-wise map of India for important spice, medicinal and aromatic crops | 2              |
| 2                  | Preparation of map indicating Agro-climatic Zones of West Bengal                                                                                                                            | 2              |
| 3                  | Soil sample collection, preparation and analysis; Understanding soil health card                                                                                                            | 2              |
| 4                  | Preparation of compost, vermi-compost and biofertilizer                                                                                                                                     | 6              |
| 5                  | Identification of fertilizers along with nutrient content                                                                                                                                   | 2              |
| 6                  | Calculation of fertilizers (straight and compound) for major spice, medicinal and aromatic crops                                                                                            | 4              |
| 7                  | Identification of plant growth regulators and biofertilizer                                                                                                                                 | 4              |
| 8                  | Calculation of different plant growth regulators                                                                                                                                            | 4              |
| 9                  | Identification of weeds in fields and wetlands and preparation of weed album                                                                                                                | 4              |
| 10                 | Identification of insects in fields and storage                                                                                                                                             | 4              |
| 11                 | Identification of diseases in spice, medicinal and aromatic crops                                                                                                                           | 4              |
| 12                 | Demonstration of different sources and methods of irrigation                                                                                                                                | 4              |
| 13                 | Identification and use of different farm implements and machinery                                                                                                                           | 4              |
| 14                 | General maintenance of farm machinery                                                                                                                                                       | 4              |
| 16                 | Identification of seeds of different spice, medicinal and aromatic crops                                                                                                                    | 2              |
| 18                 | Demonstration of seed bags/ packets, certification label, etc.                                                                                                                              | 2              |
| 19                 | Visit to spice, medicinal and aromatic crops production farm                                                                                                                                | 6              |
|                    | <b>Total</b>                                                                                                                                                                                | <b>60</b>      |
| <b>SEMESTER II</b> |                                                                                                                                                                                             |                |
| 19                 | Seed treatment (dry and wet) of important spice, medicinal and aromatic crops                                                                                                               | 2              |
| 20                 | Layout of nursery, sowing and transplanting of spice, medicinal and aromatic crops                                                                                                          | 8              |
| 22                 | Planting of turmeric, ginger, aloe vera, etc.                                                                                                                                               | 4              |
| 23                 | Intercultural operations of different spice, medicinal and aromatic crops                                                                                                                   | 4              |
| 24                 | Weed control practices: hand weeding, mechanical and application of herbicides                                                                                                              | 4              |
| 25                 | Calculation and spraying of insecticide, fungicide, herbicide, etc.                                                                                                                         | 4              |
| 26                 | Calculation and dusting of insecticides, etc.                                                                                                                                               | 2              |
| 27                 | Harvesting of spice, medicinal and aromatic crops                                                                                                                                           | 4              |
| 28                 | Visit to a 'Model Spice Garden'                                                                                                                                                             | 6              |
| 29                 | Visit to a 'Model Medicinal and Aromatic Garden'                                                                                                                                            | 6              |
| 30                 | Visit to a Processing unit of spice crops                                                                                                                                                   | 6              |
| 31                 | Visit to a Processing unit of medicinal crops                                                                                                                                               | 6              |
| 32                 | Visit to a Processing unit of aromatic crops                                                                                                                                                | 6              |
| 33                 | Preparation of value-added products from spice crops                                                                                                                                        | 4              |
| 34                 | Preparation of value-added products from medicinal crops                                                                                                                                    | 4              |
| 35                 | Preparation of value-added products from aromatic crops                                                                                                                                     | 4              |
| 36                 | Visit to a 'Model Agroforestry' with spice, medicinal and aromatic crops                                                                                                                    | 4              |
| 37                 | Preparation of flow charts for production-based marketing cycle of spice, medicinal and aromatic crops                                                                                      | 4              |
| 38                 | Visit to Regulated Market, Farmers' Co-operatives and Panchayat Samitis within                                                                                                              | 2              |

|  |                        |            |
|--|------------------------|------------|
|  | the area / district    |            |
|  | <b>Total</b>           | <b>60</b>  |
|  | <b>PROJECT</b>         | <b>24</b>  |
|  | <b>Total</b>           | <b>84</b>  |
|  | <b>Class XII Total</b> | <b>144</b> |

**PROJECT (10 marks: Two Projects, 05 marks each)**

| <b>Sl. No.</b> | <b>Project</b>          | <b>Details</b>                                                                                                   | <b>Marks</b> |
|----------------|-------------------------|------------------------------------------------------------------------------------------------------------------|--------------|
| 1              | Project I (12periods)   | Preparation of nursery bed for raising good quality seedlings of black pepper nursery and growing of bush pepper | 5            |
| 2              | Project II (12periods)  | Preparation of coconut based based neera production technology                                                   | 5            |
| 3              | Project III (12periods) | Off season coriander cultivation for yield and quality of leaves                                                 | 5            |
| 4              | Project IV (12periods)  | Preparation of working plan for harvesting and oil extractionof lemon grass for good quality oil                 | 5            |

Note: The school may develop other Projects as per their needs, choices or available resources.