

IV. CORE COURSE -C 6:

(Credits: Theory-04, Practicals-02)

Marks : 15 (MSE: 1Hr) + 60 (ESE: 3Hrs) + 25 (Pr 3Hrs)=100**Pass Marks: Th (MSE +ESE) = 30 + Pr ESE =10****Instruction to Question Setter for****Mid Semester Examination (MSE):**

There will be **two** group of questions. **Group A is compulsory** and will contain five questions of **very short answer type** consisting of 1 mark each. **Group B will contain descriptive type** three questions of five marks each, out of which any two are to answer.

End Semester Examination (ESE):

There will be **two** group of questions. **Group A is compulsory** and will contain two questions. **Question No.1 will be very short answer type** consisting of ten questions of 1 mark each. **Question No.2 will be short answer type** of 5 marks. **Group B will contain descriptive type** five questions of fifteen marks each, out of which any three are to answer.

Note: There may be subdivisions in each question asked in Theory Examinations.

ECONOMIC BOTANY**Theory: 60 Lectures****Unit 1: Origin of Cultivated Plants**

Concept of Centres of Origin, their importance with reference to Vavilov's work. Examples of major plant introductions; Crop domestication and loss of genetic diversity; evolution of new crops/varieties, importance of germplasm diversity.

(6 lectures)**Unit 2: Cereals**

Wheat and Rice (origin, morphology, processing & uses); Brief account of millets.

(6 lectures)**Unit 3: Legumes**

Origin, morphology and uses of Chick pea, Pigeon pea and fodder legumes. Importance to man and ecosystem.

(6 lectures)**Unit 4: Sources of sugars and starches**

Morphology and processing of sugarcane, products and by-products of sugarcane industry. Potato – morphology, propagation & uses.

(4 lectures)**Unit 5: Spices**

Listing of important spices, their family and part used. Economic importance with special reference to fennel, saffron, clove and black pepper

(6 lectures)**Unit 6: Beverages**

Tea, Coffee (morphology, processing & uses)

(4 lectures)**Unit 7: Sources of oils and fats**

General description, classification, extraction, their uses and health implications groundnut, coconut, linseed, soybean, mustard and coconut (Botanical name, family & uses). Essential Oils: General account, extraction methods, comparison with fatty oils & their uses.

(10 lectures)

Unit 8: Natural Rubber

Para-rubber: tapping, processing and uses.

(3 lectures)**Unit 9: Drug-yielding plants**

Therapeutic and habit-forming drugs with special reference to Cinchona, Digitalis, Papaver and Cannabis; Tobacco (Morphology, processing, uses and health hazards).

(8 lectures)**Unit 10: Timber plants**

General account with special reference to teak and pine.

(3 Lectures)**Unit 11: Fibers**

Classification based on the origin of fibers; Cotton, Coir and Jute (morphology, extraction and uses).

(4 lectures)**BOTANY PRACTICAL- C 6 LAB****60 Lectures**

1. Cereals: Wheat (habit sketch, L. S/T.S. grain, starch grains, micro-chemical tests) Rice (habit sketch, study of paddy and grain, starch grains, micro-chemical tests).
2. Legumes: Soybean, Groundnut, (habit, fruit, seed structure, micro-chemical tests).
3. Sources of sugars and starches: Sugarcane (habit sketch; cane juice- micro-chemical tests), Potato (habit sketch, tuber morphology, T.S. tuber to show localization of starch grains, w.m. starch grains, micro-chemical tests).
4. Spices: Black pepper, Fennel and Clove (habit and sections).
5. Beverages: Tea (plant specimen, tea leaves), Coffee (plant specimen, beans).
6. Sources of oils and fats: Coconut- T.S. nut, Mustard–plant specimen, seeds; tests for fats in crushed seeds.
7. Essential oil-yielding plants: Habit sketch of Rosa, Vetiveria, Santalum and Eucalyptus (specimens/photographs).
8. Rubber: specimen, photograph/model of tapping, samples of rubber products.
9. Drug-yielding plants: Specimens of Digitalis, Papaver and Cannabis.
10. Tobacco: specimen and products of Tobacco.
11. Woods: Tectona, Pinus: Specimen, Section of young stem.
12. Fiber-yielding plants: Cotton (specimen, whole mount of seed to show lint and fuzz; whole mount of fiber and test for cellulose), Jute (specimen, transverse section of stem, test for lignin on transverse section of stem and fiber).

Reference Books

- Kochhar, S.L. (2012). Economic Botany in Tropics, MacMillan & Co. New Delhi, India.
- Wickens, G.E. (2001). Economic Botany: Principles & Practices. Kluwer Academic Publishers, The Netherlands.
- Chrispeels, M.J. and Sadava, D.E. 1994 Plants, Genes and Agriculture. Jones & Bartlett Publishers