

No. UG/214 of 2010

No. UG/214 of 2010

MUMBAI-400 032
27th June, 2010

L. R. Mane
Offg. Registrar

The Principals of the affiliated Colleges Science

◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆

Copy forwarded with compliments for information to:

- 1) The Dean, Faculty of Science,
- 2) The Chairperson, Board of studies in Botany,
- 3) The Controller of Examinations,
- 4) The Co-Ordinator, University Computerization Centre,

(D. N. Jadhav)

Ag. Deputy Registrar
(UC/PO Section)

Copy to 40

Copy to :-
The Director, Board of College and University Development, the Deputy Registrar (Eligibility and Admission Section), the Inspector of Students Welfare, the Executive Secretary to the Vice-Chancellor, the Secretary, the Inspector of Students Welfare, the Executive Administrative Assistant, Balmaguri for information.
Vice-Chancellor, the Registrar and the Assistant Registrar, Administrative Assistant, Balmaguri for information.

[illegible]

03.03.2010

UNIVERSITY OF MUMBAI

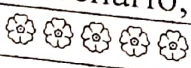


Revised Syllabus
for
Horticulture and Gardening
(Applied Component)
at the
T.Y.B.Sc.
in
Botany

(with effect from the academic year 2010 - 2011)

Revised Syllabus for Horticulture & Gardening (Applied Component)
at the T.Y.B.Sc. examination in the subject of Botany
 (with effect from the academic year 2010-2011)

PAPER I		
UNIT 1		15
	• Horticulture and its branches	6
	• Definition, importance and objectives of Horticulture, Branches of Horticulture, Pomology, Olericulture, Landscape Gardening, Nurseries and development • Allied branches – Apiculture - Bee box, honey bee life cycle & role of apiculture in pollination, Sericulture - Silkworm life cycle, different types with host plant, Social forestry, Exhibition – Aims & objectives.	5
	• Garden Operations for Horticulture – • Selection of site, Preparation of soils for garden • Mulching, Top – dressing, blanching, • Sowing , Transplanting , Tree transplanting • Irrigation- Overhead, Surface, Underground • Weeding & Pruning - Principles, Objective & general technique	9
UNIT 2 PROPAGATION PRACTICES		15
	• Seeds Advantages & disadvantages, method of seed propagation Production of seeds, Handling, Collection & storage Sowing, Transplanting of seedling & Hardening Seed treatment to control diseases Seedling diseases & their control	3
	• Propagation by specialized Vegetative structures Bulbs, Tubers , Corms Rhizomes, Root stock, Runners, Offsets, and Suckers.	2
	• Artificial methods of plant propagation ○ Cutting – Root cutting, Stem cuttings, & Leaf cuttings. Use of PGRs for rooting. ○ Layering – Definition, Types :- Simple, Compound (Serpentine) Tip, Trench, Mound, Air layering. ○ Grafting – Definition , Advantages & disadvantages. Types – Splice, whip / tongue, side, veneer, cleft, bark, epicotyl, Approach, Repair grafting – inarching, bridge & bracing	10

	○ Budding - Definition, Advantages & disadvantages. Types- T-budding, shield, patch, ring budding. ○ Developing new varieties: Technique of Emasculation & bagging, Role of polyploidy in production of seedless varieties in plants. ○ Application of Tissue culture in relation to Horticulture.	
UNIT 3 MANURES, FERTILIZERS AND DISEASES		15
	• Manures : Definition, importance, important manures FYM (Compost), oil cakes, green manure, organic manures & vermicompost.	2
	• Fertilizers : Definition , Types – Straight, Compound & Mixed. Nitrogenous (NH₄)₂ SO₄ , Urea, Ca(NO₃)₂, NH₄Cl, Phosphatic (Super phosphate, Bone meal) ,Potassic(Muriate of Potash, K₂SO₄)	4
	• Biofertilizers : Bacteria, Cyanobacteria, Mycorrhiza, Sea weeds.	3
	• Horticultural Plant Diseases and their control. Fungal diseases – Rust, Smut, Powdery mildew. Bacterial – Citrus canker, Bacterial wilt. Viral – TMV, Leaf curl. Pest – Common pests on Horticultural crops- Aphides, Beetle, Stem borer, Caterpillar & Rats. • Friends of Farmers - Earthworm, Snakes & Predaceous fungi.	6
UNIT 4		
	• Water management & Conservation through horticultural, Dry land Horticulture	15
	• Important Horticulture research Institutes & Government schemes for strategy plantations ○ Konkan Krishi Vidyapeeth – Dapoli ○ National Research Centre for grapes ○ Regional fruit research centre – Pune ○ Horticulture Training centre (H.T.C.)– Talegaon ○ CentralPotatoTuberResearch Institute (CPTRI)- Shimla • Horticulture Consultancy • Strategy plantation - Lakhibag Yojana	6
	• Organic Farming Definition, Scope, Indian Scenario, Future Scope	3
		

PAPER II		
UNIT 1		15
• Landscape Gardening		6
• Principles of landscaping & Garden design • Indoor plants & Indoor gardens – Hydroponics, Terrarium / Bottle garden, dish garden • Important garden features – Paths & Avenues, Hedges & Edges, Lawn. Flower beds, Arches & Pergolas, Fencing, Water bodies, Rock garden & Plants suitable for different locations & climates • Lawn – Purpose of Preparation of lawn, Method of preparation of lawn & management of lawn & lawn plants • Soil manipulation for plantation of desirable varieties		1 5
• Different styles of Gardens		
• Mughal, Buddhist, Botanical garden , Vertical wall garden & Theme parks. • Important Gardens of India – Shalimar (Shrinagar), Vrindavan (Mysore), Veer Jijamata Udyan (Mumbai).		
UNIT 2		15
• High-tech Horticultural production - Green house technology – Meaning, types, layout & construction, irrigation systems. Care & attention. Hardening of plants. Space Gardens		5
• Floriculture :- Scope & importance, soil and climatic requirement and cultivation practices and Economics of green house production of Gerbera, Carnation, Roses, Orchids. Propagation techniques, packing and marketing, enhancing and delaying period of bloom by special methods. Floral decoration, Florist shop management		10
UNIT 3		15
• Commercial production of the following:- in relation to propagation, post plantation care, harvesting, post harvest management & varieties. ○ Tubers –Potato ○ Vegetables- Tomato ○ Fruits - Mango, Grapes & Coconut- products like coco peat / Coir etc.		10

• Post Harvest Technology: ○ Maturity – Factors responsible for maturity and ripening methods used for delaying ripening. ○ Harvest – Time of harvest, harvesting and handling of harvested products. ○ Storage of fresh produce – Types of storages of fruits & vegetables ○ Fruit & Vegetables preservation technology	5
UNIT 4	15
• Commercial production of the following:- in relation to propagation, post plantation care, harvesting, post harvest management & varieties. ○ Spices/ Condiments –Chilly ○ Medicinal Plants- Aloe vera, Stevia rebaurdina (madura) ○ Aromatic plant - Citronella , Patchouli.	10
• Marketing- grading, packing & transportation. Ways of increasing the market value and shelf life of horticultural produce.	2
• Horticultural business, management and Entrepreneurship development ○ Horticulture as a business definition and nature, organization, planning and operation of Horticulture farm business.	3
❁❁❁❁❁	

HORTICULTURE & GARDENING PRACTICAL - I

No	Topics	
1.	Garden implements and their uses.	1
2.	Different types of pots & Potting medium, Potting and repotting	1
3.	Propagation practices by Seed, Vegetative propagation, cutting, layering, budding, grafting.	2
4.	Identification of	
a.	Fertilizers – Identification by physical and chemical methods – Urea, Ammonium sulphate, Pottassium sulphate, super phosphate.	1
b.	Manures – Identification of plants as green manure – Glyricidia, Crotolaria, Leucaena. Biofertilizers – Identification (material as slides) VAM, Nostoc, Rhizobium.	1
c.	Soil PH, Use of soil testing kit, electrical conductivity, PH of water, liquid fertilizers.	1
5.	Method of preparing Bonsai, Bottle garden / Terrarium, Hanging baskets, Dish garden	4
6.	Diseases and pests – Fungal – Powdery, mildew, Rust, Wilt, Blight, Smut. Bacterial – Canker, Wilt Viral – Leaf curl, Yellow vein Mosaic Insects – Sucking, Biting, Chewing, Borers & Ants. Non insect's pests – Nematodes, Rodents.	2
	Preparation of natural insecticides – Neem arka, Dashparni arka, Seetaphal powder, Tobacco extracts.	2
7	Project – Each student should individually present a project related to any topic related to Horticulture. It should be duly certified presented at practical examination. Project presentation at college level compulsory.	

HORTICULTURE & GARDENING PRACTICAL - II

NO	TOPIC	
1.	Preparation of garden layout.	1
2.	List of plants suitable for garden locations -2-3 plants for each location.	1
3	Identification of important horticultural plants. 1. Herbs – foliage any 2 and flowering any 2 2. Shrubs - foliage any 2 and flowering any 2 3. Trees - foliage any 2 and flowering any 2 4. Climbers – any 2 5. Lianas - any 2 6. Epiphytes - any 2 7. Creepers - any 2 8. Trailers - any 2 9. Aquatic plants – any 3 (Preferably various habitat) 10. Succulents - any 2 11. Weeds - any 10	4
4.	Flower arrangements – Indian(Gajra, veni, garland, bouquet – basket, hand, torch type, table floral arrangement), Japanese and Western all types	3
5.	Preparation of Jams, Jellies, Squashes/ Syrups, Pickle, sauces.	3
6	Fruit & vegetable carving & Biojewelry	2
7	Green house plants – Information regarding to soil, temperature, irrigation, fertilizer requirements and propagation methods for Anthurium, Gerbera, Orchids, Tuberose, Carnation, Roses, Capsicum.	1

Visits

To Garden / Parks/ Nurseries /Exhibition/ Horticulture industries/ Research Station and record of visits should be duly certified and presented at practical examination.

Journal:

Students will not be allowed for practical examination without their journal duly certified should be submitted for practical examination.

T.Y.BSc – (A.C.) Horticulture & Gardening – List of Reference Books.

1. Complete Gardening in India –By Gopalswami Iyanger.
2. Kitchen garden & household pests. – By Harbhajansingh
3. Greenhouse management for Horticultural crops. –By S.Prasad & U.Kumar.
4. Indoor Gardning – By S.C.Dey (Agro's gardening series)
5. Complete home Gardning – By S.C.Dey (Agro's gardening series)
6. Fundamentals of Horticulture – By Edmand.
7. Text book of Horticulture – By Manibhushan Rao.
8. Food Sciences – By Sreelaxmi.
9. Horticulture – By V.Kumaresan - Saras Prakashan.
- 10.Ornamental Horticulture – By Vishnu Swaroop.
- 11.Complete Gardening Percy Lancaster.
- 12.Gardening – By Pearson.
- 13.Fruits. – By Rangeet Singh.
- 14.Horticulture- By George Acquish.
- 15.Spices & Condiments- J.S.Pruthi
- 16.Home Gardening – By Pratibha Trivedi
- 17.Principal of Horticulture – S.Prasad .
- 18.Bonsai – By Joyti & Nikunj Parekh .
- 19.Mango – R.N.Singh. Roses .
- 20.Roses .- By Amitabh Mukhopadhyay – N.B.T.Publication.
- 21.Pot culture of Roses. -- By S.C.Dey (Agro's gardening series).
- 22.Tuber crops - By K.V.P Peter – N.B.T.
- 23.Plant propagation – By Hartmann.
- 24.Encyclopadia of Horticulture – V.K.Sharma- Vol. I
- 25.Encyclopadia of Horticulture – V.K.Sharma- Vol. II
- 26.Encyclopadia of Horticulture – V.K.Sharma- Vol. III
- 27.Encyclopadia of Horticulture – V.K.Sharma- Vol. IV

HORTICULTURE & GARDENING PRACTICAL -I

Skeleton Q.P. I

[Total marks : 40]

(N.B. :- Candidates should show their preparation and results to the examiners)

1. Demonstrate the propagation techniques----- and ----- using the specimen A and B. 8
2. Perform Bonsai / Bottle garden / Terrarium/ Hanging baskets / Dishgarden by given material. 6
3. Identify the given fertilizer D with the help of physical and chemical tests. 3
OR
Identify and describe the given biofertilizer D. 3
4. Prepare / Identify ----- natural insecticides. 3
5. (a) Identify and comment on the uses of the garden implements H and I. 4
(b) Identify the pest / diseases J, K and L and comment on them. 6
6. Project. 10

HORTICULTURE & GARDENING PRACTICAL - II
Skeleton Q.P. II

[Total marks : 40]

(N.B. :- Candidates should show their preparation and results to the examiners)

1. Prepare an appropriate garden plan for the given area which will include the following three locations. Suggest at least 2 names for each location. 8
2. Make the flower arrangement / Ikebana / Bouquet/Fruit & vegetable carving /Biojewelry /from the given material . 5
3. Prepare Jams, Jellies, Squashes/ Syrups, Pickle, Sauces from the given material using appropriate method and proportion. 6
4. (a) Identify horticultural plants A , B& C Comment on their importance . 6
(b) Identify the green house plant D. Comment on its propagation and requirements. 3
5. (a) Journal with organoleptic sheet. 5
(b) Field Diary 3
6. Viva – voce. 4
