ANNEXURE-II

SCHEME OF EXAMINATION and SYLLABUS FOR VILLAGE HORTICULTURE ASSISTANTS

Written examination (Objective Type)	No., of questions	Duration (minutes)	Maximum marks
Part-A : General Studies and mental ability	50	50	50
Part-B : Horticulture	100	100	100
TOTAL			150

Note: *For each correct answer 1 mark will be awarded and each wrong answer will carry 0.25 negative mark.*

SYLLABUS FOR EXAMINATION TO THE POST OF VILLAGE HORTICULTURE ASSISTANTS

PART-A

GENERAL STUDIES AND MENTAL ABILITY

1. General Mental ability and reasoning.
2. Quantitative aptitude including data interpretation.
3. General English.
4. Current affairs of regional, national and International importance.
5. General Science and its applications to the day to day life, Contemporary development in science and Technology and information Technology.
6. History & Culture of India with specific focus on AP.
7. Indian polity and governance: constitutional issues, 73/74th Amendments, public policy, reforms ad centre – state relations with specific reference to Andhra Pradesh.
8. Society, Social justice, rights issues.
9. Physical geography of Indian sub-continent and Andhra Pradesh.
10. Key welfare & development schemes of Government of Andhra Pradesh.

PART-B HORTICULTURE

1. FUNDAMENTALS OF HORTICULTURE

Horticulture – Definition – importance – divisions of horticulture – Horticultural zones in A.P. and India – Influence of climate on Horticultural crops – effects of environmental stress – its management – Selection of site – steps in orchard establishment – methods of irrigation – training and pruning – Flowering – stages of fruit drop – Reasons and prevention of fruit drop – Fruit thinning – advantages and disadvantages – unfruitfulness - reasons and remedies of unfruitfulness – growth regulators – definition – functions – classification – uses of growth regulators in horticulture - methods of application of growth regulators.

2. PLANT PROPAGATION AND NURSERY MANAGEMENT

Plant propagation – Definition – principles of Plant propagation – methods of propagation – structures and media used in Plant propagation – sexual or seed propagation – importance – vegetative propagation – importance –

Propagation through cuttings - layering importance and methods – selection of root stocks and scion – types of budding – role of root stocks in fruit production – suitability of root stocks – factors influencing the selection of site for nursery establishment – Nursery management – precautions – characters of good quality nursery plants

3. OLERICULTURE

Food security importance of vegetable in Indian economy and nutritional value Olericulture – varieties soil climate requirements – seed treatment – nursery transplanting - after care – fertilizer management - inter cultivation – irrigation harvesting storage – nutritional deficiency symptoms – use of growth regulators in the following crops – fruit vegetables (tomato , brinjal, bendi, chillies) – cucurbitaceous vegetables (bottle guard, bitter guard, musk melon, water melon, squashes and pumpkins) – leguminaceous vegetables (cluster bean, french bean, garden bean, cowpea and peas) – cole crops (cabbage, cauliflower) - root vegetables (radish, carrot, beetroot and turnip) – bulbs & tubers (onion, garlic, potato, sweet potato, tapioca, elephant foot yarn, colocasia) – leafy vegetables (amaranths, menthi, palak, spinach, hibiscus) – perennial vegetables (parawal, drumstick, curry leaf, coccinea).

4. FUNDAMENTALS OF SOIL SCIENCE

Soils – rocks and minerals – soil formation soil structure – soil profile – soil physical(bulk density, partical density, porosity), biological(immobilization and mineralization nitrogen fixation CN ratio role of soil microbes and their management) and chemical(soil particles, nature and properties, cation exchange capacity, anion exchange capacity, pH and salinity) properties – types of soils in AP – problem soils and their management – essentiality of nutrients - nutrient deficiency symptoms and their management – soil fertility management – suitable soils for Horticulture.

5. FARM POWER, AGRICULTURAL MACHINERY AND STRUCTURES

Sources of farm power – advantages and disadvantages - types of agriculture engines – principles and mode of work – tractors and power tillers classifications – primary and secondary tillage – implements – plough, danthi, gorru, plant protection equipment – sprayers and dusters – tools for inter cultivation – harvesters for mango and sapota – post harvest tools (blanches, cleaners, graders, sorters) storage of foods – cold storage – field structures – zero energy cool chamber – godowns and fruit and vegetable storage – green house technology - construction features – use in horticulture – mode of work and management

6. FARM MANAGEMENT, AGRICULTURAL FINANCE AND MARKETING

Farm labour and machinery – farm accounts – definition – good farm account features – advantages of farm accounts – maintenance of basic accounts – preparation of farm accounts, balance sheet – Agricultural finance – loan classification sanction of loan – repayment schemes for backlog people – DIR, IRDP financing agencies – RBI – NABARD their role – commercial banks – lead bank scheme – loaning procedure – crop insurance – Agricultural

marketing – classifications of markets – based on competitions – functions of markets – problems and their remedies in marketing – regulated market – definition – functions – advantages – cooperative marketing – NAFED, MARKFED, single window – definition – functions – advantages – warehousing corporation – SWC, CWC - definition – functions – advantages – FCI, International marketing.

7. TROPICAL FRUIT CULTURE

Area – production - importance – orchard management – nutritive value – origin – distribution – species – varieties – root stocks – high density planting – climate soil – layout – training and pruning – nutrition – irrigation – inter cultivation – maturity – harvesting – grading – packing and storage for the crops MANGO, BANANA, CITRUS, PINEAPPLE, GUAVA, PAPAYA AND SAPOTA

8. SPICES AND PLANTATION CROPS

Introduction – importance – origin – distribution – botanical classification – species – varieties – propagation – selection of cuttings – climate soil – planting after care – fertilizer management – inter cultivation – training and pruning – flowering – fruit set, fruit development - maturity harvesting – purification methods - marketing and production of valued added products for SPICES (BLACK PEPPER, CARDAMOM, TURMERIC, GINGER, CORIENDER , FENUGREEK), PLANTATION CROPS (COCONUT, CASHEW NUT, OIL PALM, ARECANUT, BETELVINE, COCOA, COFFEA)

9. VALUE ADDED PRODUCTS OF FRUITS AND VEGETABLES

Methods of preparing value added products – jam, jelly, marmalade, candies, crystallized and glazed fruit preserves, pickles preserves – ketchup, sass, toti-fruiti syrup, fresh fruit juices, squash and cordials, fermented beverages – making methods.

10. MANURES AND FERTILIZERS

Organic Manures – definition, characters, classification – bulky organic manures (FYM, Compost, Vermicompost) – method of making, nature and useful nutrients– concentrated organic manures (oil cakes, bone meal) – green manure crops – characters – decomposition – CN ratio – Nutrient availability – Advantages and problems – bio gas plant – use of efluents from bio gas plant as manure – FERTILIZERS – definition, characters, classification – essentiality of macro nutrients – nitrogen, phosphorus, potassium, calcium, magnesium and sulpher - suitability of fertilizers to soils and crops – essentiality of micro nutrients – differences between manures and fertilizers – Bio fertilizers – definition, characters & classification – azolla, BGA, rhizobium, azotobacter, phosphobacteria – methods of using them – symptoms of nutritional deficiencies in horticultural crops their correction – factors influencing fertilizer use efficiency – integrated nutrient management for important horticultural crops.

11. DISEASES OF HORTICULTURAL CROPS AND THEIR MANAGEMENT

Important diseases, causal organisms, disease symptoms and spread in crops, citrus (acid lime, orange), mango, guava, sapota, papaya, banana, grapes, pomegranate, ber, chilli, brinjal, bendi, root crops, tomato, onion, coriander, cruciferous vegetables, cucurbitaceous vegetables, beans, peas, betelvine, black pepper, turmeric, coffea, coconut, oilpalm, rose, chrysanthemum, jasmine, marigold, tuberose, crosandra, aster and gladiolus – FUNGICIDES – classification – nature of work – methods of using them – dosage – toxicity – disease management through important fungisites.

12. SOIL AND WATER ENGINEERING

Measurement of land for ornamental gardens – fruit and vegetable gardens and landscaping in parks – chain survey – trigonametrical survey – measurement of regular and irregular shaped sites – leveling –water lifting methods from deep soil – types of pumps – centrifugal pump, deep well turbine and submersible pump – calculation of volume of water in irrigation canals and pipes – irrigation methods – surface irrigation – drip and sprinkler irrigation – soil erosion control and protection methods – water conservation through digging of pits – removal of silt from tanks – soil and water conservation technology – prevention of water losses in canals and improving water uses efficiency.

13. SUB TROPICAL AND ARID FRUIT CULTURE

Nutritive value – classification – species – varietal identification – soil and water requirements, root stocks – propagation methods – layouts – training – pruning – fertilizer management – irrigation – inter cultivation – problems in cultivation – flowering and fruit set – maturity indices, yield, grading, packing, transport and storage methods for the sub tropical and arid fruit crops – Grapes, Pomagranate, Ber, Litchi, Amla, Jamun, Custard Apple, Fig, Palsa, Tamarind, Passion Fruit, Karonda.

14. COMMERCIAL FLORICULTURE

Growing methods, importance, origin, classification, species, varieties, soil climatic requirements, propagation, spacing, irrigation, fertilizers, Intercultivation, training and pruning special horticultural practices use of growth regulators, determination of harvesting stage, harvest, yield post harvest methods and flower drying methods for important commercial flower crops – Rose, Crossandra, Jasmin Chrysanthemum, Gladiolus, Michelia, China Aster, Marrigold, Anthurium, Carnation, Gerbera, Dahlia And Orchids.

15. SEED PRODUCTION, CERTIFICATION AND VARIETAL TESTING

Seed production - objective - variety – definition – maintenance of varieties – production of nucleus and breeders seed in self pollinated, cross pollinated and vegetatively propagated crops – seed production in vegetables – testing genetic – purity in seeds – general principles of seed production, production of different types of seeds – soil requirement isolation distance – planting ratio, rouging – harvest and post harvest management, packing and storage of seed – seed certification objective – standards – testing seed quality – points to be

considered for determining seed quality – germination tests – grow out tests – seed health – seed quality test in crop varieties – types of seed production (breeder seed, foundation seed, certified seed) – seed quality – new seed policy – suitable places for vegetable seed production.

16. PEST MANAGEMENT OF HORTICULTURAL CROPS AND APICULTURE

Identification of insects with horticultural importance – different orders – insect control and management – integrated plant protection – non insect pests – mites, rats, monkeys, birds, squirrels and their management – study of Acaricides, nematicides, rodenticides – identification of important insect pests symptoms, nature of feeding, life cycle and management in the crops MANGO, CITRUS (ORANGE, ACID LIME), CASHEW NUTS, GRAPES, POMAGRANATE, COCONUT, COCOA, BER, GUAVA, SAPOTA, BANANA, PAPAYA, CHILLI, BRINJAL, BHENDI, TOMATO, BEANS, CUCURBITS, TURMERIC, ROSE, CHRYSANTHEMUM, JASMINE AND TUBEROSE – pesticides – definition – classification – toxicity – pesticides residues –methods of application – effect of dosages – APICULTURE – species of honey bees – characters – behavior – swarming – division of communities – management bee hive – types tools for apiculture – poisonous effects bees enemies of honey bees – disease and their control – artificial maturity and collection of honey.

17. POST HARVEST MANAGEMENT OF HORTICULTURAL CROPS

Post harvest importance in horticulture – maturity of fruit vegetable – harvesting handling – grading – pre harvest factors and points determining posts harvest quality – physical and chemical changes during ripening – delay of ripening – post harvest treatment – quality standard storage methods for local and distant marketing – methods of packing – cold storage.

18. ORNAMENTAL GARDENING AND LANDSCAPE ARCHITECTURE

Importance - definition – scope, prospects of ornamental gardening land scape architecture and interior gardening – styles of gardening – components – basic principles – ornamental garden models for home, schools, colleges, public buildings, parks and rural areas – garden features – lawn, flower beds, hedges, path ways, fences, compound wall, steps, statues, water canal, water pool, water fall, terraces, rockery, arches, pergola, topiary, interior gardening, principles and plans – road side planting of trees, shrubs, climbers, ground covering plants – selection planting management – ornamental foliage plants – lawn making and protection – water plants, bonsai principles – flower decorations – principles and style – rangoli, floral ball – dry flower decorations and flower arrangements.

19. MEDICINAL AND AROMATIC CROPS CULTIVATION

Origin, history, area, production, importance, uses, varieties, soil, water requirements, propagation, planting, inter cultivation, fertilizer, irrigation, training and pruning, harvest and processing in the medicinal (Dioscorea, Sarpagandha, kasivanga, Pyrethrum, Catharanthus, Poppy, Aswagandha, Amla, Aloevera, Cassia, Plantago, Isabgul and tulsi) and aromatic crops

(kamakshi kasupu, lemon grass, rosha grass, paneer, vetiver, davanam, nilgiri, pudina, vanilla, rose and jasmine)

20. PROTECTED CULTIVATION OF VEGETABLES AND FLOWERS

Protected cultivation, introduction, importance, green house, poly house, definition, points to remember while construction, advantages over conventional open field cultivation – problems in green house – structures, site, types sizes of green houses – soil less media, sterilization – light and air – ventilation – fertigation – nutrient management through water soluble fertilizers in green houses – green house cultivation of rose, gerbera, tomato and capsicum varieties correction of nutrient deficiencies of plant protection and post harvest technology.

21. DRYLAND HORTICULTURE AND WATER SHED MANAGEMENT

Dry land Horticulture – definition – soil and water management – dry climate zones – classification – horticulture research station in dry land – problems in dry land horticulture – low rain fall areas – soil water management – types and factors influencing – soil erosion – mechanical methods and soil conservation through aforestation – fertilizer management in dry lands – chemical organic and biological fertilizers – contingency crops under very low rain fall conditions – lowering evapo-transpirational losses – water shed – definition – objectives – alternate land use methods – alley cropping – Agri-Silviculture, Agri-Horticulture, Horti-pastural, Silvi-pastural, ley farming, tree farming.

22. HORTICULTURAL EXTENSION, TEACHING METHODS AND COMMUNICATION SKILLS

Horticultural Extension – concepts, aim, objective – principles are effective horticultural extension in villages – extension teaching methods – concept, classifications – personal relations, group relations, community relations, concept advantages and limitations – audio visual aids, concept, classification their importance in extension – visual aids (posters, charts, flannel graphs, flash cards) – horticultural information aids (leaflet, folder, circular, letter, information bulletin) – concept, planning, preparation – audio aids – concept, radio and tape recorder use in horticultural extension – communication skills – English vocabulary, active and passive voice, direct and indirect speech, use of articles, synonyms, antonyms, letter writing, referring dictionary, preparation of bio data and preparation of reports.

Note: Multiple choice objective type questions will be based on syllabus prescribed for 2 years diploma course in Horticulture by Dr. YSR Horticultural University, Andhra Pradesh.

Commissioner of Horticulture

Place: Guntur

Date : 09-01-2020

9/1/2020 9.1.2020