

ANNEXURE – II**NOTIFICATION NO.12/2018****SCHEME AND SYLLABUS FOR RECRUITMENT TO THE POST OF HORTICULTURE OFFICER IN A.P. HORTICULTURE SERVICE****GAZETTED SERVICES**
SCHEME OF EXAMINATION

1. As per G.O RT. No. 2494, G.A. (Ser.A) Department, Dated:28.11.2018.

(Degree standard)

WRITTEN EXAMINATION (OBJECTIVE TYPE)				
1.	General English (50 marks) & General Telugu (50 marks) (to be Qualified in English & Telugu individually)	100 Marks (Qualifying Test)	100 Questions	100 Minutes
2.	Paper-1 General Studies & Mental Ability	150 Marks	150 Questions	150 Minutes
3.	Paper-2 Horticulture-I	150 Marks	150 Questions	150 Minutes
4.	Paper-3 Horticulture-II	150 Marks	150 Questions	150 Minutes
Total		450 Marks		

- N.B.:**
1. Computer Proficiency Test (Qualifying Test) for eligible candidates in the ratio of 1:2 with reference to total number of vacancies notified
 2. As per G.O.Ms. No.235 Finance (HR-1, Plg & Policy) Dept, Dt:06/12/2016, for each wrong answer will be penalized with 1/3rd of the marks prescribed for the question.
 3. The minimum qualifying Marks for selection is 40% for OCs; 35% for BCs and 30% for SCs & STs.

SYLLABUS**GENERAL ENGLISH AND TELUGU**
(SSC Standard)

<u>English</u>	<u>Telugu</u>
a) Comprehension	a) <u>Synonyms & Vocabulary</u>
b) Usage and idiom	b) <u>Grammar</u>
c) Vocabulary and punctuation	c) <u>Telugu to English meanings</u>
d) Logical re-arrangement of sentences	d) <u>English to Telugu meanings</u>

PAPER-I GENERAL STUDIES AND MENTAL ABILITY

1. Events of national and international importance.
2. Current affairs- international, national and regional.
3. General Science and it applications to the day to day life Contemporary developments in Science & Technology and information Technology
4. Social- economic and political history of modern India with emphasis on Andhra Pradesh.
5. Indian polity and governance: constitutional issues, public policy, reforms and e-governance initiatives with specific reference to Andhra Pradesh.
6. Economic development in India since independence with emphasis on Andhra Pradesh.
7. Physical geography of Indian sub-continent and Andhra Pradesh.
8. Disaster management: vulnerability profile, prevention and mitigation strategies, Application of Remote Sensing and GIS in the assessment of Disaster.
9. Sustainable Development and Environmental Protection
10. Logical reasoning, analytical ability and data interpretation.
11. Data Analysis:
 - a) Tabulation of data
 - b) Visual representation of data

- c) Basic data analysis (Summary Statistics such as mean, median, mode, variance and coefficient of variation) and Interpretation
12. Bifurcation of Andhra Pradesh and its Administrative, Economic, Social, Cultural, Political, and Legal implications/problems.

PAPER-II HORTICULTURE-I

1. FRUIT CROPS

Area, production, importance, uses, origin, distribution, botany, classification of varieties, use of rootstocks, high density planting, climate, soils, planting methods, training and pruning, nutrition, bahar treatment, irrigation scheduling, intercrops, weed control, problems in orchard management, flowering, fruit set, seedlessness irregular bearing, problems in fruit set, harvesting indices, harvesting, preharvest treatments, use of growth regulators, yield, grading, packing for internal and export markets, ripening methods and storage in respect of mango, banana, citrus, grape, pineapple, guava, papaya and sapota. Physiological disorders in fruit crops.

2. VEGETABLE CROPS

Importance of vegetables in human diet and national economy. Detailed study regarding origin and distribution, area and production, importance, nutritive value, botany, varieties, soil and climatic requirements, seed treatment, seed sowing/nursery raising, transplanting, nutrition, irrigation, intercultural operations, physiological disorders, harvest indices, harvesting, post harvest handling, curing, storage and usage of plant growth regulators in vegetable crops like tomato, brinjal, chillies, sweet pepper, potato, okra, cucurbitaceous crops like cucumber, pumpkin, ridge gourd, snake gourd, bitter gourd, bottle gourd, melons like water melon and musk melon, leguminous vegetables like cluster bean, French bean, dolichos bean, pea and broad bean, cole crops like cabbage, cauliflower and knolkhol, root crops like radish, carrot, beetroot and turnip, bulb crops like onion and garlic, tuber crops like sweet potato, tapioca, amorphophallus, colacasia, dioscorea and yam, leafy vegetables like amaranthus, palak, Roselle, perennial vegetables like drumstick, coccinia and murraya.

3. COMMERCIAL FLORICULTURE, ORNAMENTAL GARDENING AND LANDSCAPE ARCHITECTURE

Area, production, importance, uses, origin, distribution, classification of varieties, propagation, environmental factors affecting growth and flowering, soils, nutrition, irrigation, weeding, special techniques of production such as controlling growth and production of flowers, use of growth regulators, harvesting, postharvest handling, extension of shelf life of flowers of commercial flower crops such as rose, chrysanthemum, jasmine, carnations, gladiolus, anthurium, tuberose, china aster, marigold, crossandra and gerbera.

Need for bioaesthetic planning, places suitable for bioaesthetic planning-towns, cities, villages, schools, temples, road side, parks, ghats of rivers and canals, platforms, railway lines, public and private buildings, institutes and places of worship. Ornamental trees, shrubs climbers, cacti, succulents used in bioaesthetic or landscape gardening. Principles of garden designs, types of gardens-japanese, English and Moghul gardens. Various features of gardens such as paths, garden walls, fencing, steps, edges, hedges, arches, pergolas, shrubbery, topiary, rockery, flower beds, lawns, fountains, statues, water garden, conservatory and glass or greenhouse. Indoor plants, and their management.

Flower arrangement – principles, styles, containers and holding solutions.

Bonsai – culture and art of making.

4. MEDICINAL, AROMATIC, SPICES, CONDIMENT AND PLANTATION CROPS

Origin, importance, export potential, varieties, climate, soil requirements, propagation and planting and after care, mulching, irrigation, training, pruning, harvesting, yield and post harvest handling, curing and processing practices, storage methods, and distillation of essential oils of the following crops.

Medicinal Plants

Aloe, amla(aonla), stevia, ashwagandha, dioscorea, opium poppy, sarpagandha, steroids bearing solanum, *Phyllanthus amarus*, *chakramani*, *madhunasaini*, *sweet flag*, *Catharanthus*, *roseus*, *isabgol*, *fox glove*, *belladonna*, *senna*, *tinospora*, *annatto*, *coleus*, *safed musli* and *asparagus*.

Aromatic Crops

Citronella, lemon grass, palmarosa, vetiver, geranium, davana, mints, lavender and vanilla.

Spices and condiments

Turmeric, ginger, coriander, fenugreek, cardamom, pepper, cinnamon, clove, nutmeg and cumin.

Plantation Crops

Coconut, cashewnut, oil palm, betelvine, coffee, tea, cacao, arecanut and rubber.

5. DRYLAND HORTICULTURE AND WATERSHED MANAGEMENT

Dryland horticulture farming, introduction, definition, dry climate and their classifications with reference to India in general and Andhra Pradesh in particular. Importance of horticultural crops in dryland, yield potential of agriculture and horticultural crops in drylands. Fruits and vegetables crops suitable for dryland farming. Adaptive features of dryland fruit crops for drought and salinity.

Watershed management, objectives, approaches, steps in watershed development planning, land use capability, classification, soil and rain water conservation, water harvesting measures in watershed area. Problems and prospects under water shed. Alternate water use system.

Cultural practices like planting, training, pruning, nutrition and water management and harvesting of important dry land fruits viz., ber, pomegranate, custard apple, phalsa, fig, aonla, jamun and tamarind.

6. Post Harvest Management of Horticultural Crops

Importance of post harvest technology in Horticultural crops. Maturity indices, harvesting, handling, grading of fruits, vegetables, cut flowers, plantation crops, medicinal and aromatic plants. Pre-harvest factors affecting quality, factors responsible for deterioration of horticultural produce, physiological and biochemical changes, hardening and delaying ripening process. Post harvest treatments of horticultural crops. Quality parameters and specifications. Structure of fruits, vegetables and cut flowers related to physiological changes after harvest. Methods of storage for local market and export, packaging methods and types of packages, recent advances in packaging. Types of containers and cushioning materials, vacuum packaging, cold storage, poly shrink packaging, grape guard packing treatments. Modes of transport.

7. PRESERVATION OF FRUITS AND VEGETABLES

Importance and scope of fruit and vegetable preservation in India. Principles of preservation by heat, low temperature, chemicals and various methods of preservation Selection of site for processing, processing unit layout and precautions for hygienic conditions of the unit. Preservation of fruits and vegetables through canning, bottling, freezing, dehydration, drying, sugar, chemicals, salts, vinegar, ultraviolet and ionizing radiations.

Micro-organisms associated with spoilage of fruit and vegetable products. Spoilage of canned products-hydrogen swell, flipper, dent, leaker etc., Biochemical changes associated with spoilage of fruit and vegetable products. Preservatives and colours permitted and prohibited in India.

8. FARM POWER AND MACHINERY;

Farm power in A.P and India – Sources, I.C engines, classification, Tractors – Types and uses, selection of tractor and cost of tractor power. Electric motors – types,

Tillage implements – primary secondary tillage drawn implements. Seed cum fertilizer drills, planters. Grafting and pruning tools and equipment. Implements, tools and equipment for intercultural operations. Plants protection equipment – harvesting equipment – soil conservation equipment.

Different kinds of equipments used in processing. Preparation of jams, jellies, marmalades, candies, crystallized and glazed fruits, preserves, chutneys, pickles, ketchup, sauce, puree, syrups, juices, squashes and cordials.

Government policy on import and export of processed fruits, food laws. Quality control of processed products.

9. GREENHOUSE MANAGEMENT OF HORTICULTURAL CROPS

Importance, uses, scope and production of horticultural crops in greenhouse. Status and development of greenhouse production of horticultural crops in the world and India. Development, constraints, research needs and future of protected culture of horticultural

crops in India and A.P. Points to be considered before establishing a greenhouse. Types of greenhouses, classification of greenhouses based on the shapes, material used, utility and cladding material used. Size and arrangement of greenhouses and characteristics of various greenhouse cladding materials, greenhouse benches etc.,

Management of light, temperature (greenhouse heating and cooling), CO₂ and relative humidity inside the greenhouse.

Various types of growing media used and their suitability for different horticultural crops. Preparation of growing media and its pasteurization. Management of nutrients through fertigation.

Detailed production technology in respect of tomato, cucumber, rose, carnation, gerbera, chrysanthemum and anthurium under greenhouse/polyhouse.

PAPER-III HORTICULTURE-II

1. FUNDAMENTALS OF HORTICULTURE :

Definition, importance of horticulture in terms of economy, production, and employment generation. Nutritional value of horticultural crops. Divisions of horticulture and their importance. Horticultural stations in Andhra Pradesh. Horticultural zones of India and Andhra Pradesh.

Temperature, light, humidity, rainfall and soil requirements for horticultural crops. Selection of site for establishing an orchard, orchard plan, systems of planting and establishment of an orchard. Importance, scope and practicing of organic farming in horticultural crop production. Soil and climate for horticultural crops. Vegetable gardens – nutrition and kitchen gardens and other types of gardens.

Nutrition of horticultural crops – assessment of nutritional requirements based on soil, tissue analysis, and field experiments. Identification of deficiency symptoms of various nutrients and methods of nutrient application. Assessment of irrigation requirements for different horticultural crops and different methods of irrigation. Pruning and training, their objectives and methods. Pollination and fruit set, problems and requirements, flower and fruit drop, stages, causes and remedial measures. Fruit thinning, objectives, advantages and disadvantages. Unfruitfulness, reasons and remedial measures. Use of growth regulators in horticulture. Cropping systems, intercropping, multi-tier cropping, mulching, bearing habits, factors influencing the fruitfulness and unfruitfulness. Rejuvenation of old orchards, top working, frame working.

2. PLANT PROPAGATION AND NURSERY MANAGEMENT :

Introduction, principles and classification of plant propagation methods. Selection of site for commercial nursery. Ecological and economic factors. Plant propagation structures, containers and media.

Sexual propagation and its importance. Seed dormancy, Seed germination, process of seed germination. Factors affecting seed germination and pre-germination treatments and viability tests.

Asexual (vegetative) propagation and its importance. Various methods of Asexual (vegetative) propagation like cuttage, layerage, budding, grafting and factors responsible for their success. Different types among cuttage, layerage, budding, grafting methods followed in propagation of different horticultural crops. Role of root stocks, selection and maintenance of mother trees (scion bank), scion – stock relationships, bud wood certification, propagation through specialized structures. Nursery registration act.

Importance of micro propagation of plants. Types of aseptic cultures. Types of media, preparation of media and inoculation of explants, establishment, sub culture and rooting of explants.

3. PLANT PHYSIOLOGY :

Physiological changes during seed development, germination and seed dormancy. Seed viability and seed vigour. Photosynthesis – importance, factors affecting photosynthesis. Light and dark reactions – C₃, C₄ and CAM pathways. Significance and differences. Photo-respiration and its significance. Respiration and its significance.

Nomenclature and classification of plant growth substances. History, occurrence, distribution, mode of action, movement, mechanism and function of auxins, gibberellins, cytokinins, ethylene, inhibitors, retardants, phenolic substances and morphactins.

Role of plant growth regulators in plant propagation, seed and bud dormancy, juvenility, maturity and senescence, flowering, pollination, fruitset including parthenocarpy, fruit growth, fruit drop and fruit ripening (climacteric and non-climacteric) and fruit colour development, tuber and bulb formation and sex expression and extension of shelf life in fruits, vegetables and flowers.

4. ENTOMOLOGY :

Commonly occurring pests in horticultural crops – distribution, host range, nature of damage, symptoms and control measures. Life cycle of insect pests, nematodes etc., Integrated pest management.

5. PATHOLOGY :

Commonly occurring diseases in horticultural crops – host range, etiology, symptoms and control measures. Life cycle of bacteria, fungal parasites, viruses etc., Integrated disease management.

6. SOIL SCIENCE:

Soil texture – classes. Soil structure – classification. Soil PH, importance of soil PH on nutrient availability. Soil organic matter – sources, humus formation, C:N ratio and its importance.

Soil fertility and productivity. Essential and beneficial elements, criteria of essentiality. Primary secondary, micronutrients and their functions, deficiency symptoms, occurrence in horticultural crops, corrective measures. Factors affecting their availability.

Classification of manures and fertilizers and their differences. Commercial fertilizers, simple, compound and complex fertilizers, fertilizers mixtures. Biofertilizers. Integrated nutrient management for horticultural crops. Fertilizer control order.

7. INTRODUCTORY AGROFORESTRY :

Agro forestry-introduction, status of Indian forests, role in Indian Farming Systems. Definition-Branches of Forestry. Principles and practices, classification of Agro forestry systems-inter cropping-Home garden-Types of coconut based cropping system-planning for Agro forestry-constraints, diagnosis and design methodology, selection of tree species for agro forestry. Agro forestry projects-national, overseas, MPTs – their management practices economics of cultivation – Sisso, Acacia catechu, A.nilotica (Babul),Bez(Z. mauritiana). Grewia, Subabul, Tamarind, Eucalyptus, Teak, Casuarina, Red sander, Neem, Soapnut, Aonla, Morus, Bamboo, bio diesel trees-Jatropha, Pongamia, Simarouba. Distinction between agro forestry and social forestry-objectives, scope of social forestry. Hortipastoral system – pastures suitable under dry land condition.

8. EXTENSION EDUCATION:

Formal and informal education. Teaching – learning process, principles of learning. Commutation – components. Classification of Audio – visual aids.

Transfer of technology programmers – KVK, TAR - IVLP, ATIC, NHM, APMIP, DW CRA, ANTWA, DAATC. Extension reforms – ATMA, SREP, PRA, different tools of PRA.

9. ORGANIC FARMING IN HORTICULTURAL CROPS :

Introduction, concept, relevance in present context, Organic production requirements, Biological intensive nutrient management-Organic manures, vermicomposting, green manuring, compost pits, recycling of organic residues, bio-fertilizers, soil improvement and amendments: Integrated diseases and pest management use of biocontrol agents, biopesticides, pheromones, trap crops bird perches, weed management. Quality considerations, certification, labelling and accreditation processors, marketing, exports. International and National Policies in promotion of Organic farming.

SCHEME OF EXAMINATION (PRACTICAL TYPE)

TEST	Duration (Minutes)	Maximum Marks	Minimum qualifying marks		
			SC/ST/PH	B.C's	O.C's
Proficiency in Office Automation with usage of Computers and Associated Software	30	50	15	17.5	20

SYLLABUS

The test shall comprise the following four parts:

Name of the part	Name of the Question to be answered	Marks
Part A	Example: Typing a letter/passage/paragraph (about 100-150 words) in MS-Word	15
Part B	Example: Preparation of a Table/Graph in MS-Excel	10
Part C	Example: Preparation of Power Point Presentations/Slides (Two) on MS-Power Point.	10
Part D	Example: Creation and manipulation of data bases.	10
Part E	Example: Displaying the content of E-mail (Inbox).	05
Total		50

Note: The candidates shall be given the text / matter in the Question Paper and they must type / reproduce it in the Answer Sheet. The formatting of the text should also be of the same type as given in the Question Paper.

NAME	CONTENTS OF PART-A	MARKS
WORD	<ol style="list-style-type: none"> 1. Create and save a document using MS WORD <ol style="list-style-type: none"> a. Deletion of Character, Word, line and block of text b. Undo and redo process c. Moving, Copying and renaming 2. Format the Text document <ol style="list-style-type: none"> a. Character formatting b. Paragraph formatting c. Page formatting 3. Spell check the document <ol style="list-style-type: none"> a. Finding and Replacing of text b. Bookmarks and Searching for a Bookmarks c. Checking Spelling and Grammar automatically d. Checking Spelling and Grammar using Dictionary 4. Print the document <ol style="list-style-type: none"> a. Print Preview b. Print Dialog box 5. Mail Merge in Ms-word <ol style="list-style-type: none"> a. Create main document and data file for mail merging b. Merging the files c. From letters using mail merging d. Mailing labels using mail merging 6. Table creation in Ms-word <ol style="list-style-type: none"> a. Create a table in the document b. Add row, column to a table c. Changing column width and row height. d. Merge, split cells of table. e. Use formulae in tables. f. sorting data in a table. g. formatting a table. 7. Ability to type on Qwerty key board of Computer at a speed of at least equivalent to 30 Words per 1 minute (Lower type writing test). 	15

NAME	CONTENTS OF PART-B	MARKS
EXCEL	<ol style="list-style-type: none"> 1. Create and save a new work book in Excel 2. Entering Data into Worksheet 3. Editing data of Worksheet 4. Formatting the text in the cells 5. Formatting the numbers in the cells. 6. Formatting cells. 7. Copying format of cell along with data format. 8. Changing the height and width of cells. 9. Freezing Titles, splitting screen 10. Enter formulae for calculation in the cells. 11. Copying the formula over a range of cells. 12. Inserting built-in functions in to the cells. 13. Create graphs for the data using Chart Wizard. 14. Format graphs in Excel. 15. Printing of worksheet. 	10
NAME	CONTENTS OF PART-C	MARKS
POWER POINT	<ol style="list-style-type: none"> 1. Create and save a new presentation using MS Power Point <ul style="list-style-type: none"> • layout of opening screen in Power Point • the tool bars in MS Power Point 2. Choose Auto Layout for a new slide. 3. Insert text and pictures into a blank slide. 4. Insert new slides into the presentation. 5. Apply slide transition effects. 6. Slide show. 7. Set animation to text and pictures in a slide 8. Set the sounds, order and timing for animation. 	10
NAME	CONTENTS OF PART-D	MARKS
ACCESS	Creation and manipulation of data bases	10
NAME	CONTENTS OF PART-E	MARKS
INTERNET	<ol style="list-style-type: none"> 1. Browse the Net using Browser software (Internet Explorer, Mozilla Firefox, Google Chrome etc.,). 2. Search the Web using Search Engines. 3. Create an E-mail account. 4. Send and receive E-mail. 5. E-commerce transactions. 6. Web content uploading. 7. Ability to operate Mac OS / pages / key note / Numbers. 	05
GRAND TOTAL		50
