



TAMIL NADU PUBLIC SERVICE COMMISSION

Advertisement No. 497
Notification No.10/2018

DATED: 25.05.2018

Applications are invited only through online mode up to 24.06.2018 for Direct Recruitment to the post of Assistant Horticultural Officer as follows:-

Name of the Post and Code No.	Name of the Service and Code No.	No. of vacancies	Scale of Pay
1. Assistant Horticultural Officer (2016-2017) (Code No.3104)	Tamil Nadu Horticultural Subordinate Service (Code No.105)	757 (Regular vacancies)	Level - 10 Rs. 20,600 - 65,500/-
2. Assistant Horticultural Officer (Shortfall vacancies for SC/ST candidates only) (Code No.3104)		48 (45 SC & 3 ST) (Shortfall vacancies)	

It is mandatory for the applicants to register their basic particulars through One-Time online Registration system on payment of Rs.150/- (Rupees One Hundred and Fifty only) towards registration fee and then should apply online for this recruitment. [The One-Time Registration will be valid for 5 years from the date of registration. Thereafter, the registration should be renewed by paying the prescribed fee.]

2.DISTRIBUTION OF VACANCIES

The rule of reservation of appointments is applicable for this recruitment, except to the shortfall vacancies to the said post mentioned in SI.No.2. The Distribution of vacancies will be announced later, on receipt of orders from the Government regarding identification of suitable categories of Differently Abled Persons towards 4% reservation for this post.

3. IMPORTANT DATES AND TIME

Date of Notification	25.05.2018	
Last date for submission of application	24.06.2018	
Last date for payment of Fee through Bank (State Bank of India or Indian Bank)	26.06.2018	
Date of Written Examination		
Paper – I (Subject Paper)	11.08.2018 FN	10.00 A.M. to 01.00 P.M
Paper – II (General Studies)	11.08.2018 AN	02.30 P.M. to 04.30 P.M

4. FEES

a)	<p><u>Registration Fee</u></p> <p>For One-Time Registration (Revised with effect from 01.03.2017 vide G.O.(Ms).No. 32, Personnel and Administrative Reforms Department, dated 01.03.2017)</p> <p><u>Note</u></p> <p>(i) Applicants who have already registered in One-Time Registration system paying Rs.50/- before 01.03.2017 and those who have registered for One-Time Registration on or after 01.03.2017 by paying Rs.150/- are exempted from paying the registration fee for this recruitment.</p> <p>(ii) Applicants who have made One-Time Registration must pay the prescribed examination fee for this recruitment unless fee exemption is claimed. (One-Time Registration is only to avail exemption for Registration fee for a period of 5 years from the date of registration and it will not be considered as prescribed examination fee for this recruitment).</p>	Rs.150/-
b)	<p><u>Examination Fee</u></p> <p><u>Note</u></p> <p>The Examination fee should be paid at the time of submitting the online application for this recruitment, if they are not eligible for the fee concession noted below :-</p>	Rs.100/-

EXAMINATION FEE CONCESSION

Category	Concession	Condition
(i) Scheduled Castes / Scheduled Caste (Arunthathiyars), Scheduled Tribes	Full Exemption	--
(ii) Differently Abled Persons, Destitute Widow of all communities	Full Exemption	<p>(i) For Differently Abled persons, the disability should be not less than 40%.</p> <p>(ii) For DWs, the DW certificate should have been obtained from the RDO / Sub Collector/ Assistant Collector</p>
(iii) Most Backward Class / Denotified Communities, Backward Classes (Other than Muslim) Backward Class (Muslim)	Those who have not availed three free chances so far in the previous recruitments may avail exemption from payment of examination fee.	Should not have availed three free chances in the previous recruitments.

(iv) Ex-Servicemen	Those who have not availed two free chances so far in the previous recruitments may avail exemption from payment of examination fee.	(i) Should not have availed two free chances in the previous recruitments. (ii) Fee concession will not apply to those who have already been recruited to any class or service or category.
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Note

- (i) Applicants can avail exemption from paying examination fees as per eligibility criteria.
- (ii) The three / two free chances referred to above are not for **EACH POST** but for **ANY THREE / TWO APPLICATIONS ONLY**. The claim for exemption from payment of examination fee made in any application which is rejected / admitted or withdrawn will be counted as a free chance availed.
- (iii) Failure to pay the prescribed fee along with the application in time will be liable for rejection of application.
- (iv) The number of free chances availed by the applicant means the total number of free chances hitherto availed by the applicant in his / her earlier application submitted to the Commission for any post / recruitment.
- (v) If the examination fee concession claimed in the application is found to exceed the admissible limits as announced above, the application will be rejected at any stage of selection. The number of free chances availed by the applicants will be counted from the previous applications submitted through One-Time Registration and / or submitted directly without One-Time Registration i.e., before One-Time Registration was made as mandatory.

5. MODE OF PAYMENT OF EXAMINATION FEE

- Examination fee of Rs.100/- (Rupees One Hundred only) is payable online through Net banking / Credit card / Debit card or it can be paid offline at SBI / Indian Bank within 2 days from the date of submission of online application, by choosing the option in the online application.
- Applicants have to register their basic particulars through One-Time Registration which is mandatory on payment of Rs.150/- (Rupees One Hundred and Fifty only) towards registration fee and then should apply online for this recruitment. The One-Time Registration will be valid for 5 years from the Date of Registration. Thereafter, the registration should be renewed by paying the prescribed fee. Applicants who have already registered in One-Time Registration system on payment of Rs.50/- before 01.03.2017 and those who have registered for One-Time Registration on or after 01.03.2017 by paying Rs.150/- towards One-Time Registration are exempted from paying the registration fee for this recruitment.
- Applicants have also to pay the service charges applicable to the State Bank of India / Indian Bank.
- **Offline mode of payment in the form of Demand Draft / Postal Order etc., will not be accepted and the applications forwarded with such modes of payment will be summarily rejected.**

(For further details, refer [para 2 \(13 – 23\) of “Instructions to Applicants”](#)).

6. QUALIFICATIONS

(A) AGE LIMIT (as on 01.07.2018)

Category of Applicants	Minimum Age (Should have completed)	Maximum Age
SCs, SC(A)s, STs, MBCs/DCs, BCs, BCMs and DWs of all Castes	18 years	No Maximum Age limit
“Others”	18 years	30 Years (Should not have completed)

Age Concession

(i) For Differently Abled Persons: (Others)

- (a) Differently Abled Persons are eligible for age concession upto 10 years over and above the maximum age limit prescribed above.

For Ex-servicemen: (Others)

- (a) Ex-servicemen are eligible for age concession upto 48 years of age.
 (b) The above mentioned age concession will not apply to those Applicants who have already been recruited to any class or service or category.

Note

- (i) Applicants not belonging to SCs, SC(A)s, STs, MBCs/DCs, BCs and BCMs., who have put in 5 years and more of service in the State / Central Government are not eligible to apply even if they are within the age limit.
 (ii) Instructions given with regard to maximum age limit under para 5 of the 'Instructions to Applicants' will apply to this recruitment.
 (iii) **No maximum age limit shall mean that the applicants should not have completed 58 years of age either on the date of notification or at the time of selection/ appointment to the post.**

(B) EDUCATIONAL QUALIFICATION: (as on 25.05.2018)

Applicants should possess the following qualification:-

- 1) **A Pass in Higher Secondary Examination and**
- 2) **A pass in the two years Diploma course in Horticulture in the Institutions approved by Tamil Nadu Agricultural University or Director of Horticulture and Plantation Crops or from the Gandhigram Rural Institute.**

Note

- (i) The educational qualification prescribed for this post should have been obtained by passing the required qualification in the order of studies viz. **10th + HSC + Diploma Course(10+2+2)**. The results of examination should have been declared on or before the date of Notification.
 (ii) Applicants claiming equivalence of qualification to the prescribed qualification should upload and submit evidence for equivalence of qualification in the form of G.O. issued prior to the date of this notification when called for, failing which, their application will be summarily rejected. The G.Os regarding equivalence of qualification issued after

the date of this notification will not be accepted for this recruitment [Section 25(b) of Tamil Nadu Government Servants (Conditions of Service) Act 14/2016].

(Refer [para 10 of the "Instructions to Applicants "](#))

(C) CERTIFICATE OF PHYSICAL FITNESS

Applicants selected for appointment to the post of Assistant Horticultural Officer will be required to produce a certificate of physical fitness in the form prescribed below before their appointment:

Standard of Vision Prescribed	Form of Certificate of Physical Fitness
Standard III or Better Colour Blindness will be a disqualification.	Form prescribed for Executive post.

(D) KNOWLEDGE IN TAMIL

Applicants should possess adequate knowledge in Tamil on the date of this Notification.

(For details refer [para 11 of the Commission's 'Instructions to Applicants'](#)).

7. CONCESSIONS

- Concessions in the matter of age and/or fees allowed to SCs, SC(A)s, STs, MBCs/DCs, BCs, BCMs, Destitute Widows, Differently Abled Persons, Ex-servicemen, other categories of persons etc., are given in [para 12 to 14 of the 'Instructions to Applicants'](#).
- Persons claiming concession referred to above have to produce evidence for such claim, when called for, otherwise their application will be liable for rejection.

Note

In all cases, an Ex-Serviceman once recruited to a post in any class or service or category, **cannot claim the concession** of being called an Ex-Serviceman for his further recruitment. [Proviso to Section 3(j) (vii) of Tamil Nadu Government Servants (Conditions of Service) Act 2016]

8. SCHEME OF EXAMINATION - OBJECTIVE TYPE (OMR METHOD):-

Subject	Duration	Maximum Marks	Minimum Qualifying Marks for selection	
			SCs, SC(A)s, STs, MBCs/DCs, BCs and BCMs	Others
<u>I. Paper - I (200 Questions)</u> <u>Diploma Standard</u> Horticulture (Code No.277)	3 hours	300	150	200
<u>II. Paper- II (100 Questions)</u> General Studies (Code No.003) (HSC Standard) – 75 Questions and Aptitude and Mental Ability Test (SSLC Standard) – 25 Questions	2 hours	200		
Total		500		

Note

- (i) The Question paper will be set in both English and Tamil.
- (ii) Refer [para 22 of "Instructions to Applicants"](#) in regard to instructions to be followed while appearing for competitive examinations conducted by the Commission.
- (iii) The Syllabus for Examination is furnished in the [Annexure](#) of this notification.

9. CENTRE FOR EXAMINATION

Examination will be held at the following centres: -

Sl. No.	Name of the Centre	Centre Code
1.	Chennai	0100
2.	Madurai	1000
3.	Coimbatore	0200
4.	Trichirappalli	2500
5.	Tirunelveli	2600
6.	Salem	1700
7.	Thanjavur	1900

Note

- (i) Applicants will be required to appear for the Written Examination / Certificate Verification at their own expenses.
- (ii) **The Commission reserves the right to increase/decrease the number of Examination Centres and to re-allot the Applicants.**

10. SELECTION PROCEDURE

Based on the marks obtained by the candidates in the Written Examination, the tentative list of eligible candidates for certificate verification will be announced in the Commission's website. After verification of the original certificates, the eligible candidates will be summoned for final selection through counselling method. (For details refer [Para 23 of Commission's 'Instructions to Applicants'](#)).

Note:

1. First, the selection will be made for regular vacancies as per notification following the rule of reservation.
2. Next, the selection against 48 shortfall vacancies as per notification will be made from among the SC/ST candidates only.
- 2a. The reservation for Women, Differently Abled Persons and Ex - Servicemen etc. will not be applicable for the recruitment of shortfall vacancies. [Section 27(h) of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016]
3. Counselling will be held separately for regular and shortfall vacancies.

11. NO OBJECTION CERTIFICATE / INFORMATION TO THE EMPLOYER

No Objection Certificate obtained from appropriate authority shall be produced at the time of Certificate Verification, failing which, the application will be rejected.

For details refer [Para 15 \(g\) of Commission's 'Instructions to Applicants'](#). - Any violation of this instruction will be liable for / end in rejection of application and forfeiture of his/her candidature.

12. GENERAL INFORMATION

- A. The rule of reservation of appointments is applicable to this recruitment except to the shortfall vacancies for the said post mentioned in Sl.No. 2. The distribution of vacancies will be as per rules in force.
- B. In G.O.Ms.No.145, Personnel and Administrative Reforms(S) Department, dated 30.09.2010 and G.O.Ms.No.40, Personnel and Administrative Reforms(S) Department, dated 30.04.2014, the Government have issued orders to fill up 20% of vacancies in direct recruitment on preferential basis to Persons who studied the prescribed qualification in Tamil Medium. The

20% reservation of vacancies on preferential allotment to **Persons Studied in Tamil Medium (PSTM)** will apply for this recruitment. Applicants claiming PSTM preference must produce certificate issued by Head of Institution as proof as per the specimen contained in the "Instructions to Applicants" for having studied the prescribed qualification in Tamil Medium. (Having written the examination in Tamil language alone will not qualify for claiming this preference). If the Applicants with PSTM certificate are not available for selection for appointment against reserved turn, such turn shall be filled up by other eligible Applicants but belonging to the respective communal category. The PSTM certificate, in prescribed format / proforma available in the Commission's website at 'www.tnpsc.gov.in' shall be obtained from the Head of the Institution and shall be produced / uploaded when called for. (For further details refer Instructions to Applicants).

- C. **The number of vacancies advertised is only approximate and is liable to modification with reference to vacancy position at any time including reduction before finalization of selection.**
- D. The selection for appointment to the above said post is purely provisional subject to final Orders on pending Writ Petitions, if any, filed at Madras High Court and Madurai Bench of Madras High Court.
- E. As per Section 26 and 27(c) of Tamil Nadu Government Servants (Conditions of Service) Act 2016, Reservation of appointment to **Destitute Widows and Ex-Servicemen** respectively **will apply** to this recruitment only for the regular vacancies mentioned in SI.No.1.
- F. The reservation of 4% vacancies earmarked for the Differently Abled persons will be applicable for this post as per G.O.(Ms).No.51, Welfare of Differently Abled Persons (DAP-3.2) Department, dated 26.12.2017, to the suitable categories to be identified by the Government.
- G. The Differently Abled persons should submit copy of Differently Abled Certificate specifying the nature of physical handicap and the degree of disability when called for by the Tamil Nadu Public Service Commission. If selected, they should produce a Fitness Certificate obtained from the Medical Board to the appointing authority. [Section 20 (5) of Tamil Nadu Government Servants (Conditions of Service) Act 2016]
- H. If no qualified and suitable women applicants are available for selection against the vacancies reserved for them, those vacancies will be filled by male applicants belonging to the respective communal categories.
- I. Even after filling up of the vacancies reserved for SC Arunthathiyars on preferential basis, if more number of qualified Arunthathiyars are available, they shall be entitled to compete with the Scheduled Castes other than Arunthathiyars in the inter-se merit among them and if any post reserved for Arunthathiyars remain unfilled for want of adequate number of qualified Applicants, it shall be filled up by Scheduled Castes other than Arunthathiyars.
- J. Any subsequent claim made thereafter on submission of online application will not be entertained. Evidence for claims made in the online application should be uploaded / submitted in time, when called for. Failure to submit the documents within the stipulated time limit **will entail rejection of the Application.**
- K. Correct and True information regarding arrest, convictions / debarment / disqualification by any recruiting agency, criminal or any disciplinary proceedings initiated / pending or finalized, participation in agitation or any Political Organization, candidature in election for Parliament/State Legislature/Local Bodies etc., if any, should also be furnished to the Commission at the time of application i.e., the details thereof, originals of the Judgement, order or G.O dropping further action in Departmental proceedings or any document that

may prove the suitability of such Applicants for a Government appointment in such cases must be produced at the stage / time of Certificate Verification without fail.

- L. **Incomplete applications and applications containing wrong claims or incorrect particulars relating to category of reservation / other basic qualification / eligibility wise / age / communal categories / educational qualification / physical qualification and other basic eligibility criteria will be liable for rejection.**
- M. **One-Time Registration is not an application for any Post / Recruitment. Though the details/particulars were furnished in the One-Time Registration by the applicants, the details/particulars furnished in the online application submitted for this recruitment alone will be taken into consideration. Tamil Nadu Public Service Commission will not be responsible for any consequences arising out of furnishing of incorrect and incomplete details in the application or omission to provide the required details in the application for this recruitment.**

13. OTHER IMPORTANT INSTRUCTIONS

- a) **Applicants should ensure their eligibility for examination:** The applicants applying for the examination should go through all instructions carefully and ensure that they fulfil all eligibility conditions for admission to examination. **Their admission to all stages of the examination will be purely provisional subject to satisfaction of the eligibility conditions.** Mere issue of memo of admission to the applicant will not imply that his/her candidature has been fully accepted by the Commission.
- b) The **Hall Tickets** for eligible applicants will be made available in the Commission's Website www.tnpsc.gov.in or www.tnpscexams.net or www.tnpscexams.in for downloading the same by applicants. No Hall Tickets will be sent by post. So the applicants should watch TNPSC website before the scheduled date of examination. The Applicants must comply with each and every instruction given in the Hall Ticket.

c) Communication to Applicants:

Individual communication regarding the date and time of certificate verification and counselling will not be sent to the applicants by post. The details will be made available on the Commission's website. Applicants will be informed of the above fact only through SMS and e-mail.

- d) **Grievance Redressal Cell for guidance of applicants:-** In case of any guidance/information / clarification of their applications, candidature etc., applicants can contact Tamil Nadu Public Service Commission's Office in person or over Telephone No.044-25332833 / 25332855 or the Commission's Office Toll-Free No.1800 425 1002 on all working days from 10.00 a.m. to 05.45 p.m or Commission's mail id contacttnpsc@gmail.com
- e) **Mobile Phones and other Articles Banned:**
- i. Applicants are not allowed to bring Cellular Phone, Watches and Ring with Inbuilt Memory Notes etc., or any other Electronic device and Non-Electronic devices such as P&G Design Data Book, Books, Notes, Hand Bags and Recording Device either as separate piece or part of something used by the applicants such as Watch or Ring etc., to the examination hall / room on the date of examination.
 - ii. If they are found to be in possession of any such thing or instrument, they will not be allowed to write the examination further, besides invalidation of answer paper and / or debarment. If it is considered necessary they will be subjected to thorough physical search including frisking on the spot. (For further details refer '[Instructions to Applicants](#)').

- iii. Applicants must not bring into the Examination Hall any article such as books, notes, loose sheets, electronic or any other type of calculators, mathematical and drawing instruments, Log Tables, stencils of maps, slide rules, Text Books, rough sheets etc., except the permitted writing material (i.e. Ball point pen). No colour pen or Pencil must be used.
 - iv. Applicants are advised in their own interest not to bring any of the banned items including Mobile Phones to the venue of the examination, as arrangements for safekeeping cannot be assured.
- f) Unless specific instruction is given, **applicants are not required to submit along with their online application any certificates** in support of their claims regarding age, educational qualifications, practising / service, physical qualification, community their physical disability etc., which should be submitted when called for by the Tamil Nadu Public Service Commission. The applicants applying for the examination should ensure that they fulfil all the eligibility conditions for admission to the Examination. Their admission at all the stages for which they are admitted by the Commission viz. Written Examination and Certificate verification will be purely provisional, subject to their satisfying the prescribed eligibility conditions. **If on verification at any time, it is found that they do not fulfil any of the eligibility conditions, their candidature for the recruitment will be liable for rejection / cancellation by the Commission.** [\(For further details refer Instructions to Applicants\).](#)
- g) If any of their claims is found to be incorrect, it will lead to rejection of their candidature and suitable penal action including debarment.
- h) **Unfair means strictly prohibited:** No applicants shall copy from the papers of any other candidate or permit his papers to be copied or give or attempt to give or obtain or attempt to obtain irregular assistance of any description. [\(For further details refer Instructions to Applicants\).](#)
- i) **Conduct in Examination Hall:** No applicant should misbehave in any manner or create a disorderly scene in the Examination Hall or harass the staff employed by the Commission for the conduct of the examination. Any such misconduct will be severely viewed and penalised. [\(For further details refer Instructions to Applicants\).](#)
- j) For violation of “Instructions to Applicants” in any manner, suitable penalty will be imposed as per the Instructions to Applicants or as deemed fit by the Commission.

14. HOW TO APPLY

1. Applicants should apply only through online mode in the Commission's Websites www.tnpsc.gov.in / www.tnpscexams.net / www.tnpscexams.in
2. One-Time Registration (OTR) and applicant Dashboard are mandatory before applying for any post. Applicant should register only once in the One-Time Registration by paying Rs.150/- as Registration fee. Successfully registered One-Time Registration is valid for 5 years from the date of Registration. All the applications should be submitted using the One-Time Registration ID and password registered by the applicant.
3. For applying in One-Time Registration, the applicants should have scanned image of their photograph, certificate wherever insisted and signature in CD/DVD/Pen Drive to upload the photo, certificate and signature.
4. Applicants who have already registered in One-Time Registration on or before 29.09.2015 shall use their existing user ID and Password to create applicant Dashboard in the new One-Time Registration system. No applicant is permitted to create more than one registration ID in One-Time Registration.

5. Applicants should enter the Unique ID and password to view the already available information and update them. They shall not share the ID with any other person or agency.
6. One-Time Registration is not an application for any post. It is just a collection of information from the applicants and giving a separate dashboard to each applicant to facilitate them to maintain their own profile. Applicant who wishes to apply for any post shall click "[Apply](#)" against the post Notified in the Commission's Website and use the same USER ID and PASSWORD given for ONE -TIME REGISTRATION.
7. Applicants should select the name of the post or service for which they wish to apply.
8. Applicants are required to upload their photograph and signature as per the specifications given in the Guidelines for Scanning and Upload of Photograph and Signature.
9. An Online application uploaded without the photograph, specified documents and signature will be rejected.
10. All the particulars mentioned in the online application including name of the Candidate, Post applied, educational qualifications, Communal Category, Date of Birth, Address, Email ID, Centre of Examination etc. will be considered as final and no modifications will be allowed after the last date specified for applying online. Since certain fields are firm and fixed and cannot be edited, applicants are requested to fill in the online application form with the utmost care and caution as no correspondence regarding change of details will be entertained.
11. Print Option
 - a) After submitting the application, applicants can print / save their application in PDF format.
 - b) On entering user ID and password, applicants can download their application and print, if required.
 - c) Need not send the printout of the online application or any other supporting documents to the Commission. The certificates will be verified only when the applicants come up for next stage of selection.

12. One -Time Registration will not be considered as an application for any post.

15. UPLOAD OF DOCUMENTS

The applicants must upload / submit the documents whenever called for specifically.

16. LAST DATE FOR SUBMITTING APPLICATION

The Online Application can be submitted upto 24.06.2018 till 11.59 p.m., after which the link will be disabled.

(For detailed information applicants may refer Commission's ['Instructions to Applicants'](#) at the Commission's website www.tnpsc.gov.in)

Secretary

DISCLAIMER

“The applicants while applying for the examination should furnish the details of equivalence of qualification declared in the form of Government order issued prior to the date of this notification, if any, and produce the same when called for by Tamil Nadu Public Service Commission, failing which their application will be rejected. The Government Orders regarding equivalence of qualification issued after the date of this notification will not be accepted.”

Secretary

ANNEXURE
TAMIL NADU PUBLIC SERVICE COMMISSION
(ASSISTANT HORTICULTURAL OFFICER) - WRITTEN EXAMINATION
PAPER-I
HORTICULTURE (DIPLOMA STANDARD)
OBJECTIVE TYPE

SUBJECT CODE: 277

UNIT- I: BASIC HORTICULTURE AND PLANT PROPAGATION

Horticulture – Definition, scope and importance, Division and classification of horticultural crops – Horticultural zones in India and Tamil Nadu – Cropping systems - Planting methods – Irrigation systems – Nutrient application methods in horticultural crops – Weed management - Training – Pruning, ringing, notching, disbudding and pinching – Crop regulation – Physical and chemical regulation - Special practices –Maturity indices – Harvesting methods, pre-cooling – Packaging - Storage of horticultural crops - Protected cultivation.

Propagation - Tools and implements - Media – Containers - Propagation - Preparation of nursery beds - Seed treatment - Sowing - Plug transplants / seedling production - Potting, depotting and repotting of plants - Methods of asexual propagation through cuttings, layering, grafting and budding - Types of cuttings - Types of layering - Potting of layers and hardening – Raising of rootstocks - Grafting methods - Separation of grafts - Potting and maintenance of grafted plants plant propagating structures - Mist chamber - Shade net – Uses - Hardening and maintenance - Application of growth regulators - Growth regulators for seed and vegetative propagation - Budding methods - Maintenance of budded plants - Nutrition and plant protection.

UNIT- II: SOIL AND FERTILITY, IRRIGATION AND WEED MANAGEMENT

Soil – Definition – Components – Physical properties of soil – Colour, Texture, structure, Bulk density, Particle density, Pore space; soil water, soil air, soil temperature and their significance in crop production. Soil chemical properties – Soil reaction, EC and CEC. Soil Organic Matter and its importance on soil properties – Essential nutrients for crop plants - Major, secondary and micro nutrients – Manures and fertilizers – Types – Straight, Complex, Compound, Mixed, Fortified and chelated fertilizers and their reactions in soil - Techniques to enhance fertilizer use efficiently. Soil fertility – INM and IPNS – Problem soils – Acid, saline and alkaline soils - Their formation, reclamation and management.

Irrigation – Sources of water for irrigation – Water movement, soil–plant and atmosphere soil moisture constants – Available soil moisture - Effect of water stress on crop yield – Water use efficiency – Water requirement of major crops – Critical stages of water requirement – Irrigation scheduling – Types and advantages – Irrigation methods – Irrigation water use efficiency – Management of poor quality irrigation water. Weeds – definition and importance of weed control in crop production – Classification of weeds – Methods of weed control – Manual, mechanical, cultural, chemical and biological methods -Relative merits and demerits – Herbicide classification based on method of application – Weed control practices for major horticultural crops – Parasitic, problematic, aquatic and waste land weed management - Integrated weed management – Concepts and practices.

UNIT- III: PRODUCTION TECHNOLOGY OF FRUITS AND VEGETABLES

Scope and importance of fruit cultivation – Area and production of fruit crops in Tamil Nadu – Selection and layout of orchard - Physical features in orchard - Study of cultural practices of Tropical fruits – Mango, Banana, Grapes, Papaya, Sapota, Guava, Jackfruit - Sub-tropical and temperate fruits – Pineapple, Avocado, Apple, Pear, with reference to soil, climate, varieties / hybrids methods of propagation, nutrient, irrigation and weed management practices – Training and pruning – Growth regulators – Maturity standards for harvesting – Post-harvest handling of fruit crops – Yield – Grading – packing – Storage and value added products - Organic fruit production and Good Agricultural Practices.

Dry land horticulture – Importance, scope and distribution of arid and semi arid zones in India and Tamil Nadu. Crops suitable for dry land production – Important varieties, climate and soil requirements, commercial propagation methods - Spacing and planting systems - Cropping systems and intercropping – Mulching - Soil and moisture conservation methods – Anti-transpirants – Management of nutrients, water, weeds and problem soils – Regulation of cropping – Training and pruning - Top working and rejuvenation – Use of plant growth regulators – Post-harvest handling.

Scope and importance of vegetable cultivation – Area and production in Tamil Nadu – Systems of vegetable cultivation – Kitchen garden – Truck garden and market garden – Gardening for processing. Climate – Soil requirement – Varieties / hybrids – Seed rate – Sowing nursery practices – Protray nursery – Transplanting – Manuring – Irrigation – Fertigation - Nutrient deficiency and their corrective measures - Weeding –chemical – Mechanical weed control – Use of growth regulators - Special horticultural practices (training, staking, pruning) – Physiological disorders and corrective measures – Maturity indices - Harvesting – Grading, sorting – Packing and storage and yield for important vegetable crop; Tomato, Brinjal, Chillies, Bhendi, Onion, Gourds – Bitter gourd – Ridge gourd – Snake gourd - Pumpkin - Water melon – Musk melon - Ash gourd -Tapioca –Yams – Colocasia - Cabbage – Cauliflower, Radish – Carrot Beet root, Amaranthus – Moringa – Potato – Cluster beans – Lab lab - Peas and Beans.

UNIT -IV: PRODUCTION TECHNOLOGY OF FLOWER CROPS AND LANDSCAPING

Scope and importance of commercial flower crops – Area and production - Study of cultural practices of commercial loose flowers – Rose, Jasmine, Tuberose, Chrysanthemum, Marigold, Crossandra, Celosia, Nerium and Gomphrena. Floral concrete, pigment and dye extraction from loose flowers - Introduction to protected structures for cut flower production — Study of cut flower production techniques of Rose, Carnation, Gerbera, Chrysanthemum, Orchids, Anthurium, Gladiolus, Liliium, Alstroemeria and Heliconia. Post-harvest management of cut flowers – Floral decorations, bouquets and dry flowers – Grading, packing and marketing of flowers.

Scope and importance of ornamental gardening and landscaping – Principles – Styles of garden - Formal and informal garden – Features of garden - Garden components and adornments – Plant Components – Edges, hedges, flower beds, trophy, topiary, mixed borders – Non-plant components - Garden walls, fencing, steps, garden drives and paths, pavements, fountains, arches, pergolas, trellises, pools, etc. - operations in maintenance of

trees, annuals, shrubs, climbers, creepers, herbaceous perennials, ferns, cacti and succulents, palms and cycads – Sunken garden, roof garden, rockeries.

Operations in planting and maintenance of public garden, institutional garden, Industrial garden, residential complex garden - Operations in landscape maintenance for high ways, bus terminus, airports, city roads and IT parks - Lawn – Types of lawn grasses – Criteria for selection- methods of lawn establishment - Operation and maintenance – Problems and remedial management – Flower arrangements and dry flowers – Suitable plant selection and methods of arrangement.

UNIT-V: PRODUCTION TECHNOLOGY OF SPICES, PLANTATION CROPS, MEDICINAL AND AROMATIC CROPS

Scope and importance of spices - Area and production and productivity in Tamil Nadu – Study of cultural practices for the important spice crops Pepper, Cardamom, Turmeric, Ginger, Clove, Nutmeg, Cinnamon, Tamarind, Allspice, Curry leaf, Coriander, Fenugreek, Fennel, Cumin and Paprika with reference to soil, climate, varieties, propagation, planting – Irrigation – Nutrition and weed management - Cultural practices - Training and pruning – Harvesting - Yield – Post-harvest handling: Processing – grading and packing – Organic farming and GAP in spice production.

Scope and importance of plantation crops - Area - Production and productivity in Tamil Nadu – Study of cultural operations for the plantation crops Tea, Coffee, Rubber, Cocoa, Cashew, Coconut, Arecanut, Oil palm and Palmyrah with reference to soil, climate, varieties, propagation, cultural practices - Training and pruning – Harvesting - Yield – Processing – Grading and packing.

Medicinal and aromatic plants - Scope and importance - Medicinal plant wealth of India and Tamil Nadu - Area and production - Classification - Annual, biennial and herbaceous perennial - Medicinal and aromatic plants for tropical, sub-tropical and temperate region - Contract farming and Good Agricultural Practices - Soil and climatic - conditions, propagation and planting, irrigation, manuring, weed control, economic parts, harvesting, yield, post-harvest handling, curing and processing practices, storage methods of medicinal plants: Glory lily, Medicinal Coleus, Senna, Periwinkle, Gymnema, Ashwagandha, Phyllanthus, Kalmegh, *Aloe vera* and Stevia - Aromatic plants: Japanesemint, Rosemary, Lemon grass, Citronella, Palmarosa, Vetiver, Geranium, Patchouli, Sacred and sweet basil.

UNIT- VI: INSECT PEST AND DISEASES OF HORTICULTURAL CROPS AND THEIR MANAGEMENT

Pest - Categories – Causes for pest for outbreak. Pest management - Principles and components. Natural enemies in pest suppression. IPM – Management strategies for important insect pests groups – Chewing insects - Stem borers – Fruit borer – Sap feeders of important fruit, vegetable, spices, medicinal and plantation crops- Special pest management strategies in ware house, green house, poly house. Management techniques for plant parasitic nematodes.

Etiology, symptoms and integrated management of important diseases due to fungi, bacteria, viruses, phytoplasma, phanerogamic parasites of Fruits: Mango, Banana, Citrus, Grapes, Guava, Sapota, Pomegranate, Papaya, Jack, Pineapple, Ber, Apple, Pear, Plum Vegetables: Brinjal, Tomato, Bhendi, chilies Cucurbits, Crucifers, Beans, Peas, Potato, Sweet potato, Radish and Cassava. Mushroom: Cultivation techniques of and Pleurotus, Agaricus, Calocybe and Volvariella Spices and condiments: Onion, Garlic, Chillies, Cardamom, Pepper, Turmeric, Ginger, Betelvine, Coriander, Fenugreek, Clove and Nutmeg Plantation crops: Tea, Coffee, Cocoa, Rubber, Ccoconut Arecanut and Cashew Flowers : Jasmine, Rose, Crossandra, Chrysanthemum, Tube rose, Carnation, Medicinal plants: Gloriosa, Stevia, Senna, Coleus, Aloe vera, Solanum nigrum and Withania.

UNIT-VII: POST HARVEST HANDLING AND VALUE ADDITION OF HORTICULTURAL CROPS

Scope and importance of post harvest technology in horticultural crops - Washing, grading, sorting - pre cooling and pre treatments - Blanching & peeling methods – Post-harvest handling methods: Dehydration, Canning of fruits and vegetables - Thermal processing - Low temperature processing - Cold storage - Controlled and atmospheric storage - Refrigeration truck, ripening chamber, packaging for horticultural crops - Value addition in horticultural crops : Definition - Need for value addition. General principles and method for value added products - Processing of value added products: Processing of fruits - Jam, Jelly, Squash, RTS and Candy. Processing of vegetables - Pickle, chutney, sauce and ketchup. Processing of spices - Spice powders and masala mix - Food safety standards: Principles National - Agmark, BIS, FSSAI, HACCP International - Codex, ISO.

UNIT - VIII: LIVESTOCK MANAGEMENT AND POULTRY PRODUCTION

Significance of Livestock and Poultry in Indian economy- Various systems of livestock production - Livestock and Poultry census and its role on national Gross Domestic Product - Special and common nomenclatures used in Animal Husbandry practices – Breeds - Classification - White and Black cattle breeds - Breed characteristics of Sindhi, Kangayam, Umblacherry, Jersey, Holstein Friesian, Murrah and Surti - Signs of estrus cycle- Artificial Insemination - Housing management - Selection of site-space requirement - Calf and adult stock - Care and management of new born – heifer - Milch cattle and work bullocks - Clean milk production – Nutrition –Ration - Balanced ration - Desirable characteristics of ration - Classification of feeds and fodder - Concentrate and Roughage's - Composition and Requirement of ration for young and adult stock - Green fodder requirement and importance – Diseases – Classification – Viral - Foot and Mouth – Bacterial – Anthrax - Haemorrhagic septicemia - Black Quarters – Metabolic - Milk fever – Ketosis – Tympanites - Causative organism – Transmission – Symptoms - Control and Prevention - Farm Records - Record keeping - Insurance - Selection and culling of livestock.

Sheep and Goat farming - Classification of breeds - Exotic and indigenous – Nomenclature - Economic traits - Systems of rearing - Housing management - Care and management of young and adult stock – Nutrition - Common diseases - Sheep pox -Foot and Mouth - Blue Tongue – Enterotoxaemia - Ecto and endo parasites - Prevention and Control.

Poultry farming - Classification of breeds - Commercial strains of layer and broiler - Housing management - Brooding management - Deep litter - Cage system - Nutrition of Chick - Grower and Layer and Broiler – Diseases - Classification – Viral – Ranikhet - Infectious Bursal Disease – Bacterial - *E.coli-Coryza* - Salmonellosis – Protozoan – Coccidiosis - Causative organisms – Symptoms – Vaccination - Disease control and Prevention.

UNIT - IX: COMMERCIAL AGRICULTURE

Hybrid Seed Production - Hybrids – Production of hybrid varieties – Development of inbreds – Single cross evaluation – Prediction of double cross performance – Production of hybrid seed – Cytoplasmic, Genetic male sterility – Maintenance of Male sterile lines – Production of single cross hybrids – Production of double cross hybrid varieties - Manual emasculation and / or Pollination – Chemically induced male sterility – Merits and demerits of hybrid varieties – Floral biology, anthesis, pollination, selfing, emasculation and crossing technique in Rice, Sorghum, Pearl millet, Red gram, Castor, Sunflower, Cotton, Tomato, Bendi - Harvesting – Physical and chemical indices – Extraction techniques – Seed processing – Use of cleaner, grader – Seed treatment – Seed packaging – Seed storage – Sanitation – Certification procedure.

Production of Bio-Control Agents - Introduction to bio-control agents – Importance – History and development - Classical examples of bio-control agents – Role in pest and disease management – Categories of bio-control agents. Setting up a bio-control laboratory. Mass culture of tobacco caterpillar (*Spodopteralitura*) and gram pod borer (*Helicoverpaarmigera*) - Synthetic diet – Mass production of SINPV and HaNPV. Mass production of *Trichogramma* spp., *Chrysoperla*, coccinellid predators, *Trichoderma viride*, *Pseudomonas fluorescens* and Entomo-pathogenic nematodes.

Production of Spawn and Mushroom – Mushroom - Introduction, importance -Present production and trade, scope for export, markets for mushroom and mushroom products – Mushroom morphology: Common edible mushrooms - *Pleurotus*, *Calocybe* – Poisonous mushrooms - Laboratory techniques: Equipments used, sterilization of glassware, media preparation, pure culture techniques, sub-culturing and storage. Spawn: Types of spawn, mother spawn and bed spawn. Cultivation: Oyster mushroom, Milky mushroom – Problems in cultivation: Weed moulds, diseases, pests and abiotic disorders - Uses of mushroom : as food, nutraceutical and pharmaceutical values, composting coir-pith and other agro-wastes – Post-harvest technology: methods of preservation and value addition.

Organic Composting - Agricultural, Industrial and Urban wastes - Nutrient potential of different organic manures – Preparation of FYM Compost – Composting methods - Preparation of enriched FYM – Coirpith composting – Sugarcane trash – Pressmud - Farm wastes and farm weeds - Parthenium composting – Determination of maturity indices of composts – Commercial utility of organic manures – Visit to compost yard. Introduction to vermicompost – Types of Vermicompost - Materials for vermicomposting. Preliminary treatment of composting material – Small Scale vermicomposting – Large scale vermicomposting – Other types of vermicomposting – Requirements for vermicomposting – Bedding materials, container, pH, Moisture content, Temperature – Cover feed substrates - Selection of right type of worm species – Preparation of vermicompost beds – Collection of Vermicompost – Vermicompost efficiency – Transportation of live worms – Application of vermicompost .

UNIT - X: FARM MANAGEMENT, MARKETING AND EXTENSION EDUCATION

Farm Management - Scope – Relationship with other sciences - Economic principles applied to the organization of farm business - Principles of variable proportions - Farm planning and Budgeting – Types and system of farming - Farm planning – Meaning - Need for farm planning -Types of Farm plans - Simple farm plan and whole farm plan - Characteristics of a good farm plan - Basic steps in farm planning - Farm budgeting – Meaning - Types of farm budgets – Enterprise budgeting - Partial budgeting and whole farm budgeting - Farm Risk Management - Distinction between risk and uncertainty - Sources of risk and uncertainty - Production and technical risks - Price risk - Financial risk - Methods of reducing risks - Horticultural Marketing – Nature and Scope - Concepts and definition of marketing - Scope of agricultural marketing -Classification of markets - Structure, conduct – Performance - Market forces - Demand and supply - Characteristics of agricultural commodities - Marketing costs and marketing margins - Price spread. Marketed and marketable surplus - Marketing Functions and Institutions - Marketing functions – Packaging – Transportation - Grading and standardization – Warehousing – Processing - Cold storage - Marketing agencies and institutions - Cooperative marketing societies - Role of regulated markets – NAFED – TANFED – NHB - Commodity boards - Marketing of agricultural inputs - Market information and intelligence - AGMARKNET, DEMIC, DMI etc., - Usage of market information.

Agricultural Extension – Scope, principles - Teaching Learning Process. Communication – Meaning, definition, elements and their characteristics, types, models and barriers in communication. Diffusion – Elements - Adoption – Stages, adopter categories and their characteristics. Extension methods – Definition, classification - Individual contact, group contact and mass contact methods. Participatory Rural Appraisal techniques. Audio - Visual aids – Definition, advantages, classification, choice, criteria for selection. Farm Journalism – Definition, basic concepts, writing for media. Information and Communication Technology (ICT) – Computer networks, internet, video conferencing, agriportals, Kisan Call Centre, mobile phone. Photography – Basic concepts, advancements.

PAPER-II
GENERAL STUDIES (HSC STANDARD)
OBJECTIVE TYPE

SUBJECT CODE: 003

UNIT-I GENERAL SCIENCE:

Physics: Nature of Universe-General Scientific laws-Inventions and discoveries-National scientific laboratories-Mechanics and properties of matter-Physical quantities, standards and units-Force, motion and energy-Magnetism, electricity and electronics -Heat, light and sound.

Chemistry-Elements and Compounds-Acids, bases and salts-Fertilizers, pesticides, insecticides.

Botany-Main Concepts of life science-Classification of living organism-Nutrition and dietetics-Respiration.

Zoology-Blood and blood circulation-Reproductive system-Environment, ecology, health and hygiene-Human diseases including communicable and non – communicable diseases - prevention and remedies-Animals, plants and human life.

UNIT-II. CURRENT EVENTS

History-Latest diary of events-national - National symbols - Profile of States-Eminent persons & places in news-Sports & games-Books & authors - Awards & honors'-India and its neighbours

Political Science-1. Problems in conduct of public elections-2. Political parties and political system in India-3. Public awareness & General administration-4. Welfare oriented govt. schemes, their utility

Geography--Geographical landmarks-

Economics-- Current socio-economic problems

Science-Latest inventions on science & technology

UNIT- III. GEOGRAPHY

Earth and Universe-Solar system-Monsoon, rainfall, weather & climate-Water resources --- rivers in India-Soil, minerals & natural resources-Forest & wildlife-Agricultural pattern-Transport including surface transport & communication-Social geography – population-density and distribution-Natural calamities – Disaster Management.

UNIT - IV. HISTORY AND CULTURE OF INDIA AND TAMIL NADU

Indus valley civilization-Guptas, Delhi Sultans, Mughals and Marathas-Age of Vijayanagaram and the bahmanis-South Indian history-Culture and Heritage of Tamil people-India since independence-Characteristics of Indian culture-Unity in diversity –race, colour, language, custom-India-as secular state-Growth of rationalist, Dravidian movement in TN-Political parties and populist schemes.

UNIT-V. INDIAN POLITY

Constitution of India--Preamble to the constitution- Salient features of constitution- Union, state and territory- Citizenship-rights amend duties- Fundamental rights- Fundamental duties- Human rights charter- Union legislature – Parliament- State executive- State Legislature – assembly- Local government – panchayat raj – Tamil Nadu- Judiciary in India – Rule of law/Due process of law-Elections- Official language and Schedule-VIII- Corruption in public life- Anti-corruption measures –CVC, Lok-adalats, Ombudsman, CAG - Right to information- Empowerment of women- Consumer protection forms.

UNIT-VI. INDIAN ECONOMY

Nature of Indian economy- Five-year plan models-an assessment-Land reforms & agriculture-Application of science in agriculture-Industrial growth-Rural welfare oriented programmers-Social sector problems – population, education, health, employment, poverty- Economic trends in Tamil Nadu

UNIT-VII. INDIAN NATIONAL MOVEMENT

National renaissance-Emergence of national leaders-Gandhi, Nehru, Tagore-Different modes of agitations-Role of Tamil Nadu in freedom struggle Rajaji, VOC, Periyar, Bharathiar & others.

UNIT-VIII. APTITUDE & MENTAL ABILITY TEST (SSLC STANDARD)

Conversion of information to data - Collection, compilation and presentation of data - Tables, graphs, diagrams - Analytical interpretation of data - Simplification-Percentage - Highest Common Factor (HCF) - Lowest Common Multiple (LCM) - Ratio and Proportion - Simple interest - Compound interest – Area – Volume -Time and Work - Logical Reasoning - Puzzles – Dice -Visual Reasoning - Alpha numeric Reasoning - Number Series.
