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## TAMIL NADU PUBLIC SERVICE COMMISSION

NOTIFICATION NO:08/2017

DATED:08.03.2017

ADVERTISEMENT NO: 463

Applications are invited only through online mode upto 07.04.2017 for Direct Recruitment to the vacancy in the following post:-

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.

Name of the Post and Post Code	Name of the Service and Service Code	Number of vacancies	Scale of pay
<b>ASSISTANT AGRICULTURAL OFFICER</b>  (Post Code: 3101)	Tamil Nadu Agricultural Extension Subordinate Service  (Service Code: 102)	<b>326+ 7 carried forward vacancies</b>	Rs.5,200-20,200/- (PB2) + 2,800/- Grade Pay

Note: The number of vacancies are liable for modification.

### 2. DISTRIBUTION OF VACANCIES

CATEGORY	G	W	W (DW)	G (PSTM)	W (PSTM)	W (DW) PSTM)	G (Ex-Ser.)	G (Ex-Ser.) (PSTM)	G-(ORTHO)	W (ORTHO)	G- (DEAF)	VACANCIES
GT	50	22	2	13	5	1	5	1	-	1	2	102
BC	43	18	2	11	5	-	3	1	1	1	1+1*	86+1*
BC(M)	7+2*	3	-	1	-	-	-	-	-	-	-	11+2*
MBC/DC	32	14	2	8	4	-	3	-	1	-	1+2*	65+2*
SC	24	10	1	6	3	1	3	-	-	-	1+2*	49+2*
SC(A)	5	2	-	1	1	-	-	-	1	-	-	10
ST	2	-	-	-	1	-	-	-	-	-	-	3
<b>Total</b>	<b>163+2*</b>	<b>69</b>	<b>7</b>	<b>40</b>	<b>19</b>	<b>2</b>	<b>14</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>5+5*</b>	<b>326+7*</b>

\*- Carried forward vacancies

**3. FEES:**

a)	<p><b>Registration Fee</b> 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><b>Note:</b> 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>	Rs.150/-
b)	<p><b>Examination Fee</b> For Examination -</p> <p><b>Note:</b> The Examination fee <b>should be paid</b> at the time of submitting the online application for this recruitment if they are not eligible for the concession noted below</p>	Rs.150/-

**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	(i) For Differently Abled persons, the disability should be not less than 40%. (ii) For DWs, the DW certificate should have been obtained from the RDO / Sub Collector.
(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 any of the previous recruitments may avail exemption from payment of examination fee.	Should not have availed three free chances in any of the previous recruitments.
(iv) Ex-Servicemen	Those who have not availed two free chances so far in any of the previous recruitments may avail exemption from payment of examination fee.	(i) Should not have availed two free chances in any of the previous recruitments. (ii) Fee concession will not apply to those who have already been recruited to any class or service or category.

- (i) The Three/two free chances referred to above are not for **EACH POST** but for **ANY THREE/TWO APPLICATION 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.
- (ii) Failure to pay the prescribed fee along with the application in-time will be liable for rejection of application.
- (iii) If the fee concession claimed in the application exceeds the admissible limits announced above, the application will be rejected.
- (For further details regarding fee concession, refer para 12 of "Instructions to Applicants")

#### **4. IMPORTANT DATES:-**

A	Date of Notification	08.03.2017	
B	Last date for submission of applications	07.04.2017	
C	Last date for payment of Fee	11 .04.2017	
<b>Date and Time of Written Examination</b>			
D	Paper - I ( <b>Agriculture</b> ) ( <b>Diploma Standard</b> )	02.07.2017 FN	10.00 A.M. to 01.00 P.M.
	Paper - II ( <b>General Studies</b> ) ( <b>HSC Standard</b> )	02.07.2017 AN	02.30 P.M. to 04.30 P.M.

#### **5. QUALIFICATIONS:-**

##### **(A) AGE (as on 01.07.2017)**

Sl. No	Category of Candidates	Minimum Age (Should have completed)	Maximum Age (should not have completed)
1	SCs, SC(A)s, STs, MBCs/DCs, BCs, BCMs and DWs of all Castes	18 Years	No Maximum Age Limit
2	"Others" [i.e. Candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BCs and BCMs]	18 Years	30 Years

#### **AGE CONCESSION**

##### **(i) For Differently Abled Persons:**

Differently Abled Persons are eligible for age concession up to 10 years over and above the maximum age limit prescribed above.

##### **(ii) For Ex-servicemen**

(a) No maximum age limit for the Applicants who belong to SC, SC (A), ST, MBC/DC, BC and BCM.

(b) The maximum age limit is 48 years for "others" (i.e) Applicants not belonging to any of the above said categories.

(c) The above mentioned age concession will not apply to the Applicants those who have already been recruited to any class or service or category.

**Note:**

“Others” [i.e. 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.

**(B) EDUCATIONAL QUALIFICATION (as on 08.03.2017):-**

Applicants should possess the following Qualification on the Date of this Notification.

- (i) **Must have passed Higher Secondary (Plus Two) Examination.**
- (ii) **Must possess two years Diploma in Agriculture from the Institutions recognised by the Government of Tamil Nadu or affiliated with the Tamil Nadu Agricultural University; or Gandhigram Rural Institute, Dindigul District; or any other institutions under the control of the Commissioner of Agriculture.**

**Note:**

- (i) The qualification prescribed for this post should have been obtained by passing the required qualification in the order of studies SSLC, HSC and Diploma. The results of exam 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.O's issued regarding equivalence of prescribed qualification after the date of this notification will not be accepted.

(Refer para 10 of the 'Instructions to Applicants')

**Certificate upload**

The Candidates should upload the Diploma certificate at the time of applying online failing which their application will be rejected.

**Note:-**

If no proper certificate in the prescribed PDF format is uploaded or if the certificate uploaded by the applicant is not clear and not readable, the online application of the applicant will be rejected without any further notice.

**(C) CERTIFICATE OF PHYSICAL FITNESS:-**

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

<b>Name of the Post</b>	<b>Standard of Vision</b>	<b>Form of Certificate of Physical Fitness</b>
Assistant Agricultural Officer	Standard -III	Form Prescribed for Executive Post

**Colour blindness will be a disqualification. Applicants with defective vision should produce Eye Fitness Certificate from qualified Eye specialist.**

**6. GENERAL INFORMATION:-**

- A. The rule of reservation of appointments is applicable to this post. The distribution of vacancies will be as per rules in force.
- B. Deaf and Orthopedically handicapped persons alone are eligible for 3% reservation of vacancies intended for Differently Abled persons for this post.
- C. The Differently Abled Persons should produce / upload a copy of certificate of physical fitness (refer 'Instructions to Applicants') specifying the nature of physical handicap and the degree of disability based on the norms laid down, from the Medical Board to the effect that his/her handicap will not render him/her incapable of efficiently discharging the duties attached to the post to which he/she has been selected when called for by the Tamil Nadu Public Service Commission.
- D. 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 all 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 and will be applicable to the Applicants who have acquired the prescribed qualification in Tamil Medium. (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 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 preferential 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](http://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".)
- E. 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.
- F. 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.
- G. Reservation for "Destitute Widows" and Ex-Servicemen" will apply to this recruitment.

- H. As per **Section 27(C)** of Tamil Nadu Government Servants (conditions of service) Act 2016, reservation to Ex-Servicemen will apply for the said post. If no qualified and suitable Ex-Servicemen belonging to a particular category is available for selection for appointment against reserved turn, such turn shall be filled up by an Applicant other than Ex-Servicemen but belonging to the particular communal category. As per proviso to section 3(j) (vii)(Tamil Nadu Government servants (Conditions of Service) Act, 2016) 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.
- I. 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.
- J. 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.
- K. Evidence for claims made in the online application should be uploaded / submitted in time when called for the documents. Any subsequent claim made thereafter on submission of online application will not be entertained.
- L. 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.
- M. Applications containing wrong claims 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.
- N. 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 forms.
- O. Knowledge of Tamil:-**  
Applicants should possess adequate knowledge of Tamil.  
(For details refer para.11 of the 'Instructions to Applicants')



**7. SCHEME OF WRITTEN EXAMINATION (OBJECTIVE TYPE) AND ORAL TEST:-**

Subject	Duration of Examination	Maximum Marks	Minimum Qualifying Marks for Selection	
			SCs, SC(A)s, STs, MBCs/DCs, BCs and BCMs.	Others
<b><u>I. Written Examination</u></b>				
<b><u>PAPER I</u></b> (200 Questions) <b>Agriculture (Diploma Standard)</b>	3 Hours	300	171	228
<b><u>PAPER II</u></b> (100 Questions) <b>General Studies (HSC Standard)</b>	2 Hours	200		
<b>II. Interview and Record</b>		70		
<b>Total</b>		570		

**Note:**

- The question paper in Paper I and II will be set both in Tamil and English.
- Refer para 22 of "Instructions to Applicants" in regard to instructions to be followed while appearing for competitive examinations conducted by the Commission
- The syllabus for the subjects mentioned in Paper-I and Paper-II are as find in **Annexure-I** to this Notification.

**8. PROCEDURE OF SELECTION:**

Selection will be made in two successive stages i.e., (i) Written Examination and (ii) Oral Test in the form of an interview. Final selection will be made on the basis of total marks obtained by the candidates at the Written Examination and Oral Test taken together subject to the rule of reservation of appointments. Appearance in both the papers of the Written Examination and Oral Test is compulsory. A candidate who has not appeared in any one of the papers in Written Examination or Oral Test will not be considered for selection, even if he/she secures qualifying marks in the Written Examination or Oral Test. (For further details Refer para 23 (b) of the Instruction to Applicants).

## 9. CENTRES FOR EXAMINATION:-

The Written Examination will be held at the following Centres.

Name of the Centre	Name of the Centre	Name of the Centre
Chennai	Madurai	Tiruchirappalli
Coimbatore	Salem	Tirunelveli

### Note:

- (i) Applicants should appear for the written examination / Oral Test/ Certificate Verification at their own expenses.
- (ii) The Commission reserves the right to increase or reduce the number of Examination Centres and to re-allot the candidates.

## 10. MODE OF PAYMENT OF EXAMINATION FEE:-

- Examination fee Rs.150/- (Rupees One hundred and fifty only) is payable by online through Net Banking/credit card/Debit card or it can be paid by offline at SBI / at Indian Bank within 2 days from the date of submission of 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 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/- 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**
- Applicants can avail exemption from paying examination fees as per eligibility criteria.
- **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.**
- Those who have registered in the **One -Time Registration** system, and paid the registration fee of Rs.150/- and received the registration ID **need not pay** the Registration fee i.e., Rs.150/- and it is enough to pay the examination fee alone.
- Applicants who have made One-Time Registration must apply for the notified posts. One – Time Registration is only to avail exemption for Registration fee for a period of 5 years from the date of registration.

(For further details regarding the Examination fee concessions refer para 12 of the 'Instructions to Applicants')

**11. NO OBJECTION CERTIFICATE AND INFORMATION TO THE EMPLOYER:**

No Objection Certificate obtained from appropriate authority shall be produced at the time of Certificate Verification. Failure to produce at that time, 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 forfeit his/her candidature.

**12. CONCESSIONS:-**

- (i) Concessions in the matter of age and/or fees allowed to SC, SC(A), ST, MBC/DC, BC, BCM, Destitute Widows, Differently Abled Persons, Ex-servicemen, other categories of persons etc., are given in para 12 to 14 of the 'Instructions to Applicants'.
- (ii) Persons claiming concession referred to above has to produce evidence for such claim when called for, otherwise his/her 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.

**13. HOW TO APPLY:-**

1. Applicants should apply only through online mode in the Commission's Websites [www.tnpsc.gov.in](http://www.tnpsc.gov.in)/[www.tnpscexams.net](http://www.tnpscexams.net)/ [www.tnpscexams.in](http://www.tnpscexams.in)
2. One Time Registration (OTR) and applicant Dashboard are mandatory before applying for any post. One Time Registration is valid for 5 years from the date of registration.
3. For applying in One Time Registration, the applicants should have scanned image of their photograph and signature in CD/DVD/Pen drive to upload the photo 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. Enter the Unique ID and password to view the already available information and update them.
6. **One Time Registration is not an application for any post.** It is just 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. Select the name of the post or service for which you 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 and signature will be rejected.**

10. All the particulars mentioned in the online application including name of the Applicants, 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 instructed 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:-

- i. After submitting the application, Applicants can print / save their application in PDF format.
- ii. On entering registration number and password, Applicants can download their application and print, if required.
- iii. 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.

14. **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 satisfying of the eligibility conditions.** Mere issue of memo of admission to the Applicant will not imply that his/her candidature has been fully cleared by the Commission.
- b. The Hall Tickets for eligible Applicants will be made available in the Commission's Website [www.tnpsc.gov.in](http://www.tnpsc.gov.in) or [www.tnpscexams.net](http://www.tnpscexams.net) or [www.tnpscexams.in](http://www.tnpscexams.in) for downloading 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. **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 between 10.00 a.m. and 05.45 p.m.

**d. Mobile Phones and other Articles Banned:**

- i. Applicants are not allowed to bring Pager, 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 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. Do 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. pen).
  - iv. Applicants are advised in their own interest not to bring any of the banned items including Mobile Phones / Pagers to the venue of the examination, as arrangements for safekeeping cannot be assured.
- e. Applicants are not required to submit along with their application any certificates in support of their claims regarding age, educational qualifications, physical qualification, community certificates and certificates regarding 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 of examination for which they are admitted by the Commission viz. Written Examination and Oral Test will be purely provisional, subject to their satisfying the prescribed eligibility conditions. If on verification at any time before or after Written Examination, Certificate Verification and Oral Test, 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")
- f. If any of their claim is found to be incorrect, it will lead to rejection / debarment.
- g. **Unfair means strictly prohibited:** No Applicant shall copy from the papers of any other Applicant 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")

- h. **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”)
- i. 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.

**The Online Application can be submitted up to 07.04.2017 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](http://www.tnpsc.gov.in) )*

**Secretary**

**DISCLAIMER**

The candidates claiming Equivalence of qualification should upload the equivalence of qualification in the form of Government order, if any, while applying for the examination and produce the same when called for by the Tamil Nadu Public Service Commission”.

**Secretary**

**ANNEXURE – I**  
**SYLLABUS**  
**PAPER – I**  
**AGRICULTURE (DIPLOMA STANDARD)**

**Subject Code: 212**

**Unit -I -Agronomic principles, practices and meteorology**

Agriculture – Definition – Scope of agriculture in India and Tamil Nadu - Branches of agriculture – Agronomy – Art and Science of Crop Production. Agronomical classification of crops – their importance. Major crops of India and Tamil Nadu. Factors affecting Crop Production – Moisture, Aeration, Light, Temperature and Nutrients. Cropping systems – definitions, Principles. Principles and Practices of Agricultural Operations – Tillage and Tilth – Objectives and Types of Tillage – Primary tillage, Secondary Tillage and Intercultural Operations, Implements and Tools in Agriculture.

Meteorology – Agricultural Meteorology – Definition - Importance in Crop Production - Atmosphere – Components and its importance – Weather Parameters and their role in Crop Production. Rainfall – Spatial and Temporal Variability in Tamil Nadu across Seasons – Agro Climatic Zones of Tamil Nadu

Irrigation – sources of water for irrigation – water movement,– 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 - soil erosion due to water and control.

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 mode of action and method of application – common herbicides available in the market– weed control practices for major crops – parasitic, problematic and aquatic weed management - integrated weed management – concepts and practices.

Agronomic Practices including Climatic and Soil Requirement, Land Preparation – Seeds and Sowing – Varieties – Fertilizer Management – Irrigation – Weed Control – Harvesting – Cropping Systems for Cereals, Millets, Pulses, Oilseeds, Commercial Crops, Forages and Green Manure Crops. Cultivation of Mulberry Crop

**Unit-II -Dry Farming and Agro-Forestry**

Dry Farming – Definition and Present Status in Tamil Nadu – Soils of Dry Farming Tracts and their limitation to Crop Production – Major Crops of Dry Land. Suitable Dry Land Technology for increased Crop Productivity – Pre-monsoon sowing – Conventional Crop Production Vs Alternate land Use in Dry Land – Integrated Farming Systems in drylands. Erosion - Classification of Erosion – Water and Wind Erosion – Land Slide – Contour Bund, Graded Bund, Bench Terrace, Contour Stone Wall. Gully Control Structures – Cultivation Practices – Water Harvest – Farm Ponds – Percolation Ponds –Weather aberrations and Contingent Crop Planning – Important Drought Events in Tamil Nadu and their effect on Crop



Production; Watershed development – definition and components

Land use classification – Role of Forests – Indian forests – Status – Classification – Disciplines in Forestry – Agroforestry – Definition – Differences between Agroforestry, Social Forestry, Urban Forestry – Advantages – Agroforestry Systems – Primary Systems – Agrisilviculture, Silviculture, Agrisilviculture – Mixed Wood Lots – Sub Systems – Shifting Cultivation – Taungya – Home Gardens – Alley cropping – Wind Break and Shelter Belts – Agroforestry Practices. Constraints in Agroforestry – Trees for Problem Soils – Sand – Sand Dune Stabilisation – Social Forestry Projects in Tamil Nadu –Industrial Agroforestry – Waste land development – types of wastelands and management practices. Management Practices for Multi Purpose Trees (MPT) – Teak, Casuarina, Ailanthus, Neem, Bamboo, Acacia

### **Unit-III -Soils and Fertility Management**

Definition of Soil – Its main components – Soils of Tamil Nadu. Soil Physical Properties – Colour, Texture, Structure, Bulk Density, Pore Space, Soil water, Soil Air, Soil Temperature and their significance in crop production. Soil Chemical Properties – Soil Colloids – Ion-exchange Reactions – Soil Organic Matter and its decomposition – Carbon and Nitrogen Cycles – Soil Micro Organisms – Importance of Organic Matter on Soil Properties. Soil Reaction – Acid, Saline and Alkaline Soils – Their Formation and Reclamation – Soil Pollutants. Soil Fertility – Major, Secondary and Minor Plant Nutrients. Soil Fertility evaluation, Soil Testing and fertilizer recommendations. Fertilizers – Nitrogenous, Phosphatic and Potassic Fertilizers – Complex and Mixed Fertilizers, Efficient use of Fertilizers. Bio-Fertilizers – Groups of Bio-Fertilizers – Bacterial, Fungal, Algal and Azolla. Irrigation water – Qualities of irrigation water - Water testing

### **Unit-IV- Horticultural Crop Cultivation Techniques**

Study of Cultural Practices of the following Fruit Crops with reference to Soil, Climate, Varieties, Methods of Propagation, Cultural, Manurial, Horticultural and Irrigation practices – physiological and nutritional disorders - Training and Pruning – Role of Growth Regulators – Maturity Standards – Methods of Harvesting – Yield. Post harvest Technology – Grading – Packing – Storage. Tropical fruits:- Mango, Banana, Grapes, Papaya, Sapota, Guava, Citrus, Pomegranate, Ber, Annona, Amla and Jack. Subtropical and Temperate fruits: Apple, Pear, Peach, Plum and Pineapple. Propagation methods – sexual, asexual and micro-propagation – merits and demerits – steps in micro-propagation – packing and marketing of tissue culture plants

Importance of Vegetables – Nutritive Value – Types of Vegetable Garden: Kitchen Garden, Nutritional Garden, Truck Garden, Commercial Garden – Soil and Climatic Requirements, Varieties, Cultural Practices, Irrigation, weeding – use of growth regulators, manuring, Harvesting, Yield and Post Harvest Handling of Tomato, Brinjal, Chillies, Bhendi, Onion, Cucurbits; Temperate Vegetables like Cauliflower, Cabbage, Turnip, Knol-khol; Salad Vegetables; Root and Tuber vegetables; Greens and Perennials – Tissue Culture achievements in Vegetables.

Cultural Requirements of Commercial Flower Crops – Jasmine, Rose, Chrysanthemum, Marigold, Tuberose, Crossandra, Cockscomb. Garden Design – Formal and Informal Gardens – Components of Garden – Lawns and Lawn Making – Study of Important Flowering Annuals, Flowering and Foliage Shrubs – Flowering and Foliage Trees – Creepers and Climbers – Cacti

and Succulents – Indoor Plants and Indoor Decoration – Cut Flowers – Flower arrangement – Bonsai Culture and dry flower decoration.

Preparing ornamental garden design for home – Lawn Making; Different Methods of Lawn Making – Identification of Important Annuals, Herbaceous, Perennials, Shrubs, Trees, Cacti and Succulents, Creepers and Climbers, Bulbous Plants and Hedge Plants – Preparation of Pot Mixture – Potting and Repotting Exercise – Raising Nursery for Ornamental Plants – Flower Arrangement – Interior decoration – Bonsai Practices

Definition – Area and Production – Soil, Climate, Varieties, Propagation, Cultural, Manurial and Irrigation Practices, Training and Pruning, Harvesting, Yield, Processing, Grading and Packing, Value added Products of : Spices – Pepper, Cardamom, Clove, Nutmeg, Cinnamon, Allspice, Turmeric, Ginger, tamarind, Coriander and Fenugreek. Plantation Crops – Coffee, Tea, Coconut, Arecanut, Cashew, Cocoa and Rubber. Medicinal Crops

– Coleus, Gloriosa, Ashwagandha, Senna, Keezhanelli, Agave, Thulasi and Achorus.

### **Unit-V -Breeding and Seed Production**

Field Crops – Importance – Classification – Agricultural and Industrial – Chemical Composition of Economic Parts in the Crops & Cereals, Millets, Pulses, Oilseeds, Fibres, Sugar and Starch Crops. Plant Photosynthesis – Respiration – Translocation of Assimilates. Reproductive and Pollination System in Plants – Mechanisms promoting Self Pollination and Cross Pollination in crop plants – Genetic Conservation and utilization.

Breeding Techniques for Self Pollinated Crops – Pure line selection – Mass Selection – Hybridization and Selection – Pedigree Method – Bulk Method – For Crops like – Rice, Sorghum, Black gram, Groundnut. Breeding Techniques for Cross Pollinated and Often Cross Pollinated Crops – Mass Selection, Heterosis Breeding – Development of Hybrids

– Single Cross – Double Cross and Poly Cross – Use of Male Sterile lines for Hybrid Seed Production – Synthetics and composites for crops like Maize, Cumbu, Redgram, Cotton, Castor, Sunflower, Coconut. Breeding Methods for vegetatively propagated crops – Clonal Selection – Hybridization and selection for crops like Sugarcane, Tapioca and Potato. Mutation in crop improvement – Polyploid in Crop Improvement – Inter Specific Hybridization.

Seed – Importance – Seed Quality Characteristics – Classes of Seed – Nucleus, Breeder, Foundation and Certified Seed – Guidelines for Seed Production – Multiplication Ratio – Seed Certification, general certification standards – Field Inspection – Methodology for Certification – Seed Standards – Floral biology – Pollination and Role of Insects, Environmental and Edaphic Factors. Seed Production Techniques for Varieties and Hybrid in Rice, Sorghum, Maize, Cumbu, Pulses, Cotton, Oilseeds and Important Vegetables: Tomato, Brinjal, Chillies, Bhendi, Lablab and Cucurbits. Harvesting, Processing, Treatment, Storage, Seed Health and Marketing.

### **Unit-VI -Plant Protection Principles and Practices**

Insects - Definitions – Characters of Insects – Elementary knowledge of Insect – Dominance of Insects; Mouth Parts – Wings – Legs. Economic Classification of Insects – Sericulture – Rearing of Mulberry silk worms – Apiculture – Role of Bees in Crop Productivity – Hiving Bees and Apiary Management. Beneficial Insects – Insect Pollinators – Predators and Parasitoids. Pest – Definition – Categories of Pests – Pest outbreak – Pest Monitoring – Pest Surveillance – Forecasting – Economic Threshold Level – Economic Injury Level. Pest Management Components – Cultural, Physical, Mechanical, Legal and Integrated Methods – Use of Resistant Varieties, Biological

Control – Parasitoids, Predator and Microbial Agents.

Pesticides – Groups, Classification, Mode of Action – Formulation and Uses, Principles of Pesticides application – Hazards in the use of Pesticides and Environmental Pollution – Safe Handling of Pesticides – Pesticide residue - Behavior modifying chemicals – Use of Pheromones in pest management and behavioral modifying chemicals; approach.

Damage symptoms - life cycle and management practices of insect and non insect pests of Rice, Sorghum, Maize, Cumbu, Ragi, Cotton, Sugarcane, Pulses, Groundnut, Castor, Gingelly, Sunflower, Brinjal, Tomato, Bendi, Cucurbits, Crucifers, Moringa, Tapioca, Chillies, Onion, Coconut, Arecanut, Turmeric, Curry-leaf, Coffee, Tea, Cardamom, Pepper, Betelvine, Flower crops, Mango, Citrus, Banana, Grapes, sapota, Guava, Pomegranate, Pests of stored materials and their management

Plant diseases – definition, Causes of plant diseases – Fungi, Bacteria, Viruses and Mycoplasma – Categories of plant diseases – Mode of spread – Environmental factors influencing diseases out breaks. Control exclusion – Eradication – Immunization – Protection – Cultural – Methods of Control– Bio control – Economics of the new technologies, Useful fungi – mushroom, cultivation of Oyster mushroom, *Trichoderma* - utility. Characteristics of an ideal fungicide – Care in handling fungicides – Major groups

– Formulation and Applications – Phytotoxicity – Precautions in using fungicides – Antibiotics in plant disease management. Bio technology and its application in disease management – Assessment of crop diseases and losses – Principles of management in Plant Disease Control - Integrated Pest Management in plant disease control.

Major diseases caused by Fungi, Bacteria, Virus and Mycoplasma in Cereals (Rice, Sorghum, Maize, Cumbu, Ragi), Pulses ( Red gram, Black gram, Green gram, Bengal gram, Cowpea, Lablab) – Oil seeds (Groundnut, Gingelly, Sunflower, Castor), Cash crops (Cotton, Sugarcane, Tobacco, Betelvine) – Fruits (Mango, Banana, Grapevine, Sapota, Pomegranate, Papaya) – Vegetables (Tomato, Chillies, Brinjal, Bendi, Cucurbits, Crucifers, Onion, Garlic) – Plantation crops (Coffee, Tea, Rubber, Coconut, Arecanut) – Spices (Turmeric, Pepper, Cardamom, Coriander, Ginger) – Flowers (Rose, Jasmine, Crossandra, Chrysanthemum) and their management.

### **Unit-VII- Livestock, Poultry Management, Artificial Insemination and Calf Rearing**

Significance of livestock and poultry in Indian economy –Role of livestock and poultry in Indian agriculture – Various systems of livestock production – extensive – semi intensive – intensive – mixed – Integrated farming systems – Manure management methods – Definition of breed – classification of indigenous, exotic cattle and buffaloes – Breed characteristics of Sindhi, Kangeyam and Umblacherry, Jersey, Holstein Friesian, Murrah and Surti. Breeding – importance of cross breeding

Artificial Insemination – merits and demerits – Housing management – farm site selection space requirement for calves, heifer, milch animal and work bullocks – Type and design of house. – Systems of housing – Single row system – Double row system – head to head and tail to tail – merits and demerits – Care and management of new born calf and heifers – Care and management of pregnant, lactating animals and work bullocks.

Milk – Definition – clean milk production – methods of milking – hand and machine milking – Processing of milk – cooling Pasteurization – Definition – Various methods – Low Temperature Long Time and High Temperature Short Time – advantages and disadvantages.

Nutrition – Definition – Ration – Balanced composition of concentrate feed for dairy animal, calf and work bullock – Requirement and importance of green fodder, carrying capacity and forage cycle.

Diseases – classification – Viral, bacterial and metabolic – General control and preventive measures. – Viral Diseases – Foot and mouth – Bacterial diseases – Anthrax, Haemorrhagic septicemia and Black quarter – Metabolic – Tympanites, Ketosis and Milk fever – Mastitis and its control – Zoonotic diseases (Anthrax, Tuberculosis, Brucellosis and Rabies) – Prevention and control.

Sheep and Goat farming – classification of breeds of Indian and exotic origin – Systems of rearing – Housing management – Type design – Floor diagram – Space requirement for adult and young stock – Nutrition – common tree Fodder for small ruminants – Common ailments of sheep and goat – Sheep pox – Foot and Mouth – Blue Tongue – Enterotoxaemia – Ecto and Endo parasites

Systems of poultry rearing – Backyard, Intensive systems; Nomenclature of commercial layers and broiler strains – Care and management of day old chicks – Brooder management. Systems of housing – Deep litter and cage systems – merits and demerits – Raised platform housing – Floor space requirement – litter management – care and management of layers – Care and management of broilers.

Poultry Nutrition – composition of chick mash grower, layer, broiler starter and finisher mashes – Feed Conversion Ratio / dozen eggs or kilogram of meat. Classification of Poultry diseases – Viral – Bacterial – Protozoan – Causative organisms, symptoms, causes and prevention – Viral diseases – Ranikhet disease - Infectious bursal disease – Bacterial disease – *E. coli* – Coryza – Salmonellosis – Protozoan – Coccidiosis – Vitamin and mineral deficiencies

### **Unit-VIII -Farm Machinery and Post Harvest Technology**

Farm houses – types – sewage disposal structures – cess pool. Bore hole – Septic Tank Structures – Dispersion Trenches – Soak pit. Gutters & Floorings – loose housing system – Feeding Sheds and Milking Sheds – Silos – types – pit silo, Trench silo. Poultry Structures – Location and Types. Poultry Equipments – Feeders and Waterers – Brooder House Details. – Thrashing Floor, drying floor. I.C. Engines – Types, Introduction – Preventive maintenance and minor repairs. Tractor – Different systems of a tractor – Hydraulic system – Clutch and Transmission system – Hitching of implements to Tractor – Power Tiller – and matching Implements. Seeders and planters. Plant Protection equipment – Harvesting machinery. Agricultural Pumps – Types of pumps.

Post Harvest losses in durable and Perishable crops – Moisture content – Methods of Determination – Drying – Sun Drying – Merits and Demerits – Mechanical Drying – Merits and Demerits. Shelling and Decorticator – Rubber Roll Sheller – Centrifugal Dehusker . Parboiling of Paddy – Merits and Demerits – Polishing – Milling of Corn and Pulses – Principles and Methods – Seed Treater – Types of Seed Treater. Storage of Grains and Seeds – Condition for safe storage.

## **Unit-IX Energy and Environment**

Energy Resources and Forms of Energy – Conventional and Non Conventional Energy – Energy Scope. Solar Energy – Introduction – Application - Merits and Limitations of Solar Energy – Basic Approach and Objectives – Solar Constants. Wind Energy – Introduction – Merits and Limitations of Wind Energy Conversion – Basic Principles of Wind Energy Conversion – Classification of WEC Systems. Energy from Bio-Mass – Technologies – Classification and types of Bio-Gas Plants – Selection of Site – Bio-Gas from Plant Wastes – Problems related to Bio-gas Plants – Utilization of Bio-gas. Bio Fuel Plant – Gasifiers – Smokeless Chulas.

Ecology – Natural resources – Soil, Water, Mineral, forest, wildlife resources – Ecosystems – Concepts – Productivity. Biosphere – Components and characteristics Environmental Pollution and Management – Atmospheric Pollution – Particulate emission by industries and automobiles – Smog – Acid rain – Ozone hole – Global Warming – Causes, Effects and Control measures – Noise pollution – Sources, Effects and prevention - Liquid and Solid Waste disposal – Waste water treatment – Waste recycling and resource recovery. Sustainable living resources: World food supply – Ecological Perspective in Agriculture – Traditional farming methods – Eco-Safe technologies in agriculture.

Food composition – Classification - functions. Physical properties of foods, food emulsion, foam and set. Cooking methods, sensory evaluation, fortification, additives. Nutrition and health – Classification of Carbohydrate, Protein, Fat and Fibre. Fat soluble and water soluble vitamins, minerals and trace elements. Assessments of nutritional status, Prevalence of malnutrition. National and International Organization

## **Unit X -Commercial Agriculture**

Bio-Control Agents, Mushroom Cultivation, Fruits and Vegetables Processing, Hybrid Seed Production, Nursery Technology, Organic Composting and Broiler Production

Importance – History and development of bio-control agents - 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 (*Spodoptera litura*) and gram pod borer (*Helicoverpa armigera*)- synthetic diet – mass production of SINPV and HaNPV. Mass production of *Trichogramma* spp., *Chrysoperla*, coccinellid predators, *Trichoderma viride*, *Pseudomonas fluorescens* and Entomo- pathogenic nematodes

Mushroom- importance-present production and trade, scope for export, 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.

Floor layout of Fruit and Vegetable processing Industry – Equipments and Accessories used in processing Industry – Preparation of Squash, Syrup, Cordial, Nectar, Ready to serve beverages (RTS) – Fruit juice concentrate – Paste, Powder, Bar – Jam, Jelly, Marmalade and Candy, Preserve – Pickles – Oil, Salt and vinegar – Tomato products – Ketch up. Sauce, Puree

and Paste – Canning of Fruit and Vegetables – Dehydrated Fruit and Vegetables and Re-hydration – Preservation by low temperature – cut-out analysis of canned Fruit and Vegetables – Evaluation of Frozen Fruit and Vegetables – Osmotic dehydration

Definition – Production of hybrids – 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, Bhendi.

Harvesting – Physical and chemical indices – Extraction techniques – Seed processing – Use of cleaner, grader – Seed treatment – Seed packaging – Seed storage – Sanitation – Certification procedure

Selection of nursery area – preparation of seeds and seed treatment – Sowing and raising of rootstocks (Fruits and Flower Crops) – Application of Liquid Manure and plant protection of rootstock – Potting materials and Preparation of pot mixture – Potting of Rootstock and Hardening – Selection of Scion Plants and Grafting, Aftercare of Grafted Plants, Graft Separation and Hardening – Preparation of Cuttings of Ornamental Plants, Treating the Cuttings with growth regulators and Planting in Mist Chamber in Beds/Polybags, Potting of Rooted Cuttings and Hardening – Air Layering of Ornamental/Fruit Crops – Budding of Ornamental Plants (Rose) – Maintenance of Potted Plants – Packing and Marketing .

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 –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

Preparation of poultry house for receiving new chicks for broiler production – Disinfection – Sanitation procedures – Arrangement of Brooders, brooding, spreading of litter and medication – Medication schedule and vaccination - broiler chicks – Measures to control respiratory problems. Coccidiosis and their management problems  
– Feeding, watering, spacing – Management of litter – Use of growth promoters and feed additives – Improvement of feed intake and feed conversion efficiency – Composition of broiler feeds, feeding ages and consumption levels – Commonly used ingredients in feed mixing for broilers – Least cost feed formulation – Observation on feed consumption, use of stimulants – Recording of body weight of broilers during growth - Management of broilers during summer – winter –Common basic post mortem findings to know the cause of death – Dressing procedures to prepare ready to cook broilers – Various poultry meat preparations.

Importance of artificial insemination. Basic study of the reproductive organs of a Bull/He-buffalo) – Fundamentals about semen production. Artificial vagina structure. Collection, processing for insemination – Basic knowledge about the Frozen semen straw production – Liquid Nitrogen – Cryocan – Handling of Cryocan – Storage of Frozen semen straws – Handling of Frozen semen straw – Visit to frozen semen production stations.

Basic knowledge about the reproductive organs of cows/she-buffalo – Puberty – Oestrus cycle – Oestrus – Symptoms of heat – Stages of oestrus cycle-Standing heat – Identification of Animals in “Heat”-Management of animals in “Heat”. Examination of reproductive organs in slaughter house specimen – Repeated rectal examination of reproductive organs in animals going for slaughter –Artificial insemination technique — Non return to heat – Pregnancy examination – Study of various stages of pregnancy by rectal examination - Care and management of pregnant animals – Nearing calving animals – Calving.

### **Unit XI- Agri.Extension and Agri.Economics**

Rural Economics and Agricultural Economics – Meaning, importance and scope  
 – Sectors of Economy - Importance of agriculture in rural economy: Problems of rural economy  
 – Population growth and its consequences. Agents of production: Land distribution – Size of land holding – Man-Land ratio - Subdivision and Fragmentation – Land reform – Ceiling on land holding, Tenurial reforms, Consolidation of land holdings  
 – Cooperative farming and Bhoodhan movement – Success and failure. Rural labour: Meaning – Classification – Characteristics of rural labour – agricultural labour – Employment, wages and income - Minimum wages act and other welfare measures.

Rural Banking and Finance: Meaning and Concept – Classification and purpose  
 – Sources of finance – Institutional and non-institutional – Government, cooperatives, nationalized commercial banks, regional rural banks and land development banks, private money lenders and other traditional sources – Establishment of NABARD and its role, Multi-agency, Service area approach. Rural industries: Importance and their classification – Investment needs – Generation of employment.

Types of agro-industries – Rural industries project - Khadi and Village Industries  
 – Problems of rural industries – Potentials for development of agro- industries from agricultural products and wastes – Sugarcane, Cotton seed, Banana sheath, Forestry products – Rural technologies – Technology gap – Economic and social constraints in the spread of technology. Study of important and recent rural development schemes.

Concepts and definition of marketing and agricultural marketing – Scope of agricultural marketing – Classification of Markets – Structure of markets. Characteristics of agricultural commodities: Small quantities, Bulkiness, Perishability, Varietal characteristics.  
 Problems in grading and standardization. Marketing costs and marketing margins. Price spread. Advantages and problems.

Cooperative agricultural marketing societies and regulated markets – Role of National Agricultural Cooperative Marketing Federation and TANFED. Role of specialized agencies viz., Food Corporation of India, Central Warehousing Corporation, State Warehousing Corporation in marketing of agricultural commodities and CCI.

Price support programmes – Buffer stock operations – Role of Commission on Agricultural Costs and Prices – Price stabilization. Agmark grading and commercial grading – Marketing information and intelligence – Marketing of agricultural inputs viz., seeds, fertilizers, plant protection chemicals and implements.

Sociology – Rural Sociology – Characteristics of rural society. Rural Youth – Their needs and aspirations. Basic rural institutions and voluntary agencies. Leadership – Classification, Characteristics and their influence. Motivation – Methods of Motivation. Social change. Adoption – Meaning, Stages, Adopter categories and their characteristics. Extension methods – Classification – Individual contact, group contact and mass contact methods. Extension aids – Audio aids, Visual aids and Audio Visual aids. Print and Electronic media. Photography, new achievements in communication technology.

Visit to a village – Identifying resources, conducting participatory rural appraisal (PRA), conducting SWOT (strengths, weaknesses, opportunities and threats) analysis and preparing action plan for village development.

Visiting farmers – Analysis of farm resources and studying the life style of farmers, earnings, enterprises, expenditure pattern, technical information seeking behavior and dissemination of technologies. Finding the factors of adoption of technologies.

Problem diagnosis study – visiting farmers' fields, identifying technical and frequent problems like soil, pest, disease, disorders and other problems in agriculture, obtaining solutions from known sources and providing them to the farmers .

Visiting agro service centers – Studying the business techniques, farmers approach, distribution pattern, dealership pattern, knowing different agro chemicals available in markets and their prices, gaining experience in solving the farmers problems in agro service centers .

Visiting daily vegetable wholesale markets and assessing the price fluctuation and preparing price trend calendar for different vegetables. Preparing line chart for maximum price of different vegetables grown in the district and identifying optimum sowing period for different vegetables.

Study the potentialities, prospects and to get clear knowledge about starting agro industries.

### **Unit XII Computer Application**

Introduction to Computers – Hardware – Software – Operating systems – Windows operating systems – Word processing – MS Word – Data Entry using Excel – Charts – Graphs – Internet – E Mail – Multimedia Presentation – Application of computer in agriculture - Preparation of Tabular Columns, Charts and Graphs - Multimedia Presentation – power point - Internet and E- Mail and Application of computer in agriculture.



## Paper-II

### General Studies

#### (H.S.C Standard)

#### **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, 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-Problems in conduct of public elections-Political parties and political system in India-Public awareness & General administration - 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 & 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, lokadalats, 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 TESTS**

Conversion of information to data-Collection, compilation and presentation of data - Tables, graphs, diagrams-Parametric representation of data-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.

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