

## **ANDHRA PRADESH PUBLIC SERVICE COMMISSION::VIJAYAWADA**

### **SCHEME AND SYLLABUS FOR MAIN EXAMINATION TO THE POST OF FOREST SECTION OFFICER IN A.P.FOREST SUBORDINATE SERVICES**

<b>SCHEME FOR WRITTEN EXAMINATION (OBJECTIVE TYPE) DEGREE STANDARD</b>				
<b>Sl No.</b>	<b>Subject</b>	<b>Maximum Marks</b>	<b>No. of Questions</b>	<b>Duration Minutes</b>
1.	General English (50 marks) & General Telugu (50 marks) <b>(To be Qualified in English &amp; Telugu individually) (Objective Type)</b>	100 Marks (Qualifying Test )	100 Questions	100 Minutes
2.	<b>Paper-1:</b> General Studies & Mental Ability (Objective Type)	150 Marks	150 Questions	150 Minutes
3.	<b>Paper-2:</b> Mathematics (SSC standard--Objective Type)	150 Marks	150 Questions	150 Minutes
4.	<b>Paper-3:</b> General Forestry (Objective Type)	150 Marks	150 Questions	150 Minutes
	<b>Total</b>	<b>450 Marks</b>		

**N.B.:** 1. Candidates are required to undergo a walking test and also a Medical Examination (conducted by a Medical Board). The walking tests shall be arranged by the Forest Department, in presence of official of A.P.P.S.C. For this purpose the Commission will pick up eligible candidates in the ratio of 1:2 with reference to total number of vacancies as per General Rule 22 & 22A.

2. Appearance at all the above tests is compulsory. Absence at any or all of the papers will render the candidature invalid.

3. As per G.O.Ms. No.235 Finance (HR-1, Plg & Policy) Dept, Dt:06/12/2016, for each wrong answer will be penalized @ 1/3<sup>rd</sup> of the marks prescribed for the question in all objective type papers.

4. The minimum qualifying Marks for selection is 40% for OCs; 35% for BCs and 30% for SCs & STs.

5. For Qualified candidates, Weightage shall be given to the NCC Certificate holders having requisite qualifications. Physical measurements at the time of selection, as follows:

NCC – “C” Certificate holder – 5 bonus marks.

NCC – “B” Certificate holder – 3 bonus marks.

NCC – “A” Certificate holder – 1 bonus marks.

## **SYLLABUS FOR MAIN EXAMINATION**

### **QUALIFYING TEST: SSC standard**

#### **GENERAL ENGLISH AND GENERAL TELUGU (100 Marks)**

##### **General English Test (50 Marks)**

- a) Comprehension
- b) Phrases and idioms
- c) Vocabulary and punctuation
- d) Logical re-arrangement of sentences

##### **General Telugu Test (50 Marks)**

- a) Synonyms & Vocabulary
- b) Grammar
- c) Telugu to English meanings
- d) English to Telugu meanings

### **PAPER-1**

#### **GENERAL STUDIES & MENTAL ABILITY**

**150 Marks**

1. General Science – Contemporary developments in Science and Technology and their implications including matters of every day observation and experience, as may be expected of a well-educated person who has not made a special study of any scientific discipline.
2. Current events of A.P state and national importance.
3. History of India – emphasis will be on broad general understanding of the subject in its social, economic, cultural and political aspects with a focus on AP and Indian National Movement.
4. Indian Geography with a focus on AP.
5. Indian polity and Economy – including the country's political system- rural development – Planning and economic reforms in India.
6. Mental Ability – Reasoning & Inferences.
7. Sustainable Development and Environmental Protection
8. **Disaster Management-**
  - a. Concepts in disaster management and vulnerability profile of India and State of A.P.
  - b. Earth quakes, Cyclones, Tsunami, Floods, Drought – causes and effects.
  - c. Manmade disasters - Prevention strategies.
  - d. Mitigation strategies and measures

### **PAPER-2 - MATHEMATICS**

#### **(SSC Standard)**

**(150 Marks)**

1. **ARITHMETICS:**
  - a) Number System-Natural numbers, Integers,
  - b) Rational and Real numbers,
  - c) Fundamental operations, addition, subtraction, multiplication, division, square roots, Decimal fractions.
  - d) Unitary method-time and distance, time and work, percentages, applications to simple and compound interest, profit and loss, ratio and

proportion, variation.

- e) Elementary Number Theory – Division algorithm, Prime and composite numbers. Tests of divisibility by 2, 3, 4, 5, 9 and 11.
- f) Multiples and factors, factorization Theorem. H.C.F. and L.C.M. Euclidean algorithm. Logarithms to base 10, laws of logarithms, use of logarithmic tables.

## 2. **ALGEBRA:**

- a) Basic Operations, simple factors, Remainder Theorem, H.C.F., L.C.M.
- b) Theory of polynomials, solutions of quadratic equations, relation between its roots and coefficients (Only real roots to be considered). Simultaneous linear equations in two unknowns – analytical and Graphical solutions. Simultaneous linear in equations in two variables and their solutions.
- c) Practical problems leading to two simultaneous linear equations or in equations in two variables or quadratic equations in one variable and their solutions.
- d) Set language and set notation, rational expressions and conditional identities, laws of indices.

## 3. **TRIGONOMETRY:**

Sine x, Cosine x, Tangent x when  $0^\circ < x < 90^\circ$  values of  $\sin x$ ,  $\cos x$  and  $\tan x$ , for  $x = 0^\circ, 30^\circ, 45^\circ, 60^\circ$  and  $90^\circ$ , Simple trigonometric identities. Use of trigonometric tables, Simple cases of heights and distances.

## 4. **GEOMETRY:**

- i) Lines and angles, Plane and plane figures,
- ii) Theorems on
- iii) Properties of angles at a point,
- iv) Parallel lines,
- v) Sides and angles of a triangle,
- vi) Congruency of triangles,
- vii) Similar triangles,
- viii) Concurrence of medians and altitudes,
- ix) Properties of angles, sides and diagonals of a parallelogram, rectangle and square,
- x) Circles and its properties including tangents and normals,
- xi) Loci.

## 5. **MENSURATION:**

- a) Areas of squares, rectangles, parallelograms, triangle and circle.
- b) Areas of figures which can be split up into the figures (Field Book),
- c) Surface area and volume of cuboids, lateral surface and volume of right circular cones and cylinders, surface area and volume of spheres.

## 6. **STATISTICS:**

- a) Collection and tabulation of statistical data,
- b) Graphical representation - frequency polygons, histograms, bar charts, pie charts etc.
- c) Measures of central tendency.

**PAPER - 3**  
**GENERAL FORESTRY**

**(150 Marks)**

**1. Plant Science:**

- a) Introduction to plant science, cell structure, and classification of plant kingdom.
- b) Principles of plant physiology with reference to plant nutrition, absorption, transactions and metabolism of nutrients.
- c) Diagnosis of nutrient deficiencies and their amelioration
- d) Photosynthesis and respiration, growth and development, auxins and hormones in plant growth.
- e) Significance of D.N.A and R.N.A in the cytology
- f) Vegetative, asexual and sexual methods of reproduction. Pollination and fertilization. Sexual incompatibility.
- g) Principles and classification of plant propagation methods.
- h) Sexual propagation and its importance and the factors affecting germination and pre-germination treatments.
- i) Development, structure, dormancy and germination of seed.
- j) Seed production and seed collection techniques in forestry crops
- k) Plant Diseases - factors affecting infections
- l) Chemical, biological and genetic methods of disease control (including transgenic plants)
- m) Ecological adaptation.
- n) Types of vegetational - zones and forests of Andhra Pradesh.
- o) Deforestation, Afforestation, Wasteland reclamation.
- p) Plant Varieties: Origin, importance, export potential, varieties, climate, soil requirements, propagation and planting and after care.

**2. Forests & Ecology:**

- a) Definition of biodiversity
- b) genetic, species and ecosystem diversity,
- c) Structure and functions of an ecosystem-role of Producers, consumers and decomposers.
- d) Ecological succession, Food chains, food webs and ecological pyramids,
- e) Biogeographical classification of India and value of biodiversity
- f) Biodiversity at global, National and local levels,
- g) Hot-spots of biodiversity,
- h) Threats to biodiversity such as habitat loss, poaching of wildlife, man-wildlife conflicts,
- i) Endangered and endemic species of India,
- j) In-situ and Ex-situ conservation of biodiversity and
- k) Convention of Biological Diversity (CBD)
- l) Threats and injuries to forests and the forest protection measures.
- m) Role of afforestation and forest regeneration in carbon sequestration.

**3. Horticulture:**

- a) Definition and different branches of horticulture
- b) Importance of horticulture in terms of economy, production, employment generation, environmental protection and human resource development.
- c) Nutritional value of horticultural crops. Divisions of horticulture and their importance.
- d) Propagation of plants by cuttage, Types of cuttings, and the factors affecting regeneration of plants from cuttings.
- e) Propagation by layerage and the factors affecting regeneration of plants by layerage and the most common methods of layerage.
- f) Propagation by grafting, importance of graftage and the factors for successful grafting., Selection of rootstock and scion, methods of budding and grafting.
- g) Importance and scope, production of crops in greenhouse.

**4. Soil Science:**

- a) Basics of earth, rocks and minerals,
- b) Study of folds, joints, faults, foliation and lineation in geological formation.
- c) Use of clinometer compass in the field measurements of bed, foliation, folds joints, faults and lineations in the field.
- d) Types of soils, their field identification and classification;
- e) Forest soils and their classification, factors affecting soil formation;
- f) physical, chemical and biological properties of soils
- g) Soil conservation — definition and causes for erosion, types of erosion, agents of erosion
- h) conservation and management of eroded soils/areas,
- i) role of wind breaks, shelter belts in arresting soil erosion, sand dunes;
- j) Reclamation of saline and alkaline soils, water logged and other waste lands.
- k) Role of forests in conserving soils.
- l) Importance of manures and fertilizers.

**5. Management of water resources and watersheds:****A) Water Resource Management:**

- a) Surface and subsurface water resources,
- b) predicting demand for water,
- c) impurities of water and their significance,
- d) physical, chemical and bacteriological analysis, water borne diseases,
- e) standards for potable water.
- f) Pumping and gravity schemes.

**B) Watershed Management:**

- a) Concepts of watershed.
- b) Role of mini-forests and forest trees in overall resource management,
- c) Forest hydrology.
- d) watershed management and environmental functions of forests; water-harvesting and Soil conservation.

**6. General silviculture, Agro-forestry and social forestry and community participation:**

**A. General Silviculture:**

- a) Definition and principles of General Silviculture.
- b) Ecological and physiological factors influencing vegetation, natural and artificial regeneration of forests,
- c) Economic importance of some of the forestry tree species of India such as *Acacia Sundra*, *Acacia nilotica*, *Albizia lebbeck*, *Albizia procera*, *Anthocephalus Cadamba*, *Anogeissus latifolia*, *Azadirachta indica*, *Bamboo spp.*, *Butea monosperma*, *Casuarina equisetifolia*, *Dalbergia sisoo*, *Emblica officinalis*, *Eucalyptus spp.*, *Gmelina arborea*, *Hardwickia binata*, *Lagerstoremia lanceolata*, *Pterocarpus marsupium*, *Pterocarpus santalinis*, *Santalum album*, *Tectona grandis*, *Terminalia tomentosa*, *Tamarindus indica*.

**B. Agro-forestry:**

- a) Agro forestry, its definition, scope and necessity
- b) Role of agroforestry in the life of people and domestic animals and in integrated land use, planning especially related to soil and water conservation.
- c) Agro forestry systems under different agro-ecological zones, selection of species and role of multipurpose trees and NTFPs, techniques, food, fodder and fuel security.

**C. Social Forestry: The objectives, scope and necessity of social forestry including the urban forestry in Andhra Pradesh.**

**D. Aim and objectives, principles, methodology and benefits of AP community forest management.**

**7. Animal health & nutrition:**

- a) Role of nutrition in animal health and production.
- b) Conservation of feeds and fodder and utilization of agro by-products.
- c) Feed supplements and additives.
- d) Nutrition deficiencies and their management.
- e) Major contagious diseases affecting cattle, buffaloes, sheep and goats,
- f) Etiology, symptoms, pathogenicity, diagnosis, treatment and control of major bacterial, viral, rickettsia and parasitic infections.
- g) Animal Feed management in Zoological parks

**8. Economic Zoology:**

- a) Beneficial and harmful insects including insect vectors of human diseases, Industrial fish, prawn and molluscs of India, Non-poisonous and poisonous snakes of India, Venomous animals-centipede, wasp, honey bee,
- b) Basics on the diseases caused by aberrant chromosomes/genes in man;
- c) genetic counseling;
- d) DNA as a tool for forensic investigation.

## 9. **Forest Economics, Legislation & Administration:**

### **A. Forest economics:**

- a) Basic fundamental principles of forest economics
- b) cost-benefit analysis;
- c) estimation of demand and supply;
- d) role of private sector and cooperatives;
- e) role of corporate financing.

### **A. Forest Legislation & Administration:**

Basic objectives and essence of the following important forest Laws:

- AP Forest Act-1967,
- Wildlife Protection Act-1972,
- Forest Conservation Act-1980,
- Forest rights Act-2006.

### **Forest Administration:**

- The structure and activities of the AP state forest department.
  - The genesis and objectives of Indian Forest Services,
  - AP State Forest Services,
  - AP State Forest Subordinate Services,

## 10. **Forest Mensuration, Remote Sensing and Forest Working Plan:**

### **A. Forest mensuration:**

- a) Methods of measuring diameter, girth, height and volume of trees;
- b) form-factor;
- c) volume estimation of stand,
- d) current annual increment versus mean annual increment,
- e) yield and stand tables
- f) Basics of forest engineering and surveying

### **B. Remote sensing- satellite communication:**

- a) forest cover monitoring through remote sensing;
- b) Geographic information Systems for management and modeling;
- c) Usage of wireless sets & walky-talkies for communication and their basics.

### **c. Forest planning:**

- a) Forest planning, evaluation and monitoring tools and approaches for integrated planning
- b) multipurpose development of forest resources and forest industries development

### **D.Forest Management plans:**

- a) Working plans Versus Management plan
- b) Complete enumeration vs. sampling,
- c) Sampling- need for sampling, basic concepts in sampling, designing large-scale sample surveys, sampling and non- sampling errors,
- d) simple random sampling and systematic sampling cluster sampling,
- e) Ratio and regression methods of estimation under simple and stratified random sampling.

**11. A. Environmental science:**

- a) Definition, scope and importance of environmental science and the need for public awareness on it.
- b) Definition, Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution & Nuclear hazards.
- c) Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- d) Environmental ethics: Issues and possible solutions, Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Wasteland reclamation, Consumerism and waste products

**e) Renewable and non-renewable resources:**

Natural resources and the problems associated with the natural resources such as forests, water, soil, land, minerals and energy.

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