ANDHRA PRADESH PUBLIC SERVICE COMMISSION::VIJAYAWADA

SCHEME AND SYLLABUS FOR SCREENING TEST TO THE POST OF FOREST BEAT OFFICERS & ASSISTANT BEAT OFFICERS IN A.P. FOREST SUBORDINATE SERVICES

SCHEME FOR WRITTEN EXAMINATION (OBJECTIVE TYPE) DEGREE STANDARD				
PART	**Subject**	**No of Questions**	**Duration in minutes**	**Max Marks**
A	General Studies & Mental Ability	75	150	75
B	General Science & General Mathematics (SSC Standard)	75		75
Total				**150**

N.B.:1. Appearance at all the above tests is compulsory. Absence at any or all of the papers will render the candidature invalid.

2. As per G.O.Ms. No.235 Finance (HR-1, Plg & Policy) Dept, Dt:06/12/2016, for each wrong answer will be penalized with 1/3rd of the marks prescribed for the question.
3. All papers will be of **OBJECTIVE TYPE.**

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SYLLABUS FOR SCREENING TEST

PART-A (Marks 75)

1. GENERAL STUDIES & MENTAL ABILITY

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 an individual who has passed Intermediate and not made a special study of any scientific discipline.
2. Current events of national importance and the state of Andhra Pradesh
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. Geography of India with a focus on Andhra Pradesh state.
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)** The concepts in disaster management and vulnerability profile of India and State of A.P.
   - **b)** Causes and effects of earth quakes, cyclones, tsunami, floods, drought.
   - **c)** Manmade disasters - Prevention strategies, mitigation strategies and mitigation measures.

PART- B **(Marks 75)**

GENERAL SCIENCE (SSC Standard)

1. **Source of Energy:** Renewable and Non-renewable sources of energy
   a) Renewable sources: Solar energy (Solar Cooker, Solar water heater, Solar Cell); Wind energy, Hydro energy (Tides of Ocean, Hydroelectric), Geothermal wood, Biogas, Hydrogen and Alcohol.
   b) Non-renewable sources: - Fossil fuel (Coal, Petroleum and Natural gas), conditions for combustion choice of a good fuel, fuel efficiency, nuclear fusion and nuclear fission, chain reaction, nuclear reactor (basic principles; safety measures), advantages and hazards of nuclear energy, mangal Turbine (Fuel less turbine)- Principle, working and uses.

2. **Living world: -**

   a) Life Processes such as **n**utrition, modes of nutrition - Autotrophic, heterotrophic, Parasitic and saprophytes.
   b) Nutrition of plants – Photosynthesis & factors affecting the photosynthesis
   c) Nutrition in animals like Amoeba & grasshopper.
   d) Human digestive system.
   e) Respiration in Plants and Animals.
   f) Type of respiration- Aerobic and anaerobic respiration.
   g) Respiration through Skin, Gills, trachea lungs. (Earthworm, Fishes, Grasshopper and Human)
   h) Knowledge of structure and function of human respiratory system.

3. **Transportation & Excretion**

   a) Transportation in Plants and animals. (Water, minerals, food).
   b) Transportation in Human - Composition and function of blood, clotting of blood, blood Groups, transfusion of blood, heart, structure and functions of blood vessel (elementary knowledge) and lymphatic system.
   c) Excretion in animals (Amoeba and earth worm), excretion in human, Osmoregulation.
   d) Nervous system and hormones in Human- reflex action.

4. Reproduction, growth, heredity and evolution:

A) Reproduction and growth

i) Types of Reproduction-

a) Asexual: Fission budding, regeneration, vegetative propagation in plants, cutting, grafting and layering, Parthenogenesis.

b) Sexual reproduction and its significance- reproductive parts of plants, pollination and fertilization.

c) Human reproductive system, mental and physical change during human development.

B) Heredity and Evolution:

a) Heredity and Variations,

b) Physical basis of Heredity - chromosomes; D.N.A. (elementary knowledge), Genes, Sex determination.

c) Elementary knowledge of evolution.

5. Natural Resources:

a) Metals: - Ores and minerals, metallurgy, Enrichment of ores, extraction of metal from ores, refinement and purification of metal with reference to Iron and aluminium, Activity series of metals, general properties and corrosion of metals, Alloys, Components, properties and uses of steel; stainless steel, Brass, magnalium, alloys of gold.

b) Non-metals: - Importance and general properties, method of preparation of hydrogen, properties and its uses, manufacturing of ammonia (Only reactions), properties and uses, sulphur - occurrence, extraction, properties (allotropy and effect of heat) and uses. Properties and uses of Sulphur dioxide, manufacture of sulphuric acid (Only reactions), its properties and uses.

6. Carbon Compounds: Functional groups (only oxygen containing) Alcohols - preparation, properties and uses, preparation methods, properties and uses of formaldehyde, Acetone and Acetic acid. Some common synthetic polymers, soaps and detergents.

7. Environment and Environmental Problems: -

a) Causes, prevention and control of environmental problems, Land, water, Air, noise pollution and accumulation of waste materials.

b) Biodegradable and Non-biodegradable materials,

c) Interaction between biotic and non-biotic components of ecosystem.

d) Ecological balance, efforts and measures for conservation of environment.

e) Process of water management and conservation:

1) Rain water harvesting.
2) Ground water recharging,
3) Conservation of forests.
4) Land management and conservation.

5) Public awareness for environmental protection,
6) Green House effect,
7) Global warming,
8) Ozone layer depletion,
9) Acid rain.

8. Ethnobotany:

a) Morphological study of medicinal plants, their classification on the basis of their use and life span.
b) Study of botanical names and medicinal use of the following seasonal and perennial plants.

A. Seasonal plants:			
Malkangni	*Celastrus paniculetus*	Cumin	*Cuminum cyminum*
Ashwaganda	*Withania somnifera*	Fennel	*Foeniculum vulgare*
Ginger	*Zingiber officinane*	Ajwayin	*Trachyspermum ammi*
Turmeric	*Curcuma longa*	Marua	*Origanum majorana*
Garlic	*Allium sativum*	Tulsi	*Ocimum sanctum*
Fenugreek	*Trigonella foenum-graecum*	Vacha	*Achorus calamus*
Touch- me-not	*Mimosa pudica*	Adusa	*Adhatoda vasica*
Soya	*Glycine max*	Giloy	*Tinospora cordifolia*
Shatawar	*Asparagus racemosus*	Harjor	*Cissus quadrangularis*
Sarpgandha	*Rauvolfia serpentina*	Bryophytum	*Bryophytum pinnatum*
Isabgol	*Plantago ovata*	Bhui Aonla	*Phyllanthus niruri*
Dioscorea	*Dioscorea pentaphylla*	Castor	*Ricinus communis*
B. Perennial plants:			
Harad	*Terminalia chebula*	Harshinagar	*Nyctanthus arbor-tristis*
Baheda	*Terminalia bellirica*	Amaltash	*Cassia fistula*
Aonla	*Phyllanthus emblica*	Pomegranate	*Punica granatum*
Nirgundi	*Vitex negundo*	Sandal	*Santalum album*
Babool	*Acacia nilotica*	Nuxvom,	*Strichnus nux-vomica*
Neem	*Azadirachta indica*	Paras peepal,	*Thespesia populnea*
Sheesham	*Dalbergia sissoo*	Arjuna,	*Terminalia arjuna*
Catechu	*Acacia catechu*	Eucalyptus,	*Eucalyptus*

Karanj	*Pongamia pinnata*	Bel,	*Aegle marmelos*
Sweet Neem	*Murraya koenigii*	Apamargh,	*Achyranthes aspera*
Kachnar	*Bauhina variegata*	Bhringraj,	*Eclipta alba*
Peepal	*Ficus religiosa*	Kaner	*Nerium oleander*

9. a) **The Universe - Solar system and exploring space -** Solar System, planets, asteroids, comets and meteors; Earth origin, evolution and structure stars, constellations, milky way, galaxy, structure of universe and its theories.

b) **Brief history of space explorations: -** Elementary ideas about space crafts, different types of artificial satellites and their orbits, uses of artificial satellites in Communication, weather forecasting, remote sensing and space exploration.

MATHEMATICS

i. ARITHMETIC:

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, factorisation Theorem. H.C.F. and L.C.M. Euclidean algorithm. Logarithms to base 10, laws of logarithms, use of logarithmic tables.

ii. 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.

iii. TRIGONOMETRY:

Sine x, Cosine x, Tangent x when $O^o = x = 90^o$ values of sin x, cos x and tan x, for $x = O^o, 30^o, 45^o, 60^o$ and 90^o.

Simple trigonometric identities. Use of trigonometric tables, Simple cases of heights and distances.

iv. GEOMETRY:

1) Lines and angles, Plane and plane figures,
2) Theorems on
    a) Properties of angles at a point,
    b) Parallel lines,
    c) Sides and angles of a triangle,
    d) Congruency of triangles,
    e) Similar triangles,
    f) Concurrence of medians and altitudes,
    g) Properties of angles, sides and diagonals of a parallelogram, rectangle and square,
    h) Circles and its properties including tangents and normals
    i) Loci.

v. 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.

vi. STATISTICS:

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

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