# Conditions and Syllabus for Foresters Training and Guard Training



## APPENDIX E

(*See* rule 10)

**Conditions and Syllabus for Forester Training and Forest Guard Training**

Period of training.

1. The Forester training shall extend over a period of 11 months and Forest guard training for a period of 5½ months which will consist of theory as well as practical work in the field. There will be two trainings of Forest Guards in each year.

Tours and excursion.

2. For practical works, the tours and excursions shall be organized. Normally three months will be spent on tours during the Forester training and 1½ months during the Forest Guard training away from the forest school so as to equip the trainees with the application of the scientific knowledge of Forestry and allied subjects. The tours will be extended to the State of Haryana and the adjoining States to make a comparative study'. There will be weekly excursions for paractical work in the filed. On the basis of tour and excursion tour tests will be conducted.

Examination.

3. The final examination shall be conducted by the Board. The class tests and tour tests will however, be conducted by the Instructor. The Schedule of marks is given in Annexures I and II to this Appendix.

Declaration of the result.

4. The result will be declared by the Principal Chief Conservator of forests. The trainees shall be graded on the basis of the examination and tests as under:—

| Marks obtained | Grade |
|---|---|
| (a) Not less than 40% in each subject and in aggregate | Pass |
| (b) Not less than 40% in each subject and 80% or above in aggregate | Pass with honours |

Award of certificate.

5. At the conclusion of the training, a merit list shall be prepared and announced alongwith the marks obtained by each trainee. Every successful trainee shall be awarded a certificate by the Princpal Chief Conservator as soon as the result is received in this office.

Re-examination.

6. In case of the trainee who is not successful under rule 10, the Board may ask such trainee to reappear in any of the two subjects so as to obtain necessary pass marks in these subjects and in the aggregate.

Award.

7. The following prizes shall be awarded to the trainees at the conclusion of the final examination :—

(i) the trainee securing highest marks in the training: "Silver Medal".

(ii) best Practical Forester: A merit certificate.

Number of trainnees.

8. There will be about 30 trainees in each training.

Eligibility.

9. Forest Guard, Foresters and Deputy Rangers possessing the prescribed qualifications will be deputed to the training on seniority bases.

Trainees to wear uniform.

10. The trainees shall arrange for books, and stationc by the Forest School them selves. The uniform may be arr Forest School so as to bring uniformity, but the expenditure by division organization sponsoring the trainees.

Commence-ment of the training.

11. The Forester training shall commence from the 1s and the Forest Guard training from 1st of May and 1st c every year. The trainee shall report at the Forest School on the commencement the class. No trainee shall be allowed trainng after 7 days of its commencement except with permi Principal Chief Conservator.

Travelling Allowancesf

12. The trainees shall be entitled to draw travelling exp clause(d) of rule 2.88 of Punjab Civil Services Rules volume 1 Amendment).

Disciplinary action for the poor performance.

13. The Instructor shall hold a class test after one mc commencement of the training to assess the capability of traine the instructions. A trainee who does not qualify the test shall to improve performance within one month of such an advice. test will be conducted by the Instructor soon after the expiry o period. Trainee failing in this test will be sent back, to the division organisation the Divisional Forest Officer, provided it ed by the Conservator in the case of Forest Guard training an Chief Consevator in case of Forester training and all the defrayed on training including all pay and allowances shall b ed from him.

Punishment.

14. If the conduct of any trainee is found to be unsatis is liable to be sent back by the Divisional Forest Officer to his Division and shall also be liable to disciplinary action under the Civil Services (Punishemnt and Appeal) Rules, 1987, and Haryz Forest Executive Section (Group C) Rules, 1998.

Lodging and other facili-ties.

15. All trainees shall stay in the hostel to be provided by t School. The furniture, electricity, water supply, hostel equip other amenties shall also be provided by the school.

Physical training.

16. Attendance in games and physical training shall be cor Sports equipments shall be provided by the School.

Marathon race.

17. There shall be a Marathon race of 10 K.M. during th of training. The particulars of thetrace will be decided by the I Forest Officer.

Vacation and leave.

18. There shall be midterm vaction of 10 days duration Forester training only, commencing from a date of to be decid Conservator. The vacation days shall be debited to the leave ac the trainees. Normally no leave shall be granted to a trainee du course of training. However, in exceptional cases short leave of from school may be granted by the Instructor. Nevertheles attendance in lectures and practical will be compulosry for admissi final exmanation.

Trainees Mess.

19. Alltrainees are required to join common mess which will be managed by a mess commitee to be elected by the trainees under the supervision of an Assistant Insrutctor. Mess equipment will be under the overall supervision of the Assistant Instructor but mess expenses will be borne by the trainees themselves.

Holidays.

20. The students are allowed to avail all gazetted holidays and Sundays during the training unless otherwise directed by the Instructor.

Progress Report.

21. Periodical reports on progress and conduct of each trainee shall be maintained by the Instructor. The reports will also indicate the marks obtained by the trainee in various tests and examinations held by the Forest School.

## ANNEXURE I

## SYLLABUS FOR FORESTER TRAINING

### Silviculture and Forest Management

### A-Theory

| | | |
|---|---|---|
| 1.1 | GENERAL INSTRUCTIONS | Forestry, its branches, Silviculture, Importance of Forests to the nation. |
| 1.2. | LOCALITY FACTORS: | |
| 1.2.1 | Climate | Temperature, Temperature Zones, Frost damage to plants, and protective devices, Forest hardy & Frost tender species, Light demander and Shade bearer species, Wind velocity, Mechanical effects, Moisture, Transpiration, Wilting point, Adaptation of plants, Rainfall and its distribution, Humidity, Microclimate Factors affecting, Examples. |
| 1.2.2 | Site | Topography, Altitude, Aspect, Slope, Drainage. |
| 1.2.3 | Soil | Geology, Soil Profile, Soil formation process, Broad soil type Problematic soil dealt with, PH values, Physical properties of soil and their importance, Soil moisture, Soil aeration Mulching, Soil indicator, Humus, Soil nutrients, Micro organisms, Species suitable for various types of soil, Species suitable for different soil textures, Major elements needed for the growth. Soil aeration important for tree growth. Soils of Haryana, Saline alkali soils, Effect of salts on plant growth |
| 1.2.4 | Biotic factors | Fire, Grazing, Man and his activities with special emphasis on development project. |
| 1.3 | RAISING OF FOREST CROPS : | |
| 1.3.1 | Natural regeneration | Where relied upon, Present position, Artificial regeneration plantations, Objectives, Industrial plantation, Timber, Fire wood and Bio-aesthetic. |
| 1.3.2 | Site suitability with reference to soil and climate | Names of species for different sites:—<br>(a) Survey and layout ; Calculation of an area.<br>(b) Site clearance Removal of shrubs and tall grasses, Uprooting of stumps, Debries burning, Use of tractors for jungle clearance. |
| 1.3.3 | Sources of stock | Seed and plants, Importance of seed source, Seed collection of important species in Haryana, Good and bad seed years, Storage of seed, Quantity of seeds required. |

| | | |
|---|---|---|
| 1.4 | **FOREST INFLUENCES:** | |
| 1.4.1 | **Forest and climate** | Wind, Humidity, Evaporation, Rainfall. |
| 1.4.2 | **Forest & water conservation** | Natural source of water table, Runoff. |
| 1.4.3 | **Forest & soil conservation** | Erosion by water and Wind. |
| 1.4.4 | **Forest & wildlife** | Their recreational value for tourism, Ecosystem. |
| 1.5 | **PLANT SUCCESSION:** | |
| | | General ideas of plant succession/stages of succession, Primary & secondary succession, Retrogression, Examples. |
| 1.6 | **FORM & GROWTH OF TREES & CROPS:** | |
| 1.6.1 | **Tree morphology:** | Herb, Shrub, Tree etc. Define parts of flowering plants (Root, Stem, Leaf, Inflorescence, Flower, Fruit, Seed). |
| 1.6.2 | **Tree growth** | Penology, Seed size, Seed dispersal, Germination and establishment, Germinating capacity, Seedling, establishment & development |
| 1.6.3 | **Crop morphology & growth** | Canopy classes in even aged and uneven aged forests, Crop height, Crop diameter, Mixed and pure forests. |
| 1.7 | **PLANT PHYSIOLOGY:** | |
| | | General ideas of plant physiology, Plant nutrients, Heart-wood & sapwood, Ascent of sap, Transpiration, Photosynthesis. |
| 1.8 | **FOREST REPRODUCTION:** | |
| 1.8.1 | **Regeneration:** | Natural and artificial regeneration. |
| 1.8.2 | **Artificial :** | Reforestation, Afforestation, Natural verses artificial regneration. Choice of species, Mixed v/s pure plantations Treatment of planting area, Sowing V/s plants, Spacement. |
| 1.8.3 | **Seed** | Collection, Storage, Treatment, Seed weight. |
| 1.9 | **Nursery:** | Definition, Necessity, Site selection, Temporary and permanent nurseries, Area requirement, Layout, Maintenance, Cost factor, Details of Chil, Khair, Shisham, Eucalyptus, Siris, Kikar Jand, Acacia tortilis, Frash, Poplar, Mesquit, Mulbery, Sal and some knowledge of ornamental plants, Mycorrhiza, Maintenance of various nursery registers. |
| 1.10 | **Tending : operation** | Weeding, Cleaning, Thinning, Improvement felling, Cultural operation, Pruning, Climber cutting, Coppice hinning. |

| | | |
|---|---|---|
| 1.11 | Irrigated: Plantation | Necessity, Size, Layout, Water requirements, Choice of speci General idea comparing irrigated plantations and un-irrigat compact plantations. |
| 1.12 | Afforestation: | Reforestation, Suitable species for Sand-dunes, Saline/Alkali So Aravalli Hills, Shivalik Hills, Water logged areas, Frost ha & Frost tender species, important ornamental trees, Shrub Climbers, Limiting factors, Choice of species and other treatm for panchayat land plantations, farm forestry and avenue plan tations. |
| 1.13 | Silviculture: Characters | Chil, Sal, Khair, Shisham, Jand, Acacia tortilis, Eucalyptus, Pop Neem, Siris, Kikar, and Bamboo etc. |
| 1.14 | Forest: Management | Definition, Working plan, working Circle Compartment and s compartment, Boundaries, Boundary pillars, Coupe, Bl Felling series, Rotation Yield, Increment, Normal forest, I meter and girth classes, Site quality, Sustained yield, Elem tary knowledge of Silvicultural Systems (Clear felling, Selec Coppice and Uniform system), Volume-table and Yield ta |
| 1.15 | Management: | Chil, Sal, Khair, Bamboo, Shisham, Eucalyptus, Kikar for |
| 1.16 | Forest Types: | Major types/groups found in Haryana, Basis of classification. |

1.17 SOCIAL FORESTRY:

| | |
|---|---|
| 1.17.1 | Concept & scope of social forestry. |
| 1.17.2 | Practices & benefits of social forestry. |
| 1.17.3 | How to make it popular among the farmers. |

1.18 LANDSCAPING

| | |
|---|---|
| 1.18.1 | Land scaping, Its concept, Relationship with environment. |
| 1.18.2 | How to beautify public places, highways and tourist complex |

B PRACTICAL

| | | |
|---|---|---|
| 1.19 | Use of: Instruments | Callipers, Tapes, Height measuring instruments e.g. Altimete Abney's level. |
| 1.20 | Tending: Operations | Ring-counting, Marking, Enumeration, Cleaning, Thi Improvement felling. |
| 1.21 | Nursery Works: | Layout, Weeding and hoeing, Sowing Planting, Maintena various nursery forms. |
| 1.22 | Field Botany: | Identification of specimens of important forest species. |
| 1.22.1 | | Specimen collection: |

At least 25 botanical specimens.

1.22.2 Seed collection:

At least 15 seed specimens.

1.23 FOREST PROTECTION:

Fire protection measures.

1.24 Plant Penology: Kinds of leaf, Different parts of a flower.

## 2. SOIL AND WATER CONSERVATION

### (A) THEORY

2.1 Soil Conservation: Meaning of soil conservation, Extent of soil erosion in India and in Haryana, Ill effects of soil erosion.

2.2 Soil: Soil defined, Soil formation, Physical properties of soil, Soils of India, Land capability classes, Plans for land use.

2.3 Water: Uses of water, Losses of water, Transpiration, Evaporation, Water cycle.

2.4 Soil Erosion: Types of erosion, Causes of erosion, Loss of soil due to erosion.

2.5 Soil Conservation Practices: Different conservation techniques in agriculture and forest lands, Biological and mechanical methods of erosion control.

2.6 ROLE OF FORESTS IN SOIL AND WATER CONSERVATION

2.6.1 Afforestation techniques for Saline and Alkali soils, Denuded hills of Aravalli and Shivalik ranges, Water logged areas, Arid and Semi-arid areas.

2.7 Wind Erosion: Wind action, Problems of wind erosion, Sand-dune fixation works, Choice of spp and layout for wind breaks and sheleter belts.

2. Mechanical: methods of erosion control: Bunding, Terracing, Contour trenching, Mulching, Check dams, masonries dams, Gabion structures, Vegetative dams, Floods control.

2.9 Cho-Training: Meaning of cho-training, Cho-training works, Deflection spurs, Channelizing of streams.

2.10 Range Management: Problems, Pasture development, Species suitable for.

2.11 Dry-Farming: Meaning of dry farming and its objects.

### (B) PRACTICAL

2.12 : Gully plugging, Check damming, Contour bunding and trenching.

2.13 : Cho-training works.

2.14 : Wattling and mulching.

## 3 LOGGING AND UTILIZATION.

### (A) Theory

3.1 STRUCTURE OF THE WOOD:

Sapwood, Heartwood, Pith, Annual rings and Texture.

3.2 PROPERTIES OF THE WOOD :

Weight, Hardness, Flexibility (Seasoning power), Durability, Heating power, Colour, Grain and odour.

3.3 MECHANIZED LOGGING AND MODERN LOGGING TOOLS :

| | | |
|---|---|---|
| 3.3.1 | Logging definition: | History, Conventional logging practices, Modern logging practices, Logging trianing, Necessity of improved logging. |
| 3.3.2 | Logging tools & equipment: | Basic logging tools, Logging equipment, Power chain saw. |
| 3.3.3 | Maintenance of logging tools and equipment : | Maintenance of saws and axes, Common faults, in maintenance of saw, Maintenance of mechanized equipment. |
| 3.3.4 | Feeling and conversion : | General principles of feeling tees, methods of felling of trees, Season of felling, Cross cutting, Recording of felled trees, Conversion into timber an fuelwood, Classification of round and sawn timber, measurement and volume calaculation. |
| 3.3.5 | Transporation : | General methods of transportation, Choice of method of transportation. |
| 3.3.6 | Storage of forest produce : | Classification of depots, Management of depots. |
| 3.3.7 | Disposal and sale : | System of extraction, System of sales. |
| 3.3.8 | Organisation : | Classes of labour, Wages, Supervision. |
| 3.3.9 | Saw milling: | General, Classifications, Installation, Maintenance. |

3.4 DEFECTS OF WOOD :

| | | |
|---|---|---|
| 3.4.1 | Abnormal growth: | Knots, Twisted grain, Burrs, Buttress. |
| 3.4.2 | Defects due to Ruputre of tissues : | Shakes, End splits, Surface crack, Collapase, Warping and decay. |
| 3.4.3 | Defects of timber: | Twisted grain, Burrs, Buttress, Knot, Fluting, Twisting & decay . |
| 3.4.4 | Defects resulting from wounds. | Pruning, Fire, Animal damage, Insect damage, Parasite damage. |

| | |
|---|---|
| Defects of Timber: | Definition, Methods of seasoning, Kiln seasoning in detail, Seasoning defects. |
| Preservation of Timber: | Importance of preservation, Soluble and insoluble preservatives, Methods of treatment, Treatment of sleepers and bamboos, Fire proffing of timber. |
| Species Suitable For: | Railway carriages and sleepers, Building Mine, Props, Piles and House posts, Electric and telephone poles, Boats and dugouts, Cable making, Furniture making, Vehicle parts, Tools handles, Boxes and packing cases, Plywood, Match box industry, Paper pulp industry, Sports goods, Bobbin, Toys, Combs, Pencils, Walking sticks, Umbrella handles, Tent poles, Tent pegs, Mathematical instruments, Firewood etc. |
| General Indeas 'In Brief: | About plywood, hard board, particle board, pulp and rayon. |
| Minor Forest Produce : | Fibres and flosses, Bamboos, Grasses Oil seeds, Tans and dyes Gums, Resin Katha, Essential oils and Medicinal plants, Edible products. |

IMPORTANT FOREST INDUSTRIES :

(i) Katha manufacturing.

(ii) Rasin tapping.

(iii) Railway sleepers : Standard sizes, Specifications, Species and;

(iv) Charcoal making.

Grading rules for logs and sleepers in brief.

**(B)-Practical**

| | |
|---|---|
| Identification of Building Timber: | Shisham, Mango, Tun, Khair, Mulberry, Chil, Deodar, Teak Sal, Kail, Kikar, Eucalyptus & Poplar. |
| 3 | Timber classification and passing of sawn timber, logs and bamboos. |
| 4 | Practice of telling trees by axe and saw including lopping and conversion. |
| 5 | Measurement of sawn and round timber, Volume calculation, Stacking of sawn and round timber. |
| 6. | Visit to paper, resin, katha, plywood and matchwood factories, charcoal kilns and Lime kilns. |
| 7 | Training in resin tapping. |
| 8 | Maintenance of felling register, Depot registers etc. |

## 4—FOREST ENGINEERING

### (A) Theory

| | | |
|---|---|---|
| 4.1 | Building Material: | Stone, Classification of rocks, Requirements of good build stone, Quarrying of stones, Bricks classification, Size of bri Fire brick, Tiles, Lime, Classification, Storing cement, Prop ties of Portland Cement, Storing and uses, and Classificati and uses of Surkhi. cement concrete, reinforcement. |
| 4.2 | Building : | (i) Selection and preparation of site in foundation, Choice o foundation, Bed and its preparation, Width and dept of foundation; |
| | | (ii) Thickness of concrete beds, Preparation against white an Damp proof courses; |
| | | (iii) Thickness of walls, Scaffoldings, Bonds, Doors, Windo Floors; |
| | | (iv) Roof types, Roof trusses (king post & Queen post); |
| | | (v) Plastering: Mud, Lime, Cement Painting; |
| | | (vi) White washing, Colour washing, Painting. |
| 4.3 | ROADS : | |
| 4.3.1 | Introduction : | Section of forest roads, Gradients, Metalling. |
| 4.3.2 | Forest roads: | Alignment, Reconnainssance, Alignment of road in pla Preliminary survey, Obligatory points, Gradients for differ roads. |
| 4.3.3 | Road design : | Road width with shoulders, Camber, Longitudinal and cr section cost estimates, Retaining and breast walls, Cross dra Side drains. |
| 4.3.4 | Maintenance of roads : | Surface maintenance, Improvement of existing roads. |
| 4.4 | BRIDGES/CULVERTS: | |
| | | General description of important types of bridges and culve |
| 4.5 | WATER SUPPLY : | |
| | | General sources of supply, Water table, sinking of wells, Shall and deep wells, Purification of water, Cleaning and protecti of well. |
| 4.6 | DRAWING : | |
| | | Plans, Elevations and cross section, Preparation of estim for range quarter, forester quarter and forest guard quarter |

### (B)-Practical

| | | |
|---|---|---|
| 4.7 | | Collection of atleast 6 rock specims. |

| | | |
|---|---|---|
| 4.8 | | Layout of building. |
| 4.9 | | Reading of plans. |
| 4.10 | | Alignment of paths and roads. |
| 4.11 | | General engineering calculations. |

## 5 SURVEYING AND MAP READING

### A-Theory

| | | |
|---|---|---|
| 5.1 | INTRODUCTION: | Surveying defined, Objects and scope of forest survey. |
| 5.2 | SCALES: | Scale, R.F. Plan and diagonal scales. Construction of scales. |
| 5.3 | MEASUREMENT OF DISTANCE: | Instruments used for measuring distances, Advantages and disadvantages of chains and tapes, Ranging out and chaining survey line, Measuring sloping ground, Errors in chaining. |
| 5.4 | CHAIN SURVEYING: | Scope of chain surveying, Use of cross staff and optical square, Simple problems of obstacle in chaining. |
| 5.5 | PRISMATIC COMPASS SURVEY: | Construction of compass, Method of using compass, Measurement of angles with compass bearing, Simple calculations on bearing. |
| 5.6 | PLANE TABLE SURVEY: | Plane table, Plane table accessories, Setting up the plane table at a station Method of plane tabling, its scope and advantages. |
| 5.7 | AREA CALCULATIONS: | Use of Acre Comb and Acre Square, Computation of area from yield not books by Trapezoidial rule. |
| 5.8 | MAPS AND MAP READING : | Map defined, Plan of map, Scale of map, Conventional signs, Orientation of map, Importance of maps in forestry ,Representation of relief on map, Contours, Important relief features. |

### B-Practical

| | | |
|---|---|---|
| 5.9. | CHAIN SURVEY: | Use of chain and tapes, Ranging out and chaining a survey line, Field work, plotting and drawing of a chain survey. |
| 5.10 | CHAIN AND COMPASS SURVEY : | Field plotting and drawing. |
| 5.11 | PLAN TABLE SURVEY : | Field work, Plotting and drawing. |
| 5.12 | USEFUL PROBLEMS IN FOREST SURVEYING: | To layout a coupe, To survey fire burnt area, To reestablish boundary pillars, Layout of right angles, contour trenches and bunds. |
| 5.13 | MAP READING: | Reading of stock, Management & control maps and survey sheets. |

**6-Range Account and Procedure**

6.1 Classification of forest revenue and expenditure with different major, minor a sub-heads.

6.2 RANGE ACCOUNT (PRACTICAL EXERCISE) :

Writing of cash book, Closing the account and balancing, Maintenance of fo no. 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, Writing vouchers. Filling up mus roll and daily sheet, Writing pay bill and tother bills, Preparation of travelli allowance bills, leave and leave account.

6.3 Budget control Objection statement on monthly account.

6.4 Daily allowance, G.P.F. Joining time, Tour, A.P.O., Treasury challan, Dama report book, Compensation form book, Compensation receipt book, Compensati and prosecution register, Linking of various forms etc.

6.5 Duties of forest guard, forester, deputy ranger and range officers.

**7-Forest Law**

7.1 Necessity for special forest law.

7.2 Study Indian Forest Act, 1927, Cattle Tresspass Act, 1887 Wildlife Protecti Act, 1972; Punjab Land Preservation Act, 1900 ; in so far as they are requir for the conduct of ordinary protection duties. The Forest Conservation A 1980; Standing order No. 28.

7.3 Forest offences, Damage reports, Compounding of offences in detail (as per C standing order) .

7.4 Detailed procedure for prosecution in the court of law.

7.5 Power of forest officer regarding recording of evidence, power of search, seizu arrest, compensation, prosecution and panyment, rewards etc.

**8- Environmental Conservation and Forest Protection**

8.1 ENVIRONMENT Introduction, Atmosphere, The Oxygen cycle, The Carb cycle, Notrogen cycle, Ecological niches, Biosphere, Habit

8.2 POLLUTION: Introduction, Water pollution, Air & soil pollution.

8.3 FOREST PROTECTION :

8.3.1 Introduction: Definition, Importance of forest protection, Susceptibility forests to damage.

8.3.2 Damage by man and fire: Faulty management and control of forest offences, For Fires, Types of fire, Damage from fire, Benefits, Protecti against fire, Preventive measure, External and internal fi lines, combative measures methods of putting out fire, Remed measure, Control burning.

8.3.3 **Damage by animals:** Grazing and the types of grazing, Damage from cattle & wild animals, small rodents, Protection from insects, Protection against cattle, wild animals and rodents.

8.3.4 **Protection against plant enimies :** Weeds, Parasites, Fungi.

8.3.5 **Adverse climatic factors:** Forst, Cause of mortality ,Control of mortality by frost, Wind brought, Snow, Hails, Smoke of factories, Flood, Shifting sand.

## 9-Wildlife Management

### A-Theory

9.1 **Definition of wildlife, Scope** Role, Benefits and distribution of wild life in the State.

9.2 **How to study habits of wildlife,** Tracks, Trails, Kill Evidence, Census, aging and sexing ,Recording of field observations and their interpretation, Morden methods.

9.3 **Ecology of wildlife,** Animal communities, Competition, Predation and ecological niche (Simple explanation only) Pinch period with special reference to the wild-life of the state.

9.4 **Concept of wildlife** population, Territory, Home Range etc. Need for census, Important methods of census.

9.5 **Limiting factors,** Decimating factors, Welfare factors, Environmental resistance. Factors limiting or diminishing wildlife population of the state, Hunting, Dogradation of habitat and reduction of forest area.

9.6 **Coordination of management** practices of forestry and wildlife.

9.7 **Sanctuaries, National parks** and closed areas. Concepts simply defined. Sanctuaries, National parks and closed areas of the State, their administration. Problems in managing state sanctuaries, national park land, closed areas.

9.8 **Zoos and animlas parks,** their importance and management.

9.9 **Wildlife of the state,** Procedure on the commission of offences.

9.10 **Introduction of weapons,** traps, nets and snares and other equipment.

### B-Practical

9.11 **VISIT TO SANCTUARIES/NATIONAL PARKS :**

(a) **Recording tracks and trails,** Follow a track or trail to find the animals.

(b) **Game watching.**

(c) **Introduction to bird watching and** vbird watching excursion

(d) **Census by counting signs** such as pug marks, pellet group etc.

9.12 Lecture on management of the sanctuary/national park visited, by a sanctuary officer.

9.13 (a)Study of habitat of important animals and birds.

(b) Preparing list of animals and birds seen in the field.

9.14 VISIT TO ZOOS :

The following studies should be made :

(i) List of animals, birds and reptiles seen in the zoo.

(ii) Breeding of some important animals, especially of rare and threatened species.

*Note* :—All Technical Notes Issued by the Haryana Forest Department are also Included in the Syllabus.

SCHEDULE OF MARKS FOR FORESTOR TRAINING

| Sr. No. | Name of Examination | Written Paper | | Practical | | Marks Total | Remarks |
|---|---|---|---|---|---|---|---|
| | | Time | Marks | Particulars | | | |
| 1 | Silviculture & Forest Management | 3HRS | 100 | Thirning (20) Height & diameter measurement (10) Seed collection (10) Botany specimen(10) | 50 | 150 | Conservator |
| 2 | Soil & Water Conservation | 3HRS. | 75 | Application of conservation techniques in the field | 25 | 100 | Conservator |
| 3 | Logging and Utilisation | 3HRS | 60 | Note book | 20 | 80 | Divisional Forest Officer, Timber Extraction to be nominated by the Conservator. |
| 4 | Forest Engineering | 3HRS | 50 | Drawing sheet, Reading of simple plan, plan estimate, Alignment of road & paths, Layout of a buildig from the plan | 30 | 80 | Divisional Forest Officer. |

## SCHEDULE OF MARKS FOR FORESTER TRAINING

| Sr. No. | Name of Examination | Written Paper Time | Written Paper Marks | Practical Particulars | Practical Marks | Total Marks | Remarks |
|---|---|---|---|---|---|---|---|
| | Surveying & Map Reading | 2HRS | 30 | Map reading (10) Survey : Chairn, plain table and compass, Survey (30) Survey sheet | 50 | 80 | Divisional Forest Officer |
| 6 | Range Account & Procedure | 3HRS | 50 | | | 50 | Instructor |
| 7 | Forest Law | 3HRS | 50 | | | 50 | Instructor |
| 8 | Environmental Conservation & Forest Protection | 2HRS | 40 | | | 40 | Conservator |
| 9 | Wildlife Management | 3HRS | 50 | Field observation | 25 | 75 | Deputy Chief Wildlife Warden |
| 10 | Mid Terms | | 50 | | | 50 | Instructor |
| 11 | Tour Tests | | 30 | Tour Journal<br>Field Boatany | 10<br>15 | 55 | Instructor |
| 12 | Viva Voce | | 100 | | | 100 | Jointly by the board |
| 13 | P.T.& Games | | 20 | | | 20 | Incharge,P.T. games |
| 14 | Marathon Race (10 Kms) | | 20 | | | 20 | Incharge,P.T. & games. |
| 15 | Conduct Marks | | 50 | | | 50 | Division Forest Officer, Instructor and Asstt. Instructor |
| | | | | | Total | 1000 | |

## ANNEXURE-II

## SYLLABUS FOR FOREST GUARD TRAINING

### GENERAL FORESTRY

**A-Theory**

**1.1 INTRODUCTION:**

1.1.1 Forest and forestry, Importance of forest to the nation, Extent of forest in Haryana & distribution.

1.1.2 Important of forest protection, Bioaesthetic need of forests in Haryana.

1.1.3 Scope-Forestry an applied science, Branches of forestry, Definition, Silviculture, Arboriculture, Botany, Physiology.

**1.2 GROWTH OF FOREST CROP:**

1.2.1 Requirement of growth, Comparison of forest and agricultural crops, Greater skill needed to raise forest crop, Climate and soil requirements.

1.2.2 Climate requirements: Rainfall Total distribution, Role of moisture Effect of drought Water logging, Change of temperature, Frost, wind velocity. Effect of light and requirement, Light demanders and shade bearers, Light and plant growth, Climate of Haryana in relation to growth of forest crop.

1.2.3 Soil Need: Supply of nutrients, Texture-light, medium and heavy. Availability of nutrients in different soils, Importance of soil texture on tree growth.

1.3.4 Nurseries: Types, Site selection, Calculation of areas, Layout of irrigation system, Soil working, Levelling and layout of beds, Sowing, Pricking, Spacing, Irrigation and its frequency, Manuring, Weeding, Hoeing, Frost protection, Nursery technique of important species, Nursery in desert areas, Nursery journals.

(a) Stumps, Extraction, Size, Method of making, Packing.

(b) Tall planting. Site for raising tall plants, Preparation of beds, planting distance, Species, cultural operations, Taking out gachies, Size of gachies, Use of chemical fertilizer and insecticide.

(c) Polythene bags. Sizes used, Soil mixture, Species, Pricking, Irrigation, Shifting, Use of chemical fertilizer and insecticide & Weedicide.

(d) Earth bricks: Size, Preparation, Method of raising of plants.

(e) Grading of plants in the nurseries: Importance of vigorous plants, Identification of Vigorous plants, Rejection of inferior plants, Cost of nursery operations.

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| **1.3.5 Transportation of plants :** | Tall plants, Stumps, Container plants, Pruning before Trarsport, Importance of proper transport, Loading and unloading. |
| **1.3.6 Soil working :** | Importance, Technique, Pit, Trench, Mound, Ridge, Contour, Trench where used, Sizes. |
| **1.3.7 Method of propagation :** | Sowing, Planting, Stumps, Container plants, Tall plants. Entire plants, Technique, Replacement of failures. Problem sites-water logged; saline/alkali oils, eroded hill slopes, sand-dunes, desert in general, Propagation techniques of shurband grasses, Erianthus munja, Eulaliopsis binata, Vitex negundo, Dodonaea iscosa, Mrundo donax, Cenchrus species, Propagation of important ornamental plants for avenues. |
| **1.3.8 Cultural operations.** | Weeding, Hoeing, Singling, Spacing, Cleaning, Pruning, Mulching, Importance of thinning. |
| **1.3.9 Irrigation.** | Spot irrigation, Flow irrigation, Use of tractor for irrigation, Frequency. |
| **1.3.10 Fertilizers, insecticides & weedicides.** | Names, Quantity, Method of application. |

**1.4 SILVICULTURE CHARACTERS OF IMPORTANT TREE SPECIES.**

| | |
|---|---|
| **1.4.1 Silvicultural characters.** | Germination, Growth habit, Growth requirement, Regeneration, Resistance to biotic factors of : |
| | Shorea robusta, Dalbergia sissoo, Eucalyptus hybrid, Acacia nilotica, Dendrocalamus strictus, Prosopis cineraria, pinus roxburghii, Acacia catetchu, Prosopisjuliflora and Acacia tortilis. |
| **1.4.2 Botanical** names of important species. | |

**1.5 PROTECTION OF FORESTS.**

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|---|---|
| **1.5.1** | Sources of injuries and importance of protection. |
| **1.5.2 Protection** against grazing, Closures for fixed period, Types of fencing, Erection and maintenance of fence. | |
| **1.5.3 Fires:** | Damage, Dejection, Immediate action, Control measures, Departmental burning. |
| **1.5.4 General protection:** | Against insects, frost, flood, illicit cutting, lopping, encroachment etc. |
| **1.5.5** | Issue of damage reports, Fire reports and report of important happenings. |

**1.6 IRRIGATED PLANTATIONS:**

| | |
|---|---|
| **1.6.1 Definition of terms:** | Distributaries, Minors, Water courses, Discharge. |

| | | |
|---|---|---|
| 1.6.2 | Layout: | Site clearance, Use of tractors, Layout of irrigation system. |
| 1.6.3 | Soil working techniques: | Use of tractor for soil working, Digging of trenches and khals. |
| 1.6.4 | | Propagation techniques for Eucalyptus, Khair, Poplar, Shisham, K.kar, Misc. species. |
| 1.6.5 | Cultural operations: | Weeding, Hoeing, Singling, Irrigation, Maintenance of irrigation channels, Irrigation registers. |

1.7 STRIP PLANTATIONS :

| | | |
|---|---|---|
| 1.7.1 | | Objects. |
| 1.7.2 | Types of strips | Multiple rows, Single row, Rail, Road, Canals, Bunds, Drains Abandoned canals. |
| 1.7.3 | | Layout of avenue line & back row, Spacing of plants. |
| 1.7.4 | | Protection of strip plantations. |

1.8 FOREST MANAGEMENT

| | | |
|---|---|---|
| 1.8.1 | Management units | Division, range, block and beat, Forest compartment, Coupes. |
| 1.8.2 | Forest boundary: | Types of pillars, boundary registers. Checkgard maintenance of pillars. |
| 1.8.3 | Measurement of crops | Height and diameter of trees, Use of tape, Calliper, Abney's level, Altimeter. Diameter classes, Standard volume of standing trees. |
| 1.8.4 | Enumeration of trees: | Objects, Enumeration in block forests and strip forests, Preparation of strip forests, Preparation of lists, registers, Numbering of trees. |
| 1.8.5 | Purchaser's work: | Handing over of trees sold, Progress of work, Completion of work. |

**B-Practical**

1.9 INTRODUCTION AND SCOPE :

Demonstrate the importance of forests by field study in the hills, plains and desert areas. Show the various benefits in the field and explain on the spot.

1.10 GROWTH OF FOREST CROPS :

Identification of light, heavy and medium textured soil by hand. Identification of saline/alkali soil & water logged sites. Demonstration and comparison of growth conditions of plantations on different sites. Field study of effect of fires and grazing on forest crops.

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1.13 PROTECTION OF FORESTS:

Erection of barbed wire fence, long fence and fencing around individual plants including padding.

1.14 IRRIGATED PLANTATIONS:

Lay out of irrigation systerm, Digging of trenches, khals, pasels.

1.15 STRIP PLANTATIONS:

Lay out avenue line and mark the position of plants. The laying out of back line will also be done.The practical will be conducted on national highways for intensive training.

1.16 MANAGING OF FORESTS :

(a) Maintenance of forest boundaries, Repair, of boundary pillars.

(b) Measurement of height and diameter of trees, Calculation of volume of converted wood.

(c) Enumeration of trees: The practical will be conducted in compact block as well as in the strips. The blazing and numbering in the strip will be done by the trainees and abstracts will be prepared.

1.17 Use of callipers: Tapes, Height measuring instruments i.e. Altimeter and Abney's level.

## 2. SOIL AND WATER CONSERVATION

### A-Theory.

2.1 SCOPE — Elementrary idea of soil formation, Soil constituents, Balance of nature, Activities of man, Destruction of forests, Erosion, Floods-bank erosion, deserts and other damage.

2.2 EROSION PROCESSES:

2.2.1 Agencies of erosion: Water and wind.

2.2.2 Forms of erosion: Splash, Sheet, Scour, Rill, Gully Ravine, Land slips & slides.

2.2.3 Causes of erosion: Destruction of cover, Faulty Land use practices, Biotic factors.

2.3.4 Damage due to erosion.

2.3 SOIL AND WATER CONSERVATION MEASURES:

2.3.1 Vegetative measures: Their importance, where applicable.

2.3.2 **Structural measures:** Contour trenches, Terraces, Check dams, Water harvesting dams, Gully plugging, Wattbandi, Spillways.

2.4 **TORRENT CONTROL :**

2.4.1. **Torrent damage:** Type and causes.

2.4.2 **Control practices:** Live hedges, Brushwood, Spurs and Boulder spurs.

2.5 **DESERT CONTROL:**

2.5.1 **Damage:** Type and causes.

2.5.2 **Control practices:** Sand dune fixation, Raising of wind breaks and shelterbelts.

2.6 **MAINTENANCE OF WORKS:**

Importance, checks and annual repairs.

**B-Practical**

2.7 **EROSION PROCESS:**

(a) Explain different forms of erosion in the field and relate them to agencies and causes.

(b) Damage due to erosion: Demonstrate in the field the impoverished soils, reduced rate of growth, loss of soil and damage to property.

2.8 **SOIL CONSERVATION MEASURES:**

(a) Construction of brush wood check dams, boulder check dams and stone massonary check dams.

(b) Laying out of contour trenches and digging them.

(c) Construction of brushwood wattling as a measure of control of soil movement on unstable in hill slopes.

2.9 **TORRENT CONTROL:**

(a) Demonstration of torrent damage in field and explain the damage processes.

(b) Location of spurs and revetments in the field.

(c) Construction of live-hedges, brush wood spurs and boulder spurs in the field.

2.10 **DESERT CONTROL :**

(a) Explain the process of sand movement in the field by selecting a few sand dunes.

(b) Control practices: Carry out complete exercise of sand dune fixation.

2.11 MAINTENANCE OF WORK :

Demonstration in the field, how a failed structure like a check dam leads to failure of othar structures, Emphasis importance of repair by showing damage due to neglected maintenance.

## 3-FOREST UTILIZATION

### A-Theory

3.1 | USE OF WOOD: Industrial and domestic.

3.1.1 Suitable woods for different uses.

3.1.2 | Uses of different important woods available in Haryana.

3.2 ] HARVESTING:

3.2.1 Felling of trees: Uprooting, Different tools used for felling, Maintenance of feeling tools.

3.2.2 Conversion-: Cross cutting, Use of modern logging tools.

3.2.2 Masurements: Logs, Scantlings, Firewood stacks and common sizes for market use.

3.2.4 Stacking: Logs, Scantlings and Firewook.

3.3 TRANSPORT.

3.3.1 Power transpot : Use of trucks & tractors, Calculations of loading capacties.

3.3.2 Other mean of transport: Different means manual labour, carts, camels etc.,

3.3.3 Loading unloading: Timber, Other produce.

3.3.4 Cost of various operations.

3.4 MINOR FOREST PRODUCE:

3.4.1 Resintapping: Simple principles, Tapping techniques, Collection and carriage to forest depot.

3.4.2 Other minor forest produce: Bamboos, Charcoal, Bhabhar, Medicinal plants, Gums-their collection, Packing and transport.

3.5 WOOD SEASONING AND PRESERVATION:

3.5.1 Seasoning: Simple principles of air seasoning, Stacking of timber, Kiln, seasoning, Solar seasoning.

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| 3.5.2 | Wood preservations: | Simple principles, Surface treatment, Field application of preservatives for fence posts. |

**B-Practical**

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| 3.6 | HARVESTING: | (a) Felling of trees by using different tools including power saws. |
| | | (b) Stacking of firewood. |
| 3.7 | MINOR FOREST PRODUCE: | Demonstration of resin tapping in the field. |
| 3.8 | METHODS OF WOOD SEASONING AND WOOD PRESERVATION: | (a) Demonstration of stacking of timber for air seasoning. |
| | | (b) Demonstration of wood preservation practices. |

## 4-SURVEYING AND ENGINEERING

**A-Theory**

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|---|---|---|
| 4.1 | SURVEYING: | |
| 4.1.1 | Object of surveying: | Types. |
| 4.1.2 | Instruments: | Names and functions. |
| 4.1.3 | Field survey: | Lay out of contour, Right angles and straight lines, Chain survey and use of prismatic compass. |
| 4.2 | ENGINEERING: | |
| 4.2.1 | Building construction: | Reading of plan, Layout on spot, Simple principles of brick massonary foundations, Specifications of materials for mortar, Plaster, concrete, Simple rules for construction of floors, roofs, lintels. |
| 4.2.2 | | Building repairs. |
| 4.2.3 | Building materials: | Important materials and their uses, Simple rules for the use of different building materials, Calculation of quantities required. |
| 4.2.4 | Wood works: | Uses of wood, Fabrication of wooden members, Calculation of sizes for different uses, Calculation of wood required for different works. |
| 4.2.5 | Roads: | Construction of un-metalled roads and paths, Drainage of the road surface, Maintenance of roads. |
| 4.2.6 | Bridges and culverts: | Their functions, Simple construction and repair, Materials, required. |

4.2.7 Measurement of various works of construction and Repair.

4.3 MAINTENANCE OF MACHINERY:

4.3.1 Tracror : Simple rules of use of and maintenance of tractors, Use of implements: plough, harrow, blade, ridger, tillers etc.

4.3.2 Pumping sets: Their functions, Simple boring techniques, Operation of pumping sets, Source of power, Simple rules of maintenance of pumping sets.

**B-Practical**

4.4 SURVEYING: Layout of a straight line, right angle and contour line, Preparation of boundary register with the help of chain and prismatic con pass, Practice in map reading.

(a) Practice in reading in plan and laying out the plan on the spot.

(b) Preparing building materials.

(c) Demonstration of building construction practices.

(d) Road construction, construction of paths, Physical easurement of various items of works relating to buildings and roads and use of schedule of rates.

4.6 MAINTENANCE OF MACHINERY:

(a) Demonstration: Use of plough harrow, ridger, blade and tiller.

(b) Pumping sets: The trainees will learn to handle the pumping set hin self. He will study in the field the boring operations and instrallation operations, if aviailable.

**5-ACCOUNTS AND LAW**

**A-Theory**

5.1 MUSTER-ROLLS: Definition, Preparation, Meas urement and entry of details of work, Maintenance of daily sheets, Preparation of bills, Schedule of rates for various items.

5.2 TIMBER FORMS: Material, timber and store forms, including departmental logging forms Disposal of timber and materials.

5.3 ENUMERATION REGISTER:

Preparation, Abstract, Disposal of trees.

.4 DAMAGE REPORTS: Issue of damage reports, Impounding of cattle, Instructions for maintenance of damage report book.

.5 FELLING REGISTER: Maintenance of feeling register, Record, of timber, Submission of progress reports.

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| 5.6 | **MAINTENANCE OF BEAT RECORDS:** | Challan book, Beat book, Roznamcha, Maps. |
| 5.7 | **DUTIES OF FOREST GUARD:** | Protection, Execution of works, Checking of felling, Checking of permits, Transfer of charge of beat. |
| 5.8 | **FOREST LAW:** | Powers of forest guard under various acts relating to forest. Closures and notifications under different acts, Rights of users as noted in wajab-ularz, Prohibitions enforced under various acts. |

**B—Practi**

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| 5.9 | **MUSTER-ROLLS** | Preparation of muster-rolls and bills. |
| 5.10 | **TIMBER FORMS** | Preparation of timber form no. 5, 6, 7, 8, 10, 11 and material form and departmental logging forms. |
| 5.11 | **ENUMERATION REGISTER** | Preparation of enumeration register, Taking out abstract and showing disposal of trees. |
| 5.12 | **FELLING REGISTER** | Preparation of a felling register, Abstract of felling damage, Submission of progress reports. |
| 5.13 | **BEAT RECORDS** | Writing of roznamcha and maintenance of beat book. |
| 5.14 | **FOREST LAW** | Issuing of damage reports, Preparation of fire reports, Preparation of sapurdnamas. |

## 6—Wildlife Management

### A—Theory

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| 6.1 | | Definition of wildlife : Scope, Benefits and distribution of wildlife in the State. |
| 6.2 | | How to study habits of wildlife Tracks, Trails, "Kill" evidence, Aging and Sexing, Recording of field observations and their interpretation. |
| 6.3 | | Ecology of wildlife : Animal communities, Competition, Probation and food chain, Role of wildlife. |
| 6.4 | | Concept of wildlife population, Territory, Home, Range and census. |
| 6.5 | | Limiting factors, Decimating factors, Welfare factors, Environmental reistance,. Factors limiting or diminishing wildlife population of the state. Illegal hunting , degradation of habitat, reduction of forest area. |

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| 6.6 | Sanctuaries, National Parks, Game Reserves and closed areas of the state. : Concepts, Simply defined, Their administration, Problems in managing sanctuaries/national parks. |
| 6.7 | Zoos, their importance and management. |
| 6.8 | Wildlife laws applicable in the state. Study of important provisions of the rules and regulations applicable to matters pertaining to wildlife of the State.How is a forest guard to act when any offence is committed under the prevailing acts, rules and regulations. |
| 6.9 | Introduction to weapons, traps, nets, land snares etc. and other equipment. |

**B—Practical**

6.10 VISIT TO SANCTUARIES/NATIONAL PARKS :

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| 6.10.1 | (i) Recognizing tracks and trails, Follow a tract or trail to find the animals. |
| | (ii) Game watching. |
| | (iii) Introduction to bird watching and bird watching excursion. |
| 6.10.2 | Census by counting signs such as pugmarks, pellet groups etc. |
| 6.10.3 | Lecture on management of the sanctuary/national parks visited by sanctuary officer. |

6.11 VISIT TO ZOOS :

The following studies should be made :

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| 6.11.1 | A list of animals, birds, reptiles seen in the zoo. |
| 6.11.2 | Breeding of some important animals, especially of rare and threatened species. |

NOTE : ALL TECHNICAL NOTES ISSUED BY THE HARYANA FOREST DEPARTMENT ARE ALSO INCLUDED IN THE SYLLABUS.

## SCHEDULE OF MARKS FOR FOREST GUARD TRAINING

| Sr. No. | Name of Examination | Written Paper | | Practical | Marks | Total Marks | Remarks |
|---|---|---|---|---|---|---|---|
| | | Time | Marks | Particulars | | | |
| 1 | General Forestry | 3 Hrs. | 75 | (i) Botanical specimen(15) (ii) Seed collection (10) (iii) Viva-voce (25) | 50 | 125 | Conservator |
| 2 | Soil and Water Conservation | 3 Hrs. | 50 | | 25 | 75 | Any other DFO Nominated by the Conservator |
| 3 | Forest Utilisation | 2 Hrs. | 40 | Viva-Voce | 10 | 50 | Divisional Forester Officer to be nominated by Conservator |
| 4 | Surveying and Engineering | 3 Hrs. | 50 | — | 50 | 100 | Divisional Forest Officer |
| 5 | Accounts and Law | 3 Hrs. | 50 | — | — | 50 | Instructor |
| 6 | Wildlife and Management | 2 Hrs. | 40 | Viva-Voce | 10 | 50 | Dy. Chief Wildlife Warden |
| 7 | Mid Terms | 3 Hrs | 50 | — | ... | 50 | Instructor |
| 8 | Tour Tests | 3 Hrs. | 50 | — | 30 | 80 | Instructor |
| 9 | Physical Test and Athletics | ... | ... | — | ... | 20 | Asstt. Instructor |
| 10 | Marathon Race (10 Kms.) | ... | ... | — | ... | 20 | Asstistant Instructor |
| 11 | Conduct Marks | | ... | — | ... | 30 | Divisional Forest Officer, Officer, Instructor, Assistant Instructor |
| 12 | Viva-Voce | | ... | — | ... | 100 | Board |
| | | | | Total | | 750 | |