GOVERNMENT OF JAMMU AND KASHMIR

JAMMU & KASHMIR SERVICES SELECTION BOARD

CPO Chowk Panjtirthi, Jammu/ Zamzam Complex Rambagh Srinagar.

www.jkssb.nic.in

Subject: Advance notice for the conduct of OMR Based Examination for various posts.

It is hereby notified for the information of candidates that J&K Services Selection Board (JKSSB) is going to conduct the OMR Based written test for various posts as per the details given in **Annexure" A"** to this notice.

The exact dates along with the schedule for downloading of admit cards shall be notified separately in due course of time. This is an advance notice for the information of concerned candidates.

16.05.2025

(Reyaz Ahmad Malik) JKAS

Controller of Examinations

No. JKSSB-COE0EXAM/UT/10/2023-04 (7055504) Dated: 16-05-2025

Copy to the:

1) Commissioner/Secretary to the Government, General Administration Department, Civil Secretariat, J&K, Jammu/Srinagar.
2) Director Information & Public Relations, J&K Government with the request to get the said notification published in at least three leading local newspapers of Jammu/Srinagar for three consecutive days.
3) Member(s) ALL, J&K Services Selection Board.
4) Secretary, J&K Services Selection Board.
5) Administrative Officer, J&K Services Selection Board, Jammu/Srinagar.
6) P/S to Chairman, J&K Services Selection Board
7) In-charge Website, Services Selection Board, Jammu.
8) Office record.

Annexure "A"

S. No.	Department	Name of the post	Notification No.	Item No.	Tentative Date of Examinations	Syllabus
1	Agriculture Production & Farmer's Welfare	Cameraman	07 of 2020	240	**15.06.2025**	Already Notified vide Notice No. JKSSB-COEOEXAM(UT)/47/2023-03 (7202120) **dated: 20-03-2025**
2	ARI and Training	Printing Down Operator	05 of 2020	174	15.06.2025	
3	DMRRR	Statistical Assistant	05 of 2022	196	15.06.2025	
4	Home Department	Driver	01 of 2025	01	15.06.2025	
5	Health & Medical Education	Junior Microbiologist	04 of 2022	082	15.06.2025	Already Notified vide Notice No. JKSSB-COEOEXAM(UT)/47/2023-03 (7202120) **dated 29.04.2025**
6				083	15.06.2025	
7	Agriculture Production & Farmer's Welfare	Plant Protection Operator	04 of 2022	126	**22.06.2025**	**Annexure "B"**
8		Field Assistant-II/Lab Assistant		125	22.06.2025	
9		Seed Examiner		127	22.06.2025	**Annexure "C"**
10		Draftsman (Soil Conservation)	07 of 2020	238	22.06.2025	**Annexure "D"**
11	Science & Technology	Technical Officer	05 of 2020	127	22.06.2025	**Annexure "E"**
12	Horticulture	Canning Instructor	01 of 2021	026	22.06.2025	**Annexure "F"**
13		Instructor Canning		069	22.06.2025	
14		Foreman		027	**29.06.2025**	**Annexure "G"**
15		Laboratory Technician		28	29.06.2025	**Annexure "H"**
16				66	29.06.2025	
17	Election	Assistant Programmer	04 of 2020	096	29.06.2025	**Annexure "I"**
18	Lieutenant Governors Secretariat, J&K	Gardener	04 of 2025	8	29.06.2025	**Annexure "J "**
19		Gardener		9		
20		Farash		10		
21		Traffic Orderly		11		
22		Multi-Tasking Staff (MTS)		12		
23		Masalchi		13		
24		Khansama-III		14		
25		Dhobi		15	**06.07.2025**	
26	Home Department	Assistant Superintendent Jails	02 of 2022	41	06.07.2025	**Annexure "K"**

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27	Power Development Department	Junior Engineer (Electrical)	02 of 2025	02	**27.07.2025**	Already Notified vide Notice No. JKSSB-COEOEXAM(UT)/47/2023-03 (7202120) **dated: 20-03-2025**
28				03		
29				04		
30				05		
31	Jal Shakti Department	Junior Engineer (Civil)	03 of 2025	06	**10.08.2025**	Already Notified with the Advertisement Notification No. **03 of 2025** dated **24.04.2025**
32	Public Works (R&B) Department			07		

16.05.2025

(Reyaz Ahmad Malik) JKAS

Controller of Examinations

Annexure "B"

Syllabus for the post of Plant Protection Operator & Field Assistant-II/Lab Assistant:

Total Marks-120
Time 02 hours

Part-I

5 marks

Seed structure, importance, conditions necessary for germination. Minimum standards for seed certification, breeder foundation and certified seed and seed purification. Seed viability testing, seed dressing, dusting, coating and pesticide application through water. Testing of pollen viability; Tissue culture of crop plants.

Part-II

5 marks

Diversity of living world: Taxonomic aids, keys, specimen management, Systematic and binomial system of nomenclature; Classification of living organisms, Herbaria and museums - Structural organisation in plants and insects Entomology: Entomological techniques (Insect collection, preservation and management), pest control equipment's and its application.

Part-III

15 marks

Principles of microscopy and microscopic methods for tissue, cell and chromosome analysis; optical, fluorescence and Structural and functional organization of cell: Cell cycle, detailed study of Cell division (mitosis, meiosis), Photosynthesis - Basic principles of light absorption, excitation energy transfer, measurement of photosynthetic parameters, Plant growth regulators, Physiological effects and mechanism of action of plant growth hormones.

Part-IV

15 marks

Safe plant protection practices, including pesticide use in different agricultural systems. Integrated pest management (IPM) approach to crop protection in an IFM system.

Formulation types including soluble liquids, water soluble granules, tablets, emulsifiable concentrates, emulsions in water, suspension concentrates, water dispersible granules, oil dispersions, granules applied as solids, and baited pellets. Pesticides formulations and mixtures; Laboratory and field evaluation of bio-efficacy of pesticides. Procedures of residue analysis.

Part-V

15 marks

Definition of insect pests, general morphology of insect and economic threshold level. Study of Orders of insect pests and their identification. Identification of common natural enemies of crop pests (parasitoids, predators, microbes) and weed killers; Visits to bio-control laboratories to learn rearing and mass production of egg, egg larval, larval, larval-pupal and pupal parasitoids, common predators, microbes and their laboratory hosts, phytophagous natural enemies of weeds.

Part-VI

10 marks

Morphological characteristics of honey bee; Mouthparts; digestive, respiratory and reproductive adaptations in different castes of honey bees; Recording of colony performance; Seasonal bee husbandry practices; Swarming, queen lessness, swarming, laying workers menaces, etc.

Part-VII

20 marks

Definition of diseases and their causes, symptomology of leaf spot ,wilt, blight, mildews diseases etc and their management. Detailed comparative study of different groups of fungi; Collection and preservation of cultures and live specimens, Vegetative structures and different types of fruiting bodies produced. Study of symptoms of diseases produced by various pathogens and their Isolation, enumeration, purification and identification. Purification of pathogens and proving Koch's postulates; Techniques to study variability in different plant pathogens; Use and handling of microscope, laminar flow, vacuum pumps, viscometer, thermometer, magnetic stirrer, micro-ovens, incubators, sandbath, waterbath, oilbath; Preparation of media and methods of sterilization.

Part-VIII

15 marks

Scope and types of mushroom cultivation in J&K. Compost making, trays sterilization, casing, spawning and picking. Management of mushroom diseases.

Part-IX

20 marks

Fungicides definition, types formulations, names of common fungicides used in Kashmir and their care in handling. Formulation of fungicides, bactericides and nematicides. Persistence, compatibility with other agro-chemicals; Methods of application of chemicals.

Preparation of different formulations of selected bioagents and their mass production; Quality parameters of biocontrol agents. Weighing and preparation of solutions of different strengths and their dilution; Handling techniques of solutions; Preparation of different agro-chemical doses in field and pot applications; Preparation of solutions of acids; Neutralization of acid and bases; Preparation of buffers of different strengths and pH values. Insects Pests control appliances, principles, operation, maintenance, selection, and application of pesticides; Release of bio-control agents; Seed dressing, soaking, root-dip treatment, dusting, spraying, and pesticide application through irrigation water; Application of drones in plant protection; Soil sterilization, solarization, deep ploughing, flooding, techniques to check the spread of disease pests through seed, bulbs, corms, cuttings and cut flowers.

Annexure "C"

Syllabus for written test for the post of Seed Examiner- Sericulture

(OBJECTIVE TYPE)

Marks 120
Time 02 hours

Overview and Scope of mulberry sericulture (10 marks)

Scope of mulberry sericulture, an overview of sericulture industry in the world and India. National and International Silk Organisations. Organisational set up of sericulture in India. Taxonomy and systematics of mulberry, botanical description of mulberry and primary host plants of tasar, eri and muga silkworms *viz*., *Terminalia*, Castor, Som and Soalu. Fruit seed development in mulberry.

Mulberry Production and Management (20 marks)

Soil sampling, land preparation and layout for planting. Role of physical and chemical properties of soil on nutrient uptake and growth of mulberry plantation.. Absorption pattern of major and micro nutrients in different soils. Pruning, manurial and fertilizer schedules, irrigation schedules, green manuring, weed control practices, harvesting under different planting systems of mulberry. Mechanization in mulberry cultivation, intercropping, organic farming and IFS component. Leaf preservation. Cultivation practices for mulberry commencing from planting to harvesting under pit and row systems. Economics of leaf production per unit area of mulberry under rainfed and irrigated conditions.

Mulberry Plant Propagation and Protection (15 marks)

Seed dormancy (scarification & stratification) internal and external factors. Methods of propagation of mulberry through cutting, layering, grafting and budding. physiological & bio-chemical basis influencing rooting of cuttings and layering, graft incompatibility. Micrografting, hardening of plants in nurseries. Raising of rootstock. Seed treatments for breaking dormancy and inducing vigorous seedling growth. Preparation of plant material for potting. Hardening of plants in the nursery. Use of mist chamber in propagation and hardening of plants. Preparation of plant growth regulators for seed germination and vegetative propagation. Nutrient and plant protection applications during nursery.

Diseases of mulberry- symptoms, causes, disease cycle/life cycle, principles and methods of plant disease management. Insect and non-insect pests of mulberry, sequence of their appearance, duration, intensity, nature and symptoms of attack. Management practices for pest attacks. Pesticides residue problems, safety periods to be observed.

Morphology and Anatomy of Silkworms (10 marks)

External morphology of different life stages of mulberry, tasar, muga and eri silkworms. Changes during moulting and ripening. Digestive, circulatory, respiratory, excretory, nervous and reproductive systems of larva, pupa and adult of mulberry silkworm and comparative anatomy in non-mulberry silkworms. Physiology of digestion, respiration, circulation, excretion and reproduction. Silk glands and silk secretion. Effect of juvenile hormones and JH analogues on moulting, silk secretion and oviposition.

Mulberry Silkworm Rearing **(20 marks)**

Rearing houses and appliances. Importance of disinfection, care in handling and incubation of silkworm eggs and black- boxing. Environmental conditions for rearing of young and late age silkworms. Brushing, leaf selection for different instars, frequency and quantum of feeding. Care at moulting. Spacing of worms. Bed cleaning. Rearing practices for young and late age silkworms. Mounting of worms. Effective rate of rearing. Cocoon harvesting and sorting. Transporting and marketing of cocoons. Assessment of cocoon yield and quality. Leaf cocoon ratio and consumption indices. Planning for silkworm rearing suitable to different sized mulberry holdings, rearing house, equipment. Shoot rearing and shelf rearing. Feed utilization and conversion efficiency. Nutritional requirement of silkworms, vis-à-vis, their availability in mulberry leaf. Different nutrients and their role in silkworm growth, development and silk production. Nutrient deficiency and its impact on silkworm biology. Maintenance of rearing records.

Diseases and Pests of Silkworms and their Managemen **(10 marks)**

Introduction and importance of silkworm diseases, Nature and extent of damages caused to sericulture due to biotic and abiotic factors. Important infectious diseases of silkworms– pebrine, flacherie, muscardine and grasserie (*Bm*NPV), CPV, IFV, their causal agents, life cycles, incubation periods, symptoms, diagnosis, seasonal factors, epizootiology, prevention and management. Disinfectants and their mode of action.

Definitions of pest, parasite, predator and hyperparasite, minor and major pests, Concepts of pest management, Importance of silkworm pests including insect and non-insect pests. Host parasite interactions, nature of damage due to different insect pests-uzi flies, ants, dermestid beetles etc. Management practices *viz*., physical, mechanical, chemical, biological and Integrated Pest Management (IPM).

Silkworm Seed Technology **(20 marks)**

Importance of quality silkworm seed in sericultural industry. Seed organization in India. Three tier system of egg production (P3, P2 and P1). Special features of parental silkworm rearing, Basic seed and industrial seed production. Grainage techniques and steps in hybrid seed preparation- selection, sorting and preservation of seed cocoons. Sexing, synchronisation of moth emergence, pairing and depairing of moths. Preparation of layings on egg cards and loose egg preparation. Standards for quality silkworm eggs. Seed hibernation schedules and methods of termination of hibernation, acid treatment for hibernating eggs. Preservation and handling of silkworm eggs. Pebrine inspection- importance and method of silkmoth examination.

Raw Silk Production **(15 marks)**

World raw silk production and present silk production in India, Cocoon formation, Physical characteristics of mulberry cocoon- colour, shape, wrinkles etc. Commercial characteristics of cocoons- cocoon weight, shell weight, shell percentage, filament length, denier, non-breakable filament length, reelability and raw silk percentage.

Cocoon markets- its functions, method of transaction, method of fixing the cocoon price. Cocoon testing and grading, Cocoon sorting-manual and mechanical method. Different types of defective cocoons, Mulberry silk reeling process-steps involved in silk reeling, Cocoon stifling and methods- sundrying, steam stifling, hot air drying. Cocoon cooking and its systems, - open pan, two pan, three pan, pressurised cooking method/circular cocoon boiling machine. Multiend reeling machine, semi automatic and automatic reeling machine. Re-reeling, storage and marketing of raw silk.

Annexure "D"

Draftsman (Soil & Water Conservation) – Syllabus (120 Marks) Time 02 hours

1. Basic Engineering Drawing **(10 Marks)**

Drawing instruments: Types, uses, and layout of drawing sheet, Types of lines, lettering, and dimensioning, Types of scales and their applications, Plane geometrical construction and conic sections, Orthographic and isometric projections. Standard symbols and notations for civil and Agricultural Engineering and interpreting engineering changes

2. Building Materials and Construction **(15 Marks)**

Properties of engineering materials, Building stones, bricks, lime, timber, tiles, and sand, Cement mortar and concrete: Composition and admixtures, Ferrous and non-ferrous metals, glass, and protective materials. .Stone masonry, brick masonry, and composite masonry, Foundations and bearing capacity of soil ,Damp proofing, waterproofing, and termite proofing ,Scaffolding, shoring, and underpinning ,RCC: Introduction, materials, proportioning, formwork (as per BIS codes) ,RCC structures: Lintels, columns, slabs, beams, and footings ,Methods of concrete mixing and slump test, Steel structures: Steel sections, tension/compression members, riveted and welded joints, Doors, windows, roofs, floors, and flooring types.

3.Fundamentals of Soil & Water Conservation **(30 Marks)**

Soil erosion types (water, wind, gully, sheet) Causes and effects of soil erosion. Watershed Management Concept, objectives, and components Conservation Measures. Overview of conservation practices: agronomical and engineering measures. Role of draftsman in conservation projects. Contour bunding, terracing, check dams, gabion structures and vegetative barriers. Gully Control Structures: Temporary and permanent measures. Gully control structures: Temporary and permanent measures. Drafting contour bunds, cross sectional drawing of terraces and layout of gully control structures.

4. Building Drawing and Estimating **(10 Marks)**

Building rules, byelaws, and safety provisions, Types of estimates and their preparation, Measurement rules, rate analysis, and schedule of rates, Valuation: Terms, principles, and cost assessment.

5. Irrigation Engineering **(15 Marks)**

Hydrology- Basics Rainfall, runoff, infiltration Irrigation & Drainage Systems Basic understanding of agricultural practices and land management. Basic irrigation terms and water requirements of crops, Weirs and barrages: Functions and components, Storage and diversion head works, Reservoirs, dams, and canals: Types and importance, Types of irrigation (drip, sprinkler, canal) Water harvesting methods. Cross drainage works and hydroelectric projects,

6. Surveying

(15 Marks)

Chain surveying: Principles, instruments, and field book plotting, Compass surveying and plane table surveying, Levelling and contouring: Methods and applications ,Curves and theodolite surveying, Area and volume calculations, Modern Surveying Techniques: Introduction to Total Station: Features, types, and measurements, Basics of GPS (Global Positioning System).

7. Drafting Tools and Softwares

(15 Marks)

Introduction to drafting tools, Civil 3D etc: Importance and applications, Basic commands, toolbars, and interface, Function keys and shortcut keys, Drafting Techniques:2D drafting: Line, circle, polyline, dimensions, layers, 3D modelling basics: Extrude, revolve, and modify layout settings and printing drawings. GIS application.

8. Public Health and Sanitation

(10 Marks)

Underground drainage: Types of pipes and joints, Water treatment and conveyance systems, Distribution systems for clean water supply, Sanitation systems: House drainage, sewage collection, and disposal Septic tank design and working, Sewage treatment plants, sewer appurtenances, and wastewater disposal methods.

Annexure "E"

Jammu & Kashmir Energy Dev. Agency
Science and Technology Department

Marks: 120
Time: 02 hours

Syllabus: **Technical Officer**

Civil Engineering: Civil Engineering: Forces and moments, Centroid, Moment of Inertia, Strength of material; types of stresses and strains, Mechanics of Solids: Strain energy, toughness, hardness, fatigue, creep and so on. Shear force and Bending moment diagram, Columns, Surveying, Hydraulics: Fluid properties, continuity equation. Bernoulli's theorem, Reynold's number for laminar and turbulent flows, Classification of Turbines - Kaplan, Francis and Pelton wheel turbine. Different systems of classification of soils, Transportation Engineering: Classification of roads as per I.R.C, Cautionary signs. Highway constructions and maintenance, Importance of Railways, Traffic census and its importance, water supply and sanitary engineering, Sources and conveyance of water, System of sewage disposal, Types of the sewages, Quality of discharge in sewers, dry weather flow and variability flow, Different cross sections of sewers, strength of sewage and characteristics of sewage, Waste water treatment.

Mechanical Engineering: Laws of Forces, Moment, Friction, Moment of Inertia, Centre of Gravity. Thermodynamics: Fundamental Concepts, Laws of Perfect Gases. Fluid Mechanics: Type and Properties of Fluids, Pressure and its Measurement, Flow of Fluids and Flow through Pipes. Theory of Machines: Simple Mechanisms, Friction, Power Transmission, gyroscope, Flywheel, Governor and Balancing. Heat-Transfer: Modes of Heat Transfer. Machining and Machine Tool Operations: Cutting Tools and Cutting Materials, Lathe, Drilling, Boring, Shaping, Planing, and so on. Pattern Making, Metal Forming. Engineering Materials: Scope of Material Science, Metals and Alloys, Heat Treatment, Advanced Materials. Machine Design: Types of design, necessity of design, Design terminology: stress, strain, factor of safety, factor of safety. Automobile Engineering. Automobile and its development, Classification of automobiles, Transmission System, System, Braking System, Dynamo and Alternator and Exhaust system, Introduction to NC, CNC & DNC, Construction and Tooling, Part Programming, System Devices, Problems in CNC Machines, Automation and NC. I .C. Engines: Working principle of two stroke and four stroke cycle, SI engines and CI Engines, Otto cycle, Diesel cycle, Dual cycle, Fuel Supply and Ignition System in Petrol Engine, Fuel System of Diesel Engine, Cooling and Lubrication and Testing of IC Engines. Refrigeration and air-conditioning: Fundamentals of Refrigeration, Vapour Compression System, Refrigerants, Vapour Absorption System and Refrigeration Equipment. Turbo-machinery: Introduction to Turbo-machines, Steam Turbines and Steam Condensers, Gas Turbines and Jet propulsion.

Electrical Engineering: Concept of resistance, inductance and capacitance, Ohm's Law, Node and mesh analysis, Superposition theorem, Thevenin's theorem, Norton's theorem, Maximum power transfer theorem, reciprocity theorem, Coulomb's Law, Electric Field Intensity, Electric Flux Density, Gauss's Law, Divergence, Electric field and potential due to point, line, plane and spherical charge distributions, Ampere's law, Curl, Faraday's law, Lorentz force. Signals and Systems: Representation of continuous and discrete time signals, Shifting and scaling operations, Applications of Fourier Transform, Laplace Transform. Electrical Machines: Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, vector groups, parallel operation; Auto-transformer, Electromechanical energy conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operations and their characteristics, starting and speed control of DC motors; Single phase induction motor: Operating principle, starting, torque-speed characteristics, speed control; Three phase induction motor: principle of operation, types, performance. Power Systems: Power generation concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators. Analog and Digital Electronics: Characteristics of diodes, BJT, MOSFET; Simple diode circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and interfacing. Power Electronics: Characteristics of power semiconductor devices: Diode, Thyristor, TRIAC, GTO, IGBT; Rectifiers: Uncontrolled, Controlled, Single-phase and Three-phase; DC to DC converter and AC to DC converter. Control Systems: Basic control system components, open-loop and closed-loop systems and Block diagram reduction techniques.

Dr. H S Pali	Dr. Omkar Singh	Dr. Ravi Bhushan	Dr. Abdullah Ahmad
Mechanical & Renewable Engg.	E&C Engg	Electrical Engg	Civil Engineering

E&C Engineering: Noda. and mesh analysis; Network theorems: superposition, Thevenin and Norton's, maximum power transfer; Wye-Delta transformation; Steady state sinusoidal analysis using phasors; Time domain analysis of simple linear circuits; Laplace transform and its applications; Linear 2-port network parameters. Continuous-time signals: Fourier series and Fourier transform representations, sampling theorem; Discrete-time signals: discrete-time Fourier transform (DTFT), DFT, FFT, Z-transform. LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure, frequency response, FIR and IIR filter design techniques. Intrinsic and extrinsic semiconductors; diffusion current, drift current, mobility and resistivity; Generation and recombination of carriers; P-N Diode, Zener diode, BJT, MOSFET, LED, photo diode and solar cell; Diode circuits: clipping, clamping and rectifiers; Single-stage BJT amplifiers: biasing, bias stability, Power amplifiers; feedback amplifiers; Operational amplifiers;; Active filters; Sinusoidal oscillators: criterion for oscillation; wave-shaping circuits and 555 timers; Voltage reference circuits; Power supplies: Number systems; Combinatorial circuits: Boolean algebra, Karnaugh map, logic gates; arithmetic circuits, code converters, multiplexers, Encoders and decoders; Sequential circuits: latches and flip-flops, counters, shift-registers and finite state machines; sample and hold circuits, ADCs and DACs; 8085 architecture, programming, memory and I/O interfacing. Basic control system components; Feedback principle; Transfer function; Block diagram representation; Signal flow graph; Transient and steady-state analysis of LTI systems; Frequency response; Routh-Hurwitz and Nyquist stability criteria; Bode and root-locus plots; Analog communications: AM and FM, spectra of AM and FM, super heterodyne receivers, circuits for analog communications; Information theory: entropy, mutual information and channel capacity theorem; Digital communications: PCM, DPCM, digital modulation schemes, amplitude, phase and frequency shift keying (ASK, PSK, FSK), QAM, MAP and ML decoding, matched filter receiver, Fundamentals of error correction, Hamming codes; Timing and frequency synchronization, inter-symbol interference and its mitigation; Basics of TDMA, FDMA and CDMA. Maxwell's equations: Transmission lines: Waveguides: modes, boundary conditions, cut-off frequencies, dispersion relations; Antennas radiation pattern, gain and directivity, antenna arrays; optical fibers.

Renewable Engineering: Solar Energy: source of energy, direct solar energy utilization; solar thermal applications. Wave energy generation ocean thermal energy conversion (OTEC); methods of ocean thermal electric power generation. Wind energy: Basic principles of wind energy conversion; design of windmills; wind data and energy estimation; site selection considerations. Hydro power: Classification of small hydro power (SHP) stations; description of basic civil works design considerations; turbines and generators for SHP; advantages and limitations. Biomass and bio-fuels: Energy plantation; biogas generation; types of biogas plants; applications of biogas; energy from wastes. Energy conservation management: The relevance of energy management profession; general principles of energy management and energy management planning.

General: Basic English grammar: tenses, articles, adjectives, prepositions, verb-noun agreement, and other parts of speech Basic vocabulary: words, idioms, and phrases in context Reading and comprehension Narrative sequencing. Basic knowledge of Computer Applications, viz; MS Word, MS Excel, Power Point etc. Internet, MS-DOS, UNIX, Windows, Data Entry, Software knowledge, Networking Platforms, applications of computers in mechanical/Industrial/Production engineering.

Dr. H S Pali	Dr. Omkar Singh	Dr. Ravi Bhushan	Dr. Abdullah Ahmad
Mechanical & Renewable Engg.	E&C Engg	Electrical Engg	Civil Engineering

Annexure "F"

SYLLABUS FOR CANNING INSTRUCTOR

Max. Marks: 120
Time:02 hours

Unit – 1 **30 Marks(**

Principles of preservation. Methods of food preservation. Preservation by high temperature, Preservation by low temperature, Chemical Preservatives in food, Drying and freezing of foods, Novel preservation methods – Ultrasound Processing, High Pressure Processing, Microwave Processing.

Unit – 2 **30 Marks**

Principles of canning of fruits and vegetables, preparation of fruits and vegetables for canning. Requirements for canning of specific fruits and vegetables. Details of Canning process.

Unit – 3 **30 Marks**

Different packaging materials for fruits, vegetables and their processed products. Tin Plate and aluminium as a packaging material. Manufacturing of metal containers – two and three piece cans. Machinery used for canning. Double seaming of cans, Lacquering of metallic containers. Chemistry of metal corrosion.

Unit – 4 **30 Marks**

Spoilage of foods. Chemical and microbial spoilage of canned foods. Microbiological hazards associated with foods – food borne diseases, food intoxication, mycotoxins. FSSAI specifications for fruit and vegetable products. Concept and importance of HACCP in food processing industry. Registration and licencing of food business operators.

Annexure "G"

Syllabus for Foreman Examination

AGRICULTURAL ENGINEERING –

Marks (120 marks)
Time: 02 hours

1. Soil and Water Conservation Engineering (20 marks)

Mechanics and types of erosion, their causes, Rainfall, runoff and sedimentation relationships and their measurement, Soil erosion control measures – biological and engineering including stream bank protection vegetative barriers, contour bunds, contour trenches, contour stone walls, contour ditches, terraces, outlets and grassed waterways, Gully control structures – temporary and permanent – design of permanent soil conservation structures such as chute, drop and drop inlet spillways, Design of farm ponds and percolation ponds, Principles of flood control – flood routing, Watershed Management – investigation, planning and implementation – selection of priority areas and water shed work plan, water harvesting and moisture conservation, Land development – levelling, estimation of earth volumes and costing, Wind Erosion process – design for shelter belts and wind brakes and their management. Remote sensing – merits and demerits of conventional and remote sensing approaches. Types of satellite images, fundamentals of satellite image interpretation, techniques of visual and digital interpretations for soil, water and land use management. Use of GIS in planning and development of watersheds, forests including forest cover, water resources etc.

2. Irrigation and Drainage Engineering (20 marks)

Sources of water for irrigation, Planning and design of minor irrigation projects, Techniques of measuring soil moisture – laboratory and in situ, Soil-water plant relationships, Water requirement of crops, Planning conjunctive use of surface and ground water, Measurement of irrigation water, measuring devices – orifices, weirs and flumes, Methods of irrigation – surface, sprinkler and drip, fertigation, Irrigation efficiencies and their estimation, Design and construction of canals, field channels, underground pipelines, head-gates, diversion boxes and structures for road crossing, Occurrence of ground water, hydraulics of wells, types of wells (tube wells and open wells) and their construction, Well development and testing, Pumps types, selection and installation, Rehabilitation of sick and failed wells, Drainage causes of water logging and salt problem, Methods of drainage— drainage of irrigated and unirrigated lands, design of surface, sub-surface and vertical drainage systems, Improvement and utilization of poor quality water, Reclamation of saline and alkali soils, Economics of irrigation and drainage systems, Use of waste water for irrigation — standards of waste water for sustained irrigation, feasibility and economics.

3. Workshop Technology (15 marks)

Introduction to various carpentry tools, materials, types of wood and their characteristics and Processes or operations in wood working. Introduction to Smithy tools and operations. Introduction to welding-types of welding, Oxyacetylene gas welding, MIG, TIG welding, types of flames, welding techniques and equipment. Principle of arc welding, equipment and tools. Casting processes; Classification,

constructional details of center lathe, Main accessories and attachments. Main operations and tools used on center lathes. Types of shapers, Constructional details of standard shaper. Work holding devices, shaper tools and main operations. Types of drilling machines. Constructional details of pillar types and radial drilling machines. Work holding and tool holding devices. Main operations. Twist drills, drill angles and sizes. Types and classification. Constructional details and principles of operation of column and knee type universal milling machines. Plain milling cutter. Main operations on milling machine.

4. Farm Power and Machinery **(20 marks)**

Agricultural mechanization and its scope, Sources of farm power – animate and electro-mechanical, Thermodynamics, construction and working of internal and external combustion engines, Fuel, ignition, lubrication, cooling and governing system of IC engines, Different types of tractors and power tillers, Power transmission, ground drive, power take off and control systems, Operation and maintenance of farm machinery for primary and secondary tillage, Traction theory, Sowing transplanting and intercultural implements and tools, Plant protection equipment – spraying and dusting, Harvesting, threshing and combining equipment, Machinery for earth moving and land development – methods and cost estimation, Ergonomics of man-machine system, Machinery for horticulture and agro-forestry, feeds and forages, Haulage of agricultural and forest produce.

Agro-energy **(15 marks)**

Energy requirements of agricultural operations and agro-processing, Selection, installation, safety and maintenance of electric motors for agricultural applications, Solar (thermal and photovoltaic), wind, geothermal energy, tidal energy and their utilization in agriculture, Biogas, selection of site for biogas plant, storage, Utilization of biogas and producer gas in IC engine, Pyrolysis and Gasification of biomass for running IC engines and electric power generation, Energy efficient cooking stoves and alternate cooking fuels, Distribution of electricity for agricultural and agro-industrial applications.

5. Agricultural Process Engineering **(20 marks)**

Postharvest technology of crops and its scope, Engineering properties of agricultural produces and by-products, Unit operations – cleaning grading, size reduction, densification, concentration, drying/dehydration, evaporation, filtration, freezing and packaging of agricultural produces and by-products, Material handling equipment – belt and screw conveyors, bucket elevators, their capacity and power requirement, Processing of milk and dairy products – homogenization, cream separation, pasteurization, sterilization, spray and roller drying, butter making, ice cream, cheese and shrikhand manufacture, Waste and by product utilization – rice husk, rice bran, sugarcane bagasse, plant residues and coir pith. Site selection, design and construction of farmstead – farm house, cattle shed, dairy bam, poultry shed, hog housing, machinery and implement shed, storage structures for food grains, feed and forage, Design and construction of fences and farm roads, Structures for plant environment – green houses, poly houses and shade houses, Common building

materials used in construction – timber, brick, stone, tiles, concrete etc and their properties, Water supply, drainage and sanitation system.

6. General Engineering and Awareness **(10 marks)**

Engineering Drawing and CAD Basics, Basic Civil Engineering for farm structures, General science and current affairs, Agriculture-related government schemes and policies, Environment and sustainable agriculture.

Annexure "H"

Proposed syllabus for the post of Laboratory Technician in the Horticulture Department, designed at a graduation level.

Chapters: 12

Marks:120
Time: 02 hours

Marks per Chapter: 10 (Uniform Distribution)

Chapter 1: Fundamentals of Horticulture:

Definition and scope of horticulture; economic importance and classification of horticultural crops (fruits, vegetables, ornamentals, spices, medicinal, and aromatic plants); horticultural zones in India, basic principles of plant propagation (sexual and asexual methods).Skills: Understanding the role of horticulture in agriculture and laboratory applications.

Chapter 2: Plant Biochemistry:

Basic concepts of plant biochemistry; structure and function of carbohydrates, proteins, lipids, and enzymes; photosynthesis and respiration; secondary metabolites in horticultural crops (alkaloids, flavonoids, terpenoids).Skills: Analyzing biochemical processes in plants using laboratory techniques.

Chapter 3: Soil Science and Fertility Management:

Soil composition and classification; physical, chemical, and biological properties of soil; soil testing methods (pH, EC, nutrient analysis); macro- and micronutrients; fertilizers and their application in horticulture.Skills: Conducting soil tests and interpreting results for horticultural applications.

Chapter 4: Plant Pathology:

Principles of plant pathology; major fungal, bacterial, viral, and nematode diseases in horticultural crops; disease identification; laboratory diagnosis techniques (staining, microscopy, culturing); integrated disease management.Skills: Identifying plant pathogens and recommending control measures.

Chapter 5: Entomology and Pest Management:

Common insect pests and mites affecting horticultural crops; pest identification and life cycles; laboratory techniques for pest monitoring (trapping, rearing); principles of integrated pest management (IPM); safe use of pesticides.Skills: Diagnosing pest issues and performing pest-related lab experiments.

Chapter 6: Plant Breeding and Genetics:

Basics of plant genetics; Mendelian principles; hybridization techniques;

tissue culture and micropropagation; genetic improvement of horticultural crops; molecular markers in plant breeding.Skills: Conducting experiments related to plant breeding and tissue culture in the lab.

Chapter 7: Production Technology of Fruit Crops:

Major fruit crops (mango, citrus, banana, apple, etc.); climate and soil requirements; propagation methods; nutrient and water management; pest and disease control; post-harvest handling.Skills: Analyzing fruit crop samples for quality and disease in the lab.

Chapter 8: Production Technology of Vegetable:

Major vegetable crops (tomato, potato, brinjal, etc.); seed testing and germination; nutrient deficiencies; pest and disease management; greenhouse cultivation techniques.Skills: Performing lab tests on vegetable seeds and tissues for viability and health.

Chapter 9: Floriculture and Ornamental Horticulture:

Cultivation of commercial flowers (rose, marigold, chrysanthemum, etc.); ornamental plant propagation; landscape gardening principles; laboratory analysis of floral pigments and essential oils.Skills: Conducting experiments on ornamental plants and floral products.

Chapter 10: Post-Harvest Technology:

Principles of post-harvest physiology; storage techniques (cold storage, controlled atmosphere); quality analysis (TSS, acidity, shelf-life); processing and value addition in horticultural crops.Skills: Evaluating post-harvest quality and shelf-life in the laboratory.

Chapter 11: Laboratory Techniques and Instrumentation:

Basic laboratory safety and protocols; use of microscopes, spectrophotometers, pH meters, and chromatographs; sample preparation and preservation; calibration and maintenance of lab equipment.Skills: Operating and maintaining lab instruments for horticultural analysis.

Chapter 12: Environmental Horticulture and Sustainability:

Role of horticulture in environmental conservation; organic farming principles; water conservation techniques (drip irrigation, rainwater harvesting); sustainable horticultural practices; impact of climate change on horticulture.Skills: Assessing environmental parameters and sustainability in horticultural labs.

Annexure "I"

Syllabus for the post of Assistant Programmer, Election Department

Marks 120 **Time 02 Hours**

1. COMPUTER PROGRAMMING USING 'C'

Algorithm and Programming Development, Program Structure, Control Structures, Functions, Arrays, Pointers, Structures and Unions, Strings, Files.

2. DATABASE MANAGEMENT SYSTEM (RDBMS)

Database System Concepts and Architecture, Data Modeling using E.R. Model (Entity Relationship Model), Relational Model, Normalization, Database Access and Security, MYSQL/SQL (Structured Query Language)

3. OPERATING SYSTEMS

Process Management Functions (Principles and Brief Concept); Job Scheduler, Process Scheduler, Process synchronization. Memory Management Function (Principles and Brief Concept); Introduction, Single Process System, Fixed Partition Memory, System Loading, Segmentation, Swapping, Simple Paging System, Virtual Memory. I/O Management Functions (Principles and Brief Concept); Dedicated Devices, Shared Devices, I/O Devices, Storage Devices, Buffering, Spooling. File Management; Principles and Brief Concept, Types of File System; Simple file system, Basic file system, Logical file system, Physical file system. Dead Lock; Condition for Dead lock, Dead Lock Preventions, Dead Lock Avoidance.

4. DATA STRUCTURES

Problem solving concept, top down and bottom up design, structured programming, Concept of data types, variables and constants, Concept of pointer variables and constants, Arrays, Linked Lists, Stacks, Queues and Recursion, Trees. , Search algorithm (Linear and Binary), Concept of sorting, sorting algorithms (Bubble Sort, Insertion Sort, Quick Sort, Selection Sort, Merge Sort, Heap Sort) and their comparisons.

5. OBJECT ORIENTED PROGRAMMING USING C++

Fundamentals of object oriented programming – procedure oriented programming. Object oriented programming concepts – Classes, reusability, encapsulation, inheritance, polymorphism, dynamic binding, message passing, data hiding., Review of constructs of C used in C++ : variables, types and type declarations, user defined data types; increment and decrement operators, relational and logical operators; if then else clause; conditional expressions, input and output statement, loops, switch case, arrays, structure, unions, functions, pointers; preprocessor directives, Classes and Objects, Member Functions, Overloading Member Functions, Inheritance, Polymorphism and Virtual Functions, File and Streams.

6. JAVA PROGRAMMING

Java Virtual Machine (JVM), Java In Time (JIT) compiler, JDK, Working with data types, control flow statements, arrays, casting, command line arguments, Java Classes and Memory Management, Interfaces and Packages, Exception Handling and Stream Files, Threads and Multi-threading, Java Data Base Connectivity (JDBC).

7. VISUAL PROGRAMMING USING (.NET)

Introduction to .NET framework, feature of .Net framework, architecture and component of .Net, VB.NET Basics, Visual Basic .NET Programming Language-Variables & Data Type, Strings, Arithmetic Operators, Building the project, Common Control Controls, Functions Call and Arguments, Select Case, Loops, Nesting of Loops, Decision Structures, Error handling using Try.. Catch Block, Database Connectivity

8. SOFTWARE ENGINEERING

Size factors. Quality and productivity factors. Management issues, Models: waterfall, spiral, prototyping, fourth generation techniques, s/w process, Introduction to agile technologies.

Cost factors, cost estimations techniques. Staffing level estimation, estimating software maintenance costs, COCOMO.

Problem analysis, requirement engineering. The software requirements specifications (SRS). formal specifications techniques, characteristics of a good SRS.

Quality assurance work through and inspections static analysis, symbolic execution unit testing, formal verifications. Black box and white box testing techniques.

Definition of Quality, Quality Concepts, Quality Control, Quality Assurance, SQA Activities, Software Reviews, Inspections, Walkthroughs, Formal Technical Reviews, Review Guidelines, Quality Assurance Standards, ISO 9000, ISO 9001:2000, ISO 9126, CMM, TQM, TQM principles, Six Sigma, SPICE.

Risk Management and Configuration Management

9. COMPUTER NETWORKS

Concept of network, Models of network computing, Networking models, Peer-to -peer Network, Server Client Network, LAN, MAN and WAN, Network Services, Topologies, Concept of switching, Switching Techniques ,OSI Reference Model.

Concept of physical and logical addressing, Different classes of IP addressing, special IP address, Sub netting and super netting ,Loop back concept, IPV4 and IPV6 packet Format, Configuring IPV4 and IPV6.

Network Security, Introduction to basic encryption and decryption, concept of symmetric and asymmetric key cryptography, overview of DES, RSA and PGP. Introduction to Hashing: MD5, SSL, SSH, HTTPS, Digital Signatures.

Computer Network Attacks, Active Attacks, Passive Attacks, Stealing Passwords, Social Engineering, Bugs and Backdoors, Authentication Failures, Protocol Failures, Information Leakage, Denial-of-Service Attacks, Botnets, Phishing Attacks.

10. INTERNET AND WEB TECHNOLOGIES

Telephone line, cable, leased line, ISDN, VSAT, RF link. World Wide Web and its evolution, web page, web server, HTTP protocol. Examples of web servers. Navigation Tools: Mozilla Firefox, Google Chrome, Internet Explorer, Uniform Resource Locator (URL). Hypertext, hyperlinks and hypermedia, URL, its registration, browsers, search engines, proxy servers.

Basics of authentication and authorization. Introduction to firewall, various techniques of encryption and decryption, SSL (Secure Socket Layer).

Annexure "J"

Syllabus for the Gardener/Farash/Traffic Orderly/MTS/Masalchi/ Khansama-III/ Dhobi

Marks: 120
Time: 02hours

1) Basis Mathematics **24 Marks**

- Percentage
- Average
- Time, Work and Distance
- Ration and Proportions
- Problem of Age
- Probability
- LCM, HCF
- Mensuration

2) Basis Reasoning **24 Marks**

- Analogies
- Relationship concepts
- Figure odd one out
- Direct Sense
- Figure Series completion
- Venn Diagram
- Number series
- Coding/Decoding

3) Basis English **24 Marks**

- Articles
- Synonyms
- Antonyms
- Preposition
- Verbs
- Reading comprehension
- Determiners
- Spellings
- Sentences

4) General Awareness and Science **48 Marks**

- General current events (National Level)
- Sports
- India culture
- India history
- Indian geography
- Capital/State
- General Science
- Health, Hygiene and Sanitation
- Geography of Jammu and Kashmir
- Culture of Jammu and Kashmir
- History of Jammu and Kashmir

Annexure "K"

Syllabus for the post of Assistant Superintendent Jails, Home Department

The written examination for the post of Sub-Inspector in J&K Police shall comprise of 100 objective type, multiple choice questions. Each question shall carry 2 marks. There will be negative marking of 0.5 marks for each wrong answer.

Duration: 120 minutes

S.No.	Subject	No. of Question	Marks
A.	General Intelligence & Reasoning	20	40
B.	General Awareness	20	40
C.	Quantitative Aptitude	15	30
D.	English	15	30
E.	Mathematical Abilities	15	30
F.	Computer Proficiency	15	30
Total		**100**	**200**

A. General Intelligence & Reasoning: (20 Questions, 40 Marks)

This component would include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgment, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc.

The topics are Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & de-coding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/ pattern- folding& un-folding, Figural Pattern-folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence.

B. General Awareness: (20 Questions, 40 Marks)

Questions in this component will be aimed at testing the candidates' general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions pertaining to History, Culture, Geography, Economics General Policy (related to India with special reference to J&K), Sports, Science, Scientific Research, People in News, Current Affairs etc

C. Quantitative Aptitude: (15 Questions, 30 Marks)

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Alligation, Time and distance, Time & Work.

D. English Comprehension: (15 Questions, 30 Marks)

Vocabulary, grammar, sentence structure, synonyms, antonyms and their correct usage; Spot the Error, Fill in the Blanks, Synonyms/ Homonyms, Antonyms, Spellings/ Detecting mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/ Passive Voice of Verbs, Conversion into Direct/ Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage. To test comprehension, three or more paragraphs will be given and questions based on those will be asked. At least one paragraph should be a simple one based on a book or a story and the other two paragraphs should be on current affairs, based on a report or an editorial.

E. Mathematical Abilities: (15 Questions, 30 Marks)

Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations.

Geometry: Familiarity with elementary geometric figures and facts: Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles.

Mensuration: Triangle, Quadrilaterals, Regular Polygons, Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square Base.

Trigonometry: Trigonometry, Trigonometric ratios, Complementary angles, Height and distances (simple problems only)

Statistics and probability: Use of Tables and Graphs: Histogram, Frequency polygon, Bar-diagram, Pie-chart; Measures of central tendency: mean, median, mode, standard deviation; calculation of simple probabilities.

F. Computer Proficiency: (15 Questions, 30 Marks)

Computer Basics: Organization of a computer, Central Processing Unit (CPU), input/ output devices, computer memory, memory organization, back up devices, PORTs, Windows Explorer. Keyboard shortcuts.

Software: Windows Operating system including basics of Microsoft Office like MS word, MS Excel and Power Point etc.

Working with Internet and e-mails: Web Browsing & Searching, Downloading & Uploading, Managing an E-mail Account, e Banking.

Basics of networking and cyber security: Networking devices and protocols, Network and information security threats (like hacking, virus, worms, Trojan etc.) and preventive measures.

Note: ***The questions in Parts A, B, & D will be of a level commensurate with the essential qualification viz. Graduation and questions in Part-C, E & F will be of 10th standard level.***