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PART I

Punjab Government Notifications and Orders

GOVERNMENT OF PUNJAB

DEPARTMENT OF WATER RESOURCES

(IRRIGATION PERSONNEL-2 BRANCH)

NOTIFICATION

The 24th March, 2023

No. WR-IRP2013/1/2023-5IP2/46/1-6.-

1. Governor of Punjab is pleased to notify the new syllabus for the departmental examination of Water Resources Department, Punjab as many of the topics have become out dated whereas the new challenges/areas of concerns are being faced by the officer and new procedures to be followed in the conduct of the departmental exams. In this regard, Govt. vide Endst No. PSWR/2022/4Admin/138-144, dated 22.08.2022 has constituted a committee to revise the syllabus of departmental examination. The Committee has submitted its report and proposed the revised syllabus which is enclosed as "Annexure A" with this notification.

2. The following procedure will be followed in conduct of the departmental Examination.

- i. Examination shall be both objective and subjective.
- ii. There shall be a provision for review of result once.
- iii. For appearing in Examination, candidate should not be given more than five chances for appearing in examinations and at the best sixth, chance as a mercy chance failing which he should be debarred from appearing in exams.
- iv. The officers who have already availed chances and have not been able to get the exams cleared, shall also be given six attempts as provided in the current Rules.
- v. To pass, a candidate must obtain not less than 50% of the marks in each subject, if a candidate scores 50% or more marks in one paper and less than 50% marks in the other paper he will be required to reappear only in the paper in which he scores less than 50% marks.
- vi. The examination shall ordinarily be held twice a year in the middle of May and early November, upon such date at such time as the Chief Engineer/Head quarter shall fix in common for all Groups.

- vii. The place and the exact date of the examination will be notified by the Chief Engineer/ Headquarter, Water Resources Department, Punjab.
- viii. Chief Engineer/Headquarter, Water Resources Department, Punjab will also make the following arrangement for conducting the examination.
- Notification of commencement of examination.
 - Security and acceptance of application for appearing in examination.
 - Appointment of Supervisor.
 - Setting the Question Papers and their checking/evaluation.
 - Declaration of Result.
3. There shall be 5 number following paper out of which first four paper will be objective and the fifth paper will be subjective.

For Engineering Staff (SDO/JE/Draftsman)					
PART-A (Objective) 300 Marks					
Sr. No.	Topic	Name of Paper	Subjective/ Objective	Duration	Max Marks
1.	Topic-I	Technical Evaluation	Objective	2 Hrs.	100
2.	Topic-II	Punjab PWD Code and Irrigation Manual of Orders	Objective	2 Hrs	100
3.	Topic-III	Civil Services Rules and Revenue Manual	Objective	2 Hrs.	100
PART-B (Objective-2) 100 Marks					
1.	Topic-I	Acts and Rules	Objective	2 Hrs.	100

PART-C (Subjective) 100 Marks
Specific problem will be assigned to each officer in advance. They will be required to collect actual field data on the problem and propose an actionable solution.

2. For Revenue staff the following papers will be conducted.

For Revenue Staff (Zilladars/ Patwaris)					
PART-A (Objective) 100 Marks					
Sr. No.	Topic	Name of Paper	Subjective/ Objective	Duration	Max Marks
	Topic-III-B	Revenue Manual	Objective	2 Hrs	100
PART-B (Objective) 100 Marks					
3.	Topic-I	Canal Act and Rules thereunder	Objective	2 Hrs.	100

Sd/-

KRISHAN KUMAR, IAS

Principal Secretary to Government of Punjab
Water Resources Department

Chandigarh
The 21st March, 2023

ANNEXURE -A

Syllabus of Departmental Examination

The examination will comprise of 5 papers of 100 marks each with weightage as below: -

Part A - (Objective-1) (300 Marks)

Topic I (Technical Evaluation) (100 Marks)

I-A Irrigation Engineering

Canal Irrigation

Classifications of canals, canal alignment, Inundation canals, Bandhara irrigation (advantages and disadvantages), Silt theories-Kennedy's theory, Lacey's theory, Drawbacks in Kennedy's & Lacey's theories, comparison of Lacey's and Kennedy's theories, Design of unlined canals based on Kennedy & Lacey's theories, suspended and bed loads.

Lined Canals

Types of lining, selection of type of lining, Economics of lining, Maintenance of lined canals, Silt removal, strengthening of channel banks, Measurement of discharge in channels, Design of lined canals, Methods of providing drainage behind lining.

Losses in Canals, Water Logging and Drainage

Losses in canals-Evaporation and seepage, Water logging, causes and ill effects of water logging-and water logging measures. Drainage of land Classification of drains - surface and subsurface drains Design considerations for surface drains, Advantages, and maintenance of tile drains (Sub-surface drainage).

River Training Work

Objectives, classification of river-training works, Design of Guide Banks, Groynes or spurs. Recommendations of Approach embankments and afflux embankments, pitched Islands, Artificial cut-off objects and Design Considerations River control - objectives and methods.

Cross Drainage Works

Definitions, choice of type, Hydraulic design consideration, Aqueducts their types and design, siphon aqueducts their types and design considerations, super passages, canal siphons and level crossing.

I-B Design of Hydraulic Structures

Theory of Seepage

Seepage force and exit gradient, salient features of Bligh's Creep theory, Lane's weighted Creep theory and Khosla's theory, Determination of uplift. Pressures and floor thickness.

Design of Weirs

Weirs versus barrage, Design considerations with respect to surface flow, hydraulic jump and seepage flow. Design of barrage or weir

Energy Dissipation Devices

Use of hydraulic jump in energy dissipation, Factors affecting design, Types of energy dissipators and their hydraulic design.

Diversion Headworks

Functions and investigations: component parts of a diversion head work and their design considerations, Silt control devices.

Distributory regulators

Offtake alignment, Cross-regulators -- their functions and design, Distributory head regulators, their design, Canal escape.

Canal Falls

Necessity and location, types of falls and their description, selection of type of falls, Principles of design, Design of Sarda type, straight glacis and Inglis or baffle wall falls.

Canal Outlets

Essential requirements, classifications, criteria for outlet behaviours, flexibility, proportionality, sensitivity, sensitiveness, etc. Details and design of non-modular, semi-modular and modular outlets.

Relevant IS codes.

I-C Analysis of Rates, Accounts, P.W.D. accounts, Contracts, Estimates AND Tender etc.**Analysis of Rates**

For earthwork, brickwork, concrete work, D.P.C., stone masonry, plastering, pointing, roadwork, painting, Centering and shuttering.

Contracts, Works AND Tender

Tenders, tender form, submission and opening of tenders, Classification of contracts, Classification of works, Different type and methods of work types of measurement book, muster roll, piecework agreement and work order.

Accounts

P.W.D. accounts, cash, receipt of money, cash book, temporary advance, imprest, accounting procedure, arbitration, arbitration act.

Topic II (PWD Code and IMO) (100 Marks)**II-A Punjab P.W.D Code****Chapter I-Establishment-**

Paragraphs from 1.45 to 1.81, 1.92 to 1.95, 1.154 to 1.160.

Chapter-II-Works-

Paragraphs 2.1 to 2.7, 2.21 to 2.29, 2.44 to 2.107, 2.109, 2.116 to 2.122, 2.126 to 2.133.

Chapter III-Public- Buildings-

Paragraphs 3.10 to 3.15, 3.20 to 3.23.

Chapter IV-Miscellaneous Rules regarding office work, excluding Accounts procedure-

Paragraphs 4.15 to 4.19. 4.20 read with Appendix VII, 4.21, 4.25, 4.27 to 4.63.

Chapter V-Powers of sanction of the Punjab Government in the P.W.D. and of the authorities subordinate to it-

Paragraphs 5.1 to 5.8, 5.26, 5.28 and 5.31....

II-B Irrigation Manual of orders.**CHAPTER I- ACCOUNT**

SECTION I—CLASSIFICATION OF EXPENDITURE.

- 1.1.1 Instructions regarding the Classification of Expenditure between Capital and Revenue.

SECTION II—INITIAL ACCOUNTS

- 1.2 Responsibility of Divisional Accountant for checking Bills and completing Vouchers.
- 1.3 Dating of Signatures and initials in Vouchers, Accounts and other Documents.
- 1.5 Method of Accounting of Temporary advances to Subordinates.
- 1.6 Accounting of Stock and Tools and Plant.
- 1.7 Reserve Stock Limits of the Divisions.
- 1.8 Treatment of Tools and Plant charged to Works.
- 1.10 Check Measurements and payments for works.
- 1.11 Custody and Record of Measurement Books.
- 1.12 Standard Measurement Books.
- 1.13 Rules for Security Deposits.

SECTION-- MISCELLANEOUS

- 1.14 Details of Progress of Works shown on the reverse of the Works Abstract Form.
- 1.15 Maintenance of Works Accounts by Sub-Heads.
- 1.16 Statements of Cheques cashed.
- 1.17 Clearance of outstanding's at the end of Financial Year.
- 1.18 Preparation of supplementary Accounts for March.
- 1.19 Adjustment of Taccavi Items.
- 1.20 Taccavi and Deposit Works.
- 1.21 Schedule of Deposit and Taccavi Works.
- 1.22 Charges for Survey Department Maps.
- 1.23 Officials authorized to grant Receipts.
- 1.24 Accounts Irregularities.
- 1.26 Rules for the maintenance of Depreciation Accounts for New Excavators.
- 1.28 Rules for the working of Government Vehicles belonging to the Irrigation Branch.
- 1.30 Charges for water supplied to Residences.
- 1.32 License for the disposal of Fruits in Canal Rest house Compounds.
- 1.33 Check Register of Travelling Allowance Bills.
- 1.34 Country Stationary for use in Revenue Offices of the Irrigation Branch, Punjab.
- 1.35 Expenditure on Discharge on sites.
- 1.36 Incidence of the Cost of Maintenance of Garden Establishment attached to Government Offices.
- 1.38 Schedule of Works Expenditure.
- 1.40 Preparation of Pay Bills.
- 1.41 Check of Distance Marks.
- 1.46 Instructions for the sale and disposal of Government Property

1.47 Gharabandi.

CHAPTER II --OFFICE PROCEDURE.

SECTION-I- PREPARATION OF ESTIMATES AND DRAWING.

2.1 Preparation, Signature and Treatment of Plans.

2.1A Scales

2.2 Reproduction of Drawings.

2.3 Standing orders for the Guidance of Divisional Head Draftsman.

2.4 Maintenance and Repairs Estimates.

SECTION-II GOVERNMENT STORES AND MONEY

2.7 Payment of Cash to Contractors and check on the writing up of the Cash Book.

SECTION III -FURNITURE, TOOLS AND PLANT AND INSTRUMENTS.

2.9 Supply and Custody of Theodolites, Levels and other Mathematical Instruments.

SECTION IV GOVERNMENT RECORDS, REGISTERS AND RETURNS

2.12 Scale of surveying and Mathematical Instruments

2.13 Register of Plant and Machinery

2.14 Instructions for the preparation of Revenue Reports.

2.15 Inspection of Divisional and Sub-Divisional Offices.

2.16 Assessment and areas to be adopted in the statistical statements.

2.17 Office Libraries

2.18 Books of Reference

2.19 Standing Order Books

2.20 Record Books

2.21 Documents of which copies may be supplied on payment to any member of the Public generally and to an individual concerned and production of official records in law Courts.

SECTION V-MISCELLANEOUS

2.22 Agreements with Contractors

2.23 Fishing in the Punjab Rivers and Canals

2.24 Officers who should meet the Governor on occasions of his arrival at and departure from a station

2.26 Care and Cleanliness of Government offices

2.27 Disposal of Claims

2.28 Service Postage stamps

2.29 Execution, Renewal, and Registration of agreements

CHAPTER III --LAND

SECTION-II MISCELLANEOUS

3.1 Departmental Records of land acquired

3.2 Registers by villages of land acquired for Canal purposes

3.3 Co-ordination of departmental land plains with corresponding revenues papers

3.4 Sale or transfer of land adjoining Government land

3.9 Credits- for value of land surrendered

- 3.10 Land required to furnish spoil for repairs to banks
- 3.11 Compensation for damage to land on account of taking spoil for repairs to banks

CHAPTER IV-WORKS

- 4.1 Rules in connection with tenders for rates for work order
- 4.2 Abandonment, Construction and Extension of Government Channels
- 4.3 Changes in Irrigation Boundaries
- 4.4 Gates on Canals and Distributaries
- 4.5 Instructions for Survey parties
- 4.7 Check of Survey of work done by Subordinates
- 4.8 Rules for Garden and orchard Areas for which Special Water allowances have been sanctioned

CHAPTER V-PUBLIC BUILDINGS,

SECTION I-PROVISION AND OCCUPATION OF PUBLIC BUILDINGS

- 5.1 Canal Patwar Khanas
- 5.2 Rules of the Occupation of Rest Houses
- 5.3 Rent for occupation of Government buildings as residences
- 5.4 Rebate of rent for a portion of residence used as Office
- 5.5 Temporary shelter huts for seasonal Gauge Readers Coolies and Beldars
- 5.6 Rules for the maintenance of gardens attached to Government residential buildings
- 5.7 Contribution towards cost of maintenance of gardens attached to residence combined with Rest houses or offices.

SECTION II-SCALES OF FURNITURE FOR PUBLIC BUILDINGS

- 5.8 Scale of furniture for Inspection Houses and Subordinates, Rest Houses
- 5.11 Scale of furniture for Zilladar's Office

SECTION-III-MISCELLANEOUS

- 5.12 Register of Buildings
- 5.13 Fire Protection
- 5.14 Provision of Electric Installations in Government residential buildings in charge of Irrigation Branch.
- 5.15 Rules for the sale of Public Buildings in the charge of Public Works Department, Irrigation Branch, Punjab.

APPENDICES

- I. Form of License for the disposal of fruits
- II. Form of proposed maintenance and repairs allotment.
- III. Common defects noticed in the matter of cleanliness of office and remedial measures therefor.
- IV. Terms of appointment of Auctioneers for the conduct of Auction for the sale of surplus Irrigation Branch Buildings
- V. Details of Major/Sub-major, Minor/heads/Sub-heads & detailed heads.

Topic III (CSR and Revenue Manual) (100 Marks)

III-A Civil Services Rules

Civil Services Rules (Punjab), Vol. 1 Part I

Chapter II-Definitions.

Chapter III- General Conditions of Service --- Rules 3.1 to 3.4, 3.6, 3.8, 3.9 (A), 3.10 to 3.26.

Chapter IV- Pay-Rules 4.1, 4.4, to 4.9, 4.13 to 4.18, 4.20 to 4.25.

Chapter VII-Dismissal, Removal and Suspension.

Chapter VIII-Leave-Rules 8.1 to 8.91, 8.113 to 8.128 and 8.130 to 8.140.

Chapter IX- joining Time- Rules 9.5 to 9.16.

Chapter XII-Record of Service.

Civil Services Rules (Punjab), Vol. II

New Pension Rules as published in 1951 read with---

Chapter III- Service qualifying for Pension.

Chapter IV-Reckoning of Service for Pension.

Chapter V-Different kinds of Pensions, etc.

Chapter IX- Application for any Grant of Pensions.

Chapter XIII The Punjab General Provident Funds Rules, Rules 13.1 to 13.27

Civil Services Rules Punjab Vol. III-Traveling Allowance Rules

Rule 2.15, 2.16, 2.19, 2.22, 2.24 to 2.29, 2.40, 2.42 to 2.45, 2.50, 2.51, 2.57, 2.59, 2.60, 2.64, 2.67, 2.73 to 2.75, 2.77, 2.80, 2.82, 2.83, 2.86, 2.100, 2.102, 2.105, 2.107 to 2.109.

III-B Revenue manual

CHAPTER 1

THE PATWARI

- 1.1 Purpose for which entertained: qualification and conditions of service
- 1.2 Principal duties.
- 1.3 Charge or halka
- 1.4 Record of service
- 1.5 Initial record of irrigation (shudkar)
- 1.6 Responsible of Patwari for the shudkarkhasrah and application for supplementary pages of shudkarkhasrah.
- 1.7 Method of making shudkar entries.
- 1.8 Doubtful irrigation (mushtaba)
- 1.9 Basis of monthly Irrigation operation statement.
- 1.10 Waste of water and unauthorized irrigation.
- 1.11 Final measurements and approximate dates for commencing the same.
- 1.12 Date of final measurements to be furnished to lambardars
- 1.13 Settlement areas of field to be adopted wherever possible and copy of bandobastkhasrah to be kept up to date.

- 1.14 Convenience of settlement squares on the later canals.
- 1.15 Method of making entries and corrections in shudkar and errors in area or class to be reported to Zilladar before making correction.
- 1.16 Local measures and units: each page of khasrah to be totaled.
- 1.17 Preliminary abstract of irrigation by villages and watercourses.
- 1.18 Parchas
- 1.19 Khan Parcha.
- 1.20 Preparation of Parchas by pattie.
- 1.21 Distribution of parchas and acknowledgment of the same by the Lambardars and the cultivators.
- 1.22 Completion and checking of demand statement (khatauni)
- 1.23 Zaid KarifandZaid Rabi crops
- 1.24 Preparation of Revenue Forms II, III and V
- 1.25 Checking and Patwari's filed books
- 1.26 Calendar of Patwaris's duties.
- 1.27 Miscellaneous duties of Patwaris
- 1.28 Patwaris diary (roznamcha) of work done
- 1.29 Patwaris diary to be confined to one crop and compared with entries in shudkarkhasrah by Zilladar.
- 1.30 Vernacular Revenue Register or village Note Book (LaKitab)
- 1.31 Orders regarding the issue of books of Vernacular Revenue Form No. 7 (Najaiz and Abzaia) and their maintenance and check.

CHAPTER II. THE ZILLADAR

- 2.1 Purpose for which entertained and principal duties.
- 2.2 Qualification.
- 2.3 Check of initial record of irrigation (shudkar)
- 2.4 Signing shudkar entries checking Patwari's diary and comparing foils and counterfoils thereof when necessary.
- 2.5 Report to be made on the checking of shudkar.
- 2.6 Check of the final measurements.
- 2.7 Report on the checking of final measurements.
- 2.8 Checking the preparation and distribution of parchas.
- 2.9 General principles governing the question of remissions of canal revenue.
- 2.10. Basis of water rates.
- 2.11 Condition essential to claims on account of failure of crop.
- 2.12 Zilladar to record his recommendation in the khasrah when inspecting Tanazas.
- 2.13 Comparison of shudkar and khasrah entries.
- 2.14 Completion and check of Khataunis.
- 2.15 Great importance of thoroughly checking the khatauni.

- 2.16 Amount to be personally checked by Zilladar and his Munshi.
- 2.17 Inclusion of special charges to be checked by Zilladar and reduction of supplementary demand statements to a minimum.
- 2.18 Preparation of Revenue Forms Nos. II, III and V.
- 2.19 Patwaris Bonus papers and marks for paperwork.
- 2.20 General duties of Zilladars on tour.
- 2.21 Gauge and Discharge Registers.
- 2.22 Monthly abstract of irrigation effected, how prepared and reported to Divisional office.
- 2.23 Zilladar to investigate all cases of waste of water and unauthorized irrigation.
- 2.24 Statement of doubtful irrigation.
- 2.25 Maintenance of cash book by Zilladar and Collections for Taccavi works.
- 2.26 Disposal of cash recoveries.
- 2.27 Disbursement of salaries not to be shown in Zilladar's cash book.
- 2.28 Registers to be maintained by Zilladar.
- 2.29 Weekly weather report from Zilladars.
- 2.30 Duties in connection with judicial enquiries and offences under the Canal Act and enquiries into Tanazas.
- 2.31 Complaints against subordinate staff.
- 2.32 Zilladars to use their influence with cultivators.
- 2.33 Zilladars to maintain a diary of work done.
- 2.34 Each Zilladar provided with a Munshi.

CHAPTER III.

THE DEPUTY COLLECTOR.

- 3.1 Position of Deputy Collector.
- 3.2 General scope of duties.
- 3.3 Investigation of certain cases by Deputy Collector.
- 3.4 Deputy Collector to report upon Revenue Establishment.
- 3.5 Submission of leave applications of Revenue Establishment through Deputy Collector.
- 3.6 Duties in connection with training and posting of establishment.
- 3.7 Deputy Collector to be placed in charge of Ahlmad's office.
- 3.8 Special intensive Revenue Audit.
- 3.9 Preparation of indents and distribution of country stationery and revenue forms by Deputy Collector.
- 3.10 Importance of check measurements.
- 3.11 General routine of Deputy Collector's duties.
- 3.12 Deputy Collector's duties on tour.
- 3.13 Periodical inspection of vernacular offices in the Division.

CHAPTER XIII**REVENUE AND WATER-SUPPLY.**

- 13.1 Procedure for alternations in the distribution of canal irrigation.
- 13.2 Consulting District officers in making alternations in the distribution of canal irrigation.
- 13.3 Internal distribution of water.
- 13.4 Supply of water through intervening watercourses.
- 13.5 Equitable distribution of the supply to individual watercourses.
- 13.6 Division of fields into plots and kiaries.
- 13.7 Well watercourses crossings on distributaries.
- 13.8 Charges for unauthorized irrigation and waste of water.
- 13.9 Disposal of cases of unauthorized irrigation and waste of water.
- 13.10 Register of breaches and alleged cuts in Government channels.
- 13.11 Procedure for assessment of land revenue, etc, on Colony Canals
- 13.12 Annual closures on perennial canals.
- 13.13 Notice of Zamindars regarding the Rabi rotational closures of Branch Canals and Distributaries.
- 13.14 Trees along watercourses exempt from water-rates.
- 13.15 Collection of Miscellaneous Revenue.
- 13.16 Water supply to lands near towns.
- 13.17 Free grants of water prohibited.
- 13.18 Checking of irrigation measurements.
- 13.19 Record and check of outlets.
- 13.20 Units of measurements and demand.
- 13.21 Land measurements.
- 13.22 Register of Government properties yielding produce.
- 13.23 Flour mill leases.
- 13.24 Driftwood entering canals
- 13.25 Use of the vernacular terms "khata"
- 13.26 Limitation of Divisional Canal officers' powers by the Punjab Village Panchayat Act (1921).
- 13.27 Cultivation of vacant canal land.

APPENDICES.

Appendix A- Report on checking Patwari's initial record (khampartal)

Appendix B- Statement showing the measurements checked by Canal Officers.

Appendix C- Extract from a note dated 19th September 1897, by Mr. J.S. Beresford, M.E, M, Inst. C.E., Chief Engineer, Irrigation Works, Punjab, on observation of discharges of distributaries.

Appendix D- Register of breaches and alleged cuts in Government channels.

Appendix E- Instructions for the guidance of Canal officers in the preparation and modification of wahra-bandies.

Appendix F- Principal crops grown on the canals in the Punjab.

Appendix G- Statement showing culturable commanded area and actual irrigation by outlets.

Appendix H- Memorandum of instruction to Divisional Canal Officers.

Appendix I- Rules for remissions on account of failed crops.

Appendix K- Sample forms of registers and notebook and instructions for their maintenance.

Part B-(Objective-2) (100 Marks)(75 Marks for Section I-A to I-G & 25 Marks for I-H

Topic I (Acts and Rules)

I-A Northern India Canal and Drainage Act, 1873

I-B The Dam Safety Act, 2021

I-C Mines and Minerals (Development and Regulation) Act, 1957

I-D Punjab Minor Mineral Rules, 2013

I-E Land Acquisition Act.

I-F RTI Act, 2005.

I-G The Punjab Public Premises and Land (Eviction and Rent Recovery) Act 1973

I-H Inter-State Water Dispute-SYL canal case:-

1. Pre-Partition Usages and availability of water of Sutlej Beas and Ravi.
2. 1955-Decision of Surplus Ravi-Beas Waters.
3. Inter State River Water Disputes Act, 1956.
4. Reorganisation of State of Punjab on 01.11.1966.
5. Section 78, 79, 80 of the Act, 1966.
6. GOI's Notification dated 24-03-1976 regarding Ravi-Beas waters.
7. 1981 Agreement.
8. Construction of SYL canal.
9. Rajiv-Longowal Accord. 24-7-85
10. Constitution of Eradi Tribunal.
11. Eradi Tribunal interim report: Highlight of the Report.
12. Review applications under Section 5(3) of the 1956 Act.
13. Stoppage of construction work of SYL canal.
14. Suit No. 6 of 1996 Filed by State of Haryana.
15. Complaint on 11-01-2003 to GOI for constituting a new tribunal Filed by State of Punjab.
16. Suit No.1 of 2003 Filed by State of Punjab.