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REVISED SYLLABUS 2022

DEPARTMENTAL PROMOTION EXAMINATION FROM SENIOR RESEARCH OFFICER TO SUPERINTENDING RESEARCH OFFICER (SOIL MECHANICS & FOUNDATION / SOIL CHEMIST)

PAPER-I CURRENT AFFAIRS & RULES & REGULATIONS **100 marks**
(Pass marks 47)
(Note: Passing in each part is mandatory to clear paper-1)

Part-I Current Affairs **33 marks**
(Pass marks 40%)

Current Affairs paper will be set from leading issues published in the newspaper for the last 3 months. The following books may be consulted.

- Monthly Current Affairs Digest by Tariq Mahmood Dogar
- Monthly Current Affairs Digest by Dr. Safdar Mahmood
- Any other Current Affairs Digest

Part-II Rules and Regulations (Books allowed) **67 marks**
(Pass marks 50%)

- The Pakistan WAPDA Employees (E&D) Rules, 1978
- The Pakistan WAPDA Employees (Retirement) Rules, 1979
- The Pakistan WAPDA Leave Rules for WAPDA Employees 1982
- The Pakistan WAPDA TA Rules 1982
- WAPDA Act
- Conduct Rules
- Medical Attendance Rules.

Reference Books

- WAPDA Manual of General Rules amended upto 2014 (including addendums)

PAPER-II TECHNICAL **100 Marks**
(Pass marks 50)

Nature of soils: (i) Sub soil investigations & report writing (ii) Maintenance of Laboratories, field and Laboratory equipment (iii) Cohesion, Internal friction, Plasticity, effects of density on behavior of soils, effects of moisture on performance of soils, Groundwater. Optimum Moisture content, Effect of seasonal weather changes, determination of soil plasticity, liquid and plastic limits (iv) General Properties of Soil Material (Classification and identification of soils, particle size/sieve analysis of soils various system of analysis, Textural Classification of soils, Grouping of soils) (v) Triaxial testing of soil, Consolidation, Consolidated Un-drained (CU) & Consolidated Drained (CD), Major & Minor principle Stress (iii) Uniaxial Compressive strength, Modulus of Elasticity and Poisson's Ratios (vi) Calibration of Machines, Gauges and equipment and (vii) Shear Box Test, Coefficient of Consolidation, Permeability/Coefficient (By falling and Constant Head method). Proctor Compaction, CBR Test & Pin-hole test.

Handwritten signatures and initials

Chemistry of Soil: Sound knowledge of soil analysis, Standardization / calibration of Laboratory instruments like EC meter pH meter, spectrophotometer, Flame photometer etc; Preparation and standardization of solutions of different strength, Qualitative and quantitative estimation of soluble ions in soils, Methods used for cross checking of analytical data and Preparation of soil survey / reclamation reports


Computer (Information Technology): Introduction to Computer System, M.S. Word and M.S. Office: Characteristic of computer, types of computer, computer hardware and software, types of memory and functions, operating systems, input/out and storage devices, types of memory and functions, operating systems, input/out and storage devices, types of computer languages, programming and functions of computer, main features of utility of MS Word, MS Excel, MS Power Point, Internet and E-mail.

Reference Book

- Soil Laboratory Testing by K.H. Head (Vol. I, II, III)
- Soil Testing by Joseph E. Bowles
- American Standing Testing Methods (ASTM) for Soil Testing
- Microsoft Office 2007/2010, by Gary B. Shelly, Thomas J. Cashman and Misty E. Vermaat.
- Window 7 Step by Step by Joan Lambert and Joyce Cox (Available Online).

NOTE (1): One question from Computer (Information Technology) is **compulsory** to be included in paper-II (Technical).

NOTE (2): The paper will be 50% objective and 50% subjective.


Director (Exams) WAPDA
323-WAPDA House, Lahore

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