

FEDERAL PUBLIC SERVICE COMMISSION
(Curriculum & Research Wing)

Scheme and Syllabi for Screening/Professional Tests as well as Descriptive Examination
Relating to Posts Advertised Vide Consolidated Advertisement No. 04/2015

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications for Posts	Test Specification	Main Topics for MCQ Test
1.	21/2015	Deputy Assistant Chemical Examiner (BS-16), Customs Department, Federal Board of Revenue	<p>i) Second Class or Grade 'C' Bachelor's Degree in Chemistry/ Analytical Chemistry from a recognized University.</p> <p>ii) Five (5) years post qualification experience in analytical work and operation of equipments based on Chromatography Spectre-photometry, Spectroscopy, and electron microscopy</p>	<p>Objective Type Test (MCQ)</p> <p>Part-I English =20 marks</p> <p>Part-II Professional Test=80 marks</p>	<p>Part-I Grammar usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> • Hydro-generation • Polymerization • Hydrocarbons & their Byproducts • Vitamins: Introduction and Classification • Qualitative and Quantitative Analysis of Chemicals • Hydration and Dehydration • Enzymes: Terminology, Nature, Classification • Organic and Inorganic Compounds • Chemistry of Functional Groups • Introductory Organic Spectroscopy • PH Range of Phenolphthalein • Composition of Natural Gas
2.	24/2015	Librarian (BS-17), MES, Defence Division, Ministry of Defence	<p>Master's Degree in Library Science from a recognized University</p> <p style="text-align: center;">OR</p> <p>Graduate with diploma in Library Science from a recognized University or Bachelor of Library Science, plus five (5) years post qualifications professional experience in BS-16 otherwise eight (8) years post qualification experience if not in BS-16.</p> <p style="text-align: center;">OR</p> <p>Master's Degree in relevant subject with Diploma in Library Science or Bachelor of Library Science.</p>	<p>Objective Type Test (MCQ)</p> <p>Part-I English =20 marks</p> <p>Part-II Professional Test =80 marks</p>	<p>Part-I Vocabulary, Grammar Usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> • Introduction to Library & Information Science • Information Sources and Services • Classification: Theory and Practice • Cataloguing: Theory and Practice • Procurement, maintenance and issuance of library books • Management of libraries & Information Centres • Library Automation/Information Storage & Retrieval • Research Methods & Techniques for Librarians • Public Records, Rare Material & their Conservation • Management of Serials Publications • Rules & Procedure of Write off the Library Losses

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications for Posts	Test Specification	Main Topics for MCQ Test
3.	28/2015	Seed Certification Assistant/ Seed Testing Assistant (BS-17), Federal Seed Certification and Registration Department, Ministry of National Food Security and Research	Second Class or Grade 'C' Master Degree in Agriculture in one of the subjects of Seed Technology, Plant Breeding, Plant Pathology, Horticulture, Plant Protection, Agriculture Extension, Entomology or M.Sc. (Botany).	Objective Type Test (MCQ) Part-I English =20 marks Part-II Professional Test =80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Important terms used in Seed technology • Seed health Management • Plant quarantine and inspection/testing of Seed • Seed production and Certification System • Seed Health Management • Plant Breeding, Pathology & Genetics • Elements of climate and their relationship with crop growth • Soil fertility and fertilizer requirement of various soils and crops • Role of organic matter in soil • Water requirements of crops and water use efficiency, • Plant Protection • Nitrogen cycle • Application of genetics for the improvement of crops • Modern concept of Horticultural industry • Major issues in agriculture development of Pakistan.
4.	38/2015	Accupuncture Specialist (BS-18), Federal Government Polyclinic, Capital Administration and Development Division.	i. MBBS or equivalent qualification recognized by the PM&DC ii. Five (5) years post qualification experience including one (1) year as Acupuncture Specialist after obtaining a diploma in that speciality duly recognized.	Phase-I (MCQ Test) Professional Test=100 marks (Syllabus is available in next column) Phase-II (Descriptive Exam) Paper-I (English) = 100 Marks (Syllabus is placed at Page-7) Paper-II (Professional) = 100 Marks (Syllabus is placed at Page-8)	<ul style="list-style-type: none"> • Core courses of MBBS degree program. • Core courses of diploma in Accupuncture • Care vs. Cure for Health Management • Targets and achievements of Health Policy of the Government, • Hospital Administration • Future plans of the government for health services to Public.

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5.	39/2015	Nautical Instructor (BS-17), Pakistan Marine Academy Karachi, Ministry of Ports and Shipping.	i) Second Mate (Foreign Going)/ Mate Home Trader/ Sub-Lieut (S.D)/ Hony. Sub-Lieut (S.D). ii) Two (2) years experience as Instructor in a training Establishment for Sailors or equal number of Sea Service in the Rank.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test = 80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> Teaching GP-III Trainees Conduct of Short Mandatory Courses like First Aid, Survival at Sea, Fire Fighting, etc. Navigation and handling of Boats Planning and Development alongwith practical instructions in General Seamanship.
6.	42/2015	Education Officer (English) (BS-17), Pakistan Marine Academy Karachi, Ministry of Ports and Shipping	Second Class or Grade 'C' Master's Degree in the relevant subject or equivalent qualification from a recognized University.	Objective Type Test (MCQ) Part-I Subject Test = 70 marks Part-III Professional Test=30 marks	Part-I (Masters Level) (70 Marks) <ul style="list-style-type: none"> English Literature 14th to 20th Century. Vocabulary Structuring of Sentences. Linguistics. Grammar. Syntax. Diction. Importance of English Language Teaching. Part-II (30 Marks) <ul style="list-style-type: none"> Teaching Techniques and Methodology Classroom Management and Discipline Testing and Evaluation Development of Education in Pakistan
7.	48/2015	Assistant Private Secretary (BS-16), Planning and Development Division	i. Second class or Grade "C": Bachelor's degree from a University recognized by HEC ii. A minimum speed of 100/50 w.p.m in shorthand/typing respectively iii. Must be computer literate.	<ul style="list-style-type: none"> Typing Test with minimum Speed of 50 W.P.M 40 Marks Shorthand Test with minimum Speed of 100 W.P.M 40 Marks Computer Literacy Test: <ul style="list-style-type: none"> i Microsoft Word (Typing, Formatting) 10 Marks ii Microsoft Excel (Typing, Graph, Calculations) 10 Marks 	

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8.	49/2015	Deputy Director (BS-18), Geological Survey of Pakistan, Ministry of Petroleum and Natural Resources.	<p>i. Second Class or Grade 'C' M.Sc. in Geology or equivalent qualification OR Second Class or Grade 'C' B.Sc. (Hons) degree in Geology or equivalent from a University recognized by the HEC.</p> <p>ii. Five (5) years post qualification research experience in the fields of Geology.</p> <p>iii. Must have published three (3) research papers in the fields of Geology.</p>	<p>Phase-I (MCQ Test) Professional Test=100 marks (Syllabus is available in next column)</p> <p>Phase-II (Descriptive Exam) Paper-I (English) = 100 Marks (Syllabus is placed at Page-7) Paper-II (Professional) = 100 Marks (Syllabus is placed at Pages 9-10)</p>	<ul style="list-style-type: none"> • Structure Geology and tectonic zone of Pakistan • Stratigraphy of Pakistan • Mineral resources of Pakistan • Paleontology and Major Index fossils of Pakistan • Geological mapping techniques in Pakistan • Clastic and non-clastic rocks and their provenance • Metallogenic zones of Pakistan • Ophilites of Pakistan • Geomorphology of Pakistan • Hydrological Basins of Pakistan
9.	50/2015	Deputy Director (BS-18), Textile Commissioner's Organization Karachi, Ministry of Textile Industry	<p>i. Master's Degree in Textile Technology.</p> <p>ii. Three (3) years post qualification experience in the field of Textile in Government/ Semi Government/ Reputable Private Industrial Research/ Trade Organization. OR</p> <p>i. Second Class or Grade 'C' Bachelor's Degree in Textile Technology.</p> <p>ii. Five (5) years post qualification experience in the field of Textile in a Government/ Semi Government/ Reputable Private Industrial Research/ Trade Organization.</p>	<p>Phase-I (MCQ Test) Professional Test=100 marks (Syllabus is available in next column)</p> <p>Phase-II (Descriptive Exam) Paper-I (English) = 100 Marks (Syllabus is placed at Page-7) Paper-II (Professional) = 100 Marks (Syllabus is placed at Page 11)</p>	<ul style="list-style-type: none"> • Textile Engineering Material, • Advance Weaving and Spinning Engineering • Fibre Science and Fabric Manufacturing • Yarn Manufacturing • Fabric Design and Structure • Dyeing and Printing • Industrial Engineering and Management • Textile Testing, Quality Control and Marketing • Textile Project Planning, Execution and Management • Import and export of bed wear, cotton clothes, cotton yarn, knitwear • Growth of textile industry in Pakistan, • Textile Policy of Pakistan.

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10.	51/2015	Assistant Private Secretary (BS-16), Textile Commissioner's Organization, Ministry of Textile Industry	i. Second class or Grade "C": Bachelor's degree from a University recognized by HEC ii. A minimum speed of 100/50 w.p.m in shorthand/typing respectively iii. Must be computer literate.	<ul style="list-style-type: none"> • Typing Test with minimum Speed of 50 W.P.M • Shorthand Test with minimum Speed of 100 W.P.M • Computer Literacy Test: <ul style="list-style-type: none"> i Microsoft Word (Typing, Formatting) ii Microsoft Excel (Typing, Graph, Calculations) 	40 Marks 40 Marks 10 Marks 10 Marks
11.	52/2015	Deputy Assistant Director (BS-16), Board of Investment, Prime Minister's Secretariat (Public).	i) Second class or grade 'C' Bachelor's degree. ii) Five (5) years post qualification experience in personnel administration/ secretariat work.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test = 80 marks	Part-I Sentence Structuring, Grammar usage. Part-II <ul style="list-style-type: none"> • Institutional Management, • Financial Management, • Rules of Business • Secretariat Instructions & Office Procedure • General Financial Rules (Vol-I & II) • Civil Servants Act 1973 and Rules made thereunder • Public Procurement Rules, 2004
12.	53/2015	Trained Graduate Teacher (Physics) (Female), (BS-16) Directorate of Federal Government Educational Institutions, (Urdu Medium Schools) (Cantts/ Garrisons), Ministry of Defence	i. Second Class or Grade 'C' Bachelor's Degree in the relevant subject ii. B.Ed.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Subject Test = 40 marks Part-III Professional Test = 40 marks	Part-I Sentence Structuring, Grammar Usage. Part-II (Bachelor's Level) <ul style="list-style-type: none"> • Work and Energy • Angular Momentum • Gravitation • Waves, Sound and Light • Thermodynamics • Faraday's Law of Electromagnetic Induction Part-III <ul style="list-style-type: none"> • Education System in Pakistan, • Educational Psychology, • Class Room Management and Discipline, • Instructional Planning and Teaching Strategies, • Students Evaluation and Examination System, • Educational Guidance and Counselling

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13.	54/2015	Senior Scientific Assistant (BS-16), Naval Headquarter, Pakistan Navy, Ministry of Defence	i. Second Class OR Grade 'C' Bachelor's Degree in Science with Chemistry/ Chemical Technology. ii. Three years post qualification experience in the field of prescribed qualification.	Objective Type Test (MCQ) <u>Part-I</u> English =20 marks <u>Part-II</u> Professional Test=80 marks	<u>Part-I</u> Sentence Structuring, Grammar Usage <u>Part-II</u> <ul style="list-style-type: none"> • Nature, Properties & States of Matter, • Thermodynamics • Chemical Equilibrium • Atomic Structure & Periodic Table • Chemical Bonding • Chemical Kinetics, • Radioactivity, • Synthetic Chemistry (use of Grignard Reagent/ active methylene containing compounds and aromatic diazonium salts) • Polymers, • Electrochemistry, • Solutions and Colloidal State.
14.	58/2015	Graphic Officer (Civilian), (BS-16), GHQ, Ministry of Defence.	i) Intermediate ii) 10 years experience (Post Qualification) in Graphic arts viz (a) Press advertising and publicity: (b) Publication designing and layout (c) Title designing and animation of films (d) Calligraphy (English) and typography (e) Lithography viz: (i) Colour separation (Line); (ii) Film making (line and half-tone); (iii) Film mounting (Colour/black and white); and (iv) complete knowledge of all kinds of printing i.e off-set, letter press dye stamping and ornamental printing. OR Post-Inter Diploma in Printing and Graphic Arts with three (3) years experience as detailed above	Objective Type Test (MCQ) <u>Part-I</u> English = 20 marks <u>Part-II</u> Professional Test = 80 marks	<u>Part-I</u> Sentence Structuring, Grammar Usage. <u>Part-II</u> <ul style="list-style-type: none"> • Knowledge of Adobe Photoshop, CorelDraw and Inpage • Finishing/Improvement Procedures in Picture by using Adobe Photoshop and CorelDraw • Paper Sizing Methods for Magazine Printing • Printing Process of Publication • Publication Designing and Layout • Sizes of Pictures (DPI/Pixel) in Designing and better printing quality of Magazines. • Complete knowledge of all kinds of printing (Off-set, Letter press dye stamping and ornamental printing).

**Syllabi for Written Examination (Descriptive)
for all posts in BS-18 & BS-19
(Case Nos. 38/2015, 49/2015 & 50/2015)**

PAPER-I: ENGLISH (100 MARKS)

- (i) **English Essay-50 Marks:** Candidates will be required to write an Essay in English comprising **1500 words** from a set of **six given topics**. Candidates are expected to reflect comprehensive and research based knowledge on a selected topic. Candidate's articulation, expression and technical approach to the style of English Essay writing will be examined.
- (ii) **English (Composition and Précis)-50 Marks:**
The examination will test the candidate's abilities to handle Précis Writing, Reading Comprehension, Sentence Structuring, Translation, Grammar and Vocabulary, etc.
Précis Writing (10 marks): A selected passage with an orientation of generic understanding and enough flexibility for compression shall be given for précising and suggesting an appropriate title.
Reading Comprehension (10 marks)
A selected passage that is rich in substance but not very technical or discipline-specific shall be given, followed by five questions, each carrying 2 marks.
Grammar and Vocabulary (10 marks): Correct usage of Tense, Articles, Prepositions, Conjunctions, Punctuation, Phrasal Verbs, Synonyms and Antonyms etc.
Sentence Correction (5 marks): Ten sentences shall be given each having a clear structural flaw in terms of grammar or punctuation. The candidates shall be asked to rewrite them with really needed correction only, without marking unnecessary alterations. No two or more sentence should have exactly the same problem, and 2-3 sentences shall be based on correction of punctuation marks.
Grouping of Words (5 marks): A random list of ten words of moderate standard (neither very easy nor utterly unfamiliar) shall be given, to be grouped by the candidates in pairs of those having similar or opposite meaning, as may be clearly directed in the question.
Pairs of Words (5 marks): Five pairs shall be given of seemingly similar words with different meanings, generally confused in communication, for bringing out the difference in meaning of any five of them by first explaining them in parenthesis and then using them in sentences.
Translation (5 marks): Ten short Urdu sentences involving structural composition, significant terms and figurative/idiomatic expressions shall be given, to be accurately translated in English.

SUGGESTED READINGS

Sr. No.	Title	Author
1.	English Grammar in Use	Raymond Murphy (Cambridge University Press)
2.	Practical English Usage	M. Swan (Oxford University Press)
3.	The Little, Brown Handbook	H. Ramsey Flower & Jane Aaron (The Little, Brown & Co; Harper Collins)
4.	A University English Grammar	R. Quirk & S. Greenbaum (ELBS; Longmans)
5.	Write Better, Speak Better	Readers Digest Association
6.	Modern English in Action	Henry Christ (D.C. Heath & Co.)
7.	Exploring the World of English	Syed Saadat Ali Shah

PAPER-II: PROFESSIONAL (100 MARKS)
for Deputy Director (BS-18)
 (Case No. 49/2015)

Geology: 100 Marks

I. Stratigraphy and Paleontology

Principles of stratigraphy; laws of superposition and faunal succession. Geological time scale with divisions. Classification and nomenclature of stratigraphic units: lithostratigraphic units, biostratigraphic units and chronostratigraphic units.

Introduction to fossils and their significance; modes of fossilization, Study of morphology, range and broad classification of major invertebrate phyla; Introduction to micro fossils; Introduction to Paleobotany; Introduction and classification of major vertebrates; Introduction to micropaleontology

II. Mineralogy

Classification of minerals; Study of internal structure; polymorphism and isomorphism; paragenesis; Physical and optical properties of the common silicate and non-silicate mineral groups; Introduction to crystallography; elements of symmetry, study; normal classes of crystallographic systems.

III. Structural Geology and Tectonics

Stress-strain concepts; factors which control the mechanical behavior of materials; Folds, Faults, Joints, Foliation: terminology, classification and relationship with bedding; Lineation, Unconformity.

Plate tectonics theory; Geological evidences for continental drift; Sea-floor spreading; Oceanic ridges; Continental rifts; Intra-oceanic islands; Hot spot and Mantle plumes; Wilson Cycle; Tectonic framework of Pakistan.

IV. Sequence Stratigraphy

Introduction, history, concept and significance of sequence stratigraphy; Data sources: seismic reflections, outcrops, well logs, core and seismic facies; Sea level changes, their causes and effects; Accommodation, eustatic and relative sea curve; Hierarchy of sequence stratigraphic elements; Types of sequences and systems tracts.

V. Mineral and Energy Resources

Introduction of geological exploration/prospecting. Brief description of hydrocarbons, coal, gemstones, copper, lead, zinc, iron, gold, chromite, manganese, salt, gypsum, bauxite, sulphur, barite, fluorite, clays, phosphorite, building and dimension stones, industrial rocks and minerals, radioactive minerals and rocks with special reference to economic mineral deposits in Pakistan.

Origin, occurrence, and depositional environments of coal; coal Constitution and kinds of coals. Coal rank, grade and calorific value. Coal deposits of Pakistan with reference to Thar Coal. Geothermal energy resources of Pakistan.

VI. Engineering and Environmental Geology

Rock and soil mechanics and its application in civil engineering; Rock mass characteristics; Geotechnical studies of rocks and soils; Geological factors and strength of rocks; Study of geological factors in relation to the construction of buildings and foundations, roads, highways, tunnels, dams and bridges; Application of geophysical methods for site investigation; Construction materials; Mass movement, their causes and prevention.

VII. Economic and Applied Geology

Metallic and Non-metallic mineral resources of Pakistan. Mineral-based industries. Overview of Recodec Copper. Radioactive minerals and their occurrences in Pakistan. Gemstones of Pakistan

Geology of Reservoirs, Dams .Highways and Tunnels. Major natural hazards and their Impact on the environment with special reference to Pakistan.

SUGGESTED READINGS

S. No.	Title	Author
1.	Principles of Paleontology	Raup, D.M. & Stanley, S.M
2.	Principles of Sedimentology and Stratigraphy	Boggs, S
3.	Mineralogy	Perkins, D
4.	Plate Tectonics – Geodynamics	Moores, E.M. & Twiss, R.J
5.	Structural Geology	Twiss, R.J. & Moores, E.M.,
6.	Sequence Stratigraphy	Emery, D. & Myers, K.J.,
7.	Geology of Pakistan	Bender, F.K. & Raza, H.A.,
8.	Environmental Geology	Montgomery, C.W.,
9.	Economic Geology: Principles and Practice	Walter L. Pohl
10.	Energy Resources	Brown and Skipsy
11.	Pakistan Energy Yearbook 2012	Ministry of Petroleum and Natural Resources Hydrocarbon Development Institute of Pakistan. Islamabad

PAPER-II: PROFESSIONAL (100 MARKS)
for Deputy Director (BS-18)
 (Case No. 50/2015)

Textile Technology: 100 Marks

- I. **Textile Fibre:** Definition and classifications of textile fibres, Vegetable Fibres, Animal Fibres, Mineral Fibres, Regenerated Fibres and Synthetic Fibres
- II. **Textile Engineering Utilities & Services:** Compressors, Air conditioners, Humidifiers, Industrial lighting, Fire fighting systems, Steam generation systems, Steam transportation systems, Water and energy conservation in textile industry
- III. **Textile Chemical Processing:** Introduction to textile chemical processing, Chemical processing flow chart, Shearing & Singeing Fundamentals, Desizing & Scouring Fundamentals, Bleaching & Mercerizing Fundamentals, Dyeing Fundamentals, Color Science Fundamentals, Printing Fundamentals, Finishing Fundamentals
- IV. **Yarn Production Process:** Roving, Spinning, Auto winding, Yarn conditioning and packaging
- V. **Statistical Methods used in Textile Industry:** Introduction to statistics & probability, Acceptance sampling in textiles, Measures of central tendency, Measures of variation, Analysis of variation (ANOVA), Correlation & Regression, Statistical process control, Process control charts, Pareto charts, Process capability analysis, Design & analysis of experiments

SUGGESTED READINGS

S. No.	Title	Author
1.	Handbook of Textile Fibres	J. Gordon Cook
2.	Air-conditioning in Textile Mills	S. P. Patel, ATIRA silver jubilee monographs
3.	Heat Transfer Design Methods	John J. McKetta Jr
4.	Textile Project Management	A. Ormerod
5.	Dyeing of Textile Materials	Jose Cegarra, Textilia
6.	Textile Printing	W.C. Miles
7.	Spun Yarn Technology	Eric Oxtoby
8.	Manual of Cotton Spinning	Gilbert R. Merrill
9.	Statistical Methods used in Textile Industry	A. Brearley & D.R. Cox