

FEDERAL PUBLIC SERVICE COMMISSION
(Curriculum & Research Wing)

Schemes and Syllabi for Screening/Professional Tests as well as Descriptive Examination
Relating to Posts Advertised under Consolidated Advertisement No. 08/2016

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications for Posts	Test Specification	Topics of Syllabi
1.	192/2016	Assistant Private Secretary (BS-16), Geological Survey of Pakistan, Ministry of Petroleum and Natural Resources	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 	50 Marks 50 Marks
2.	194/2016	Junior Librarian (BS-16), Department of Libraries, Capital Administration & Development Division	i. Second Class or Grade 'C' Master's Degree in Library Science or equivalent qualification from a university recognized by HEC. OR Second Class or Grade 'C' Bachelor's Degree in Library Science or equivalent qualification from a university recognized by HEC. ii. Two (02) years post qualification experience in the relevant field.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Introduction to Library & Information Science • Information Sources and Services • Classification: Theory and Practice • Cataloguing: Theory and Practice • Collection, maintenance and issuance of library books. • Library Automation/Information Storage & Retrieval • Research Methods & Techniques for Librarians • Public Records, Rare Material & their Conservation • Management of Serials Publications • Rules & Procedure for Write off of library material
3.	196/2016	Assistant Chief Administrative Officer (BS-17), GHQ, Ministry of Defence.	Second Class or Grade 'C' Master's Degree in Business Administration/ Public Administration or equivalent from a university recognized by HEC.	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"> • Accounting Principles & Procedures, • Journal, ledger & Cash Book, • Annual Budget, • Adjustment & Depreciation, • Financial Planning & Cost Accounting, • Head of Accounts, Re-appropriation of Accounts and Supplementary Grant, • Settlement of Audit Objections • Preparation of Pension Documents. • System of Financial Control and Budgeting, 2006 • Public Procurement Rules, 2004

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications for Posts	Test Specification	Topics of Syllabi
4.	197/2016	Cameraman (Male) (BS-16), GHQ, Ministry of Defence.	<p>i. Intermediate</p> <p>ii. Three (3) years post qualification experience in cinematography with a Film Studio/ Film Production Unit, Producing Newsreels and documentary Films in Digital System/ 16mm and 35mm.</p>	<p>Objective Type Test (MCQ)</p> <p>Part-I</p> <p>English = 20 marks</p> <p>Part-II</p> <p>Professional Test = 80 marks</p>	<p>Part-I</p> <p>Grammar Usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> • Functions of Still/Movie Cameras • Use of Densitometer • Functions of O.B. Van • Operation of Photographic, Rotary, and Movie Cameras • Techniques for Quality output of Cameras and HD Movies • Safety of Cameras.
5.	198/2016	Assistant Director (Geology) (BS-17), Geological Survey of Pakistan, Ministry of Petroleum and Natural Resources	Second Class OR Grade 'C' M.Sc. degree in Geology OR equivalent qualification from a University recognized by the HEC.	<p>Objective Type Test (MCQ)</p> <p>Part-I</p> <p>English = 20 marks</p> <p>Part-II</p> <p>Professional Test=80 marks</p>	<p>Part-I</p> <p>Vocabulary, Grammar Usage, Sentence Structuring.</p> <p>Part-II</p> <ul style="list-style-type: none"> • Geomorphology • Stratigraphy • Structural Geology • Plate Tectonics • Physical Geology • Palaeontology (Invertebrate & Vertebrate) • Geochemistry • Geological Mapping • Petrology & Mineralogy • Engineering Geology • Mineral and Energy Resources

**Scheme and Syllabus for Written Examination (Descriptive)
for All Posts in BS-20 & BS-21 advertised under Consolidated
Advertisement No. 08/2016**

i)	Case No.	F.4-187/2016-R
	Particulars of post	Deputy Chief Cost Accounts Officer (BS-20), Finance Division
	Minimum Qualification & Experience:	<ul style="list-style-type: none"> i. CA/ACMA Degree from a recognized university. ii. Associateship of Cost and Management Accountancy. iii. Ten (10) years post qualification experience in Cost Accounting in a responsible position.
ii)	Case No.	F.4-189/2016-R
	Particulars of post	Chief Cost Accounts Officer (BS-21), Finance Division
	Minimum Qualification & Experience:	<ul style="list-style-type: none"> i. CA/ACMA Degree from a recognized university.. ii. Fellowship of the Institute of Cost and Management Accounts of Pakistan. iii. Fifteen (15) years post qualification experience in Cost Accounting in a position equivalent to BS-17 and above, after obtaining the Fellowship of the Institute of Cost and Management Accounts of Pakistan.

PAPER: ENGLISH (100 MARKS)

English Essay: Candidates will be required to write an Essay in English from three topics comprising approximately **2000 words**. Candidates are expected to reflect comprehensive and research based knowledge on a selected topic. Candidate's articulation, expression and technical treatment of the style of English Essay writing will be examined.

OR

Case Study: Candidates will be given real situation case studies related to advertised posts/organization concerned and will be expected from the candidates to present (i) identification of issues (ii) evaluation of issues (iii) legal or case related theories (iv) evaluation of case facts if required and (v) possible solution of the case or writing judicial order, if the case so requires.

Schemes & Syllabi for Written Examination (Descriptive)

Case No.	F.4-195/2016-R
Particulars of post	Senior Official Reporter (Urdu) (BS-18), National Assembly Secretariat, Islamabad
Minimum Qualification & Experience:	i) Second Class or Grade "C" Bachelor Degree from HEC recognized university. ii) Urdu Shorthand Speed 140 words per minute. iii) Urdu Typing Speed 50 words per minute. iv) Proficiency in relevant Computer Softwares v) Five (5) years relevant post qualification experience rendered in Public/Private Sector.

PAPER-I: URDU

Max Marks: 100

Time Allowed: 3 Hours

اردو مضمون نویسی	(30 نمبر)	-1
امیدوار نے چھ عنوانات میں سے کسی ایک پر کم از کم 1000 الفاظ پر مشتمل ایک مضمون لکھتا ہے۔ جس میں امیدوار کا نظم، تحقیق، اور سوچ کا اظہار ہو۔		
اردو تلخیص نویسی	(15 نمبر)	-2
اردو گرامر	(10 نمبر)	-3
اردو ذخیرہ الفاظ	(10 نمبر)	-4
اردو سے انگریزی ترجمہ	(10 نمبر)	-5
انگریزی سے اردو ترجمہ	(10 نمبر)	-6
متضاد اور متضاد الفاظ	(10 نمبر)	-7
جملوں کی درنگی	(05 نمبر)	-8

کتاب برائے استفادہ

نمبر شمار	عنوان	مصنف
-1	دری اردو کمپوزیشن	غلام جیلانی مخدوم
-2	ٹانوی زبان کی حیثیت سے اردو کی تدوین	ڈاکٹر محمد سلیمان الطہر
-3	اردو انگریزی فارسی گرامر	سید وقار احمد رضوی
-4	اردو جمل مع اردو مضامین و عروضی سوالات برائے ایس ایس ایس، پی ایچ ایس	جہانگیر بکس ڈپو
-5	مقابلے کے لئے اردو مضامین برائے ایس ایس ایس، پی ایچ ایس	جہانگیر بکس ڈپو

PAPER-II: PROFESSIONAL

Max Marks: 100

Time Allowed: 3 Hours

S. No.	Detail of Topics	Marks
1.	Urdu Typing Test with minimum speed of 50 W.P.M	50
2.	Urdu Shorthand Test with minimum speed of 140 W.P.M	50

**Schemes and Syllabi for Written Examination (Descriptive)
for All Posts in BS-18 & BS-19 (except case No. 195/2016)
included in Consolidated Advertisement No. 08/2016**

PAPER-I: ENGLISH

Max Marks: 100

Time Allowed: 3 Hours

- (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 précis writing and suggesting an appropriate title.
- Reading Comprehension (10 marks)**
A selected passage, 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 sentences 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: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

Case No.	F.4-186/2016-R
Particulars of post	Assistant Chief (BS-18), Physical Planning & Housing Section, Ministry of Planning, Development and Reform.
Minimum Qualification & Experience:	<p>i. Second Class or Grade "C" Bachelor's degree or equivalent qualification in Civil Engineering, Architecture, Town Planning, City and Regional Planning.</p> <p>ii. Three (3) years post qualification experience of work and/or research in building construction, housing, public health engineering projects, architecture, city or regional planning..</p>

Part-I: (Research and Planning)**50 Marks****i. Communication Skills, Technical Writing and Presentation Skills**

Paragraph writing, Essay writing, CV and job application, Translation skills, Study skills, Academic skills, Essay writing, Academic writing, Technical Report writing, Progress report writing, Presentation skills

ii. Planning and Management**a) Project Management**

Project Management. Processes Integration Management, Project Plan Development, Project Plan Execution and Overall Change Control.

b) Scope Management

Initiation, Scope Planning, Scope Definition, Scope Verification and Scope Change Control.

c) Time Management

Activity Definition, Activity Sequencing, Activity Duration Estimation, Schedule Development and Schedule Control.

d) Cost Management

Quality Planning, Staff Acquisition and Team Development.

e) Communications Management

Communications Planning, Information Distribution, Performance Reporting and Administrative Closure.

f) Risk Management

Risk Identification, Risk Quantification, Risk Response Development and Risk Response Control.

g) Procurement Management

Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration and Contract Close-Out.

h) Closing

Administrative Closure, Contract Close-Out and Lessons Learnt.

i) Lab Work

Computing Project Management Software, PERT, Gantt Chart/ Network, CPM, etc.

j) Statistical Techniques

All statistical techniques related to Planning & Research

Part-II: (Engineering)**50 Marks****I. Civil Engineering Fundamentals:**

Building material & Building Construction, Surveying & Levelling, Hydraulic & Hydrology, Soil Mechanics & Foundation, Concrete Technology & R.C.C Structure Design, Irrigation, Steel Structure, Construction Management, Structural Design Applications, Dam Designing and Construction, Engineering Materials, Reinforced Concrete, Ground Improvement, Earth and Rock Structure

II. Public Health Engineering:

Environmental impacts on water resources projects, waste water treatment and management, water supply and distribution.

III. Costing, Accounting and Budgeting:

Net present value, Net future value, cash flows, auditing, income statement, balance sheet, taxation, financial risk management, cost analysis.

IV. Project Management:

Time lines, milestones, resources allocation, dependency, Gantt Charts,

V. Inventory Management:

FIFO models, LIFO models, Identification Schemes, Inventory management systems.

VI. Quality Management Systems:

QA models. Deming, Juran Crosby, Quality circles, management responsibility, quality planning, purchasing, design process and design validation, quality audit, corrective and preventive measures.

SUGGESTED READINGS

S.No.	Title	Author
1.	Practical English Grammar	A.J. Thomson and A.V. Martinet.
2.	Writing. Upper-Intermediate	Rob Nolasco.
3.	Reading. Advanced	Brian Tomlinson and Rod Ellis.
4.	Study Skills	Riachard Yorcky
5.	Writing. Advanced	Ron White.
6.	College Writing Skills	John Langan.
7.	Patterns of College Writing	Laurie G. Kirszner and Stephen R. Mandell.
8.	Project Management Body of Knowledge,	Project Management Institute (PMI) standards committee
9.	A handbook of Civil Engineering	P. N. Khanna
10.	Properties of Concrete	A.M. Neville.
11.	Plain and reinforced concrete	Nilson.
12.	Strength of material	Andrew Pytel and Singer.
13.	Civil Engineer's Reference Book	LS Blake
14.	Surveying and Levelling	T.P Kanetaker.
15.	Public Health Engineering	STEEL.
16.	Handbook of Engineering Management	Dennis Lock.
17.	Total Quality Management	Dale H. Besterfield, Carol Besterfield-Michna, Glen H. Besterfield, Mary Gesterfield-Sacre

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	F.4-188/2016-R
Particulars of post	Cost Accounts Officer (BS-19), Finance Division
Minimum Qualification & Experience:	i. ACMA Degree from a recognized university. ii. Associateship of Cost and Management Accountancy. iii. Seven (7) years post qualification experience in Cost Accounting in a responsible position.

Cost and Managerial Accounting**100 Marks**

- I. **Fundamental Cost Accounting Principles and Concepts:** Nature and Scope of Cost and Managerial Accounting; Cost Concepts, Elements and Classification; Underlying Differences among Financial, Cost, and Management Accounting.
- II. **Accounting for Material, Labour and Factory Overheads (FOH):** Recognition and Valuation Principles for Material Inventory, and Methods to control Material Inventory; Calculation/Measurement and Accounting for Payroll for all forms of Labour, Time Rate and Piece Rate Systems; Commonly used Group Incentive Schemes; Factory Overhead Costs and FOH Rate, Departmentalization of FOH Costs, their Allocation, Apportionment and Reapportionment (Primary and Secondary Distributions), Methods for Secondary Distribution including both Repeated Apportionment/Distribution and Algebraic Method.
- III. **Costing for Specific Jobs, and Process Costing:** Nature of a Specific Job, and Job-order Costing; Process Flow and Process Costing by the use of Cost of Production Report (CPR).
- IV. **Management Accounting for Planning, Decision-making and Control:**
Budgeting and its Use: Meaning and Nature of a Budget; Major Forms of a Budget including Production and Sales Budget, Cash Budget, Flexible Budgets, Zero-based Budget, Master Budget etc.
Break-even Analysis: Difference between Marginal and Absorption Costing Techniques; Concept of Relevant Cost; Application and Use of Contribution Margin and other Concepts for Planning and Decision-making (under Break-even Analysis)
Variance Analysis: Meaning and Use of Standards and Variances; Major Classification of Variances including Material, Labour and FOH Variances, and their Computation.

SUGGESTED READINGS

S. No.	Title	Author
1.	Principles of Accounting, and Advanced Accounting	M.A Ghani and Ejaz
2.	Cost Accounting – Planning and Control	Usry, Hammer, Matz
3.	Managerial Accounting	Peter C. Brewer, Ray H. Garrison, Eric W. Noreen.
4.	Cost Accounting	Jain and Narang
5.	Cost Accounting	Nisar ur Din.

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

Case No.	F.4-190/2016-R
Particulars of post	Principal (Female) (BS-18), F.G. English Medium Schools, Directorate of Federal Government Educational Institutions (Cantts/ Garrisons), Ministry of Defence.
Minimum Qualification & Experience:	i) Second Class or Grade 'C' Master's Degree. ii) M.Ed/ Second Class B.Ed. iii) Five (5) years post qualification teaching and administrative experience in an educational institution.

Part-I: 50 Marks(Human Resource, Financial Management,
Quality Management and Information Technology)**I. Human Resource and Financial Management**

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

II. Basic Concept of Quality Management

ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

III. Information Technology and MS Office

Fundamentals of Computer: CPU, Memory Devices, Types of Computers, Characteristics of Computer and related material; Application Software: Microsoft Word, Microsoft Power Point, Microsoft Excel; Search Engines, Web Design, Email, Internet Surfing, Social Networking (Facebook, Twitter, etc); General Introduction to Virus and Antivirus utilities; Programming Languages

Part-II: (Professional)**50 Marks****I. Development of Curriculum and Instructional Material**

- Elements of Curriculum.
- Relationship of Education and Curriculum
- Curriculum Development Process: Need Assessment, Formulation of Aims and Objectives, Taxonomies of Educational Objectives, Selection of Content, Development of Curricular Materials.

II. Process of Teaching and Teaching Strategies

- Process of Classroom Communication
- Factors affecting Classroom Communication
- Barriers to Classroom Communications
- Use of Instructional Materials and Media

III. Educational Assessment and Evaluation

- Concept of Classroom Assessment and Evaluation
- Distinction between Assessment, Evaluation and Measurement
- Approaches to Evaluation: Formative Evaluation; Summative Evaluation
- Types of Test: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Test
- Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Educational Administration and Supervision

- The Concept of Administration
- Educational Planning and Organization in Pakistan
- Approaches to Educational Administration: Democratic; Authoritarian; Laissez-faire
- Educational Supervision

V. Research Methods in Education

- Scientific Method and its Application in Education
- Sampling Techniques:
- Research Instruments: Questionnaire; Interview; Test; Observation; Rating Scale
- Type of Research: Basic/Applied Research; Historical Research; Descriptive Research; Correlation Research; Causal-Comparative Research; Experimental Research; Action Research; Qualitative and Quantitative Research
- Research Proposal and Report Writing

SUGGESTED READINGS

S. No.	Title	Author
6.	Human Resource Management	H.T. Graham & Roger Bennett
7.	Management	James A.F. Stoner, R. Edward Freeman, Daniel R. Gilbert Jr.
8.	Understanding Computer: Today and Tomorrow	Deborah Morley, Charles Parker
9.	MS Office 365 Handbook: 2013 Edition	Kevin Wilson
10.	Research in Education	JW Best
11.	Integrating Education Technology into Teaching	Roblyer
12.	Curriculum Development	S. M. Shahid
13.	Educational Measurement and Evaluation	S. M. Shahid
14.	Educational Administration	S. M. Shahid

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

Case No.	F.4-193/2016-R
Particulars of post	Doctor (BS-18), National Highways and Motorways Police, Ministry of Communications.
Minimum Qualification & Experience:	<p>i. MBBS or equivalent qualification recognized by Pakistan Medical and Dental Council.</p> <p>ii. Postgraduate higher diploma in the requisite speciality with three (3) years clinical experience, in the speciality</p> <p style="text-align: center;">OR</p> <p>Postgraduate lower diploma, in the requisite speciality with five (5) years clinical experience, in the speciality.</p>

Part-I: (Qualification Based)**50 Marks**Core courses of **MBBS Degree****Part-II: (Professional)****50 Marks**Core courses of Post Graduate Lower Diploma in **Medicine**.

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

Case No.	F.4-200/2016-R
Particulars of post	Director (BS-19), Zoological Survey of Pakistan, Climate Change Division, Islamabad
Minimum Qualification & Experience:	i Second Class or Grade 'C' Master's degree in Zoology or equivalent from a recognized University. ii Twelve (12) years post qualification research and field experience in Zoology or Marine Biology or Ecology or Wildlife.

Part-I: 50 Marks

(Human Resource, Financial Management, Quality Management and Information Technology)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

II. Basic Concept of Quality Management

ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

III. Information Technology and MS Office

Fundamentals of Computer: CPU, Memory Devices, Types of Computers, Characteristics of Computer and related material; Application Software: Microsoft Word, Microsoft Power Point, Microsoft Excel; Search Engines, Web Design, Email, Internet Surfing, Social Networking (Facebook, Twitter, etc); General Introduction to Virus and Antivirus utilities; Programming Languages

Part-II: (Zoology)**50 Marks****I. Animal Diversity-Chordata**

- Hemichordates and Invertebrate Chordates: Evolutionary Perspective: Phylogenetic Relationships and considerations.
- Fishes: Structural and functional adaptations of fishes.
- Amphibian: Movement onto land and early evolution of terrestrial vertebrates.
- Reptiles: Characteristics of reptiles, adaptations in reptilians.
- Birds: Migration and navigation, adaptations.
- Mammals: Structural and functional adaptations of mammals.

II. Principles of Animal Life

- The chemical basis of animal life: Brief introduction to bio-molecules; carbohydrates, lipids, proteins and nucleic acids.
- Protozoa: Reproduction pattern on in protozoan, Parasitism in protozoan

- Mesozoza and Parazoa: Porifera: Cells types, body wall and skeleton and water currents system, Coelenterata: Reproduction plan and alteration of generation (Polymorphism)
- Tissues Types: epithelial, connective, muscle and nervous tissue; organs and organ systems.
- Ecological Concepts: Interactions, Concepts and components of ecosystem, Food chain, Food web, Biogeochemical cycles, Forest, Biomes, Wildlife conservation and management, Environmental pollution, Green house effect, Acid rain, Global warming.
- Evolution: Darwinian evolutionary theory based on natural selection and the evidence, Microevolution: Genetic variation and change within species, Macroevolution: Species and speciation (Allopatric, Parapatric and Sympatric speciation)

III. Animal Form and Function

- Protection, Support and Movement: Integumentary system of invertebrates and vertebrates; Animal muscles: the muscular system of invertebrates and vertebrates.
- Digestion and Nutrition: Feeding mechanism, Digestion, Organization and regional function of alimentary canals, Regulation of food intake, Nutritional requirements
- Internal Fluids and Respiration: Internal fluid environment, Composition of blood, Circulation and respiration mechanisms
- Nervous Coordination: Nervous system and Sense: Functional units of nervous systems, Synapses junctions between nerves.
- Chemical Coordination: Endocrine System; Vertebrate endocrine glands and types of hormones, Mechanism of hormones action,
- Animal Behavior: Learning, Habituation, Insight learning, latent learning, classical learning: Control of Behavior; social behavior

SUGGESTED READINGS

S. No.	Title	Author
1.	Human Resource Management	H.T.Graham & Roger Bennett
2.	Management	James A.F.Stoner, R.Eward Freeman, Daniel R.Gilbert Jr.
3.	Understanding Computer: Today and Tomorrow	Deborah Morley, Charles Parker
4.	MS Office 365 Handbook: 2013 Edition	Kevin Wilson
5.	Integrated Principles of Zoology.	Hickman, Jr. C.P., Keen, S. L, Larson, and Eisenhour, D.J.
6.	Zoology	Miller, S. A. and Harley, J. B.
7.	Biology	Campbell, N.A.
8.	Evolution. 2nd Edition	Douglas Futuyma
9.	Animal behavior: An Evolutionary Approach. 9 th Edition	John Alcock

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

Case No.	F.4-201/2016-R
Particulars of post	Senior Drilling Engineer (BS-18), Geological Survey of Pakistan, Ministry of Petroleum and Natural Resources.
Minimum Qualification & Experience:	<p>i) Second Class or Grade 'C' B.E/ B.Sc. degree in Mechanical/ Mining/ Civil Engineering or equivalent from a University recognized by the HEC.</p> <p>ii) Five (5) years post qualification experience of drilling including one year experience in diamond core drilling.</p>

Engineering: 100 Marks**I. Civil Engineering Fundamentals:**

Structures; stress, strain, shearing force and bending moment concepts, beams, columns, footing. Simply supported and Cantilever beams, Pulleys and gears.

II. Fundamentals of Hydraulic Engineering:

Properties of fluid mechanics, pressure measuring devices, flow measuring devices, losses in pipelines, open channels, barrages and dams.

III. Mechanical Engineering Fundamentals

Mechanics and Strength of Materials: Concept of Stress and Strain, bending, torsion, geometric properties of areas, principal stresses, Tensile testing, Stress- Strain curve, Difference between Engineering and True Stress & Strain, Shear Stress & Strain, Concept of elastic and plastic deformation, Yield & ultimate Tensile strengths, Elongation, Toughness and Resilience, Ductility and Malleability, Hardness Testing, Brinell and Rock well Hardness test, bending moment,

Fluid Mechanics: Properties and basics of fluid mechanics, loss of head, power transformation by fluids, pumps, turbines. Fluid static's, Fluid dynamics, Types of flow: Turbulent and Laminar, Reynold's number.

Manufacturing: Different manufacturing processes like Casting, Forging, Machining, Rolling, Extrusion, Wire-drawing, welding, Turning (lathe), Milling, Shaping, Gear cutting, Drilling, Fitting.

IV. Mining Engineering Fundamentals:

An introduction to the field of mining engineering and its economic importance, brief review and production of minerals in Pakistan.

Prospecting and exploration, Development and exploitation, Drilling and boring, Explosive and blasting, Mine supports, Material handling, Mine Ventilation, Mine water and its disposal, Importance of safety aspects in mining, Mineral beneficiation, Mine sampling and valuation.

SUGGESTED READINGS

S. No.	Title	Author
1.	Civil Engineer's Reference Book	LS Blake
2.	Surveying and Leveling	T.P Kanetaker.
3.	Fluid mechanics with engineering applications	Finnemore/ Franzini.
4.	Fluid Mechanics	Lewitt
5.	Engineering Mechanics (Statics)	J.L. Merriems.
6.	Manufacturing Processes for Engineering Materials	Kalpakkjian
7.	Elements of Mining,	R.S. Lewis
8.	Introductory Mining Engineering	H.L. Hartman.

PAPER-II: PROFESSIONALMax Marks: 100Time Allowed: 3 Hours

Case No.	F.4-206/2016-R
Particulars of post	Deputy Director (BS-18), Federal Public Service Commission.
Minimum Qualification & Experience:	<p>i. Second Class or Grade 'C' Master's Degree or equivalent qualification from a University recognized by Higher Education Commission (HEC).</p> <p>ii. Five (5) years post qualification experience in BS-17 or equivalent in Govt./Semi Government/Autonomous bodies or an organization of repute in the field of Public Administration/ Establishment/ Human Resource Management/ Financial Management/Selection of Personnel</p>

Part-I: 50 Marks

(Public Administration & Office Management)

- I. **Public Administration:** Nature and scope, Role of Public Administration in a modern Welfare State;
- II. **Bureaucracy:** Concept of Bureaucracy, Theories of Bureaucracy, Ecology of Bureaucracy; Bureaucracy of Pakistan as a Change Agent;
- III. **Administrative Leadership:** Approaches to the study of Leadership, Forms of Leadership, Leadership qualities;
- IV. **Administrative Accountability:** Internal and External Controls; Executive Control, Legislative Control, Judicial Control, Ombudsman, Public Opinion and Pressure Groups; Problems of Administrative Accountability in Pakistan;
- V. **Planning:** Types of Plans, Planning Process; Principles of Planning, Planning Machinery in Pakistan;
- VI. **Controlling and Co-Ordination:** Forms of Controls, Control Mechanism, the process of Control, Principles of Controlling; Principles of Coordination; Machinery for Coordination; Problems of Coordination in Public Administration in Pakistan.
- VII. Civil Servant Act 1973 and Rules made thereunder;
- VIII. Federal Public Service Commission Ordinance 1977 and Rules made thereunder;
- IX. Rules of Business 1973;
- X. Secretariat Instructions and Office Procedures;
- XI. PPRA Ordinance and Rules 2004.

Part-II: 50 Marks

(Human Resource, Financial Management,
Quality Management and Information Technology)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

II. Basic Concept of Quality Management

ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

III. Information Technology and MS Office

Fundamentals of Computer: CPU, Memory Devices, Types of Computers, Characteristics of Computer and related material; Application Software: Microsoft Word, Microsoft Power Point, Microsoft Excel; Search Engines, Web Design, Email, Internet Surfing, Social Networking (Facebook, Twitter, etc); General Introduction to Virus and Antivirus utilities; Programming Languages

SUGGESTED READINGS

S. No.	Title	Author
1.	An Introduction to the Public Administration	E.N. Cladden
2.	Bureaucracy: Modern Society	Pebr, M.Blau.
3.	Public Administration for a Welfare State	Paul Ableby
4.	The Bureaucracy of Pakistan	Charles F. Kennedy
5.	Human Resource Management	H.T.Graham & Roger Bennett
6.	Management	James A.F.Stoner, R.Eward Freeman, Daniel R.Gilbert Jr.
7.	Understanding Computer: Today and Tomorrow	Deborah Morley, Charles Parker
8.	MS Office 365 Handbook: 2013 Edition	Kevin Wilson