

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. 07/2019

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
1.	109/2019	Assistant Private Secretary (BS-16), in different Ministries/ Divisions/ Departments	i. Second Class or Grade 'C' Bachelor's degree from a University recognized by HEC. ii. Minimum shorthand speed: 100 w.p.m. and typing speed: 50 w.p.m. iii. Must be computer literate. Note: Computer literacy means proficiency in M.S Office (M.S Word, Power Point & Excel).	<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) iii Microsoft Power Point (Typing, Formatting, Inserting Objects) 	35 Marks 35 Marks 10 Marks 10 Marks 10 Marks
2.	110/2019	Statistical Officer (BS-17), Pakistan Public Administration Research Centre, Establishment Division.	Second Class or Grade 'C' Master's Degree or equivalent qualifications in Statistics/ Mathematics/ Economics.	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"> • Introduction to Statistics, • Presentation of Data, • Measures of Central Tendency, • Measures of Dispersion, • Index Numbers, • Simple Regression and Correlation, • Time Series Analysis, • Sampling Techniques, • Techniques of Research, • Basic Arithmetic

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
3.	140/2019	Deputy Assistant Chemical Examiner (BS-16), Revenue Division, Federal Board of Revenue.	Second Class or Grade 'C' Master's degree in Chemistry or Analytical Chemistry or equivalent qualification from a University recognized by HEC. OR i) Second Class or Grade 'C' Bachelor's degree with Chemistry as a major subject or equivalent qualification from a University recognized by HEC. ii) Two (2) years post qualification experience in analytical work and operation of equipments based on Chromatography, Spectrophotometry, Spectroscopy and electron microscopy.	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"> Hydro-Generation Hydrocarbons & Their Byproducts Qualitative And Quantitative Analysis Of Chemicals Organic And Inorganic Compounds Chemistry Of Functional Groups Introductory Organic Spectroscopy Chromatography & Spectroscopy Electron Microscopy
4.	145/2019	Deputy Registrar (BS-17), National Industrial Relations Commission (NIRC), Ministry of Overseas Pakistanis & Human Resource Development.	i) Second Class or Grade 'C' Graduate with Law Degree. ii) Two (2) years post qualification experience as Legal Practitioner	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"> Core courses of LL.B. Degree Programme Role of Lawyer/Prosecutor in Defending the Court Cases Steps involved in Processing of Legal Cases.
5.	149/2019	Secondary School Teacher (Male) (BS-17), A. Biology B. Chemistry C. Computer Science D. Maths E. Physics. Federal Directorate of Education, Ministry of Federal Education & Professional Training.	Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) in relevant subject with 2 nd Class or Grade 'C' M.Ed/ B.Ed/ B.Ed (Hons)/ Associate Diploma in Education or equivalent qualification from a University recognized by HEC.	Objective Type Test (MCQ) Part-I English =20 marks Part-II Subject Test = 50 marks Part-III Professional Test=30 marks	For (A) Biology Part-I Vocabulary, Grammar Usage, Sentence Structuring. Part-II (Masters Level) <ul style="list-style-type: none"> Theories of Evolution, Nucleic Acids, Cell Division, Nutrition, Ecosystem, Mendelian laws of inheritance, Diagnostic Characteristics of all the phyla or invertebrates and chordates, Division of Plants

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					<p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation <p><u>For (B) Chemistry</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Nature, Properties & States of Matter, • Electronic Structure, • Chemical Kinetics & Radioactivity, • Reaction Mechanism (electrophilic & nucleophilic substitution and addition reaction) • Inorganic Chemistry, • Thermodynamics, • Chemical Equilibrium, • Electrochemistry, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation <p><u>For (C) Computer Science</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Data Communication & Networking, • C/C++ Language, • Operating System Unix/Linux • Windows XP, 2000, • Oracle/PLSQL, • System Analysis & Design, • Operating System concepts, • Security and Ethical issues • Management Information System, • Web Programming, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

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					<p><u>For (D) Mathematics</u></p> <p><u>Part-I</u> Vocabulary, Grammar usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Calculus/Differentiation, Integration, Limits of continuity • Discrete Structures/Discrete Mathematics, • Communication Skills for Mathematicians, • Computing Tools for Mathematicians, • Mathematical Statistics, • Mathematical Spaces (Sets, Vector Spaces, Metric Spaces, topological spaces Tensors, • Differential Equations. <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation <hr/> <p><u>For (E) Physics</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Heat and Thermodynamics, • Waves and Optics, • Electrostatic, • Electricity and Magnetism, • Atomic and Modern Physics, • Basic Solid State Physics, • Electrodynamics, • Mechanics <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
6.	150/2019	<p>Secondary School Teacher (Female) (BS-17), A. Biology B. Chemistry C. Geography D. Maths E. Physics. Federal Directorate of Education, Ministry of Federal Education & Professional Training.</p>	<p>Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) in relevant subject with 2nd Class or Grade 'C' M.Ed/ B.Ed/ B.Ed (Hons)/ Associate Diploma in Education or equivalent qualification from a University recognized by HEC.</p>	<p>Objective Type Test (MCQ) Part-I English =20 marks Part-II Subject Test = 50 marks Part-III Professional Test=30 marks</p>	<p>For (A) Biology</p> <p>Part-I Vocabulary, Grammar Usage, Sentence Structuring.</p> <p>Part-II (Masters Level)</p> <ul style="list-style-type: none"> • Theories of Evolution, • Nucleic Acids, • Cell Division, • Nutrition, • Ecosystem, • Mendelian laws of inheritance, • Diagnostic Characteristics of all the phyla or invertebrates and chordates, • Division of Plants <p>Part-III</p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation <hr/> <p>For (B) Chemistry</p> <p>Part-I Vocabulary, Grammar Usage, Sentence Structuring.</p> <p>Part-II (Masters Level)</p> <ul style="list-style-type: none"> • Nature, Properties & States of Matter, • Electronic Structure, • Chemical Kinetics & Radioactivity, • Reaction Mechanism (electrophilic & nucleophilic substitution and addition reaction) • Inorganic Chemistry, • Thermodynamics, • Chemical Equilibrium, • Electrochemistry, <p>Part-III</p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (C) Geography</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Physical Geography • Factor of climate and environmental change • Geography of Pakistan, • Human Geography (Renewable Resources, Recycling Resources, Sustainable resources. The Demographic Transition) • Climatology/Metrology, • Environmental Geography, • GIS Techniques, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation
					<p><u>For (D) Mathematics</u></p> <p><u>Part-I</u> Vocabulary, Grammar usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Calculus/Differentiation, Integration, Limits of continuity • Discrete Structures/Discrete Mathematics, • Communication Skills for Mathematicians, • Computing Tools for Mathematicians, • Mathematical Statistics, • Mathematical Spaces (Sets, Vector Spaces, Metric Spaces, topological spaces Tensors, • Differential Equations. <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (E) Physics</u> <u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring. <u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Heat and Thermodynamics, • Waves and Optics, • Electrostatic, • Electricity and Magnetism, • Atomic and Modern Physics, • Basic Solid State Physics, • Electrodynamics, • Mechanics <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation
7.	151/2019	<p>Senior Elementary Teacher (Drawing) (Male) (BS-16), Federal Directorate of Education, Ministry of Federal Education & Professional Training.</p>	<p>Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) in Fine Arts/ Painting/ Art and Design/ Art and Craft with Second Class or Grade 'C' M.Ed/ B.Ed / B.Ed. (Hons)/ Associate Diploma in Education or equivalent qualification from a University recognized by HEC.</p>	<p>Objective Type Test (MCQ)</p> <p><u>Part-I</u> English =20 marks</p> <p><u>Part-II</u> Subject Test=40 marks</p> <p><u>Part-III</u> Professional Test=40 marks</p>	<p><u>Part-I</u> Grammar Usage, Sentence Structuring</p> <p><u>Part-II</u></p> <ul style="list-style-type: none"> • Drawing & Design Theory • Free Hand Sketches and Projected Measured Drawings • Technical Drawings and Diagrammatic Illustrations • Painting: Basic elements of Art, concepts, media and formats and the ability to apply them to their aesthetic intent. • Printmaking: Basic elements of art and design principles, concepts, media, and formats. <p><u>Part-III</u></p> <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.

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
8.	152/2019	Senior Elementary Teacher (Drawing) (Female) (BS-16), Federal Directorate of Education, Ministry of Federal Education & Professional Training.	Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) in Fine Arts/ Painting/ Art and Design/ Art and Craft with Second Class or Grade 'C' M.Ed/ B.Ed (Hons)/ Associate Diploma in Education or equivalent qualification from a University recognized by HEC.	Objective Type Test (MCQ) Part-I English =20 marks Part-II Subject Test=40 marks Part-III Professional Test=40 marks	Part-I Grammar Usage, Sentence Structuring Part-II • Drawing & Design Theory • Free Hand Sketches and Projected Measured Drawings • Technical Drawings and Diagrammatic Illustrations • Painting: Basic elements of Art, concepts, media and formats and the ability to apply them to their aesthetic intent. • Printmaking: Basic elements of art and design principles, concepts, media, and formats. Part-III • 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.
9.	154/2019	Lecturer (Islamiyat) (BS-17), Federal Medical and Dental College, Ministry of National Health Services, Regulations & Coordination	Second Class or Grade 'C' Master's degree in Islamiyat or equivalent qualification from a University recognized by HEC.	Objective Type Test (MCQ) Part-I English =20 marks Part-II Subject Test = 50 marks Part-III Professional Test=30 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II (Masters Level) قرآن کا بنیادی موضوع / متن ☆ سیرت النبی ﷺ ☆ فقہ: جامعیت، اختلاف رائے اور عصر حاضر کے تناظر میں مذہب کی تشریح۔ ☆ تعارف اسلام ☆ انسانی زندگی میں دین کی اہمیت ☆ اسلام کے نمایاں پہلو ☆ اسلامی عقائد کے انفرادی اور اجتماعی اثرات ☆ انسانی حقوق۔ اسلام کی نظر میں ☆ اسلام اور عصر حاضر کے چیلینجز ☆ اسلامی نظام حکمرانی کا ڈھانچہ ☆ سرکاری ملازمین کی ذمہ داریاں ☆ اسلامی ضابطہ حیات ☆

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					<p>Part-III</p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation
10.	155/2019	Lecturer (Pak Studies) (BS-17), Federal Medical and Dental College, Ministry of National Health Services, Regulations & Coordination	Second Class or Grade 'C' Master's degree in Pakistan Studies or equivalent qualification from a University recognized by HEC.	Objective Type Test (MCQ) Part-I English =20 marks Part-II Subject Test = 50 marks Part-III Professional Test=30 marks	<p>Part-I Vocabulary, Grammar Usage, Sentence Structuring. Part-II (Masters Level)</p> <ul style="list-style-type: none"> • Ideology of Pakistan in light of speeches and statements of Allama Iqbal and Quaid-e-Azam • Pakistan Movement 1857-1947 • Current Issues of Pakistan (challenges to National Security, Economic Challenges, Pakistan's War on Terror, Pakistan's Energy problems and their effects) • The Kashmir Issue • Geography of Pakistan <ul style="list-style-type: none"> ✓ Land and People of Pakistan ✓ Pakistan and its Neighbouring Countries. (China, India, Iran and Afghanistan, ✓ Natural Resources of Pakistan, • Constitution of Pakistan 1973 and latest Constitutional Amendments, <p>Part-III</p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation
11.	156/2019	Statistical Officer (BS-17), Federal Medical and Dental College, Ministry of National Health Services, Regulations & Coordination	<p>i) Second Class or Grade 'C' Master's degree in Bio-Statistics or equivalent qualification from a University recognized by HEC.</p> <p>ii) Two (2) years post qualification experience in the relevant filed.</p>	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	<p>Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II</p> <ul style="list-style-type: none"> • Introduction to Statistics, • Presentation of Data, • Measures of Central Tendency, • Measures of Dispersion, • Index Numbers, • Simple Regression and Correlation, • Time Series Analysis, • Sampling Techniques, • Techniques of Research, • Basic Arithmetic

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
12.	157/2019	Pharmacist (BS-17), Federal Medical and Dental College, Ministry of National Health Services, Regulations & Coordination	i) Second Class or Grade 'C' Bachelor's degree in Pharmacy or equivalent qualification from a University recognized by HEC. ii) Three (3) years post qualification experience in the relevant filed.	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"> • Physical Pharmacy, • Clinical Pharmacy, • Industrial Pharmacy, • Hospital Pharmacy, • Pharmaceutical Biochemistry, • Pharmaceutical Microbiology, • Pharmaceutical Quality Control & Quality Management, • Application of Computer in Pharmacy.
13.	158/2019	Assistant Warden Girls Hostel (Female) (BS-16), Federal Medical and Dental College, Ministry of National Health Services, Regulations & Coordination	i) Second Class or Grade 'C' Bachelor's degree or equivalent qualification from a University recognized by HEC. ii) Two (2) years post qualification experience of Managing of School Hostel/ College Hostel/ University Hostel.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II General Intelligence/ Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring. Part-II Part-II <ul style="list-style-type: none"> • Basic Arithmetic. • Current Affairs. • Pakistan Affairs & Islamic Studies • Everyday/General Science • Duties of Hostel Warden particularly for female hostels • Note : (Equal weightage for each topic at Part-II)
14.	159/2019	Assistant Library (BS-16), Federal Medical and Dental College, Ministry of National Health Services, Regulations & Coordination	Second Class or Grade 'C' Bachelor's degree in Library Sciences or equivalent qualification from a University recognized by HEC.	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 • Classification: Theory and Practice • Cataloguing: Theory and Practice • Management of Libraries & Information Centres • Library Automation/Information Storage & Retrieval • 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/Experience for the Posts	Test Specification	Topics of Syllabi
15.	160/2019	Physical Instructor (BS-17), Federal Medical and Dental College, Ministry of National Health Services, Regulations & Coordination	i) Second Class or Grade 'C' Master's degree in Physical Education or equivalent qualification from a University recognized by HEC. ii) Two (2) years post qualification experience in the relevant field.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Subject Test = 50 marks Part-III Professional Test = 30 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> Philosophical basis of Physical Education, Definition and scope of Physical Education, Basis of Human Physiology Definition and type of Games and Sports History, Rules and Techniques of Games: <ol style="list-style-type: none"> Racket (Badminton, Table Tennis) Ball (Volley Ball) Field (Hockey, Cricket) Part-III <ul style="list-style-type: none"> Teaching Techniques and Methodology Classroom Management and Discipline Testing and Evaluation
16.	163/2019	Junior Civilian Security Officer (JCSO) (BS-16), OS Directorate, GHQ, Ministry of Defence.	Retd. JCO or equivalent of the Armed Forces. OR i) Second Class or Grade 'C' Bachelor's Degree or equivalent qualification from a University recognized by the HEC. ii) Two (2) years post qualification experience as Security Supervisor.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II General Intelligence & Professional Test = 80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> Basic Arithmetic. Current Affairs. Pakistan Affairs & Islamic Studies Everyday/General Science Security Measures to maintain law & order Note : (Equal weightage for each topic at Part-II)
17.	167/2019	Medical Officer (BS-17), Directorate of Central Health Establishment, Ministry of National Health Services, Regulations & Coordination.	MBBS or equivalent qualification recognized by PMDC.	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"> Core courses of MBBS Degree Program. Health Policies of the Government of Pakistan. Care vs Cure for Health Management. Major Challenges being faced by the Health Sector.

Schemes and Syllabi for Written Examination (Descriptive) for All Posts in BS-18 & BS-19 included in Consolidated Advertisement No. 07/2019

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 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 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.4-112/2019-R
Particulars of post	Joint Director (MIS) (BS-19), Revenue Division, Federal Board of Revenue.
Minimum Qualification & Experience:	<p>i) Second Class or Grade 'C' Master's Degree in Computer Science/ Information Technology or equivalent from a University recognized by HEC. OR Second Class or Grade 'C' Bachelor's Degree in Computer Science/ BIT (4 years duration) or equivalent from a University recognized by HEC</p> <p>ii) Twelve (12) years post qualification experience of Programming/ Systems Designing/ Operation Research Supported by Technical Publications including 10 years experience of Supervising Systems and Programming at a major Computer Installations.</p>

Part-I: (Professional)**50 Marks****I. Computer Architecture**

Microprocessor Bus Structure (Address/Data/Control), Registers and Flags, Storage Hierarchy (Main/Virtual/Cache/Secondary memory), Peripheral communication, CPU, ALU, Principles of Instruction Set Design, Multiprocessors & Thread Level Parallelism.

II. Object Oriented Programming

Data types, control structures, functions, arrays, classes, methods, object and encapsulation; constructors and destructors, operator and function overloading, virtual functions, derived classes, inheritance and polymorphism, I/O and file processing.

III. Data Structure and Algorithms

Stack and Queue, Sequential Search, Binary Search, Bubble sort, Merge sort, Quick sort, Insertion sort, Selection Sort, Linked Lists, Infix to postfix conversions, Expression tree construction, Tree traversals, Graph representation and traversal, Minimum spanning tree.

IV. Database Management Systems

Entity Relationship modeling, Relational data model and algebra, Structured Query language, Database design, functional dependencies and normal forms, concurrency control and recovery techniques, Database security and authorization.

V. Computer Communications and Networks

Asynchronous and Synchronous transmission, LAN/WAN/MAN, Network layers, Transport layer protocols TCP/IP, UDP, Error Control, Flow Control, Multiplexing, Routing, Bridging, Network security issues.

VI. Operating Systems

Process and CPU management, Multithreading, Deadlocks, Memory management and virtual memory, External Fragmentation, Paging and Demand Paging, File management systems, Scheduling and dispatch, Introduction to concurrency.

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, 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, 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.	Modern Operating Systems	Andrew S. Tanenbaum
2.	Operating System Concepts	Addison-Wesley
3.	Algorithms and Data Structures	N. Wirth
4.	Data structures	Aaron M. Tanenbaum,
5.	Database Systems: A Practical Approach to Design, Implementation and Management	R.Connolly and P.Begg
6.	Introduction to Computer Networks	A. S. Tanenbaum
7.	Computer Networks and Internets	Douglas E. Comer
8.	Computer Architecture: A Quantitative Approach	Hennessy & Patterson
9.	Human Resource Management	H.T.Graham & Roger Bennett
10.	Management	James A.F.Stoner, R.Eward Freeman, Daniel R.Gilbert Jr.
11.	Understanding Computer: Today and Tomorrow	Deborah Morley, Charles Parker
12.	MS Office 365 Handbook: 2013 Edition	Kevin Wilson

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

Case No.	F.4-113/2019-R
Particulars of post	General Manager (BS-19), Corps of E&ME, GHQ, Ministry of Defence.
Minimum Qualification & Experience:	Ph.D. Engineering in Electrical/ Mechanical/ Electronics with eight (8) years post qualification experience in the relevant field. OR M.Sc. Engineering in Electrical/ Mechanical/ Electronics with ten (10) years post qualification experience in the relevant field. OR B.Sc. Engineering in Electrical/ Mechanical Electronics with twelve (12) years post qualification experience in the relevant field.

Engineering: 100 Marks**I. 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, 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.

II. Electricity & Electronics

Electricity & Magnetism; Electrical potential, Resistance, Laws of resistance, Conductance, Conductivity, Impedance, Ohm law, Resistance in series and in parallel, practical resistors, work, power, Energy, Joule's law of electric field intensity, Gauss's Theorem, Capacitor, Capacitance, Capacitors in parallel and series. Force on a conductor in a magnetic field, electrical and magnetic circuits, leakage flux, Relation between magnetism and electricity, Induced emf, induced current and directions, Faraday's laws of electromagnetic inductions, Lenz's law, dynamically induced emf, Self inductance, mutual inductance and inductance in series/parallel, magnetic hysteresis, Energy stored in magnetic field, Generation of alternating currents and voltages.

III. Electrical Machines

DC Motors: Shunt, Series and Compound Motors, Speed and Torque Relations. Transformers: Principle, Construction, Voltage transformation ratio, Step-up/stepdown transformers, Copper & Iron Losses, Transformer connections; delta and star.

AC Motors: Induction motor, Synchronous motor, Performance, Efficiency. Single phase and three phase Motors.

Generators: Principle, Construction, Different components of generators. AC Generators, DC Generators.

IV. Costing, Accounting and Budgeting:

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

V. Project Management:

Time lines, milestones, resources allocation, dependency, Gant Charts, Preparation of PC-I, PC-II, PC-III & PC-IV, Financial Management of Projects

VI. Inventory Management:

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

VII. 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.	Manufacturing Processes for Engineering Materials	Kalpakkjian
2.	Electrical Technology	B.L. Tharaja
3.	Electronic Devices and Circuits.	Bogart
4.	DC Machines	P.C. Sen
5.	Semiconductors	Manzar Saeed
6.	Handbook of Engineering Management	Dennis Lock.
7.	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.4-142/2019-R
Particulars of post	Deputy Chief (BS-19) , Population and Social Planning Section, Ministry of Planning Development and Reform.
Minimum Qualification & Experience:	<p>i) Second Class or Grade 'C' Master's Degree or equivalent qualifications in any of the following subject: Economics with Statistics, Business Administration, Public Administration, Demography, sociology or Social Work.</p> <p>ii) Ten (10) year experience of work and/ or research relating to social welfare, population welfare, or demography or planning or development in these fields.</p>

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

Paragraph writing, Essay writing, Translation skills, Study skills, Academic skills, 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) Communications Management

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

e) Statistical Techniques

All statistical techniques related to Planning & Research

Part-II: (Professional)**50 Marks****I. Social Policy and Planning**

Objectives and determinants of social welfare policy, Constituents of social policy, Social legislation as instruments of social policy, Values' consideration in social welfare policy, Social welfare policies of Pakistan, Definition and concept of social welfare planning, Steps of Social Planning

II. Social Legislation

Definition and concept of social legislation, Importance of social legislation, Procedure of social legislation in Pakistan, Employment and rehabilitation of disabled person, ordinance 1981, The Employment of Children Act, 1991, Juvenile Justice System

Ordinance, 2003, The Protection Against Harassment of Women at Work Place Act, 2010, Social legislation regarding registration and functioning of CBOs and NGOs, Societies registration Act 1860 Companies ordinance 1984 (only relating to non-profit organization)

III. Human Rights

Definition and philosophical base of Human Rights, Human Rights Approach to Social Work, Human Rights Legislations, Monitoring and Enforcement Mechanism, Human Rights under the Constitution of Pakistan, Human Rights of Vulnerable Groups

SUGGESTED READINGS

S. No.	Title	Author
1.	Practical English Grammar	A.J. Thomson and A.V. Martinet.
2.	Writing. Intermediate	Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet.
3.	Writing. Upper-Intermediate	Rob Nolasco.
4.	Reading. Advanced	Brian Tomlinson and Rod Ellis.
5.	Study Skills	Riachard Yorky
6.	Writing. Advanced	Ron White.
7.	College Writing Skills	John Langan.
8.	Patterns of College Writing	Laurie G. Kirszner and Stephen R. Mandell.
9.	The Mercury Reader. A Custom Publication.	Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharton.
10.	Project Management Body of Knowledge,	Project Management Institute (PMI) standards committee
11.	Software Project Management	S.A. Kelkar, A Concise Study, Prentice Hall of India.
12.	Social Policy for Social Work.	Adams, R. (2002).
13.	Social Policy: Short Introduction	Dean, H. (2012).
14.	Social Administration.	Lohmann, R. A. & Lohmann, N. (2013).
15.	Social policy analysis and practice.	Meenaghan, T. M., Keith, M. K. & John, G. M. (2004).
16.	<i>Law and social work practice: A legal systems approach. (2nd edition.)</i> .	Albert, R. (2000).
17.	<i>Policy Advocacy: A Framework for Social Change in Pakistan. An Exploratory Research Study..</i>	Ali, Q. (1998).
18.	<i>Law for Social Workers.</i>	Brayne, H & Carr, H. (2010).
19.	<i>Social work theory and Practice.</i>	Khalid, Muhammad. (2014).
20.	Human Rights New Perspectives, New Realities.	Adamantia, P. & Peter, S. (2002).
21.	Human Rights an Interdisciplinary approach.	Freeman, M. (2011).
22.	State of Human Rights in Pakistan (1994-2000).	Human Rights Commission of Pakistan (2000).
23.	Human Rights and Social Work: Towards Rights-Based Practice.	Ife, J. (2012).

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

Case No.	F.4-144/2019-R
Particulars of post	Principal (Male) (BS-19), Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	i) Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) with Second Class or Grade 'C' M.Ed/ B.Ed (Hons) or equivalent qualification from a University recognized by HEC. Requirement of M.Ed/ B.Ed (Hons) is exempted from those having Master's/ M.Phil/ Ph.D degree in Education. ii) Twelve (12) years post qualification experience in Teaching and Administration in a recognized 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.
- 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 Supervision

V. Research Methods in Education

- Scientific Method and its Application in Education
- Sampling Techniques:
- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing

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.	Research in Education	JW Best
6.	Integrating Education Technology into Teaching	Roblyer
7.	Curriculum Development	S. M. Shahid
8.	Educational Measurement and Evaluation	S. M. Shahid
9.	Educational Administration	S. M. Shahid

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

Case No.	F.4-146/2019-R
Particulars of post	Principal (Female) (BS-19), Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	i) Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) with Second Class or Grade 'C' M.Ed/ B.Ed (Hons) or equivalent qualification from a University recognized by HEC. Requirement of M.Ed/ B.Ed (Hons) is exempted from those having Master's/ M.Phil/ Ph.D degree in Education. ii) Twelve (12) years post qualification experience in Teaching and Administration in a recognized 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.
- 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 Supervision

V. Research Methods in Education

- Scientific Method and its Application in Education
- Sampling Techniques:
- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing

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.	Research in Education	JW Best
6.	Integrating Education Technology into Teaching	Roblyer
7.	Curriculum Development	S. M. Shahid
8.	Educational Measurement and Evaluation	S. M. Shahid
9.	Educational Administration	S. M. Shahid

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

Case No.	F.4-147/2019-R
Particulars of post	Vice Principal (Male) (BS-18), Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	i) Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) with Second Class or Grade 'C' M.Ed/ B.Ed (Hons) or equivalent qualification from a University recognized by HEC. Requirement of M.Ed/ B.Ed (Hons) is exempted from those having Master's/ M.Phil/ Ph.D degree in Education. ii) Five (5) years post qualification experience in Teaching and Administration in a recognized 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.
- 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 Supervision

V. Research Methods in Education

- Scientific Method and its Application in Education
- Sampling Techniques:
- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing

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.	Research in Education	JW Best
6.	Integrating Education Technology into Teaching	Roblyer
7.	Curriculum Development	S. M. Shahid
8.	Educational Measurement and Evaluation	S. M. Shahid
9.	Educational Administration	S. M. Shahid

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

Case No.	F.4-148/2019-R
Particulars of post	Vice Principal (Female) (BS-18), Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	i) Second Class or Grade 'C' Master's Degree/ Bachelor's degree (04 years duration) with Second Class or Grade 'C' M.Ed/ B.Ed (Hons) or equivalent qualification from a University recognized by HEC. Requirement of M.Ed/ B.Ed (Hons) is exempted from those having Master's/ M.Phil/ Ph.D degree in Education. ii) Five (5) years post qualification experience in Teaching and Administration in a recognized 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.
- 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 Supervision

V. Research Methods in Education

- Scientific Method and its Application in Education
- Sampling Techniques:
- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing

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.	Research in Education	JW Best
6.	Integrating Education Technology into Teaching	Roblyer
7.	Curriculum Development	S. M. Shahid
8.	Educational Measurement and Evaluation	S. M. Shahid
9.	Educational Administration	S. M. Shahid

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

Case No.	F.4-164/2019-R
Particulars of post	Assistant Professor (Chemistry) (BS-18), Military College Jhelum, Ministry of Defence.
Minimum Qualification & Experience:	Ph. D Degree in the relevant subject and one (1) year post qualification teaching experience at College/ University level. OR M. Phil Degree in the relevant subject with three (3) years post qualification teaching experience at College/ University level. OR Second Class or Grade 'C' Master's Degree in the relevant subject from a University recognized by HEC with five (5) years post qualification teaching experience at College/ University level.

Part-I: (Chemistry)**50 Marks**

- I. Atomic structure.—Quantum theory, Schrodinger equation, Particle in box, hydrogen atom. Hydrogen molecule ion, hydrogen molecule. Theories of hydrogen and metallic bonding.
- II. Electrochemistry.—Ionic equilibria, theory of strong electrolytes; Debye-Huckel theory of activity coefficients, galvanic cells, membrane equilibria and fuel cells. Theories of Acids and Bases, glass electrode, measurement of pH. Electrolysis, overvoltage and corrosion.
- III. Thermodynamics.—First law of thermodynamics, internal energy, enthalpy functions. Thermochemistry, Entropy and second law of Thermodynamics, Free energy and chemical equilibrium.
- IV. Chemistry of Following Elements.—Oxygen, Carbon, Chlorine, Silicon, Nitrogen, Phosphorus.
- V. Inorganic Chemical Industries.—Sulphuric Acid, Fixation of Nitrogen, Chemical Fertilizers, Semi-conductivity devices. Cement, Glass and Ceramics.
- VI. Chemical Kinetics.—Rate law and its determination Order of reaction. Experimental methods. Temperature Dependence of rate constants. Study of mechanism of a few selected reactions (1st and 2nd under reaction only).
- VII. Surface Chemistry and Catalysis.—Physical adsorption and chemisorption. Surface area determination. Homogeneous and Heterogeneous Catalysis. Acid-base and Enzyme Catalysis.
- VIII. Physical Organic Chemistry.—Elements of Organic reaction mechanism. Optical and Geometric Isomerism. Conformational analysis. Resonance. H—Bond and its effects on the properties of Organic Compounds.
- IX. Aromatic Chemistry.—Structure of Benzene with particular reference to Mechanism of Electrophilic Substitution Reactions.
- X. Chemistry of Natural Products.—Elementary study of Carbohydrates. Oils and Fats. Alkaloids and Vitamins.
- XI. Industrial Organic Chemistry.—Organic Polymers. Fermentation processes including preparation of Anti-Biotics. Petro-Chemical Industry.

Part-II: (Professional)**50 Marks**

- I. Development of Curriculum and Instructional Material**
- Elements of 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 Supervision
- V. Research Methods in Education**
- Scientific Method and its Application in Education
 - Sampling Techniques:
 - Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
 - Research Proposal and Report Writing

SUGGESTED READINGS

S. No.	Title	Author
1.	Advanced Inorganic Chemistry 3 rd Ed.	Cotton. F.A. and Wilkinson Groffrey
2.	Inorganic Chemistry, 3 rd Ed. 1983	Hukeavy, James E.
3.	Physical Chemistry 5 th Ed.	Moore, Walter J.
4.	Mechanism & Structure in Organic Chemistry	Gould, Edwards
5.	Organic Chemistry 2 nd Ed.	Morrison, Robert Thornton & Boyd R.N.
6.	Research in Education	JW Best
7.	Integrating Education Technology into Teaching	Roblyer
8.	Curriculum Development	S. M. Shahid
9.	Educational Measurement and Evaluation	S. M. Shahid
10.	Educational Administration	S. M. Shahid