

**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. 12/2023**

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
1.	223/2023	<b>Fire Officer (BS-16)</b> , Naval Headquarters, Ministry of Defence.	B.E (Mechanical/ Electrical/ Chemical/ Civil) from a University recognized by the PEC. <b>OR</b> BS (Physical Sciences/ Applied Sciences) from University recognized by the HEC. <b>OR</b> i) DAE (Mechanical/ Electrical/ Construction/ Civil) from a recognized Institution with two (2) years post qualification experience in relevant field including Fire Fighting/ Management Services. ii) One year certificate in Fire Fighting.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> General Intelligence Test=80 marks	<b>Part-I</b> Vocabulary, Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>• General Knowledge,</li> <li>• Everyday Science</li> <li>• Basic Arithmetic <ul style="list-style-type: none"> <li>▪ Algebra</li> <li>▪ Ratios</li> <li>▪ Percentages</li> <li>▪ Arithmetic Means</li> </ul> </li> <li>• Current Affairs. <ul style="list-style-type: none"> <li>▪ Developments at National and International Levels in the last 5 years.</li> </ul> </li> <li>▪ Basic principles of Fire Fighting</li> </ul> <b>Note : (Equal weightage for each topic at Part-II)</b>
2.	224/2023	<b>Civilian Medical Practitioner (CMP) Grade-III (BS-17)</b> , Ordnance Corps, OS Directorate, GHQ, Ministry of Defence.	MBBS or equivalent qualification recognized by the PMDC.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> Professional Test=80 marks	<b>Part-I</b> Vocabulary, Grammar usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>▪ Core courses of <b>MBBS</b> Degree Program.</li> <li>▪ Health Policies of the Government of Pakistan.</li> <li>▪ Care vs Cure for Health Management.</li> <li>▪ Major Challenges being faced by the Health Sector in Pakistan.</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
3.	225/2023	<b>Assistant Director Legal (BS-17)</b> , Directorate of Legal Affairs of Pakistan Railways, (Railway Board), Ministry of Railways.	i) LLM degree or Barrister-at-Law from a University/ Institute recognized by HEC. ii) Computer literate in Microsoft Word, Excel and Spreadsheet. <b>OR</b> i) Second Class or Grade 'C' LLB degree from a University/ Institute recognized by HEC. ii) Two (2) years post qualification experience in legal matters. iii) Computer literate in Microsoft Word, Excel and Spreadsheet.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> Professional Test=80 marks	<b>Part-I</b> Vocabulary, Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>• Core courses of <b>LL.B.</b> Programme</li> <li>• Steps involved in Processing of Legal Cases</li> <li>• Basic Knowledge of Microsoft Office</li> </ul>
4.	226/2023	<b>Network/ System Administrator (BS-17)</b> , Ministry of Information Technology and Telecommunication.	Second Class or Grade 'C' Master's degree or Bachelor's (4 years education) degree in Computer Science/ Information Technology/ Software Engineering or equivalent qualification from a University recognized by the HEC. <b>OR</b> Second Class or Grade 'C' Bachelor's degree in Computer Engineering/ Computer System Engineering or equivalent qualification from a University recognized by the PEC.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> Professional Test=80 marks	<b>Part-I</b> Vocabulary, Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>• Computer Hardware/Software,</li> <li>• Data Communication &amp; Networking,</li> <li>• C/C++ Language,</li> <li>• Visual Basic,</li> <li>• Operating System Unix/Linux</li> <li>• Windows XP, 2000,</li> <li>• Oracle/PLSQL,</li> <li>• System Analysis &amp; Design.</li> <li>• Web Programming,</li> </ul>
5.	228/2023	<b>Statistical Officer (BS-17)</b> , Agriculture Department GB, Ministry of Kashmir Affairs & Gilgit Baltistan.	Second Class or Grade 'C' Master's degree in Economics/ Statistics/ Mathematics from a University recognized by the HEC.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> Professional Test=80 marks	<b>Part-I</b> Vocabulary, Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>• Measures of Central Tendency and Dispersion,</li> <li>• Regression and Correlation,</li> <li>• Index Numbers,</li> <li>• Probability Theory,</li> <li>• Probability Distributions,</li> <li>• Presentation of Data</li> <li>• Time Series Analysis,</li> <li>• Statistical Inference,</li> <li>• Sampling Theory and Techniques,</li> <li>• Analysis of Variance,</li> <li>• Experimental Design</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
6.	229/2023	<b>Assistant Director (BS-17)</b> , Federal Government Organization. <b>NOTE:</b> To short list the candidates at first stage MCQs Screening Test shall be held. Thereafter English subjective test of 100 marks will be conducted for shortlisted candidates at the ratio of 1:8 (eight candidates per post) with qualifying standard of 50% marks.	Second Class or Grade 'C' Master's degree or equivalent.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> General Intelligence Test=80 marks	<b>Part-I</b> Vocabulary, Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>• General Knowledge,</li> <li>• Everyday Science</li> <li>• Basic Arithmetic <ul style="list-style-type: none"> <li>▪ Algebra</li> <li>▪ Ratios</li> <li>▪ Percentages</li> <li>▪ Arithmetic Means</li> </ul> </li> <li>• Current Affairs. <ul style="list-style-type: none"> <li>▪ Developments at National and International Levels in the last 5 years</li> </ul> </li> </ul> <b>Note : (Equal weightage for each topic at Part-II)</b>
7.	231/2023	<b>Senior Teacher / Lecturer / Subject Specialist (BS-17)</b> , Directorate General of Special Education, Ministry of Human Rights.	Second Class or Grade "C" M.A/ M.Ed in Special Education or equivalent qualification from a recognized University of Pakistan/ abroad.  <b>OR</b> Second class or Grade 'C' Master Degree or equivalent qualification from a recognized University of Pakistan/ abroad with one year diploma in Special Education.	Objective Type Test (MCQ) <b>Part-I</b> English =20 marks <b>Part-II</b> Professional Test=80 marks	<b>Part-I</b> Vocabulary, Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>• Educational System in Pakistan</li> <li>• Educational Guidance &amp; Counselling</li> <li>• Basic Concepts in Special Education</li> <li>• Service Delivery Models in Special Education</li> <li>• Early Childhood Development of special persons</li> <li>• Disability Specific Teaching: <ul style="list-style-type: none"> <li>a) Sensory Impairment <ul style="list-style-type: none"> <li>• Visual</li> <li>• Hearing</li> </ul> </li> <li>b) Physical <ul style="list-style-type: none"> <li>• Motor impairment</li> </ul> </li> <li>c) Autism and Pervasive Development Order</li> <li>d) Other Intellectual/Academic exceptionalities</li> </ul> </li> <li>• Assistive Devices for special education</li> <li>• Teaching strategies for special children</li> <li>• Class Room Assessment in Special Education</li> <li>• Management and Administration of Special Education</li> </ul>

**Schemes and Syllabi for Written Examination (Descriptive) for All Posts  
in BS-18 & BS-19 (excluding the posts of Doctors) included in  
Consolidated Advertisement No. 12/2023**

**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
2.	Practical English Usage	M. Swan
3.	Practical English Grammar and Composition	S.C. Gupta
4.	Improve your Punctuation & Grammar	Marion Field
5.	The Little, Brown Handbook	H. Ramsey Flower & Jane Aaron
6.	A University English Grammar	R. Quirk & S. Greenbaum
7.	Write Better, Speak Better	Readers Digest Association
8.	Modern English in Action	Henry Christ
9.	Exploring the World of English	Syed Saadat Ali Shah

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

Case No.	F.4-221/2023-R
Particulars of post	<b>Area Education Officer (BS-19)</b> , Federal Directorate of Education, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience	<p>i) Second Class or Grade 'C' Master's degree in Business Administration/ Public Administration/ Educational Planning and Management/ Human Resource Management/ Management Studies/ Project Management/ Development Studies from a University recognized by HEC.</p> <p>ii) Twelve (12) years post qualification experience in the field of Educational Management/ Monitoring/ Supervision/ Evaluation.</p>

**Part-I: 25 Marks (MCQ)**

- 25 MCQ Questions on Part-II & III.

**Part-II (Subjective) : 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, Controls, Control Mechanism, the process of Control, Principles of Controlling; Principles 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 there under;
- IX.** Rules of Business 1973;
- X.** Secretariat Instructions and Office Procedures;
- XI.** PPRA Ordinance 2002 and Rules 2004.

**Part-III (Professional) (Subjective) : 25 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. Research Methods in Education

- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing.

### 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.	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.4-222(A)/2023-R
Particulars of post	<b>Associate Professor (Male) (BS-19) (Economics)</b> Federal Government Educational Institutions (FGEI) Directorate (Cantts/Garrisons), Colleges, Ministry of Defence.
Minimum Qualification & Experience	Ph.D. degree in the relevant subject with eight (8) years post qualification teaching and administrative experience at College/ University level.  <b>OR</b> M.Phil. degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College/ University level.  <b>OR</b> Second Class or Grade 'C' Master's degree in the relevant subject with twelve (12) years post qualification teaching and administrative experience at College/ University level.

**Part-I: 25 Marks (MCQ)**

- 25 MCQ Questions on Part-II & III.

**Part-II: (Economics) (Subjective)****50 Marks****I. Micro Economics**

Consumer behaviour, Determination of market demand and supply i.e. concept of elasticity of Demand & Supply, Static, Comparative Static Analysis, Distinction between partial and general equilibrium analysis (basic level) theory of the Firm, Producer's equilibrium, Pricing factors of production

**II. Macro Economics**

Basic Economic Concepts, National Income Accounting, Consumption Function, Multiplier, Accelerator, Component of Aggregate Demand, Labour Demand and Supply, Un-Employment, Determination of equilibrium level of income and output (at least with reference to two or three school of thought), Inflation.

**III. Public Financing**

Government expenditure, Sources of Government Revenue, Privatization, Taxes and non-taxes, Incidence of different taxes, Public Debt, Objectives, methods of repayment, Deficit financing, General Equilibrium Analysis, Welfare Economics, Fiscal Policy.

**IV. Role of Foreign Trade and Aid in Economic Development**

Trends in Pakistan's Balance of Payments, Terms of Trade, Changes in direction of trade, Trends in Pakistan's major exports and imports, Causes of significant changes in the trends, the role of migration and remittances in Pakistan's economy, costs and benefits of Foreign Aid, Role of Foreign Investment.

**V. Major Issues in Pakistan Economy**

Energy crisis, Corruption, Bad governance, External debt accumulation and dependency, Unemployment, Income inequality, Inflation, Fiscal and trade deficits, Balance of payment issues, Shortage of irrigation water.

### **Part-III (Professional) (Subjective) : 25 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. Research Methods in Education**
  - Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
  - Research Proposal and Report Writing.

#### **SUGGESTED READINGS**

<b>S. No.</b>	<b>Title</b>	<b>Author</b>
1.	A Text-book of Economics Theory	Stonier & Hague
2.	Government Finance—An Economic Analysis	Due John, F.
3.	Microeconomic	Ferguson, C.E. & Gould, J.P., Nicholson, Mankiw
4.	Macroeconomics	Rudigar Dorubush and Stanley Fisher Blanchard
5.	Foreign Aid Theory and Practice in Southern Asia	Wolf, Jr. DC
6.	History of International Trade	Findlay, R and O' Rourke, K
7.	Research in Education	JW Best
8.	Integrating Education Technology into Teaching	Roblyer
9.	Curriculum Development	S. M. Shahid
10.	Educational Measurement and Evaluation	S. M. Shahid
11.	Educational Administration	S. M. Shahid



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

Case No.	F.4-222 (B)/2023-R
Particulars of post	<b>Associate Professor (Male) (BS-19) (English)</b> , Federal Government Educational Institutions (FGEI) Directorate (Cantts/ Garrisons), Colleges, Ministry of Defence.
Minimum Qualification & Experience	Ph.D. degree in the relevant subject with eight (8) years post qualification teaching and administrative experience at College/ University level. <b>OR</b> M.Phil. degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College/ University level. <b>OR</b> Second Class or Grade 'C' Master's degree in the relevant subject with twelve (12) years post qualification teaching and administrative experience at College/ University level.

**Part-I: 25 Marks (MCQ)**

- 25 MCQ Questions on Part-II & III.

**Part-II: (English) (Subjective)****50 Marks****I. Essays:**

- Bertrand Russell (The Conquest of Happiness)
- George Orwell (Politics and the English Language; The Prevention of Literature)
- Ralph Waldo Emerson (The Transcendentalist; Self-reliance)

**II. Short Stories:**

- Somerset Maugham (The Lotus-eater)
- G.K.Chesterton (A Somewhat Improbable Story)
- O'Henry (The Gift of the Magi)

**III. Poetry:**

- William Wordsworth (Resolution Independence; Tintern Abbey)
- John Keats (Ode to a Nightingale; Ode to Autumn)
- Lord Alfred Tennyson (Ulysses; The Lady of Shalott)
- Yeats (A Dialogue of Self and Soul; The Second Coming)
- Eliot (The Wasteland; Love Song of J. Alfred Prufrock)
- Philip Larkin (Maturity; Continuing to Live; The Trees)
- Wallace Stevens (A postcard from the volcano; Continual conversation with a silent man; Dry loaf) **OR** Walt Whitman (As I ponder'd in silence; Are you the new person drawn toward me?; This moment yearning and thoughtful)

**IV. Drama:**

- Shakespeare (*Hamlet; King Lear, As you like it and Twelfth Night*)
- William Congreve (*The Way of the World*)
- Shaw (*Pygmalion; Heartbreak House*)
- Harold Pinter (*The Caretaker*)
- Samuel Beckett (*Waiting for Godot*)
- Eugene O'Neill (*Long Day's Journey into Night*)

**V. Novels:**

- Thomas Hardy (*Far from the Madding Crowd*)
- D.H. Lawrence (*Sons and Lovers*)
- George Orwell (*Nineteen Eighty-four*)
- James Joyce (*A Portrait of the Artist as a Young Man*)
- Iris Murdoch (*Under the Net*)
- Nathaniel Hawthorne (*The Scarlet Letter*) or William Faulkner (*The Sound and the Fury*)

**VI. Literacy Theory & Criticism**

- Structuralism
- Marxism
- Deconstructionism
- Psychoanalytic criticism
- Feminist criticism
- Postcolonial Criticism

**Part-III (Professional) (Subjective) : 25 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. Research Methods in Education**

- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing.

**SUGGESTED READINGS**

<b>S.No.</b>	<b>Title</b>	<b>Author</b>
1.	The basics Literary Theory. (Second edition). Routledge.	Bertens, H. (2008).
2.	Literary Theory: An Introduction. (Anniversary Edition).	Eagleton, E. (2008).
3.	A New Handbook of Literary Terms.	Mikics, W. (2007).
4.	A Companion to Twentieth Century Poetry.	Roberts, N. (2003).
5.	A Reader's Guide to Contemporary Literary Theory. (Fifth edition).	Selden, R., Widdowson, P., & Brooker, P. (2005)
6.	Twentieth Century British Drama.	Smart, J. (2001).
7.	Modern Critical Views & Interpretations, ed: 80's and 90's editions.	Harold Bloom (these include all range of authors and their works given above)
8.	A Companion to 20 <sup>th</sup> Century Drama Oxford: Blackwell.	Krasner David. 2005.
9.	Research in Education	JW Best
10.	Integrating Education Technology into Teaching	Roblyer
11.	Curriculum Development	S. M. Shahid
12.	Educational Measurement and Evaluation	S. M. Shahid
13.	Educational Administration	S. M. Shahid

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

Case No.	F.4-222 (C)/2023-R
Particulars of post	<b>Associate Professor (Male) (BS-19) (Information Technology)</b> Federal Government Educational Institutions (FGEI) Directorate (Cantts/ Garrisons), Colleges, Ministry of Defence.
Minimum Qualification & Experience	Ph.D. degree in the relevant subject with eight (8) years post qualification teaching and administrative experience at College/ University level.  <b>OR</b> M.Phil. degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College/ University level.  <b>OR</b> Second Class or Grade 'C' Master's degree in the relevant subject with twelve (12) years post qualification teaching and administrative experience at College/ University level.

**Part-I: 25 Marks (MCQ)**

- 25 MCQ Questions on Part-II & III.

**Part-II: (Information Technology) (Subjective)****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-III (Professional) (Subjective) : 25 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. Research Methods in Education**

- Research Instruments: Questionnaire; Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing.

**Suggested Reading**

<b>S.No.</b>	<b>Title</b>	<b>Author</b>
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.	Research in Education	JW Best
10.	Integrating Education Technology into Teaching	Roblyer
11.	Curriculum Development	S.M. Shahid
12.	Educational Measurement and Evaluation	S.M. Shahid
13.	Educational Administration	S.M. Shahid

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

Case No.	F.4-222 (D)/2023-R
Particulars of post	<b>Associate Professor (Male) (BS-19) (Mathematics)</b> , Federal Government Educational Institutions (FGEI) Directorate (Cantts/Garrisons), Colleges, Ministry of Defence.
Minimum Qualification & Experience	Ph.D. degree in the relevant subject with eight (8) years post qualification teaching and administrative experience at College/ University level. <b>OR</b> M.Phil. degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College/ University level. <b>OR</b> Second Class or Grade 'C' Master's degree in the relevant subject with twelve (12) years post qualification teaching and administrative experience at College/ University level.

**Part-I: 25 Marks (MCQ)**

- 25 MCQ Questions on Part-II & III.

**Part-II: (Mathematics) (Subjective) 50 Marks****I. Vector Calculus**

Vector algebra; scalar and vector products of vectors; gradient divergence and curl of a vector; line, surface and volume integrals; Green's, Stokes' and Gauss theorems.

**II. Statics**

Composition and resolution of forces; parallel forces and couples; equilibrium of a system of coplanar forces; centre of mass of a system of particles and rigid bodies; equilibrium of forces in three dimensions.

**III. Dynamics**

- Motion in a straight line with constant and variable acceleration; simple harmonic motion; conservative forces and principles of energy.
- Tangential, normal, radial and transverse components of velocity and acceleration; motion under central forces; planetary orbits; Kepler laws;

**IV. Ordinary differential equations**

- Equations of first order; separable equations, exact equations; first order linear equations; orthogonal trajectories; nonlinear equations reducible to linear equations, Bernoulli and Riccati equations.
- Equations with constant coefficients; homogeneous and inhomogeneous equations; Cauchy-Euler equations; variation of parameters.

- Ordinary and singular points of a differential equation; solution in series; Bessel and Legendre equations; properties of the Bessel functions and Legendre polynomials.

## V. Modern Algebra

- Group, subgroups, Lagranges theorem, Cyclic groups, Normal subgroups, Quotient groups. Fundamental theorem of homomorphism. Isomorphism theorems of groups, Inner automorphisms. Conjugate elements, conjugate subgroups. Commutator subgroups.
- Ring, Subrings, Integral domains, Quotient fields, Isomorphism theorems, Field extension and finite fields.
- Vector spaces, Linear independence, Bases, Dimension of a finitely generated space. Linear transformations, Matrices and their algebra. Reduction of matrices to their echelon form. Rank and nullity of a linear transformation.
- Solution of a system of homogeneous and non-homogeneous linear equations. Properties of determinants.

### Part-III (Professional) (Subjective) : 25 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. Research Methods in Education

- Research Instruments: Questionnaire; Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing.

**SUGGESTED READINGS**

<b>S. No.</b>	<b>Title</b>	<b>Author</b>
1.	An Introduction to Vector Analysis	Khalid Latif,
2.	Introduction to Mechanics	Q.K. Ghori
3.	An Intermediate Course in Theoretical Mechanics	Khalid Latif,
4.	Differential Equations with Boundary Value Problems	D. G. Zill and M. R. Cullen
5.	Elementary Differential Equations	E.D. Rainville, P.E. Bedient and R.E. Bedient
6.	Mathematical Methods	S. M. Yousaf, Abdul Majeed and Muhammad Amin
7.	Topics in Algebra	Herstein, I.N.
8.	Research in Education	JW Best
9.	Integrating Education Technology into Teaching	Roblyer
10.	Curriculum Development	S.M. Shahid
11.	Educational Measurement and Evaluation	S.M. Shahid
12.	Educational Administration	S.M. Shahid



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

Case No.	F.4-227/2023-R
Particulars of post	<b>Research Officer (BS-18)</b> , Office of the Attorney General for Pakistan, Ministry of Law and Justice.
Minimum Qualification & Experience	i) Second Class or Grade 'C' Bachelor's degree in Law or equivalent from a University recognized by Higher Education Commission. ii) Five (5) years post qualification experience in legal research or legal matters.

**Part-I: 25 Marks (MCQ)**

- 25 MCQ Questions on Part-II.

**Part-II (Professional) (Subjective) : 75 Marks**

- Philosophy of Laws
- Constitutional Law
- Laws of Contract
- Concept of arbitration, arbitration with or without intervention of court and in civil suits.
- The Code of Civil Procedure, 1908
- Pakistan Penal Code, 1860
- Qanun-e-Shahdat Order, 1984
- Criminal Procedure Code, 1898
- Important principles established in decisions of Superior Courts

**SUGGESTED READINGS**

S. No.	Title	Author
1.	Pakistan Penal Code, 1860	M. Mahmood
2.	Criminal Procedure Code, 1898	Shaukat Mahmood
3.	Law of Evidence	Justice (R) Khalid ur Rahman Khan as adapted from Principles and Digest of the Law of Evidence by M. Monir
4.	Qanun-e-Shahdat Order, 1984	
5.	The Code of Civil Procedure, 1908	Aamir Raza A. Khan
6.	The Arbitration Laws in Pakistan	M. Mahmood
7.	Civil Courts Ordinance, 1962	Nisar Ahmad Nisar

**PAPER-II: PROFESSIONAL**

Max Marks: 100

Time Allowed: 3 Hours

Case No.	F.4-230/2023-R
Particulars of post	<b>Director (BS-19)</b> , Federal Government Organization.
Minimum Qualification & Experience	<p>i) Second Class or Grade 'C' Master's degree in Strategic Studies/ International Relations/ Sociology/ Political Science/ History/ Pakistan Studies/ Psychology/ Public Administration/ Economics/ Electronics or equivalent qualification from a University recognized by HEC.</p> <p>ii) Twelve (12) years post qualification experience in BS-17 and above in Government Department(s) including six (6) years' experience in Intelligence functions.</p> <p style="text-align: center;"><b>OR</b></p> <p>i) Ph.D. in Defence &amp; Strategic Studies/ International Relations/ Political Science/ History/ Pakistan Studies from a University recognized by HEC.</p> <p>ii) Eight (8) years post qualification experience in BS-17 and above in Government Department(s) including three (3) years' experience in Intelligence functions.</p>

**Part-I: 25 Marks (MCQ)**

- 25 MCQ Questions on Part-II & Part-III.

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

(Public Administration &amp; 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. PPRA Ordinance 2002 and Rules 2004

**Part-III: 25 Marks (Descriptive)**

(Human Resource, Financial Management and Quality Management)

**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;

### 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.