

**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. 09/2024**

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
1.	155/2024	Senior Elementary Teacher (Physical) (Female) (BS-16) , Islamabad Model Schools/Colleges (Ex. FG Schools), Ministry of Federal Education & Professional Training.	Second Class or Grade 'C' Master's degree / Bachelor's degree (4 years duration) in Physical Education 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.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Subject Test = 50 marks Part-III Professional Test = 30 marks	Part-I Grammar Usage, Sentence Structuring Part-II (Master's Level) <ul style="list-style-type: none"> • Philosophy of Physical Education, • Psychology of Physical Education, • Rules of games • Basics of Human Anatomy • Administration and Management in Sports, • Sports Nutrition, • Trauma and Rehabilitation, • Research Methodology in Physical Education • Test, Measurement and Evaluation in Physical Education & Sports • Sports Injuries, • Sports with physical disabilities Part-III <ul style="list-style-type: none"> ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation ▪ Knowledge of Bloom's Taxonomy

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
2.	157/2024	Charge Nurse (BS-16) , Federal General Hospital, Islamabad, Ministry of National Health Services, Regulations & Coordination.	<p>i. Second Class or Grade 'C' Bachelor's Degree in Nursing or equivalent qualification from a College/ University/ Institute recognized by Pakistan Nursing Council (PNC).</p> <p style="text-align: center;">OR</p> <p>Three (3) years diploma in general Nursing or equivalent qualification from a College/ University/ Institute recognized by Pakistan Nursing Council (PNC) with one (1) year diploma in midwifery for Female/ one (1) year course in Nursing related field in lieu of midwifery for male.</p> <p>ii. Valid registration with PNC.</p>	<p>Objective Type Test (MCQ)</p> <p>Part-I</p> <p>English = 20 marks</p> <p>Part-II</p> <p>Professional Test=80 Marks</p>	<p>Part-I</p> <p>Grammar Usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> ▪ Basic Medical Sciences ▪ General Nursing ▪ Ward Administration ▪ Hospitality of the Patients ▪ Care vs. Cure for Health Management ▪ Developing Training & Instructional Materials for Nursing Courses.
3.	158/2024	<p>Inspector (Tech) (BS-16), Federal Government Organization.</p> <p>NOTE: To short-list the candidates at first stage MCQs Screening Test shall be held. Thereafter subjective type Technical Proficiency 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.</p>	<p>i. B. Tech. in Electronics or equivalent in relevant subject from Government recognized Institute / University.</p> <p>ii. Two (2) years post qualification practical experience in the field of Electronics.</p> <p style="text-align: center;">OR</p> <p>Retired JCOs / Retired Foreman of Corps of Signals with ten (10) years' experience in the related field.</p>	<p>Objective Type Test (MCQ)</p> <p>Part-I</p> <p>English = 20 marks</p> <p>Part-II</p> <p>General Intelligence=80 marks</p> <p>Subjective Test</p> <p>Technical Proficiency Test=100 marks</p> <p>Qualifying Standard= 50%</p>	<p>Part-I</p> <p>Grammar Usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> ▪ Basic Arithmetic <ul style="list-style-type: none"> – Algebra – Ratios – Percentages – Arithmetic Means ▪ Current Affairs. <ul style="list-style-type: none"> – Issues/Challenges at National and International Level during the last 5 years ▪ Pakistan Affairs & Islamic Studies <ul style="list-style-type: none"> – Basic Level knowledge ▪ Basic Computer Operation in MS Office <p>For Pre-selected candidates</p> <ul style="list-style-type: none"> ▪ Electrical and Electronic circuits, their application and troubleshooting ▪ Working and troubleshooting of RF Communication System ▪ Telecommunication systems and Telephone exchange ▪ Working of CCTV Systems, Remote Control System and audio/video recording gadgets ▪ Designing of ordinary prototype circuits

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
4.	160/2024	Senior Scientific Assistant (BS-16) , Naval Headquarters, Ministry of Defence.	i. Second Class or Grade 'C' Bachelor's Degree in Science with Chemistry / Chemical Technology. ii. Three (3) years post qualification experience in the field of prescribed qualification	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"> ▪ Thermodynamics, ▪ Nature, Properties and States of Matter, ▪ Gases, Liquids & Solids, ▪ Organic Chemistry ▪ In-Organic Chemistry
5.	161/2024	Junior Town Planner (BS-17) , Military Engineering Services, Ministry of Defence.	Second Class or Grade 'C' Master's or Bachelor's (4 years duration) in City & Regional Planning or equivalent qualification from a University recognized by the HEC / PCATP.	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"> ▪ Emerging trends/approach in Urban Planning ▪ Significance of Zoning in Urban Development ▪ Sustainable development practices in Urban Planning ▪ Importance of GIS in Urban Planning ▪ Community participation in the Urban Planning Process ▪ Urban renewal strategies
6.	162/2024	Junior Interior Designer (BS-17) , Military Engineering Services, Ministry of Defence.	Second Class or Grade 'C' Master's or Bachelor's (4 years duration) degree in Interior Design 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 Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Principle and elements of interior design ▪ Colour, space and style of interior design ▪ Material of interior design ▪ Interior design drafting and working drawings ▪ Interior design standards, code, handicap designs ▪ Interior space designing psychology ▪ Understanding of furniture ▪ Lighting design ▪ Sustainable design for interior environments ▪ Understanding of interior plantation/landscape ▪ Interior software (AutoCAD, 3D Max, Vray, Lumion and Animation)

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
7.	166/2024	Junior Architect (BS-17) , Military Engineering Services, Ministry of Defence.	Second Class or Grade 'C' Master's or Bachelor's degree in Architecture / Architecture & Planning or equivalent qualification from a University recognized by the HEC / PCATP.	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"> ▪ Conceptual architecture design ▪ Elements and style of architecture ▪ Current architecture practices in market ▪ Architecture working drawings, architectural software (AutoCAD, 3D Max, Vray, Lumion, Architecture Animation) ▪ Sustainable architectural design ▪ Building materials ▪ International/National building code, architectural standards, accessible design and fire code of Pakistan ▪ Green building, energy efficient building principle/ practice and passive solar system
8.	167/2024	Administrative Officer (BS-17) , Military Engineering Services, Ministry of Defence.	Second Class or Grade 'C' Master's or Bachelor's (4 years duration) degree in Business Administration / Public Administration / Human Resource Management (HRM) or equivalent qualification from a University recognized by the HEC.	Objective Type Test (MCQ) Part-I English =20 marks Part-II Professional Test =80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Office Management and Administration ▪ HR Management and Administration ▪ Proficiency of writing, reading in Urdu and English Languages ▪ Federal Employees rules and regulation e.g. Recruitment, Promotion, Leave, Discipline as laid down in Estacode, CSR etc.
9.	168/2024	Librarian (BS-17) , Management Services Wing, Establishment Division.	Second Class or Grade 'C' Master's degree in Library Science or Library and Information Science or equivalent qualification from a University recognized by HEC. OR i. Second Class or Grade 'C' Bachelor's degree with at least one (1) year diploma in Library Science and Information Science or equivalent qualification from a University recognized by HEC. ii. Two (2) yeas post qualification experience in the relevant field.	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"> ▪ Classification ▪ History of Books and Libraries ▪ Cataloguing ▪ Bibliography ▪ Reference services ▪ Use of new technologies in Libraries ▪ Library Automation ▪ Library Management ▪ Research Methodology ▪ Collection Development

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
10.	169/2024	Staff Officer-III (Stats) (BS-17) , Ministry of Defence.	i. Second Class or Grade 'C' or higher Master's degree in Statistics / Economics or Mathematics with Statistics as a paper in Master's degree. ii. Two (2) years post qualification experience of Statistical / Research work.	Objective Type Test (MCQ) <u>Part-I</u> English =20 marks <u>Part-II</u> Professional Test =80 marks	<u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring <u>Part-II</u> <ul style="list-style-type: none"> ▪ Introduction to Statistics and its application ▪ Presentation and classification of data. ▪ Measures of Central Tendency ▪ Measures of Dispersion ▪ Correlation and Regression ▪ Index Numbers ▪ Sampling ▪ Time Series Analysis ▪ Testing of Hypothesis ▪ Research Methods & Techniques ▪ Report Writing

Schemes and Syllabi for Written Examination (Descriptive) for All Posts in BS-18 & BS-19 (other than Doctors) included in Consolidated Advertisement No. 09/2024

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 précisising 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.4-156 (A)/2024-R
Particulars of post	Associate Professor / Vice Principal (Female) (BS-19) (Computer Science) , Islamabad Model Colleges, Federal Directorate of Education, Islamabad, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject with eight (8) years post qualification teaching and administrative experience at College/ University level. OR M. Phil degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College/ University level. OR 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: (Computer Science) 50 Marks (Descriptive)**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) 25 Marks (Descriptive)**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.	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.4-156 (B)/2024-R
Particulars of post	Associate Professor / Vice Principal (Female) (BS-19) (Mathematics) , Islamabad Model Colleges, Federal Directorate of Education, Islamabad, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject with eight (8) years post qualification teaching and administrative experience at College/ University level. OR M. Phil degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College/ University level. OR 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)**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) 25 Marks (Descriptive)

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
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- 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 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.4-156(C)/2024-R
Particulars of post	Associate Professor / Vice Principal (Female) (BS-19) (Urdu) , Islamabad Model Colleges, Federal Directorate of Education, Islamabad, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject with eight (8) years post qualification teaching and administrative experience at College/ University level. OR M. Phil degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College/ University level. OR 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: (Urdu)**50 Marks****۱۔ اردو ادب کا مطالعہ**

- ۱۔ آردوزبان وادب کی اسلامی شناخت
- ۲۔ بیسویں صدی کی ادبی تحریکیں
- ۳۔ پاکستانی ادب کی اصطلاح: تشکیل وروایت اور ارتقاء

۲۔ شعری ادب کا تقویری مطالعہ

- الف۔ دور قدیم
- ۱۔ میر (غزل - انتخاب میر مولوی عبدالحق)
- ۲۔ غالب (دیوان غالب)
- ۳۔ حالی (مسدس)
- ۴۔ اقبال (مطلع اسلام، حضور راہ، سجد قرطبہ)

ب۔ دور جدید

- ۱۔ فیض (غزل - دست مہا)
- ۲۔ راشد (نظم - ایران میں بختی)
- ۳۔ مجید امجد (نظم - شب رفتہ)
- ۴۔ ناصر کاظمی (غزل - برگ نے)

۳۔ نثری ادب کا تقویری مطالعہ

- الف۔ غیر افسانوی نثر
- ۱۔ شبلی (سیرت النبی ﷺ، جلد اول)
- ۲۔ مولوی عبدالحق (خاکے، چند ہم عصر)
- ب۔ افسانوی نثر
- ۱۔ منٹو (افسانے منٹو کے ہیں افسانے: سرتب ڈاکٹر انوار احمد، ڈاکٹر اے بی اشرف)
- ۲۔ احمد ندیم قاسمی (افسانے، کپاس کے پھول)
- ۳۔ مشتاق احمد بختی (مظہر و مزار، آب گم)

۴۔ تخلیص**۵۔ مضمون**

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

- 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

ڈاکٹر وزیر آغا	۱۔ تھیڈیا اور جی بی آر ڈی تھیڈیا
ڈاکٹر انور رسدیدی	۲۔ اردو ادب کی تحریکیں
شیخ محمد اکرام	۳۔ آپ کوٹ
شیخ محمد اکرام	۴۔ رو کوٹ
شیخ محمد اکرام	۵۔ موج کوٹ
ڈاکٹر روبینہ شہناز	۶۔ اردو تھیڈیا میں پاکستانی تصورات
مرتبین: ڈاکٹر رفیع الدین ہاشمی، ڈاکٹر سکیل عمر، ڈاکٹر وحید عشرت.	۷۔ قابلیت کے سو سال
ترتیب نو: ڈاکٹر خواجہ محمد ذکریا	۸۔ تاریخ ادبیات مسلمانان پاکستان وہند
مرتب: ڈاکٹر نواز شعلی	۹۔ اردو ادب کے پچاس سال

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

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

Case No.	F.4-159/2024-R
Particulars of post	Associate Professor (Computer Science) (Male) (BS-19) , Federal Government Educational Institutions (Cantts/ Garrison) Directorate, 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. OR M. Phil degree in the relevant subject with ten (10) years post qualification teaching and administrative experience at College / University level. OR 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: (Computer Science) 50 Marks (Descriptive)**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) 25 Marks (Descriptive)**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

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- Use of Instructional Materials and Media

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- 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.	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.4-163/2024-R
Particulars of post	Senior Store Officer (BS-18) , Military Engineering Services, Ministry of Defence.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's or Bachelor's (4 years duration) degree in Business Administration / Commerce or equivalent qualification from a University recognized by the HEC. ii. Five (5) years post qualification experience in handling of Store Affairs or Store Management from a Public or Private Sector Organization.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II.

Part-II: (Professional) 75 Marks (Descriptive)

- Concepts and Principles of Supply Chain Management.
- Inventory Forecasting Methods.
- Procurement Procedures and Best Practices for Stores.
- Public Procurement Rules, 2004.
- E-Pak Procurement Regulations, 2023.
- Store Management: Receipt, Maintenance and Issuance of Stock.
- General Financial Rules (GFR Vol.I) (Provisions related to stores, contracts, standards of financial propriety and internal checks/controls).
- Store Layout: Planning and Design Considerations.
- Types and Key Components of Store Management.
- Human Resource Management in Store Operations.
- Principles of Financial Management and Accounting in Store Operations.

SUGGESTED READINGS

S. No.	Title	Author
1.	Principles of Supply Chain Management	Dr. Khalid Mahmood
2.	Inventory Management: Principles and Practices	James A. Cooke
3.	Public Sector Procurement Management	Dr. Fayyaz Ahmed Khan
4.	Store Management	K.S. Menon
5.	Store Layout and Design: Planning Principles	Michael J. O'Rourke
6.	Store Management & Operation	Kausik Sinha
7.	Human Resource Management Policy	Tania Mushtaq
8.	Financial Management and Accounting	Lawrence J. Gitman
9.	Public Procurement Rules, 2004	
10.	E-Pak Procurement Regulations, 2023	
11.	General Financial Rules (Vol.I)	

PAPER-II: PROFESSIONAL

Max Marks: 100

Time Allowed: 3 Hours

Case No.	F.4-164/2024-R
Particulars of post	Senior Interior Designer (BS-18) , Military Engineering Services, Ministry of Defence.
Minimum Qualification & Experience:	<ul style="list-style-type: none"> i. Second Class or Grade 'C' Master's or Bachelor's (4 years duration) degree in Interior Design or equivalent qualification from a University recognized by the HEC. ii. Five (5) years post qualification experience in the field of Interior Designing from a Public or Private Sector Organization.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II.

Part-II: (Professional) 75 Marks (Descriptive)**I. Principles and Theory of Interior Design:**

- Principles of Interior Design.
- Interior Design Theory, Art and Graphics.
- Color Theory, Space Planning and Style.

II. Interior Design Methodology and Components:

- Basic Elements of Interior Design.
- Methodology and Components of Interior Architecture.
- Interior Drafting and Working Drawings.
- Furniture Design and Understanding.

III. Computer Applications and Software:

- Computer Applications in Interior Design.
- Interior Design Software (including AutoCAD, 3D MAX, V-Ray, Lumion and Animation).

IV. Materials, Construction and Standards:

- Construction Techniques (relevant methods and techniques for interior construction).
- Interior Design Materials and Specifications.
- Interior Design Standards, Codes and Practices.

V. Design Evolution and Trends:

- Evolution and Trends in Interior Design.
- Psychological Impacts of Interior Space Design on Occupants.
- Interior Space Plantation.
- Lighting Design.

SUGGESTED READINGS

S.No.	Title	Author
1.	Introduction to Town and Country Planning	John Ratcliff
2.	Interior Design of Pakistan (Vol. I)	Maria Aslam
3.	The Key to Interior Design	Nikita Mittal
4.	Fundamentals of Interior Design	Simon Dodsworth
5.	Interior Design: Concepts and Practices	Dr. Aftab Alam
6.	Modern Interior Design in Pakistan	Hassan Raza

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

Case No.	F.4-165/2024-R
Particulars of post	Senior Town Planner (BS-18) , Military Engineering Services, Ministry of Defence.
Minimum Qualification & Experience:	<ul style="list-style-type: none"> i. Second Class or Grade 'C' Master's or Bachelor's (4 years duration) degree in City & Regional Planning / Urban & Regional Planning or equivalent qualification from a University recognized by the HEC/PCATP ii. Five (5) years post qualification experience in the field of Town Planning from a Public or Private Sector Organization.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II.

Part-II: (Professional) 75 Marks (Descriptive)**I. Overview of Town Planning:**

- Definition, objectives and historical development of town planning.
- History of urban planning and town planning in Pakistan.

II. Comparative Analysis of Planning Approaches:

- Differences between urban and rural planning.
- Regional plans, master plans and their role in five-year plans.

III. Development Strategies:

- Housing, community and economic development.
- Strategies to promote affordable housing and manage urban growth.

IV. Public Policy and Management:

- Role of public policy in urban design and management.
- Urban information systems and their application in planning.

V. Sustainability and Environmental Planning:

- Principles of sustainability, environmental policy and planning.
- Planning for climate change and strategies to control urban sprawl.

VI. Modern Technology and Community Engagement:

- Role of modern technology in urban planning.
- Community engagement in the urban planning process.

SUGGESTED READINGS

S.No.	Title	Author
1.	Introducing Town Planning	Clara Greed
2.	Introduction of Town and Country Planning	John Ratcliff
3.	Town Planning for the Third World	A.K.Bhatti
4.	Contemporary Urban Planning	J.M. Levy
5.	Land Use, Planning and Zoning	Peter J. Loughlin
6.	Town Planning in Practice	Raymond Unwin
7.	World Cities and Urban	Mike Janks
8.	Urban Land Use Planning	Philip R.B
9.	Environmental Science: A Global Concern	William P