

**FEDERAL PUBLIC SERVICE COMMISSION**  
**(Curriculum & Research Wing)**

**Schemes and Syllabi for Screening/Professional Tests as well as Descriptive Examination**  
**Relating to Posts under Advertisement No. 03/2025**

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
1.	87/2025	<b>Physiotherapist (Female)</b> (BS-17), Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence.	DPT/ BS in Physiotherapy from a University recognized by 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>▪ Anatomy (Upper, Lower Limb &amp; Spine)</li> <li>▪ Physiology (Nerve, Muscles, CNS, Blood)</li> <li>▪ Electrotherapy</li> <li>▪ Kinesiology &amp; Biomechanics</li> <li>▪ Therapeutical Exercises</li> <li>▪ Physiotherapy Treatment</li> </ul>
2.	88/2025	<b>Occupational Therapist</b> (BS-17) Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence	BS in Occupational therapy from a University recognized by 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>▪ Concept of Occupational Therapy and its functions</li> <li>▪ Common Neurological Disorders</li> <li>▪ Role of Occupational Therapy while dealing with the patient with Neurological Conditions</li> <li>▪ Adopted devices and their functions</li> <li>▪ Role of Occupational Therapy in Rehabilitation of Cerebral Palsied Children</li> <li>▪ Role of Occupational Therapy in Activities of Daily Living</li> <li>▪ Occupational Therapy as Supportive Measures</li> <li>▪ Occupational Therapy for Blind and Visually Impaired</li> <li>▪ Occupational Therapy in Geriatrics</li> <li>▪ Occupational Therapy for Children and Adolescents with Psychological Disorders.</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
3.	89/2025	<b>Physiotherapist (Male)</b> (BS-17), Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence.	DPT/ BS in Physiotherapy from a University recognized by 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>Anatomy (Upper, Lower Limb &amp; Spine)</li> <li>Physiology (Nerve, Muscles, CNS, Blood)</li> <li>Electrotherapy</li> <li>Kinesiology &amp; Biomechanics</li> <li>Therapeutical Exercises</li> <li>Physiotherapy Treatment</li> </ul>
4.	90/2025	<b>Law Officer</b> (BS-17), ML&C Department, Ministry of Defence.	i. LLB degree from a University recognized by the HEC. ii. Two (2) years post qualification experience from Bar Council which shall be counted from the date when Advocate became member of any Bar Association.	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>Civil Procedure Code</li> <li>Contract Act</li> <li>Qanoon-e-Shahadat</li> <li>Registration Act</li> <li>Succession Act</li> <li>Land Acquisition Act</li> <li>Transfer of Property Act</li> <li>General Power of Attorney Act</li> <li>Civil Servant Act, 1973</li> <li>Civil Servant (APT) Rules, 1973</li> <li>The Cantonment Act 1924</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
5.	91/2025	<p><b>Lecturer (Male) (BS-17),</b>  A. Chemistry,  B. Commerce,  C. Computer Science,  D. Economics,  E. Education,  F. English  G. Geography,  H. Health &amp; Physical Education,  I. Pak. Studies,  J. Physics  K. Urdu.</p> <p>Islamabad Model Colleges (Ex-F.G Colleges) Federal Directorate of Education, Ministry of Federal Education &amp; Professional Training.</p>	Second Class Master's degree or equivalent in the relevant subject.	<p>Objective Type Test (MCQ)</p> <p><b>Part-I</b>  English = 20 marks</p> <p><b>Part-II</b>  Subject Test = 50 marks</p> <p><b>Part-III</b>  Professional Test=30 marks</p> <p><b>Note:</b>  <input type="checkbox"/> For the subject of <b>Education</b>, there should be two parts, Part-I is English Test (20 Marks) and Part-II is Professional Test (80 Marks).  <input type="checkbox"/> In Language Subject i.e <b>Urdu</b>, English part for 20 marks will not be included. There will be 70% subject Test and 30% Professional Test.</p>	<p><b>For (A) Chemistry</b></p> <p><b>Part-I</b>  Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b>Part-II (Masters Level)</b></p> <ul style="list-style-type: none"> <li>▪ Nature, Properties &amp; States of Matter,</li> <li>▪ Electronic Structure,</li> <li>▪ Chemical Bonding, Kinetics &amp; Radioactivity,</li> <li>▪ Synthetic Chemistry</li> <li>▪ Polymers</li> <li>▪ Reaction Mechanism (electrophilic &amp; nucleophilic substitution and addition reaction)</li> <li>▪ Inorganic Chemistry,</li> <li>▪ Thermodynamics,</li> <li>▪ Electrochemistry,</li> </ul> <p><b>Part-III</b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology</li> <li>▪ Classroom Management and Discipline</li> <li>▪ Testing and Evaluation</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul> <p><b>For (B) Commerce</b></p> <p><b>Part-I</b>  Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b>Part-II (Masters Level)</b></p> <ul style="list-style-type: none"> <li>▪ Auditing</li> <li>▪ Cost Accounting</li> <li>▪ Managerial Economics</li> <li>▪ Computer Application in Business</li> <li>▪ Islamic Principles of Banking &amp; Finance</li> <li>▪ E-Commerce</li> <li>▪ Specialized financial Institutions</li> <li>▪ Salient features of Investment Analysis</li> </ul> <p><b>Part-III</b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology</li> <li>▪ Classroom Management and Discipline</li> <li>▪ Testing and Evaluation</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
					<p><b><u>For (C) Computer Science</u></b></p> <p><b><u>Part-I</u></b> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b><u>Part-II (Masters Level)</u></b></p> <ul style="list-style-type: none"> <li>▪ Computer Hardware/Software,</li> <li>▪ Data Communication &amp; Networking,</li> <li>▪ Artificial Intelligence</li> <li>▪ Generative Artificial Intelligence</li> <li>▪ Python programming</li> <li>▪ Operating System Unix/Linux</li> <li>▪ Windows 10/11,</li> <li>▪ Oracle/PLSQL,</li> <li>▪ System Analysis &amp; Design.</li> <li>▪ Web Programming,</li> </ul> <p><b><u>Part-III</u></b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology</li> <li>▪ Classroom Management and Discipline</li> <li>▪ Testing and Evaluation</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>
					<p><b><u>For (D) Economics</u></b></p> <p><b><u>Part-I</u></b> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b><u>Part-II (Masters Level)</u></b></p> <ul style="list-style-type: none"> <li>▪ Micro Economics: Determination of market demand and supply</li> <li>▪ Macro Economics: Basic Economic Concepts</li> <li>▪ International Trade: Theories, Trade Restrictions &amp; Trade Policy,</li> <li>▪ WTO and Developing Economies,</li> <li>▪ Monetary Theory &amp; Public Finance,</li> <li>▪ Industrial Development in Pakistan</li> <li>▪ Interest Free Banking in Pakistan</li> </ul> <p><b><u>Part-III</u></b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology</li> <li>▪ Classroom Management and Discipline</li> <li>▪ Testing and Evaluation</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
					<p><b><u>For (E) Education</u></b></p> <p><b><u>Part-I (20 Marks)</u></b> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><b><u>Part-II (80 Marks)</u></b></p> <ul style="list-style-type: none"> <li>▪ Development of Education in Pakistan,</li> <li>▪ Educational Reforms in Pakistan,</li> <li>▪ Educational Psychology,</li> <li>▪ Educational Guidance &amp; Counselling,</li> <li>▪ Educational Planning &amp; Management,</li> <li>▪ Educational Administration and Supervision,</li> <li>▪ Classroom/ Institutional Management &amp; Discipline</li> <li>▪ Curriculum Development &amp; Instructional Technology</li> <li>▪ Teaching Techniques &amp; Methodology,</li> <li>▪ Testing &amp; Evaluation.</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>
					<p><b><u>For (F) English</u></b></p> <p><b><u>Part-I</u></b> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><b><u>Part-II (Masters Level)</u></b></p> <ul style="list-style-type: none"> <li>▪ Linguistics.</li> <li>▪ Syntax.</li> <li>▪ Diction.</li> <li>▪ <u>Drama</u>: Shakespeare (Hamlet; King Lear; Twelfth Night), William Congreve (The Way of the World), Shaw (Pygmalion)</li> <li>▪ <u>Novel</u>: Nathaniel Hawthorne (The Scarlet Letter), William Faulkner (The Sound and the Fury)</li> <li>▪ <u>Short Stories</u>: Somerset Maugham (The Lotus-eater), G.K.Chesterton (A Somewhat Improbable Story), O'Henry (The Gift of the Magi)</li> <li>▪ <u>Poetry</u>: William Wordsworth (Resolution Independence; Tintern Abbey), John Keats (Ode to a Nightingale; Ode to Autumn)</li> </ul> <p><b><u>Part-III</u></b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology,</li> <li>▪ Classroom Management and Discipline,</li> <li>▪ Testing and Evaluation,</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
					<p><b><u>For (G) Geography</u></b></p> <p><b><u>Part-I</u></b> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b><u>Part-II (Masters Level)</u></b></p> <ul style="list-style-type: none"> <li>▪ Physical Geography</li> <li>▪ Landform development, climate, oceans &amp; seas, factor of climate and environmental change</li> <li>▪ Geography of Pakistan,</li> <li>▪ Human Geography (Geographic pattern of culture, Ethnicities and Nationalities, Economic Indicators, Social Indicators, Health Indicators, Renewable Resources, Recycling Resources, Sustainable resources. The Demographic Transition)</li> <li>▪ Political Geography (State, National and the Nation-State Geopolitics of uneven development)</li> <li>▪ Statistical Geography,</li> <li>▪ Climatology/Metrology,</li> <li>▪ Environmental Geography,</li> <li>▪ GIS Techniques,</li> </ul> <p><b><u>Part-III</u></b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology,</li> <li>▪ Classroom Management and Discipline,</li> <li>▪ Testing and Evaluation,</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>
					<p><b><u>For (H) Health &amp; Physical Education</u></b></p> <p><b><u>Part-I</u></b> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b><u>Part-II (Masters Level)</u></b></p> <ul style="list-style-type: none"> <li>▪ Curriculum Development in Physical Education,</li> <li>▪ Rules of games (Hockey, Volley Ball)</li> <li>▪ Basics of Human Anatomy</li> <li>▪ Administrative and Management in Sports,</li> <li>▪ Sports Nutrition,</li> <li>▪ Trauma and Rehabilitation,</li> <li>▪ Test, Measurement and Evaluation in Sports</li> <li>▪ Athletic Injuries,</li> <li>▪ Handicap Sports Organization</li> </ul> <p><b><u>Part-III</u></b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology,</li> <li>▪ Classroom Management and Discipline,</li> <li>▪ Testing and Evaluation,</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
					<p><b><u>For (I) Pakistan Studies</u></b></p> <p><b><u>Part-I</u></b> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><b><u>Part-II (Masters Level)</u></b></p> <ul style="list-style-type: none"> <li>▪ Ideology of Pakistan in light of speeches and statements of Allama Iqbal and Quaid-e-Azam</li> <li>▪ Pakistan Movement 1857-1947</li> <li>▪ Current Issues of Pakistan (challenges to National Security, Economic Challenges, Pakistan's War on Terror,</li> <li>▪ Geography of Pakistan <ul style="list-style-type: none"> <li>– Land and People of Pakistan</li> <li>– Pakistan and CPEC</li> <li>– Natural Resources of Pakistan,</li> </ul> </li> <li>▪ Latest Constitutional Amendments,</li> </ul> <p><b><u>Part-III</u></b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology</li> <li>▪ Classroom Management and Discipline</li> <li>▪ Testing and Evaluation</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>
					<p><b><u>For (J) Physics</u></b></p> <p><b><u>Part-I</u></b> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b><u>Part-II (Masters Level)</u></b></p> <ul style="list-style-type: none"> <li>▪ Mechanics</li> <li>▪ Heat and Thermodynamics,</li> <li>▪ Waves and Optics,</li> <li>▪ Electrostatic,</li> <li>▪ Electricity and Magnetism,</li> <li>▪ Modern and Quantum Physics,</li> <li>▪ Nuclear Physics,</li> <li>▪ Basic Solid State Physics,</li> </ul> <p><b><u>Part-III</u></b></p> <ul style="list-style-type: none"> <li>▪ Teaching Techniques and Methodology</li> <li>▪ Classroom Management and Discipline</li> <li>▪ Testing and Evaluation</li> <li>▪ Knowledge of Bloom's Taxonomy</li> </ul>

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					<p><b>For (K) Urdu</b>  <b>Part-I (Master's Level) (70 Marks)</b></p> <p>☆ اردو ذخیرہ الفاظ  ☆ اردو جملے کا ڈھانچہ  ☆ اردو قواعد کا استعمال  ☆ لسانیات  ☆ اردو ادب کی نثری اصناف کا تحقیقی جائزہ  ☆ اردو ادب کی شعری اصناف کا تحقیقی جائزہ  ☆ غالبیات  ☆ اقبالیات  ☆ تنقید  ☆ طنز و مزاح: عطا الحق قاسمی، پطرس بخاری، شفیق الرحمن</p> <p><b>Part-II (30 Marks)</b></p> <ul style="list-style-type: none"> <li>Teaching Techniques and Methodology,</li> <li>Classroom Management and Discipline,</li> <li>Testing and Evaluation,</li> <li>Knowledge of Bloom's Taxonomy</li> </ul>
6.	92/2025	<b>Secondary School Teacher (Physical) (Male) (BS-17)</b> , Ex-F.G Schools, Federal Directorate of Education, 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) <b>Part-I</b> English = 20 marks <b>Part-II</b> Subject Test = 50 marks <b>Part-III</b> Professional Test=30 marks	<p><b>Part-I</b>  Vocabulary, Grammar Usage, Sentence Structuring  <b>Part-II (Masters Level)</b></p> <ul style="list-style-type: none"> <li>Curriculum Development in Physical Education,</li> <li>Rules of games (Hockey, Volley Ball)</li> <li>Basics of Human Anatomy</li> <li>Administrative and Management in Sports,</li> <li>Sports Nutrition,</li> <li>Trauma and Rehabilitation,</li> <li>Test, Measurement and Evaluation in Sports</li> <li>Athletic Injuries,</li> <li>Handicap Sports Organization</li> </ul> <p><b>Part-III</b></p> <ul style="list-style-type: none"> <li>Teaching Techniques and Methodology,</li> <li>Classroom Management and Discipline,</li> <li>Testing and Evaluation,</li> <li>Knowledge of Bloom's Taxonomy</li> </ul>



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7.	93/2025	<b>Nurse/General Nurse / Charge Nurse / OT Nurse (BS-16)</b> , Health Department Gilgit Baltistan, Ministry of Kashmir Affairs and Gilgit Baltistan.	i. Second Class or Grade 'C' Bachelor's degree in Nursing or equivalent qualification from a College / University / Institute recognized by the PNC / HEC. OR Three (3) years Diploma in General Nursing or equivalent qualification from a College / University / Institute recognized by the PNC / HEC with one (1) years Course / Certificate in Midwifery (for females) or one (1) year Course / Certificate in Nursing related field in lieu of Midwifery (for males). ii. Valid Registration with PNC.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> Professional Test=80 marks	<b>Part-I</b> Grammar Usage, Sentence Structuring  <b>Part-II</b> <ul style="list-style-type: none"> <li>Introduction to Midwifery and Obstetrical Nursing</li> <li>Introduction to Nursing Research</li> <li>Introduction to Nursing Theories</li> <li>Community Health Nursing</li> <li>Management of Nursing Service &amp; Education</li> <li>Critical Care nursing</li> <li>Child Health Nursing</li> <li>Medical &amp; Surgical Nursing</li> <li>Teaching and Learning Principles/ Practices</li> <li>Leadership/Management in Nursing</li> </ul>
8.	94/2025	<b>Statistical Assistant (BS-16)</b> , Health Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.	Second Class or Grade 'C' Masters / Bachelor's (16 years education) degree in Statistics / Economics / Mathematics or equivalent qualification 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> Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>Introduction to Statistics</li> <li>Introduction to Operation Research</li> <li>Data Sorting and Cleaning</li> <li>Descriptive Statistics and Inferential Statistics</li> <li>Human Resource Management</li> <li>Statistical Quality Control</li> <li>Categorical Data Analysis</li> <li>Numerical Methods</li> <li>Statistical Analysis Methods</li> </ul>
9.	95/2025	<b>Assistant Engineer (Civil) (BS-16)</b> , Works Division In School Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.	i. Second Class or Grade 'C' Bachelor's degree in Civil Engineering or equivalent qualification form a University recognized by the PEC. ii. Registration from 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> Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>Soil Mechanics &amp; Foundation Engineering</li> <li>Surveying &amp; Levelling</li> <li>Costing and Estimation</li> <li>Construction Management</li> <li>Building Material &amp; Building Construction</li> <li>Structural Design Applications</li> <li>Concrete Technology &amp; R.C.C Structure Design</li> <li>Preparation of PC-1 for Infrastructure Projects</li> <li>Project Management &amp; Supervision.</li> <li>Basic IT/Computer Knowledge</li> <li>Public Procurement Rules, 2004</li> </ul>

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10.	97/2025	<b>Assistant Executive Engineer (Civil) (BS-17)</b> , Works Division In School Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.	i. Second Class or Grade 'C' Bachelor's degree in Civil Engineering or equivalent qualification from a University recognized by the PEC. ii. Registration from 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>Soil Mechanics &amp; Foundation Engineering</li> <li>Surveying &amp; Levelling</li> <li>Costing and Estimation</li> <li>Construction Management</li> <li>Building Material &amp; Building Construction</li> <li>Structural Design Applications</li> <li>Concrete Technology &amp; R.C.C Structure Design</li> <li>Preparation of PC-1 for Infrastructure Projects</li> <li>Project Management &amp; Supervision.</li> <li>Basic IT/Computer Knowledge</li> <li>Public Procurement Rules, 2004</li> </ul>
11.	98/2025	<b>Assistant Director (BS-17)</b> , Reclamation and Probation Department, ICT, Islamabad, Ministry of Interior & Narcotics Control.	Second Class or Grade 'C' Master's or Bachelor's (4 years education) degree in Social Work / Sociology / Criminology / Anthropology or equivalent qualification from a University recognized by 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>Community Organization and Development,</li> <li>Social Research &amp; Statistics,</li> <li>Organizational Behaviour and Human Resources,</li> <li>Social Welfare Policy and Administration,</li> <li>Criminology and its Remedial Measures,</li> <li>Methods of Counselling &amp; Guidance Services</li> <li>Environmental Sociology</li> <li>The code of criminal procedure, 1898</li> <li>Juvenile Justice System Ordinance, 2000</li> <li>Probation and Parole Laws</li> <li>Control of Narcotics Substance Act, 1997</li> </ul>
12.	99/2025	<b>Director Physical Education (Female) (BS-16)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.	Second Class or Grade 'C' Bachelor's degree with physical education as a subject or equivalent qualification 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> Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>Foundation of Physical Education and Sports</li> <li>Exercise Physiology and Sports Sciences</li> <li>Health Education and Nutrition</li> <li>Management and Administration in Physical Education</li> <li>Sport Psychology and Sociology</li> <li>Laws and policies in Physical Education</li> <li>Current trends and issues in Physical Education and Sports</li> </ul>

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13.	100/2025	<b>Director Physical Education (Male) (BS-16)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.	Second Class or Grade 'C' Bachelor's degree with physical education as a subject or equivalent qualification 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> Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <li>Foundation of Physical Education and Sports</li> <li>Exercise Physiology and Sports Sciences</li> <li>Health Education and Nutrition</li> <li>Management and Administration in Physical Education</li> <li>Sport Psychology and Sociology</li> <li>Laws and policies in Physical Education</li> <li>Current trends and issues in Physical Education and Sports</li> </ul>
14.	101/2025	<b>Assistant Director (BS-17)</b> , Federal Public Service Commission,	Second Class or Grade 'C' Master's Degree or equivalent qualification from a University recognized by HEC.	Objective Type Test (MCQ) <b>Part-I</b> English =20 marks <b>Part-II</b> General Intelligence/ Professional Test=80 Marks	<b>Part-I</b> Vocabulary, Grammar Usage, Sentence Structuring <b>Part-II</b> <ul style="list-style-type: none"> <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>Issues/Challenges at National and International Level during the last 5 years</li> </ul> </li> <li>Pakistan Affairs &amp; Islamic Studies <ul style="list-style-type: none"> <li>Basic Level knowledge</li> </ul> </li> <li>Basic IT knowledge.</li> <li>FPSC Ordinance 1977 as amended.</li> </ul>
15.	102/2025	<b>Administrative Officer (BS-17)</b> , 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) <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>Office Management and Administration</li> <li>HR Management and Administration</li> <li>Federal Employees rules and regulation e.g. Recruitment, Promotion, Leave, Discipline as laid down in Estacode, CSR etc.</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
16.	103/2025	<b>Assistant Engineer (E&amp;M) (BS-16)</b> A. Electrical B. Mechanical Military Engineering Services, Ministry of Defence.	Second Class or Grade 'C' Bachelor's (4 years duration) degree in Engineering (Electrical / Mechanical) / B.Tech. (Hons) (Electrical / Mechanical) or equivalent qualification from a University recognized by the HEC / PEC.	Objective Type Test (MCQ) <b>Part-I</b> English = 20 marks <b>Part-II</b> Professional Test=80 marks	<b><u>For (A) Electrical Engineering</u></b> <b><u>Part-I</u></b> Grammar Usage, Sentence Structuring <b><u>Part-II</u></b> <ul style="list-style-type: none"> <li>▪ Electrical Machines (Transformers, Generators, Motors)</li> <li>▪ Transmission and Distribution System (Single and Three Phase)</li> <li>▪ Power Factors and Voltage Regulation</li> <li>▪ Basic Electronics</li> <li>▪ Basic Communication System</li> <li>▪ Switch Gear and Production System</li> <li>▪ Heating Ventilation Air Conditioning</li> <li>▪ Basic Electrical Calculation</li> <li>▪ Measuring Instruments</li> </ul> <b><u>For (B) Mechanical Engineering</u></b> <b><u>Part-I</u></b> Grammar Usage, Sentence Structuring <b><u>Part-II</u></b> <ul style="list-style-type: none"> <li>▪ Heat Transfer</li> <li>▪ Thermodynamics</li> <li>▪ Industrial Materials</li> <li>▪ Machine Design and Drawing</li> <li>▪ Mechanics of Machines</li> <li>▪ Production Management &amp; Quality Control</li> <li>▪ Workshop Technology</li> <li>▪ Hydraulic Machines</li> <li>▪ Project Management</li> <li>▪ Basic IT/Computer Knowledge</li> </ul>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
17.	104/2025	<b>Medico Legal Officer</b> (BS-17), Health Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.	<p>i. MBBS or equivalent qualification from a university/Institute recognized by the PM&amp;DC.</p> <p>ii. One (1) year post qualification clinical experience in the relevant specialty/filed i.e. Forensic Medicine or Medico Legal services.</p>	<p>Objective Type Test (MCQ)</p> <p><b>Part-I</b></p> <p>English =20 marks</p> <p><b>Part-II</b></p> <p>Professional Test=80 marks</p>	<p><b>Part-I</b></p> <p>Vocabulary, Grammar Usage, Sentence Structuring</p> <p><b>Part-II</b></p> <ul style="list-style-type: none"> <li>▪ Advance Life Support</li> <li>▪ Basic Life Support</li> <li>▪ Process of legal coronial requests</li> <li>▪ Blood Transfuse complications</li> <li>▪ Preparation of Autopsy</li> <li>▪ Rational of antibiotics in surgical patients</li> <li>▪ ICU Monitoring</li> <li>▪ Active and Passive immunity</li> <li>▪ Immunization schedule</li> <li>▪ Antidote for food poisoning</li> <li>▪ Preventive Health Care</li> <li>▪ Primary Health Care and Infant mortality</li> <li>▪ Infectious Diseases</li> <li>▪ Non-infectious Diseases</li> <li>▪ Toxicology</li> <li>▪ Criminal Psychiatry</li> <li>▪ Sexual Assault and Abuse</li> </ul>

## Schemes and Syllabi for Written Examination (Descriptive) for All Posts in BS-18 & BS-19 (other than Doctors) included in Consolidated Advertisement No. 03/2025

### 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.4-96/2025-R
Particulars of post	<b>Executive Engineer (Civil) (BS-18)</b> , Works Division In School Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Bachelor's degree in Civil Engineering or equivalent qualification from a University recognized by the PEC. ii. Five (5) years post qualification experience in the field of Multi story structure / pre-stressed bridge design / sewerage and water supply design from a Government / Semi-Govt. / Autonomous / Private Sector Organization of repute.

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

- 25 MCQ Questions on Part-II.

**Part-II (Engineering) (Subjective) : 75 Marks****I. Civil Engineering Fundamentals:**

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

**II. Environmental Engineering:**

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

**III. Project Management:**

Project Management Techniques, Time lines, milestones, resources allocation, dependency, Gant Charts,

**IV. Inventory Management:**

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

**V. 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.	Properties of Concrete	A.M. Neville.
2.	Plain and reinforced concrete	Nilson.
3.	Strength of material	Andrew Pytel and Singer.
4.	Transportation Engineering, Planning and design	Paul Wright.
5.	Civil Engineer's Reference Book	LS Blake
6.	Surveying and Leveling	T.P Kanetaker.
7.	Public Health Engineering	STEEL.
8.	Handbook of Engineering Management	Dennis Lock.
9.	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.4-105/2025-R
Particulars of post	<b>Deputy Director (Town Planning)</b> (BS-19), ML&C Department, Ministry of Defence.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' B.Sc. Degree from a recognized University in Town Planning. ii. Associate Member of the Pakistan Institute of City and Regional Planning. iii. Twelve (12) years post qualification practical experience in the field of Town Planning. iv. Must be registered with Pakistan Council of Architects & Town Planners.

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

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

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

- I. Definition of Town Planning, Goals and objectives of Town Planning:** Town Planning as a multi-disciplinary approach and relationship of Town Planning with other professions.
- II. Historical Perspective of Urban Planning:** Planning of historical towns in the world. Examples of planned towns in Europe, Nile Valley region, Euphrates and Tigris Valley region and Indus Valley region (Mohenjodaro, Harappa, Kot Diji & Mehr Garh and Gandhara Civilization).
- III. Urban Rural Differences and Hierarchy of Settlements:** Urbanization and its effects on the environment of urban areas.
- IV. Public Policy and Urban Design Management:** Solving social and environmental problems using:
  - a. Economics,
  - b. Policy analysis,
  - c. Political science and
  - d. Urban Design
- V. Urban Information Systems:** Use of planning related software and spatial analysis tools and systems e.g. GIS, SPSS etc.

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

(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, Principles of Organization, 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; Elements of Financial Administration, Principles of Budgeting, Auditing and Accounting.



## II. Basic Concept of Quality Management

ISO-9000, 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.	Introducing Town Planning	Clara Greed
2.	Introduction to 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.	Human Resource Management	H.T. Graham & Roger Bennett
8.	Management	James A.F. Stoner, R. Eward Freeman, Daniel R. Gilbert Jr.

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

Case No.	F.4-106/2025-R
Particulars of post	<b>Joint Director Legal Affairs</b> (BS-19), Directorate of Legal Affairs of Pakistan Railways, (Railway Board), Ministry of Railways.
Minimum Qualification & Experience:	i. LLM degree or Barrister-at-Law from a University/ Institute recognized by HEC. ii. Ten (10) years post qualification experience as an Advocate of Supreme Court/ High Courts. iii. 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. Twelve (12) years post qualification experience as an Advocate of Supreme Court/ High Courts. iii. Computer literate in Microsoft Word, Excel and Spreadsheet.

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

- 25 MCQ Questions on Part-II.

**Part-II (Law) (Subjective) : 75 Marks****I. Definitions of Crime****II. All Provisions of:**

- Concept of arbitration, arbitration with or without intervention of court and in civil suits.
- Establishment of Civil Courts with their Original & Appellate Jurisdiction.
- The Code of Civil Procedure, 1908
- Pakistan Penal Code, 1860
- Qanun-e-Shahdat Order, 1984
- Criminal Procedure Code, 1898

**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.4-107 (A)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Chemistry) (Male) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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: (Chemistry)****50 Marks (Descriptive)**

- 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-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.	Advanced Inorganic Chemistry 3 <sup>rd</sup> Ed.	Cotton. F.A. and Wilkinson Groffrey
2.	Inorganic Chemistry, 3 <sup>rd</sup> Ed. 1983	Hukeavy, James E.
3.	Physical Chemistry 5 <sup>th</sup> Ed.	Moore, Walter J.
4.	Mechanism & Structure in Organic Chemistry	Gould, Edwards
5.	Organic Chemistry 2 <sup>nd</sup> 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

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

Case No.	F.4-107 (B)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Mathematics) (Male) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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 & Part-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. Fourier series and partial differential equations**

- Trigonometric Fourier series; sine and cosine series; Bessel inequality; summation of infinite series; convergence of the Fourier series.
- Partial differential equations of first order; classification of partial differential equations of second order; boundary value problems; solution by the method of separation of variables; problems associated with Laplace equation, wave equation and the heat equation in Cartesian coordinates.

**VI. Numerical Methods**

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed- point iterative method; order of convergence of a method.
- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.
- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge- Kutta methods.

**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 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.	Elements of Numerical Analysis	F. Ahmad and M.A Rana
7.	Mathematical Methods	S. M. Yousaf, Abdul Majeed and Muhammad Amin
8.	Mathematical Techniques	Karamat H. Dar
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.4-108 (A)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Chemistry) (Female) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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: (Chemistry)****50 Marks (Descriptive)**

- 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-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.	Advanced Inorganic Chemistry 3 <sup>rd</sup> Ed.	Cotton. F.A. and Wilkinson Groffrey
2.	Inorganic Chemistry, 3 <sup>rd</sup> Ed. 1983	Hukeavy, James E.
3.	Physical Chemistry 5 <sup>th</sup> Ed.	Moore, Walter J.
4.	Mechanism & Structure in Organic Chemistry	Gould, Edwards
5.	Organic Chemistry 2 <sup>nd</sup> 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



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

Case No.	F.4-108 (B)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Computer Science) (Female) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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) (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**

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.4-108 (C)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (English) (Female) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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: (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
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.4-108 (D)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Mathematics) (Female) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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 & Part-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. Fourier series and partial differential equations**

- Trigonometric Fourier series; sine and cosine series; Bessel inequality; summation of infinite series; convergence of the Fourier series.
- Partial differential equations of first order; classification of partial differential equations of second order; boundary value problems; solution by the method of separation of variables; problems associated with Laplace equation, wave equation and the heat equation in Cartesian coordinates.

**VI. Numerical Methods**

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed- point iterative method; order of convergence of a method.
- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.
- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge- Kutta methods.

**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 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.	Elements of Numerical Analysis	F. Ahmad and M.A Rana
7.	Mathematical Methods	S. M. Yousaf, Abdul Majeed and Muhammad Amin
8.	Mathematical Techniques	Karamat H. Dar
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.4-108 (E)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Mass Communication) (Female) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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 & Part-III.

**Part-II: (Mass Communication) (Subjective) :50 Marks****I. Basic models in Mass Communication: -**

Lasswell's Model (1948), Shannon-Weaver model (1948), Osgood's model (1954), Schramm's model (1954), Newcomb's symmetry theory (1953), Westley-McLean's model (1976), Gerbner model (1956)

**II. Mass Communication Theories**

Normative theories of the press: Schramm's four theories and criticism on these theories, Media as agents of power,

**III. Media and Society**

Mass media and social change, Media as a social system: The balance between interrelation and interdependence, Media freedom and its role for democracy, The functional approach to mass media: four social functions of the media, Media as an awareness agent, Mass media and social representation

**IV. Mass Media in Pakistan:**

Media system in Pakistan: historical, chronological, and analytical review, The system of journalism and the media system, Government-press relations, The new 24/7 television: uses and abuses, The question of freedom and responsibility

**V. Media Laws and Ethics:**

Development of media regulations from British colonial era to independent Pakistan, Libel, Defamation and relevant portions of PPC, PPO, RPPPO, PEMRA: establishment, development, and operational mechanisms, Press Council of Pakistan (PCP), Citizens Media Commission: need, present status, and reasons for inactivity, Press Code of Ethics, Inability of the media to develop a code of ethics as an institution, The media's quest for freedom and its inability to self regulate.



### 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.	Communication Models for The Study of Mass Communication, 2 <sup>nd</sup> Ed	McQuail, Dennis & Windhal, Swen, Longman, 1982.
2.	Communication Theories: Origins, Methods and Uses in the Mass Media 5 <sup>th</sup> Ed	Werner J. Severin, James W. Tankard Jr. Longman, 1997.
3.	Ethics in Journalism: A Reader on Their Perception in the Third World	Kunczik, Michael (Ed.). FES 1999.
4.	Media And Society into the 21 <sup>st</sup> Century: A Historical Introduction	Blackwell publishing Ltd, USA.
5.	"Media Now: Communication Media in the Information Age"	Wads Worth/Thompson Learning, Belmont, CA
6.	News Media and Journalism in Pakistan	Khan, Altaf. LAP Lambert Academic Publishing. June 2011.
7.	News Media and Journalism in Pakistan and Germany (Ed.)	Khan, Altaf. Peshawar, 2003.
8.	Political Communication in Asia,	Routage, NY.
9.	Principles of Editing	McGraw-Hill 1996
10.	The Hand Book of New Media	London: Sage
11.	Telecommunications Policy in Pakistan"	Telematics and Informatics
12.	"Model Freedom of Information Act", 2001	Consumer rights Protection Commission of Pakistan
13.	Research in Education	JW Best
14.	Integrating Education Technology into Teaching	Roblyer
15.	Curriculum Development	S.M. Shahid
16.	Educational Measurement and Evaluation	S.M. Shahid
17.	Educational Administration	S.M. Shahid

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

Case No.	F.4-108 (F)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Physics) (Female) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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 & Part-III.

**Part-II: (Physics) (Subjective) : 50 Marks****I. Mechanics**

- Vectors—Dots, Cross and triple products, Gradient, divergence and applications.
- Newtonian laws of motion; calculus based approach to kinematics, forces and dynamics, conservation law of energy; conservation of linear and angular momentum; Dynamics of rigid body; spin and precession; gyroscope; Gravitation; planetary motion and satellites; Kepler's laws; centripetal forces
- Special theory of relativity. Michelson—Morley experiment and Einstein's postulates; Lorentz transformation; time dilation and length contraction; equivalence of mass and energy.

**II. Fluid Mechanics**

Surface tension; Viscosity; Elasticity; fluid motion and Bernoulli's theorem.

**III. Waves and Oscillation**

- Free oscillation with one and two degrees of freedom; forced and damped oscillations and phenomenon of resonance. Simple harmonic motion. Traveling waves and transmission of energy; Phase and Group velocity; standing waves. Basics of sound waves.
- Reflection, Refraction, Interference, Diffraction and Polarization of waves; interferometer and Newton's rings; Diffraction Gratings and their resolving power; spectrometers. Electromagnetic wave equation; normal and anomalous dispersion; coherence, lasers and applications.

**IV. Heat and Thermodynamics**

Perfect gas and Van der Waals equation; Three Laws of Thermodynamics, internal energy, temperature, entropy. Thermal properties of Simple system production and measurement of low temperatures; kinetic theory of gases; Maxwellian distribution of molecular velocities; Brownian motion; Transport phenomena. Classical Maxwell-Boltzmann Statistics and its application; Quantum Bose—Einstein and Fermi—Dirac Statistics.

## V. Electricity and Magnetism

Electric field due to point charges, Gauss' law Electric potential and Poisson and Laplace's equation Dielectric medium and Polarization; Capacitance; Moving charges and resulting magnetic field; Ampere's law; Vector potential; Magnetic properties of matter; Transient current; Faraday's law of electromagnetic induction; Alternating current and LRO circuit. Maxwell's equations; Poynting theorem and Poynting Vector. Maxwell's equations in integral and differential form.

## VI. Modern and Quantum Physics

Operators and quantum states, observables, time dependent and independent Schrodinger equation, angular momentum, spin-1/2 particle in a magnetic field, wave mechanics, particle in a box, tunneling, one-dimensional harmonic oscillator, Heisenber's uncertainty relationship and indeterminacy based on commutation properties of operators, Bohr theory and quantum numbers including electron spin; Pauli's exclusion principle; Spectra of simple systems with one or two valence electrons. Photo electric effect Compton scattering; pair production; Lande's g factor and Zeeman effect. Raman effect; Waves and particles and De Broglie's Hypothesis.

## VII. Solid State Physics

Crystal lattice and structure, Bravais lattice, free electron model, Band theory and electron in a periodic potential, Fermi energy and density of states, n and p type semiconductors, physics of the transistor and MOSFET, dielectric properties, magnetic properties and origin of magnetism.

## VIII. Nuclear Physics

Structure of Nuclei; Radioactivity  $\alpha$ ,  $\beta$  and  $\gamma$  decay. Methods of detection, Mass Spectrometer. Accelerators. Phenomenon of fission; reactor and nuclear power, nuclear fusion and its application, Elementary particles and their properties.

## 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.	Perspectives of Modern Physics.	A. Beiser.
2.	Fundamentals of Physics.	Halliday & Resnick
3.	Introduction to Electromagnetic Fields and Waves	D. Corson & P. Lorrain.
4.	Heat and Thermodynamics.	D. Zemansky
5.	Introduction to Quantum Mechanics	D. Griffiths
6.	Modern Physics	Serway, Moses, Moyer.
7.	Solid State Physics	C. Kittel
8.	The Cosmic Code: Quantum Physics as the Language of Nature	Heinz R. Pagets
9.	Physics of the Life Science	Jay Newman
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.4-108 (G)/2025-R
Particulars of post	<b>Associate Professor / Vice Principal (Psychology) (Female) (BS-19)</b> , Islamabad Model Colleges (Ex- F.G Colleges), Federal Directorate of Education, Ministry of Federal Education & 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: (Psychology) (Subjective)****50 Marks**

- I. **Nature and Scope of Psychology:** Definition and scope, Psychology as a Science, Schools, Perspectives, and Models of Psychology, Recent Trends
- II. **Biological Basis of Behaviour:** Nervous System, Neuron and its function, Central and Peripheral Nervous System, Endocrine System
- III. **Motivation and Emotion:** Homeostasis, Factors affecting Motivation, Biogenic and Social Motives, Measurement of Human Motivation, Theories of Motivation, Emotions, Types of Emotions, Physiological changes and Emotion, Theories of Emotion.
- IV. **Personality:** Determinants of Personality, Factors in Development of Personality, Theoretical Perspectives, Traits and Types, Personality Assessment and Techniques, Cross-Cultural Issues.
- V. **Intelligence:** Theories of Intelligence, Types of intelligence (IQ, EQ), Assessing Intelligence
- VI. **Developmental Psychology:** Physical, Cognitive, Social and Emotional development in Childhood, Adolescence, Adulthood and Old Age
- VII. **Abnormal and Clinical Psychology:** Concept and causes of Abnormality, Clinical Assessment and Intervention, Different disorders such as Schizophrenia, Mood disorders, Anxiety disorders, Personality disorders, etc. Psychological treatment including different Therapeutic techniques.

**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.	Introduction to Psychology	Atkinson R. C., & Smith, E. E
2.	Development Across the Life Span	Feldman, R.
3.	Abnormal Psychology	Kring, A. M
4.	Psychology	Myers, D. G.
5.	An introduction of theories of personality	Ewen, R. B.
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

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

Case No.	F.4-109 (A)/2025-R
Particulars of post	<b>Assistant Professor (Chemistry) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

- 25 MCQ Questions on Part-II & III.

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

- 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-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.	Advanced Inorganic Chemistry 3 <sup>rd</sup> Ed.	Cotton. F.A. and Wilkinson Groffrey
2.	Inorganic Chemistry, 3 <sup>rd</sup> Ed. 1983	Hukeavy, James E.
3.	Physical Chemistry 5 <sup>th</sup> Ed.	Moore, Walter J.
4.	Mechanism & Structure in Organic Chemistry	Gould, Edwards
5.	Organic Chemistry 2 <sup>nd</sup> 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



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

Case No.	F.4-109 (B)/2025-R
Particulars of post	<b>Assistant Professor (Commerce) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

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

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

- I. Introduction to Business Finance:** Nature and Scope of a Business Entity, Contemporary Challenges posed to a Business, Common Legal Forms of a Business Entity, Meaning, Nature and Scope of Finance and Financial Management, Common Modes (Types) of Business Finance – Short- Medium- and Long-term Financing,
- II. Auditing:** Nature and Purpose of Auditing, Audit Planning and Control, Audit Procedures and Techniques, Audit Evidence and Documentation,
- III. Role and Responsibilities of an Auditor:** Auditor's professional and legal Rights, Responsibilities & Duties, and Liabilities, Auditor's Opinion and Report and their classification (Types), as specified under the Companies Ordinance 1984 and in the handbook of IFAC.
- IV. Cost Accounting:** Concepts and Scope of Cost Accounting, Cost Classification and Flows, Material Costing and Control, Labour Costing and Control, Factory Overhead Costing and Control, Types of Costing Systems
- V. Managerial Economics:** The Nature and Scope of Managerial Economics, Optimization Techniques and new Management Tools, Demand Theory, Demand Estimation, Demand Forecasting, Production and Cost Analysis, Cost Theory and Estimation, Linear Programming, Risk Analysis
- VI. Financial Management:** Elements of Financial Administration, Performance and Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

**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.	Fundamentals of Accounting Principles	Wild. Larson. Chiappetta
2.	Principles of Accounting, and Advanced Accounting	Sohail Afzal
3.	Cost Accounting	Nisar ur Din.
4.	Advanced Auditing	Prof. Dr. Khuaja Amjad Saeed
5.	Managerial Economics	Micheal Baye
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

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

Case No.	F.4-109 (C)/2025-R
Particulars of post	<b>Assistant Professor (Computer Science) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

- 25 MCQ Questions on Part-II & III.

**Part-II: (Computer Science) (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**

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.4-109 (D)/2025-R
Particulars of post	<b>Assistant Professor (Economics) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching 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

S. No.	Title	Author
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.4-109 (E)/2025-R
Particulars of post	<b>Assistant Professor (English) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching 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

S.No.	Title	Author
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
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.4-109 (F)/2025-R
Particulars of post	<b>Assistant Professor (Mathematics) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

- 25 MCQ Questions on Part-II & Part-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. Fourier series and partial differential equations**

- Trigonometric Fourier series; sine and cosine series; Bessel inequality; summation of infinite series; convergence of the Fourier series.
- Partial differential equations of first order; classification of partial differential equations of second order; boundary value problems; solution by the method of separation of variables; problems associated with Laplace equation, wave equation and the heat equation in Cartesian coordinates.

**VI. Numerical Methods**

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed- point iterative method; order of convergence of a method.

- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.
- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge- Kutta methods.

### **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.	Elements of Numerical Analysis	F. Ahmad and M.A Rana
7.	Mathematical Methods	S. M. Yousaf, Abdul Majeed and Muhammad Amin
8.	Mathematical Techniques	Karamat H. Dar
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.4-109 (G)/2025-R
Particulars of post	<b>Assistant Professor (Pak. Studies) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

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

**Part-II: (Pak Studies) (Subjective) : 50 Marks**

- Ideology of Pakistan-----definition and elucidation, historical aspects: Muslim rule in the Sub-Continent, its downfall and efforts for Renaissance. Movements for reforms-- Shaikh Ahmad Sarhindi, Shah Waliullah, Sayyid Ahmad Shaheed, Aligarh, Deoband, Nadwah, and other educational institutions-----Sindh Madrassah and Islamia College Peshawar. Ideology of Pakistan in the light of Speeches and statements of Allama Iqbal and Quaid- i Azam Muhammad Ali Jinnah.
- Changing Security Dynamics for Pakistan: Challenges to National Security of Pakistan
- Pakistan War on Terror
- Foreign Policy of Pakistan Post 9/11
- Evolution of Democratic System in Pakistan
- Hydro Politics ; Water Issues in Domestic and Regional Context
- Pakistan's Energy Problems and their Effects
- Pakistan's Relations with Neighbours
- Pakistan and India Relations Since 1947
- Kashmir Issue
- The war in Afghanistan since 1979 and its impact on, and challenges to Pakistan.
- War against Terrorism since 2001 onwards
- The Prevailing Social Problems of Pakistan and the Strategies to Deal with them: Over Population, Poverty, Education, Health and Sanitation.

**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.	Federalism and Ethnic Conflict Regulation in India and Pakistan.	Adeney, Katharine.
2.	Labour, Democratization and Development in India and Pakistan.	Candland, Christopher,
3.	Frontline Pakistan: The Struggle with Militant Islam.	Hussian, Zahid.
4.	Modern South Asia: History, Culture, Political Economy	Jalal, Aisha and Bose, Sugata.,
5.	Back to Pakistan: A Fifty Year Journey.	Mass, Leslie Noyes.
6.	Pakistan: Manifest Destiny.	Qureshi, Atiff.
7.	Pakistan, America, and Future of Global Jihad	Riedel, Bruce. Deadly Embrace:
8.	Kashmir in Conflict: India, Pakistan and the Unending War.	Schofield, Victoria.
9.	The Emergence of Pakistan	Ch. Muhammad Ali
10.	The Last Mughal	William Dalrymple
11.	Jinnah of Pakistan	Stanley Wolpert
12.	A Brief History of Pakistan.	Wynbrandt, James.
13.	Pakistan's Energy Sector: From Crisis to Crisis-Breaking the Chain	Zaid Alahdad
14.	Research in Education	JW Best
15.	Integrating Education Technology into Teaching	Roblyer
16.	Curriculum Development	S. M. Shahid
17.	Educational Measurement and Evaluation	S. M. Shahid
18.	Educational Administration	S. M. Shahid

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

Case No.	F.4-109 (H)/2025-R
Particulars of post	<b>Assistant Professor (Physics) (Male) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. <b>OR</b> M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. <b>OR</b> Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

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

**Part-II: (Physics) (Subjective) : 50 Marks****I. Mechanics**

- Vectors—Dots, Cross and triple products, Gradient, divergence and applications.
- Newtonian laws of motion; calculus based approach to kinematics, forces and dynamics, conservation law of energy; conservation of linear and angular momentum; Dynamics of rigid body; spin and precession; gyroscope; Gravitation; planetary motion and satellites; Kepler's laws; centripetal forces
- Special theory of relativity. Mischelson—Morley experiment and Einstein's postulates; Lorentz transformation; time dilation and length contraction; equivalence of mass and energy.

**II. Fluid Mechanics**

Surface tension; Viscosity; Elasticity; fluid motion and Bernoulli's theorem.

**III. Waves and Oscillation**

- Free oscillation with one and two degrees of freedom; forced and damped oscillations and phenomenon of resonance. Simple harmonic motion. Traveling waves and transmission of energy; Phase and Group velocity; standing waves. Basics of sound waves.
- Reflection, Refraction, Interference, Diffraction and Polarization of waves; interferometer and Newton's rings; Diffraction Gratings and their resolving power; spectrometers. Electromagnetic wave equation; normal and anomalous dispersion; coherence, lasers and applications.

**IV. Heat and Thermodynamics**

Perfect gas and Van der Waals equation; Three Laws of Thermodynamics, internal energy, temperature, entropy. Thermal properties of Simple system production and measurement of low temperatures; kinetic theory of gases; Maxwellian distribution of molecular velocities; Brownian motion; Transport phenomena. Classical Maxwell-Boltzmann Statistics and its application; Quantum Bose—Einstein and Fermi—Dirac Statistics.

## V. Electricity and Magnetism

Electric field due to point charges, Gauss' law Electric potential and Poisson and Laplace's equation Dielectric medium and Polarization; Capacitance; Moving charges and resulting magnetic field; Ampere's law; Vector potential; Magnetic properties of matter; Transient current; Faraday's law of electromagnetic induction; Alternating current and LRO circuit. Maxwell's equations; Poynting theorem and Poynting Vector. Maxwell's equations in integral and differential form.

## VI. Modern and Quantum Physics

Operators and quantum states, observables, time dependent and independent Schrodinger equation, angular momentum, spin-1/2 particle in a magnetic field, wave mechanics, particle in a box, tunneling, one-dimensional harmonic oscillator, Heisenber's uncertainty relationship and indeterminacy based on commutation properties of operators, Bohr theory and quantum numbers including electron spin; Pauli's exclusion principle; Spectra of simple systems with one or two valence electrons. Photo electric effect Compton scattering; pair production; Lande's g factor and Zeeman effect. Raman effect; Waves and particles and De Broglie's Hypothesis.

## VII. Solid State Physics

Crystal lattice and structure, Bravais lattice, free electron model, Band theory and electron in a periodic potential, Fermi energy and density of states, n and p type semiconductors, physics of the transistor and MOSFET, dielectric properties, magnetic properties and origin of magnetism.

## VIII. Nuclear Physics

Structure of Nuclei; Radioactivity  $\alpha$ ,  $\beta$  and  $\gamma$  decay. Methods of detection, Mass Sepectrometer. Accelerators. Phenomenon of fission; reactor and nuclear power, nuclear fusion and its application, Elementary particles and their properties.

### 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.	Perspectives of Modern Physics.	A. Beiser.
2.	Fundamentals of Physics.	Halliday & Resnick
3.	Introduction to Electromagnetic Fields and Waves	D. Corson & P. Lorrain.
4.	Heat and Thermodynamics.	D. Zemansky
5.	Introduction to Quantum Mechanics	D. Griffiths
6.	Modern Physics	Serway, Moses, Moyer.
7.	Solid State Physics	C. Kittel
8.	The Cosmic Code: Quantum Physics as the Language of Nature	Heinz R. Pagets
9.	Physics of the Life Science	Jay Newman
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.4-110 (A)/2025-R
Particulars of post	<b>Assistant Professor (Computer Science) (Female) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. OR M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. OR Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

- 25 MCQ Questions on Part-II & III.

**Part-II: (Computer Science) (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**

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.4-110 (B)/2025-R
Particulars of post	<b>Assistant Professor (English) (Female) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. OR M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. OR Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching 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**

S.No.	Title	Author
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
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.4-110 (C)/2025-R
Particulars of post	<b>Assistant Professor (Mathematics) (Female) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. OR M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. OR Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

- 25 MCQ Questions on Part-II & Part-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. Fourier series and partial differential equations**

- Trigonometric Fourier series; sine and cosine series; Bessel inequality; summation of infinite series; convergence of the Fourier series.
- Partial differential equations of first order; classification of partial differential equations of second order; boundary value problems; solution by the method of separation of variables; problems associated with Laplace equation, wave equation and the heat equation in Cartesian coordinates.

**VI. Numerical Methods**

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed- point iterative method; order of convergence of a method.

- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.
- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge- Kutta methods.

### **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. Ghorri
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.	Elements of Numerical Analysis	F. Ahmad and M.A Rana
7.	Mathematical Methods	S. M. Yousaf, Abdul Majeed and Muhammad Amin
8.	Mathematical Techniques	Karamat H. Dar
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.4-110 (D)/2025-R
Particulars of post	<b>Assistant Professor (Pak. Studies) (Female) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. OR M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. OR Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

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

**Part-II: (Pak Studies) (Subjective) : 50 Marks**

- Ideology of Pakistan-----definition and elucidation, historical aspects: Muslim rule in the Sub-Continent, its downfall and efforts for Renaissance. Movements for reforms-- Shaikh Ahmad Sarhindi, Shah Waliullah, Sayyid Ahmad Shaheed, Aligarh, Deoband, Nadwah, and other educational institutions-----Sindh Madrassah and Islamia College Peshawar. Ideology of Pakistan in the light of Speeches and statements of Allama Iqbal and Quaid- i Azam Muhammad Ali Jinnah.
- Changing Security Dynamics for Pakistan: Challenges to National Security of Pakistan
- Pakistan War on Terror
- Foreign Policy of Pakistan Post 9/11
- Evolution of Democratic System in Pakistan
- Hydro Politics ; Water Issues in Domestic and Regional Context
- Pakistan's Energy Problems and their Effects
- Pakistan's Relations with Neighbours
- Pakistan and India Relations Since 1947
- Kashmir Issue
- The war in Afghanistan since 1979 and its impact on, and challenges to Pakistan.
- War against Terrorism since 2001 onwards
- The Prevailing Social Problems of Pakistan and the Strategies to Deal with them: Over Population, Poverty, Education, Health and Sanitation.

**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.	Federalism and Ethnic Conflict Regulation in India and Pakistan.	Adeney, Katharine.
2.	Labour, Democratization and Development in India and Pakistan.	Candland, Christopher,
3.	Frontline Pakistan: The Struggle with Militant Islam.	Hussian, Zahid.
4.	Modern South Asia: History, Culture, Political Economy	Jalal, Aisha and Bose, Sugata.,
5.	Back to Pakistan: A Fifty Year Journey.	Mass, Leslie Noyes.
6.	Pakistan: Manifest Destiny.	Qureshi, Atiff.
7.	Pakistan, America, and Future of Global Jihad	Riedel, Bruce. Deadly Embrace:
8.	Kashmir in Conflict: India, Pakistan and the Unending War.	Schofield, Victoria.
9.	The Emergence of Pakistan	Ch. Muhammad Ali
10.	The Last Mughal	William Dalrymple
11.	Jinnah of Pakistan	Stanley Wolpert
12.	A Brief History of Pakistan.	Wynbrandt, James.
13.	Pakistan's Energy Sector: From Crisis to Crisis-Breaking the Chain	Zaid Alahdad
14.	Research in Education	JW Best
15.	Integrating Education Technology into Teaching	Roblyer
16.	Curriculum Development	S. M. Shahid
17.	Educational Measurement and Evaluation	S. M. Shahid
18.	Educational Administration	S. M. Shahid

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

Case No.	F.4-110 (E)/2025-R
Particulars of post	<b>Assistant Professor (Physics) (Female) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. OR M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. OR Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

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

**Part-II: (Physics) (Subjective) : 50 Marks****I. Mechanics**

- Vectors—Dots, Cross and triple products, Gradient, divergence and applications.
- Newtonian laws of motion; calculus based approach to kinematics, forces and dynamics, conservation law of energy; conservation of linear and angular momentum; Dynamics of rigid body; spin and precession; gyroscope; Gravitation; planetary motion and satellites; Kepler's laws; centripetal forces
- Special theory of relativity. Michelson—Morley experiment and Einstein's postulates; Lorentz transformation; time dilation and length contraction; equivalence of mass and energy.

**II. Fluid Mechanics**

Surface tension; Viscosity; Elasticity; fluid motion and Bernoulli's theorem.

**III. Waves and Oscillation**

- Free oscillation with one and two degrees of freedom; forced and damped oscillations and phenomenon of resonance. Simple harmonic motion. Traveling waves and transmission of energy; Phase and Group velocity; standing waves. Basics of sound waves.
- Reflection, Refraction, Interference, Diffraction and Polarization of waves; interferometer and Newton's rings; Diffraction Gratings and their resolving power; spectrometers. Electromagnetic wave equation; normal and anomalous dispersion; coherence, lasers and applications.

**IV. Heat and Thermodynamics**

Perfect gas and Van der Waals equation; Three Laws of Thermodynamics, internal energy, temperature, entropy. Thermal properties of Simple system production and measurement of low temperatures; kinetic theory of gases; Maxwellian distribution of molecular velocities; Brownian motion; Transport phenomena. Classical Maxwell-Boltzmann Statistics and its application; Quantum Bose—Einstein and Fermi—Dirac Statistics.



## V. Electricity and Magnetism

Electric field due to point charges, Gauss' law Electric potential and Poisson and Laplace's equation Dielectric medium and Polarization; Capacitance; Moving charges and resulting magnetic field; Ampere's law; Vector potential; Magnetic properties of matter; Transient current; Faraday's law of electromagnetic induction; Alternating current and LRO circuit. Maxwell's equations; Poynting theorem and Poynting Vector. Maxwell's equations in integral and differential form.

## VI. Modern and Quantum Physics

Operators and quantum states, observables, time dependent and independent Schrodinger equation, angular momentum, spin-1/2 particle in a magnetic field, wave mechanics, particle in a box, tunneling, one-dimensional harmonic oscillator, Heisenber's uncertainty relationship and indeterminacy based on commutation properties of operators, Bohr theory and quantum numbers including electron spin; Pauli's exclusion principle; Spectra of simple systems with one or two valence electrons. Photo electric effect Compton scattering; pair production; Lande's g factor and Zeeman effect. Raman effect; Waves and particles and De Broglie's Hypothesis.

## VII. Solid State Physics

Crystal lattice and structure, Bravais lattice, free electron model, Band theory and electron in a periodic potential, Fermi energy and density of states, n and p type semiconductors, physics of the transistor and MOSFET, dielectric properties, magnetic properties and origin of magnetism.

## VIII. Nuclear Physics

Structure of Nuclei; Radioactivity  $\alpha$ ,  $\beta$  and  $\gamma$  decay. Methods of detection, Mass Sepectrometer. Accelerators. Phenomenon of fission; reactor and nuclear power, nuclear fusion and its application, Elementary particles and their properties.

### 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.	Perspectives of Modern Physics.	A. Beiser.
2.	Fundamentals of Physics.	Halliday & Resnick
3.	Introduction to Electromagnetic Fields and Waves	D. Corson & P. Lorrain.
4.	Heat and Thermodynamics.	D. Zemansky
5.	Introduction to Quantum Mechanics	D. Griffiths
6.	Modern Physics	Serway, Moses, Moyer.
7.	Solid State Physics	C. Kittel
8.	The Cosmic Code: Quantum Physics as the Language of Nature	Heinz R. Pagets
9.	Physics of the Life Science	Jay Newman
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.4-110 (F)/2025-R
Particulars of post	<b>Assistant Professor (Psychology) (Female) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. OR M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. OR Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

- 25 MCQ Questions on Part-II & III.

**Part-II: (Psychology) (Subjective)****50 Marks**

- I. **Nature and Scope of Psychology:** Definition and scope, Psychology as a Science, Schools, Perspectives, and Models of Psychology, Recent Trends
- II. **Biological Basis of Behaviour:** Nervous System, Neuron and its function, Central and Peripheral Nervous System, Endocrine System
- III. **Motivation and Emotion:** Homeostasis, Factors affecting Motivation, Biogenic and Social Motives, Measurement of Human Motivation, Theories of Motivation, Emotions, Types of Emotions, Physiological changes and Emotion, Theories of Emotion.
- IV. **Personality:** Determinants of Personality, Factors in Development of Personality, Theoretical Perspectives, Traits and Types, Personality Assessment and Techniques, Cross-Cultural Issues.
- V. **Intelligence:** Theories of Intelligence, Types of intelligence (IQ, EQ), Assessing Intelligence
- VI. **Developmental Psychology:** Physical, Cognitive, Social and Emotional development in Childhood, Adolescence, Adulthood and Old Age
- VII. **Abnormal and Clinical Psychology:** Concept and causes of Abnormality, Clinical Assessment and Intervention, Different disorders such as Schizophrenia, Mood disorders, Anxiety disorders, Personality disorders, etc. Psychological treatment including different Therapeutic techniques.

**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.	Introduction to Psychology	Atkinson R. C., & Smith, E. E
2.	Development Across the Life Span	Feldman, R.
3.	Abnormal Psychology	Kring, A. M
4.	Psychology	Myers, D. G.
5.	An introduction of theories of personality	Ewen, R. B.
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

**PAPER-II: PROFESSIONAL**

Max Marks: 100

Time Allowed: 3 Hours

Case No.	F.4-110 (G)/2025-R
Particulars of post	<b>Assistant Professor (Urdu) (Female) (BS-18)</b> , Islamabad Model Colleges (Ex- F.G Colleges) Federal Directorate of Education, Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	Ph.D. degree in the relevant subject and one (1) years' post qualification teaching experience at College / University level. OR M.Phil in the relevant subject with three (3) years' post qualification teaching experience at College / University level. OR Second Class Master's degree in the relevant subject with five (5) years' post qualification teaching experience at College / University level.

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

- 25 MCQ Questions on Part-II & III.

**Part-II: (Urdu) (Subjective)****50 Marks**

- ۱۔ اردو ادب کا مطالعہ
- i۔ اردو زبان و ادب کی اسلامی شناخت
- ii۔ بیسویں صدی کی ادبی تحریکیں
- iii۔ پاکستانی ادب کی اصطلاح: تشکیل و ردائے اور ارتقاء
- ۲۔ شعری ادب کا تنقیدی مطالعہ
- الف۔ دورِ قدیم
- i۔ میر (غزل - انتخاب میر مولوی عبدالحق)
- ii۔ غالب (دیوان غالب)
- iii۔ حالی (مسدس)
- iv۔ اقبال (طلوع اسلام، سفرِ راہ، مسجدِ قرطبہ)
- ب۔ دورِ جدید
- i۔ فیض (غزل - دستِ صبا)
- ii۔ راشد (نظم - ایران میں جنبی)
- iii۔ مجید امجد (نظم - شبِ رفت)
- iv۔ ناصر کاظمی (غزل - برگِ نئے)
- ۳۔ نثری ادب کا تنقیدی مطالعہ
- الف۔ غیر افسانوی نثر
- i۔ شبلی (میرت الہی، جلد اول)
- ii۔ مولوی عبدالحق (خانہ، چند ہم عصر)
- ب۔ افسانوی نثر
- i۔ منٹو (افسانے، منٹو کے بیس افسانے، مرتبہ ڈاکٹر انوار احمد، ڈاکٹر اے بی اشرف)
- ii۔ احمد ندیم قاسمی (افسانے، کپاس کے پھول)
- iii۔ مشتاق احمد ریاضی (ظفر و مزاج، آبِ گم)

۴۔ تخلیق

۵۔ مضمون

### 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

- |                                  |                                       |
|----------------------------------|---------------------------------------|
| ڈاکٹر وزیر آغا                   | ۱۔ تنقید اور جدید اردو تنقید          |
| ڈاکٹر انور سدید                  | ۲۔ اردو ادب کی تحریکیں                |
| شیخ محمد اکرام                   | ۳۔ آج کو                              |
| شیخ محمد اکرام                   | ۴۔ رو کو                              |
| شیخ محمد اکرام                   | ۵۔ سوچ کو                             |
| ڈاکٹر روبینہ شہناز               | ۶۔ اردو تنقید میں پاکستانی تصورات     |
| مرتب: ڈاکٹر رفیع الدین ہاشمی     | ۷۔ قیادت کے مسائل                     |
| ڈاکٹر سہیل عمر، ڈاکٹر وحید عشرت  |                                       |
| ترتیب نو: ڈاکٹر خولید محمد زکریا | ۸۔ تاریخ ادبیات مسلمانان پاکستان وہند |
| مرتب: ڈاکٹر نواز علی             | 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.4-111 (A)/2025-R
Particulars of post	<b>Associate Professor (Economics) (Female) (BS-19)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. Eight (8) years post qualification experience teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Ten (10) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. 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

S. No.	Title	Author
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.4-111 (B)/2025-R
Particulars of post	<b>Associate Professor (Sociology) (Female) (BS-19)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. Eight (8) years post qualification experience teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Ten (10) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. 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: (Sociology) (Subjective)****50 Marks**

- I. **Social Interaction:** Caste and classes, Forms of social classes, Feudal system in Pakistan, Social Mobility-nature of social mobility and its determinants in Pakistani society, Culture of poverty.
- II. **Social Control:** Mechanisms of social control-formal and informal means of social control, Anomie, Alienation and social Integration-Means of social integration in Pakistani Society.
- III. **Social and Cultural Change and Social Policy:** Processes of Social and Cultural Change-discovery, Inhibitions to social and cultural change in Pakistan, Social planning and directed social and cultural change, Effect of Industrialization, Urbanization, Modernization and Modern Means of Communication on Social Change.
- IV. **Public Opinion:** Formulation of public opinion, concept of opinion leader, characteristics of opinion leadership.
- V. **Community:** The rural community, Traditional Characteristics of rural life, The urban community, Rural – Urban convergence, Urbanism, Future of cities in Pakistan.
- VI. **Social Institutions:** The nature and genesis of institutions, The process of institutionalization, Functions of Social Institutions: Family, Religion, Education, Economy and Politics.
- VII. **Social Problems in Pakistan:** High population growth rate, Rural –urban migration. Issues of technical/vocational training, Deviance and street crime,

Unemployment, illiteracy and School drop out, Smuggling, Prostitution, Poverty, Drug Addiction, Child Labour and Abuse, Bonded Labour, Social customs and Traditions affecting Women in Pakistan, Violence Against Women and Domestic Violence, Issues concerning the Elderly in Pakistan.

- VIII. **Methods of Sociological Research:** Scientific Method, Steps in research, Types of Questionnaire Research Design, Surveys, Observation and Case Studies.

### **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
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- 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.	Sociology : A down to earth approach	James M. Henslin
2.	Methods of Social Research	Baily
3.	Poverty Curtains	Dr. Mehboob-ul-haq
4.	Sociology	Ogburn & Nimkoff
5.	Feudal System in Pakistan	Nawab Haider Naqvi
6.	Sociology: An Introduction to the Science of Society	Koening Samuel
7.	The Design of Social Research,	Ackoff, Russel, L.
8.	An Introduction to the History of Sociology	Barnes, H.E. (Ed.)
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.4-112 (A)/2025-R
Particulars of post	<b>Assistant Professor (Chemistry) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) 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: (Chemistry)****50 Marks (Descriptive)**

- 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-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.	Advanced Inorganic Chemistry 3 <sup>rd</sup> Ed.	Cotton. F.A. and Wilkinson Groffrey
2.	Inorganic Chemistry, 3 <sup>rd</sup> Ed. 1983	Hukeavy, James E.
3.	Physical Chemistry 5 <sup>th</sup> Ed.	Moore, Walter J.
4.	Mechanism & Structure in Organic Chemistry	Gould, Edwards
5.	Organic Chemistry 2 <sup>nd</sup> 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

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

Case No.	F.4-112 (B)/2025-R
Particulars of post	<b>Assistant Professor (Computer Science) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) 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) (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**

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.4-112 (C)/2025-R
Particulars of post	<b>Assistant Professor (Economics) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) 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

S. No.	Title	Author
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.4-112 (D)/2025-R
Particulars of post	<b>Assistant Professor (Education) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) years post qualification teaching and administrative experience at College / University level.

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

- 25 MCQ Questions on Part-II.

**Part-II: (Education/Professional) (Subjective)****75 Marks****I. Foundation of Education**

- Educational Process
- Role of education in Nation Building, National cohesion and integration, Character building, Human resource development, World peace and prosperity
- Philosophical Foundations of Education
- Psychological Foundations of Education
- Sociological Foundations of Education
- Islamic Concept of Education

**II. Philosophy of Education**

- Scope of Philosophy
- Western Schools of General Philosophy (Idealism, Realism, Naturalism, Pragmatism, Existentialism)
- Schools of Educational Philosophy (Perennialism, Essentialism, Progressivism, Reconstructionism)
- Thoughts of Muslim Philosophers: Imam Ghazali; Ibne- Khaldun; Shah Waliullah; Sir Syed Ahmad Khan; Allama Iqbal

**III. Curriculum Development and Implementation**

- Elements of Curriculum.
- Foundations of Curriculum: Philosophical Foundations; Psychological Foundations; Sociological Foundations; Economic Foundations and Technological Foundations.
- Relationship of Education and Curriculum
- Curriculum Development Process: Need Assessment, Formulation of Aims and Objectives, Taxonomies of Educational Objectives, Selection of Content, Development of Curricular Materials, Selection of Teaching-Learning Strategies, Implementation of the Curriculum, Evaluation of Curriculum
- Process of Curriculum Development in Pakistan
- Process of Development of Test books and National Textbook Policy

**IV. Process of Teaching and Teaching Strategies**

- Process of Classroom Communication
- Factors affecting Classroom Communication
- Barriers to Classroom Communications
- Use of Instructional Materials and Media
- Information and Communication Technologies (ICTs)

**V. 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 Tests: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Tests
- Achievement Tests
- Standardized Tests
- Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

**VI. Educational Administration and Supervision**

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

**VII. Research Methods in Education**

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

**SUGGESTED READINGS**

S.No.	Title	Author
1.	Foundations of Education	Ornstein.
2.	How to Design and Evaluate Research in Education	Fraenkel.
3.	Research Methods in Education	Louis Cohen.
4.	Curriculum Planning: A new approach	Hass, G. (1987).
5.	Curriculum Planning for better teaching and learning	Saylor, J.G., Alexander, W.M., & Lewis, A.J. (1981).
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

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

Case No.	F.4-112 (E)/2025-R
Particulars of post	<b>Assistant Professor (English) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) 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
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.4-112 (F)/2025-R
Particulars of post	<b>Assistant Professor (Mathematics) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) years post qualification teaching and administrative experience at College / University level.

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

- 25 MCQ Questions on Part-II & Part-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. Fourier series and partial differential equations**

- Trigonometric Fourier series; sine and cosine series; Bessel inequality; summation of infinite series; convergence of the Fourier series.
- Partial differential equations of first order; classification of partial differential equations of second order; boundary value problems; solution by the method of

separation of variables; problems associated with Laplace equation, wave equation and the heat equation in Cartesian coordinates.

## VI. Numerical Methods

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed- point iterative method; order of convergence of a method.
- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.
- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge- Kutta methods.

## 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 Vector Analysis	Khalid Latif,
2.	Introduction to Mechanics	Q.K. Gori
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.	Elements of Numerical Analysis	F. Ahmad and M.A Rana
7.	Mathematical Methods	S. M. Yousaf, Abdul Majeed and Muhammad Amin
8.	Mathematical Techniques	Karamat H. Dar
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.4-112 (G)/2025-R
Particulars of post	<b>Assistant Professor (Physics) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) years post qualification teaching and administrative experience at College / University level.

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

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

**Part-II: (Physics) (Subjective) : 50 Marks****I. Mechanics**

- Vectors—Dots, Cross and triple products, Gradient, divergence and applications.
- Newtonian laws of motion; calculus based approach to kinematics, forces and dynamics, conservation law of energy; conservation of linear and angular momentum; Dynamics of rigid body; spin and precession; gyroscope; Gravitation; planetary motion and satellites; Kepler's laws; centripetal forces
- Special theory of relativity. Michelson—Morley experiment and Einstein's postulates; Lorentz transformation; time dilation and length contraction; equivalence of mass and energy.

**II. Fluid Mechanics**

Surface tension; Viscosity; Elasticity; fluid motion and Bernoulli's theorem.

**III. Waves and Oscillation**

- Free oscillation with one and two degrees of freedom; forced and damped oscillations and phenomenon of resonance. Simple harmonic motion. Traveling waves and transmission of energy; Phase and Group velocity; standing waves. Basics of sound waves.
- Reflection, Refraction, Interference, Diffraction and Polarization of waves; interferometer and Newton's rings; Diffraction Gratings and their resolving power; spectrometers. Electromagnetic wave equation; normal and anomalous dispersion; coherence, lasers and applications.

**IV. Heat and Thermodynamics**

Perfect gas and Van der Waals equation; Three Laws of Thermodynamics, internal energy, temperature, entropy. Thermal properties of Simple system



production and measurement of low temperatures; kinetic theory of gases; Maxwellian distribution of molecular velocities; Brownian motion; Transport phenomena. Classical Maxwell-Boltzmann Statistics and its application; Quantum Bose—Einstein and Fermi—Dirac Statistics.

## **V. Electricity and Magnetism**

Electric field due to point charges, Gauss' law Electric potential and Poisson and Laplace's equation Dielectric medium and Polarization; Capacitance; Moving charges and resulting magnetic field; Ampere's law; Vector potential; Magnetic properties of matter; Transient current; Faraday's law of electromagnetic induction; Alternating current and LRO circuit. Maxwell's equations; Poynting theorem and Poynting Vector. Maxwell's equations in integral and differential form.

## **VI. Modern and Quantum Physics**

Operators and quantum states, observables, time dependent and independent Schrodinger equation, angular momentum, spin-1/2 particle in a magnetic field, wave mechanics, particle in a box, tunneling, one-dimensional harmonic oscillator, Heisenber's uncertainty relationship and indeterminacy based on commutation properties of operators, Bohr theory and quantum numbers including electron spin; Pauli's exclusion principle; Spectra of simple systems with one or two valence electrons. Photo electric effect Compton scattering; pair production; Lande's g factor and Zeeman effect. Raman effect; Waves and particles and De Broglie's Hypothesis.

## **VII. Solid State Physics**

Crystal lattice and structure, Bravais lattice, free electron model, Band theory and electron in a periodic potential, Fermi energy and density of states, n and p type semiconductors, physics of the transistor and MOSFET, dielectric properties, magnetic properties and origin of magnetism.

## **VIII. Nuclear Physics**

Structure of Nuclei; Radioactivity  $\alpha$ ,  $\beta$  and  $\gamma$  decay. Methods of detection, Mass Spectrometer. Accelerators. Phenomenon of fission; reactor and nuclear power, nuclear fusion and its application, Elementary particles and their properties.

## **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.	Perspectives of Modern Physics.	A. Beiser.
2.	Fundamentals of Physics.	Halliday & Resnick
3.	Introduction to Electromagnetic Fields and Waves	D. Corson & P. Lorrain.
4.	Heat and Thermodynamics.	D. Zemansky
5.	Introduction to Quantum Mechanics	D. Griffiths
6.	Modern Physics	Serway, Moses, Moyer.
7.	Solid State Physics	C. Kittel
8.	The Cosmic Code: Quantum Physics as the Language of Nature	Heinz R. Pagets
9.	Physics of the Life Science	Jay Newman
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.4-112 (H)/2025-R
Particulars of post	<b>Assistant Professor (Psychology) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) 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: (Psychology) (Subjective)****50 Marks**

- I. **Nature and Scope of Psychology:** Definition and scope, Psychology as a Science, Schools, Perspectives, and Models of Psychology, Recent Trends
- II. **Biological Basis of Behaviour:** Nervous System, Neuron and its function, Central and Peripheral Nervous System, Endocrine System
- III. **Motivation and Emotion:** Homeostasis, Factors affecting Motivation, Biogenic and Social Motives, Measurement of Human Motivation, Theories of Motivation, Emotions, Types of Emotions, Physiological changes and Emotion, Theories of Emotion.
- IV. **Personality:** Determinants of Personality, Factors in Development of Personality, Theoretical Perspectives, Traits and Types, Personality Assessment and Techniques, Cross-Cultural Issues.
- V. **Intelligence:** Theories of Intelligence, Types of intelligence (IQ, EQ), Assessing Intelligence
- VI. **Developmental Psychology:** Physical, Cognitive, Social and Emotional development in Childhood, Adolescence, Adulthood and Old Age
- VII. **Abnormal and Clinical Psychology:** Concept and causes of Abnormality, Clinical Assessment and Intervention, Different disorders such as Schizophrenia, Mood disorders, Anxiety disorders, Personality disorders, etc. Psychological treatment including different Therapeutic techniques.

### 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.	Introduction to Psychology	Atkinson R. C., & Smith, E. E
2.	Development Across the Life Span	Feldman, R.
3.	Abnormal Psychology	Kring, A. M
4.	Psychology	Myers, D. G.
5.	An introduction of theories of personality	Ewen, R. B.
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

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

Case No.	F.4-112 (I)/2025-R
Particulars of post	<b>Assistant Professor (Sociology) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) 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: (Sociology) (Subjective)****50 Marks**

- I. **Social Interaction:** Caste and classes, Forms of social classes, Feudal system in Pakistan, Social Mobility-nature of social mobility and its determinants in Pakistani society, Culture of poverty.
- II. **Social Control:** Mechanisms of social control-formal and informal means of social control, Anomie, Alienation and social Integration-Means of social integration in Pakistani Society.
- III. **Social and Cultural Change and Social Policy:** Processes of Social and Cultural Change-discovery, Inhibitions to social and cultural change in Pakistan, Social planning and directed social and cultural change, Effect of Industrialization, Urbanization, Modernization and Modern Means of Communication on Social Change.
- IV. **Public Opinion:** Formulation of public opinion, concept of opinion leader, characteristics of opinion leadership.
- V. **Community:** The rural community, Traditional Characteristics of rural life, The urban community, Rural – Urban convergence, Urbanism, Future of cities in Pakistan.
- VI. **Social Institutions:** The nature and genesis of institutions, The process of institutionalization, Functions of Social Institutions: Family, Religion, Education, Economy and Politics.
- VII. **Social Problems in Pakistan:** High population growth rate, Rural –urban migration. Issues of technical/vocational training, Deviance and street crime, Unemployment, illiteracy and School drop out, Smuggling, Prostitution, Poverty,

Drug Addiction, Child Labour and Abuse, Bonded Labour, Social customs and Traditions affecting Women in Pakistan, Violence Against Women and Domestic Violence, Issues concerning the Elderly in Pakistan.

- VIII. **Methods of Sociological Research:** Scientific Method, Steps in research, Types of Questionnaire Research Design, Surveys, Observation and Case Studies.

### **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.	Sociology : A down to earth approach	James M. Henslin
2.	Methods of Social Research	Baily
3.	Poverty Curtains	Dr. Mehboob-ul-haq
4.	Sociology	Ogburn & Nimkoff
5.	Feudal System in Pakistan	Nawab Haider Naqvi
6.	Sociology: An Introduction to the Science of Society	Koening Samuel
7.	The Design of Social Research,	Ackoff, Russel, L.
8.	An Introduction to the History of Sociology	Barnes, H.E. (Ed.)
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.4-112 (J)/2025-R
Particulars of post	<b>Assistant Professor (Urdu) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	<p>i. Ph.D. degree in the relevant subject from a University recognized by the HEC.</p> <p>ii. One years' post qualification teaching and administrative experience at a College / University level.</p> <p>OR</p> <p>i. M.Phil. degree in the relevant subject from a University recognized by the HEC.</p> <p>ii. Three (3) years' post qualification teaching and administrative experience at College / University level.</p> <p>OR</p> <p>i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC.</p> <p>ii. Five (5) years post qualification teaching and administrative experience at College / University level.</p>

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

- 25 MCQ Questions on Part-II & III.

**Part-II: (Urdu) (Subjective)****50 Marks**

- ۱۔ اردو ادب کا مطالعہ
- i۔ اردو زبان و ادب کی اسلامی شناخت
- ii۔ سید و میر صدی کی ادبی تحریکیں
- iii۔ پاکستانی ادب کی اصطلاح: تنکبیل و روانت اور ارتقاء
- ۲۔ شعری ادب کا تنقیدی مطالعہ
- الف۔ دورِ قدیم
- i۔ میر (غزل) - انتخاب میر مولوی عبدالحق
- ii۔ غالب (دیوان غالب)
- iii۔ حالی (مسدس)
- iv۔ اقبال (طلوع اسلام، حضور راہ، مسجد قرطبہ)
- ب۔ دورِ جدید
- i۔ فیض (غزل - دست صبا)
- ii۔ راشد (نظم - ایران میں اجنبی)
- iii۔ مجید امجد (نظم - شب رفتہ)
- iv۔ ناصر کاظمی (غزل - برگ نے)
- ۳۔ نثری ادب کا تنقیدی مطالعہ
- الف۔ غیر افسانوی نثر
- i۔ شبلی (سیرت النبی ﷺ، جلد اول)
- ii۔ مولوی عبدالحق (خانہ کعبہ، چند ہم عصر)
- ب۔ افسانوی نثر
- i۔ منٹو (افسانے، منٹو کے تیس افسانے، مرتب ڈاکٹر انوار احمد، ڈاکٹر اے بی اشرف)
- ii۔ احمد ندیم قاسمی (افسانے، کپاس کے پھول)
- iii۔ مشتاق احمد یوسفی (طہر و مزاج، آبِ گم)

۴۔ تجویز

۵۔ مضمون

### 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

- |   |                                  |
|---|----------------------------------|
| ۱۔ تحقیق اور جدید اردو تنقید            | ڈاکٹر وزیر آغا                   |
| ۲۔ اردو ادب کی تحریکیں                  | ڈاکٹر انور سدید                  |
| ۳۔ آب کوثر                              | شیخ محمد اکرام                   |
| ۴۔ رو کوثر                              | شیخ محمد اکرام                   |
| ۵۔ موج کوثر                             | شیخ محمد اکرام                   |
| ۶۔ اردو تنقید میں پاکستانی تصورات و میت | ڈاکٹر روبینہ شہناز               |
| ۷۔ تقابلیات کے سوسال                    | مرتبین: ڈاکٹر رفیع الدین ہاشمی   |
| ۸۔ تاریخ ادبیات مسلمانان پاکستان و ہند  | ڈاکٹر سکیل عمر، ڈاکٹر وحید عشرت  |
| ۹۔ اردو ادب کے پچاس سال                 | ترتیب نو: ڈاکٹر خواجہ محمد زکریا |
|   | مرتب: ڈاکٹر نواز علی             |

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.4-112 (K)/2025-R
Particulars of post	<b>Assistant Professor (Zoology) (Female) (BS-18)</b> , Higher, Technical & Special Education Department Gilgit Baltistan, Ministry of Kashmir Affairs & Gilgit Baltistan.
Minimum Qualification & Experience:	i. Ph.D. degree in the relevant subject from a University recognized by the HEC. ii. One years' post qualification teaching and administrative experience at a College / University level. OR i. M.Phil. degree in the relevant subject from a University recognized by the HEC. ii. Three (3) years' post qualification teaching and administrative experience at College / University level. OR i. Second Class or Grade 'C' Master's degree in the relevant subject from a University recognized by the HEC. ii. Five (5) years post qualification teaching and administrative experience at College / University level.

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

- 25 MCQ Questions on Part-II.

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

- Fishes: Structural and functional adaptations of fishes.
- Amphibian: Movement onto land and early evolution of terrestrial vertebrates.
- Reptiles: Characteristics of reptiles, adaptations in reptilians.
- Birds: Migration and navigation, adaptations.
- Mammals: Structural and functional adaptations of mammals.

**II. Principles of Animal Life**

- Protozoa: Reproduction pattern in protozoan, Parasitism in protozoan
- Tissues Types: epithelial, connective, muscle and nervous tissue; organs and organ systems.
- Ecological Concepts: Interactions, Concepts and components of ecosystem, Food chain, Food web, Biogeochemical cycles, Forest, Biomes, Wildlife conservation and management, Environmental pollution, Green house effect, Acid rain, Global warming.

**III. Animal Form and Function**

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

- Animal Behavior: Learning, Habituation, Insight learning, latent learning, classical learning; Control of Behavior; social behavior

### **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.	Integrated Principles of Zoology.	Hickman, Jr. C.P., Keen, S. L, Larson, and Eisenhour, D.J.
2.	Zoology	Miller, S. A. and Harley, J. B.
3.	Biology	Campbell, N.A.
4.	Evolution. 2nd Edition	Douglas Futuyma
5.	Animal behavior: An Evolutionary Approach. 9 <sup>th</sup> Edition	John Alcock
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

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

Case No.	F.4-113/2025-R
Particulars of post	<b>Editor (BS-18)</b> , GHQ, Ministry of Defence.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's degree in Journalism / Urdu / Mass Communication / Public Relations. ii. Five (5) years post qualification Journalistic experience in a News Agency or Newspaper of repute. iii. Ability to write and contribute articles in English and Urdu.

**A: Translation (40 Marks)**

- Urdu to English Translation of 2 paragraphs out of 3 literary scripts (20 marks)
- English to Urdu Translation of 2 paragraphs out of 3 literary scripts (20 marks)

**B: Editing of Literature (40 Marks)**

- Editing of any two Scripts out of three in English (20 marks each)

**C: Computer Literacy (20 Marks)**

- Microsoft Word (Typing and Formatting) (10 marks)
- Microsoft PowerPoint (Typing, Formatting and Inserting Objects) (10 marks)

**FEDERAL PUBLIC SERVICE COMMISSION**  
(Curriculum & Research Wing)

**Schemes and Syllabi for Written Examination (Descriptive) for All Posts of Doctors in BS-18 & BS-19 included in Consolidated Advertisement No. 03/2025**

**PAPER-I: MBBS (Common for all posts of Doctor in BS-18 & 19)**

Max Marks: 100

Time Allowed: 3 Hours

**Part-I: (MCQ)**

**25 Marks**

25 MCQ Questions on Part-II

**Part-II: (Qualification Based) (Descriptive)**

**75 Marks**

Core courses of **MBBS Degree**

**PAPER-II: PROFESSIONAL**

Max Marks: 100

Time Allowed: 3 Hours

Case No.	F.4-114/2025-R
Particulars of post	<b>Associate Professor (BS-19)</b> , Pakistan Institute of Medical Sciences (PIMS), Islamabad, Ministry of National Health Services, Regulations and Coordination.
Minimum Qualification & Experience	<p>i. MBBS or equivalent Medical qualification recognized by PMDC. OR M.Sc. of a recognized University in case of basic Science in the relevant subject. (for Non-Medical graduates).</p> <p>ii. D.Sc., Ph.D., FCPS, MD, M.S., M.Phil. etc. in the respective subjects. FCPS/ MD with DPH (for Public Health Institutions only). OR equivalent qualification recognized by PMDC.</p> <p><u>Post Qualification Experience:</u> Five years teaching experience as an Assistant Professor in the respective subject in the postgraduate institute only. OR Eight years teaching experience as Assistant Professor in undergraduate Medical Institution.</p> <p><u>Research:</u> Must have produced at least three research papers. OR Must have produced at least five research papers if teaching experience is in undergraduate Institution.</p> <p>A. Neonatology B. Paeds Oncology</p>

**For (A) Neonatology**

**Part-I: (MCQ)**

**25 Marks**

25 MCQ Questions on Part-II.

**Part-II: (Professional) (Descriptive)**

**75 Marks**

Core courses of Specialization in **Neonatology**

**For (B) Paeds Oncology**

**Part-I: (MCQ)**

**25 Marks**

25 MCQ Questions on Part-II.

**Part-II: (Professional) (Descriptive)**

**75 Marks**

Core courses of Specialization in **Paeds Oncology**