

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

**Schemes and Syllabi of Objective Type Test (MCQ) relating to Posts in BS-16 & BS-17
under Advertisement No. 04/2025**

Max Marks: 100

Qualifying Standard: 40%

(Note: Negative marking of 0.25 per wrong answer)

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
1.	115/2025	3rd Engineer (Electronics) (BS-17) , Naval Headquarters, Ministry of Defence.	i. At least Second Class or Grade "C" Bachelor of Engineering (Electronics) or equivalent qualification from a University recognized by the HEC / PEC ii. One (1) year post qualification experience in the field of repairs of multi-layer printed Circuit Board / Use of Specialized Diagnostic Test equipment / handling of Programmable ICs from a Private / Public Section Organization. iii. Valid Registration of the PEC.	Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> ▪ Discrete level & active/passive components testing ▪ Knowledge of Microcontrollers and microprocessors ▪ AC and DC converter, RF, Microwave and associated components ▪ Knowledge of Battery, Chargers and Rectifiers ▪ Knowledge of variable frequency Dives (VFD) switches and relays ▪ Usage of Test Measurement and Diagnostic Equipments
2.	120/2025	Charge Nurse (BS-16) , Federal General Hospital, Islamabad, Ministry of National Health Services, Regulations & Coordination.	i. Second Class or Grade 'C' Bachelor's Degree in Nursing or equivalent qualification from a College / University / Institute recognized by Pakistan Nursing Council (PNC). OR Three (3) years diploma in general nursing or equivalent qualification from a College / University / Institute recognized by Pakistan Nursing Council (PNC with one (1) year diploma in midwifery (For Female) / one (1) year course in Nursing related field in lieu of Midwifery (for Male). ii. Valid registration with PNC.	Part-I English = 20 marks Part-II Professional Test=80 Marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Basic Medical Sciences ▪ General Nursing ▪ Ward Administration ▪ Hospitality of the Patients ▪ Care vs. Cure for Health Management ▪ Developing Training & Instructional Materials for Nursing Courses.

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
3.	121/2025	Medical Officer (BS-17) , Federal General Hospital, Islamabad, Ministry of National Health Services, Regulations & Coordination.	i. MBBS or equivalent qualification recognized by PM&DC. ii. Registration with PMDC required, till closing date.	Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II ▪ Core courses of MBBS Degree Program. ▪ Health Policies of the Government of Pakistan. ▪ Care vs Cure for Health Management. ▪ Major Challenges being faced by the Health Sector in Pakistan.
4.	124/2025	Secondary School Teacher (Physical) (Female) (BS-17) , F.G Schools, Ministry of Federal Education & Professional Training.	Second Class or Grade 'C' Master's degree / Bachelor's degree (4 years duration) in Physical Education with Second Class or Grade 'C' M.Ed. / B.Ed./ B.Ed. (Hons) / Associate diploma in Education or equivalent qualification from a University recognized by HEC.	Part-I English = 20 marks Part-II Subject Test = 50 marks Part-III Professional Test=30 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II (Master's Level) ▪ Philosophy of Physical Education, ▪ Psychology of Physical Education, ▪ Rules of games ▪ Basics of Human Anatomy ▪ Administration and Management in Sports, ▪ Sports Nutrition, ▪ Trauma and Rehabilitation, ▪ Research Methodology in Physical Education ▪ Test, Measurement and Evaluation in Physical Education & Sports ▪ Sports Injuries, ▪ Sports with physical disabilities Part-III ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation ▪ Knowledge of Bloom's Taxonomy

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
5.	125/2025	Junior Teacher (Female) (BS-16) , Islamabad Model Colleges, Ministry of Federal Education & Professional Training.	Second Class or Grade 'C' B.Sc. / B.A with B.Ed. OR equivalent qualification.	<p>Part-I English = 20 marks</p> <p>Part-II General Intelligence Test=50 marks</p> <p>Part-III Professional Test=30 marks</p>	<p>Part-I Grammar Usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> ▪ Basic Arithmetic <ul style="list-style-type: none"> – Algebra – Ratios – Percentages – Arithmetic Means ▪ Current Affairs. <ul style="list-style-type: none"> – Issues/Challenges at National and International Level during the last 5 years ▪ Pakistan Affairs & Islamic Studies <ul style="list-style-type: none"> – Basic Level knowledge ▪ Basic Computer Operation in MS Office <p>Part-III</p> <ul style="list-style-type: none"> ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation ▪ Knowledge of Bloom's Taxonomy
6.	126/2025	Medical Officer (BS-17) , Pakistan Institute of Medical Sciences (PIMS), Ministry of National Health Services, Regulations & Coordination.	MBBS or equivalent qualification recognized by Pakistan Medical and Dental Council.	<p>Part-I English =20 marks</p> <p>Part-II Professional Test=80 marks</p>	<p>Part-I Vocabulary, Grammar Usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> ▪ Core courses of MBBS Degree Program. ▪ Health Policies of the Government of Pakistan. ▪ Care vs Cure for Health Management. ▪ Major Challenges being faced by the Health Sector in Pakistan.
7.	127/2025	Assistant Anaesthetist (BS-17) , Pakistan Institute of Medical Sciences (PIMS), Ministry of National Health Services, Regulations & Coordination.	MBBS or equivalent qualification recognized by Pakistan Medical and Dental Council.	<p>Part-I English =20 marks</p> <p>Part-II Professional Test=80 marks</p>	<p>Part-I Vocabulary, Grammar Usage, Sentence Structuring</p> <p>Part-II</p> <ul style="list-style-type: none"> ▪ Core courses of MBBS Degree Program. ▪ Health Policies of the Government of Pakistan. ▪ Care vs Cure for Health Management. ▪ Major Challenges being faced by the Health Sector in Pakistan.

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
8.	128/2025	Assistant Director Tourism (BS-17) , Tourism and Culture Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	Second Class or Grade "C" Master's / BS / Bachelor's (16 years education) degree in Business Administration / Public Administration / Sociology / Social Work / Tourism & Hospitality Management / Tourism & Hotel Management / Cultural Heritage & Tourism Management or equivalent qualification from a University / Institute recognized by the HEC.	Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> ▪ Mountaineering Rules & Regulations ▪ Trekking Rules & Regulations ▪ Issuance of Mountaineering/ Trekking permits for Gilgit-Baltistan ▪ Gilgit-Baltistan Council System of Financial Control and Budgeting Rules, 2010. ▪ Gilgit-Baltistan Council Rules of Business, 2010
9.	129/2025	Assistant (BS-16) , Tourism and Culture Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	Second Class or Grade "C" Bachelor's (Associate degree with two (2) years duration) degree or equivalent qualification from a University recognized by the HEC.	Part-I English = 20 marks Part-II General Intelligence =80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Basic Arithmetic <ul style="list-style-type: none"> – Algebra – Ratios – Percentages – Arithmetic Means ▪ Current Affairs. <ul style="list-style-type: none"> – Issues/Challenges at National and International Level during the last 5 years ▪ Pakistan Affairs & Islamic Studies <ul style="list-style-type: none"> – Basic Level knowledge ▪ Basic Computer Operation in MS Office
10.	130/2025	Computer Operator (BS-16) , Tourism and Culture Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	Second Class or Grade "C" Master's / BS / Bachelor's (16 years education) degree in Information Technology / Data Science / Computer Science / Software Engineering / Computer System Engineering / Computer Engineering or equivalent qualification from a University recognized by the HEC / PEC.	Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> ▪ Operating Systems ▪ Algorithm Design ▪ Database Management System (DBMS) ▪ Hardware & Software ▪ Implementation & Security of LAN & WAN ▪ Software Development Techniques ▪ Computer Networks and Internet

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
11.	131/2025	Assistant Director (Sports) (BS-17) , GB Sports Board, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	Second Class or Grade "C" Master's or Bachelor's (4 years education) degree in Physical Education / Health & Physical Education / Sports Science / Physical Education & Sports Science or equivalent qualification from a University recognized by the HEC.	Part-I English =20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II (Master's Level) <ul style="list-style-type: none"> ▪ Philosophy of Physical Education, ▪ Psychology of Physical Education, ▪ Rules of games ▪ Basics of Human Anatomy ▪ Administration and Management in Sports, ▪ Sports Nutrition, ▪ Trauma and Rehabilitation, ▪ Research Methodology in Physical Education ▪ Test, Measurement and Evaluation in Physical Education & Sports ▪ Sports Injuries, ▪ Sports with physical disabilities
12.	132/2025	Assistant (BS-16) , GB Sports Board, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	At least Second Class or Grade "C" Bachelor's (Associate degree with two (2) years duration) from a University recognized by the HEC.	Part-I English = 20 marks Part-II General Intelligence =80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Basic Arithmetic <ul style="list-style-type: none"> – Algebra – Ratios – Percentages – Arithmetic Means ▪ Current Affairs. <ul style="list-style-type: none"> – Issues/Challenges at National and International Level during the last 5 years ▪ Pakistan Affairs & Islamic Studies <ul style="list-style-type: none"> – Basic Level knowledge ▪ Basic Computer Operation in MS Office

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
13.	133/2025	Assistant Director (BS-17) , Archaeology & Museums Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	i. Second Class or Grade "C" Master's or Bachelor's (4 years duration) degree in Archaeology / Museology / Anthropology/ History/ Geography / Sociology or equivalent qualification from a University recognized by the HEC. ii. One (1) year post qualification experience in Archaeology and Museology affairs.	Part-I English =20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II (Master's Level) <ul style="list-style-type: none"> ▪ Introduction to Archaeology ▪ Ancient History of South Asia ▪ Computer Application in Archaeology ▪ Introduction to Stone Age & Bronze Age of Pakistan ▪ Provincial Cultural Heritage ▪ Field Archaeology ▪ Management of Cultural Heritage ▪ Physical & Cultural Anthropology ▪ World Civilizations ▪ Ancient Art and Architecture ▪ Indus Civilization ▪ Tourism in Pakistan ▪ Archaeological Conservation ▪ Muslim Architecture of Pakistan and India
14.	135/2025	Assistant Engineer (BS-16) , Local Government & Rural Development Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	Second Class or Grade "C" Bachelor's degree in Engineering (Civil) / B. Tech (Hons) (Civil) or equivalent qualification from a University recognized by the PEC.	Part-I English =20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Contract Administration & Coordination ▪ Tender Documents, including Bills of Quantities, Specifications and Conditions ▪ Progress Monitoring and Control ▪ Works Supervision and Quality Control ▪ Payments to Contractors ▪ Equipment Inspection and Commissioning ▪ Post-Construction Services ▪ Operation & Maintenance ▪ Maintenance and Safety Inspections ▪ Public Procurement Rules, 2004

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
15.	136/2025	Assistant Information Officer (BS-16) , Information Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	Second Class or Grade 'C' BS / Bachelor's (16 years education) degree in Mass Communication / Business Administration / Public Administration / Sociology / Journalism / Media & Journalism / Journalism & Mass Communication / Media Studies or equivalent qualification from a University recognized by the HEC.	Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Types of Media ▪ Media Ethics ▪ Media Laws and Regulations ▪ Media Monitoring ▪ Newsprint Control Ordinance 1971 ▪ Advertisement and Public Policy ▪ Code of Ethics ▪ Communication theories of social change ▪ Newspaper Employees (Condition of Service) Act 1973 ▪ PEMRA Ordinance 2007 ▪ Reporting and writing
16.	137/2025	Assistant Media Officer (BS-16) , Information Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	Second Class or Grade 'C' BS / Bachelors (16 years education) degree in Mass Communication / Business Administration / Public Administration / Sociology / Journalism / Media & Journalism / Journalism & Mass Communication / Media Studies or equivalent qualification from a University recognized by the HEC.	Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Types of Media ▪ Media Ethics ▪ Media Laws and Regulations ▪ Media Monitoring ▪ Newsprint Control Ordinance 1971 ▪ Advertisement and Public Policy ▪ Code of Ethics ▪ Communication theories of social change ▪ Newspaper Employees (Condition of Service) Act 1973 ▪ PEMRA Ordinance 2007 ▪ Reporting and writing

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
17.	138/2025	Administrative Officer (BS-17) , Home & Prisons Department GB, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON	Second Class or Grade 'C' Master's / Bachelor's (16 years education) degree in Business Administration / Public Administration / Management Science / Human Resource Management or equivalent qualification from a University recognized by the HEC.	Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Principles of Management ▪ Human Resource Management ▪ Civil Servants Act, 1973 and Rules made thereunder ▪ Rules of Business, 1973 ▪ Principles of Secretariat Noting and Drafting ▪ Basic IT knowledge. ▪ Basic Arithmetic, ▪ System of Financial Control and Budgeting, 2006 ▪ Public Procurement Rules, 2004
18.	139/2025	Charge Nurse (BS-16) , Pakistan Institute of Medical Sciences (PIMS), Islamabad, Ministry of National Health Services, Regulations & Coordination.	i. Registered Nurse and Registered Midwife with PNC. ii. For male one year course / certificate in nursing related field in lieu of Midwifery.	Part-I English =20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Basic Medical Sciences ▪ General Nursing ▪ Ward Administration ▪ Hospitality of the Patients ▪ Care vs. Cure for Health Management
19.	142/2025	Medical Officer (BS-17) , Health Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON	MBBS or equivalent qualification from a University / Institute recognized by the PM&DC.	Part-I English =20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Core courses of MBBS Degree Program. ▪ Health Policies of the Government of Pakistan. ▪ Care vs Cure for Health Management. ▪ Major Challenges being faced by the Health Sector in Pakistan.

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/ Experience for the Posts	Test Specification	Topics of Syllabi
20.	143/2025	Senior Elementary Teacher (Physical) (Male) (BS-16) , EX. FG Schools, Islamabad, 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.	Part-I English = 20 marks Part-II Subject Test = 50 marks Part-III	Part-I Grammar Usage, Sentence Structuring Part-II (Master's Level) <ul style="list-style-type: none"> ▪ Philosophy of Physical Education, ▪ Psychology of Physical Education, ▪ Rules of games ▪ Basics of Human Anatomy ▪ Administration and Management in Sports, ▪ Sports Nutrition, ▪ Trauma and Rehabilitation, ▪ Research Methodology in Physical Education ▪ Test, Measurement and Evaluation in Physical Education & Sports ▪ Sports Injuries, ▪ Sports with physical disabilities Part-III <ul style="list-style-type: none"> ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation ▪ Knowledge of Bloom's Taxonomy
21.	144/2025	Senior Elementary Teacher (Physical) (Female) (BS-16) , Islamabad Model Schools / Colleges (EX. FG 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.	Professional Test = 30 marks	
22.	145/2025	Lady Medical Officer (BS-17) , Health Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.	i. MBBS or equivalent qualification from a University / Institute recognized by the PM&DC. ii. Registration with PM&DC required till the closing date.	Part-I English =20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> ▪ Core courses of MBBS Degree Program. ▪ Health Policies of the Government of Pakistan. ▪ Care vs Cure for Health Management. ▪ Major Challenges being faced by the Health Sector in Pakistan.

**Schemes and Syllabi of Objective Type Test (MCQ) relating to Posts
in BS-18 & BS-19 under Advertisement No. 04/2025**

Case No.	F.4-116/2025-R
Particulars of post	Associate Professor / Vice Principal (Computer Science) (Female) (BS-19) , Islamabad Model Colleges, FDE, 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.

Max Marks: 200Qualifying Standard: 50%

(Note: Negative marking of 0.25 per wrong answer)

Paper-I: 100 Marks (MCQ)

I. English 50%

- Comprehension
- Grammar Usage
- Vocabulary
- Sentence Structuring
- Sentence Correction
- Grouping of Words
- Pairs of Words
- Idiomatic Phrases
- Synonyms/ Antonyms
- Translation

II. Teaching Methodology 50%

- Teaching Methodology
- Elements of Curriculum.
- Curriculum Development Process:
- Classroom Communication
- Classroom Assessment and Evaluation
- Types of Test and characteristics of a Good Test
- Research Instruments

Paper-II (Computer Science): 100 Marks (MCQ)

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

III. Data Structure and Algorithms

Stack and Queue, Sequential Search, Binary Search, Bubble sort, Merge sort, Quick sort, Insertion sort, Selection Sort, Linked Lists

IV. Database Management Systems

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,

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.

Case No.	F.4-117/2025-R
Particulars of post	Deputy Headmistress (BS-19) , Islamabad Model Colleges, Junior Section, Federal Directorate of Education, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's degree or equivalent qualification with B.Ed. / M.Ed. ii. Twelve (12) years post qualification teaching and administrative experience in recognized educational institutions.

Max Marks: 200Qualifying Standard: 50%

(Note: Negative marking of 0.25 per wrong answer)

Paper-I: 100 Marks (MCQ)**I. English 50%**

- Comprehension
- Grammar Usage
- Vocabulary
- Sentence Structuring
- Sentence Correction
- Grouping of Words
- Pairs of Words
- Idiomatic Phrases
- Synonyms/ Antonyms
- Translation

II. Teaching Methodology 50%

- Teaching Methodology
- Elements of Curriculum.
- Curriculum Development Process:
- Classroom Communication
- Classroom Assessment and Evaluation
- Types of Test and characteristics of a Good Test
- Research Instruments

Paper-II (Professional): 100 Marks (MCQ)**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 Foundation of Education
- Sociological Foundations of Education
- Islamic Concept Education
- Process of Development of Test books and National Textbook Policy

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
- Information and Communication Technologies (ICTs)

III. Education 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
- Achievement Test
- Standardized Tests
- Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Education 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

V. Human Resource and Financial Management

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

VI. Information Technology and MS Office

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

Case No.	F.4-118/2025-R
Particulars of post	Assistant Headmistress (BS-18) , Islamabad Model Colleges, Junior Section, Federal Directorate of Education, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's degree or equivalent qualification with B.Ed. / M.Ed. ii. Five (5) years post qualification teaching and administrative experience in recognized educational institutions.

Max Marks: 200Qualifying Standard: 50%

(Note: Negative marking of 0.25 per wrong answer)

Paper-I: 100 Marks (MCQ)**I. English 50%**

- Comprehension
- Grammar Usage
- Vocabulary
- Sentence Structuring
- Sentence Correction
- Grouping of Words
- Pairs of Words
- Idiomatic Phrases
- Synonyms/ Antonyms
- Translation

II. Teaching Methodology 50%

- Teaching Methodology
- Elements of Curriculum.
- Curriculum Development Process:
- Classroom Communication
- Classroom Assessment and Evaluation
- Types of Test and characteristics of a Good Test
- Research Instruments

Paper-II (Professional): 100 Marks (MCQ)**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 Foundation of Education
- Sociological Foundations of Education
- Islamic Concept Education
- Process of Development of Text books and National Textbook Policy

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
- Information and Communication Technologies (ICTs)

III. Education 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
- Achievement Test
- Standardized Tests
- Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Education 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

V. Human Resource and Financial Management

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

VI. Information Technology and MS Office

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

Case No.	F.4-119/2025-R
Particulars of post	Vice Principal (Male) (BS-18) , Federal Directorate of Education (Ex-F.G Schools), Ministry of Federal Education & Professional Training.
Minimum Qualification & Experience:	<p>i. Second Class or Grade 'C' Master's Degree / Bachelor's degree (4 years duration) with Second Class or Grade 'C' M.Ed / B.Ed. (Hons) or equivalent qualification from a University recognized by HEC. Requirement of M.Ed / B.Ed. (Hons) is exempted for those having Master's / M.Phil / Ph.D. degree in Education.</p> <p>ii. Five (5) years post qualification experience in Teaching and Administration in a recognized Educational Institution.</p>

Max Marks: 200Qualifying Standard: 50%

(Note: Negative marking of 0.25 per wrong answer)

Paper-I: 100 Marks (MCQ)**I. English 50%**

- Comprehension
- Grammar Usage
- Vocabulary
- Sentence Structuring
- Sentence Correction
- Grouping of Words
- Pairs of Words
- Idiomatic Phrases
- Synonyms/ Antonyms
- Translation

II. Teaching Methodology 50%

- Teaching Methodology
- Elements of Curriculum.
- Curriculum Development Process:
- Classroom Communication
- Classroom Assessment and Evaluation
- Types of Test and characteristics of a Good Test
- Research Instruments

Paper-II (Professional): 100 Marks (MCQ)**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 Foundation of Education
- Sociological Foundations of Education
- Islamic Concept Education
- Process of Development of Text books and National Textbook Policy

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

- Information and Communication Technologies (ICTs)

III. Education 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
- Achievement Test
- Standardized Tests
- Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Education 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

V. Human Resource and Financial Management

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

VI. Information Technology and MS Office

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

Case No.	F.4-122/2025-R
Particulars of post	Senior Registrar (BS-18) , Pakistan Institute of Medical Sciences (PIMS), Islamabad, Ministry of National Health Services, Regulations & Coordination.
Minimum Qualification & Experience	<p>i. MBBS or equivalent qualification recognized/ registered by the PMDC or M.Sc. from a recognized University in case of Basic Science subjects in the relevant subject (for Non-Medical Graduates).</p> <p>ii. Postgraduate qualification such as FCPS/ M.S/M.D in the respective subject or equivalent qualifications recognized/ registered by the PMDC.</p> <p><u>Experience:</u> Five years teaching or practical experience in the relevant speciality before or after postgraduate qualification.</p> <p><u>1ST PREFERENCE:</u> Teaching experience.</p> <p><u>2ND PREFERENCE:</u> Practical experience after postgraduate qualification.</p> <p><u>3RD PREFERENCE:</u> Practical experience before postgraduate qualification.</p>
Categories	<p>i. General Medicine</p> <p>ii. General Surgery</p> <p>iii. Obstetrics & Gynaecology</p>

Max Marks: 200**Qualifying Standard: 40%**

(Note: Negative marking of 0.25 per wrong answer)

Paper-I (For all categories): 100 Marks (MCQ)Core Courses of **MBBS****Paper-II (For General Medicine): 100 Marks (MCQ)**Core courses of Specialization in **Medicine/Internal Medicine****Paper-II (For General Surgery): 100 Marks (MCQ)**Core courses of Specialization in **General Surgery/ Surgery****Paper-II (For Obstetrics & Gynaecology): 100 Marks (MCQ)**Core courses of Specialization in **Obstetrics & Gynaecology/Gynae**

Case No.	F.4-123/2025-R
Particulars of post	Assistant Professor (Female) (BS-18) , Directorate of Higher Education Department (Colleges) Gilgit Baltistan, Ministry of Kashmir Affairs Gilgit-Baltistan and SAFRON.
Minimum Qualification & Experience:	<p>i. Ph.D. degree in the relevant subject from a University recognized by the HEC.</p> <p>ii. One years' teaching and administrative experience at a College / University level.</p> <p style="text-align: center;">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 style="text-align: center;">OR</p> <p>i. Second Class or Grade 'C' Master's degree in the relevant subject form a University recognized by the HEC.</p> <p>ii. Five (5) years' post qualification teaching and administrative experience at College / University level.</p> <p><u>Categories:</u></p> <p>A. Computer Science B. English C. Physics D. Psychology E. Zoology</p>

Max Marks: 200Qualifying Standard: 50%

(Note: Negative marking of 0.25 per wrong answer)

Paper-I (For all categories): 100 Marks (MCQ)**I. English 50%**

- Comprehension
- Grammar Usage
- Vocabulary
- Sentence Structuring
- Sentence Correction
- Grouping of Words
- Pairs of Words
- Idiomatic Phrases
- Synonyms/ Antonyms
- Translation

II. Teaching Methodology 50%

- Teaching Methodology
- Elements of Curriculum.
- Curriculum Development Process:
- Classroom Communication
- Classroom Assessment and Evaluation
- Types of Test and characteristics of a Good Test
- Research Instruments

Paper-II (For Computer Science): 100 Marks (MCQ)

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

III. Data Structure and Algorithms

Stack and Queue, Sequential Search, Binary Search, Bubble sort, Merge sort, Quick sort, Insertion sort, Selection Sort, Linked Lists

IV. Database Management Systems

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,

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.

Paper-II (For English): 100 Marks (MCQ)

I. Essays:

- Bertrand Russell (The Conquest of Happiness)
- George Orwell (Politics and the English Language; The Prevention of Literature)

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*)
- 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

Paper-II (For Physics): 100 Marks (MCQ)**I. Mechanics**

- Newtonian laws of motion; calculus based approach to kinematics, forces and dynamics, conservation law of energy; conservation of linear and angular momentum; 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. Waves and Oscillation

- Free oscillation with one and two degrees of freedom; forced and damped oscillations and phenomenon of resonance.
- Reflection, Refraction, Interference, Diffraction and Polarization of waves; interferometer and Newton's rings.

III. 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; Maxwellian distribution of molecular velocities; Brownian motion; Transport phenomena. Classical Maxwell-Boltzmann Statistics and its application.

IV. Electricity and Magnetism

- Gauss' law Electric potential and Poisson and Laplace's equation Dielectric medium and Polarization; Ampere's law; Vector potential; Magnetic properties of matter; Faraday's law of electromagnetic induction; Maxwell's equations; Poynting theorem and Poynting Vector. Maxwell's equations in integral and differential form.

V. Modern and Quantum Physics

- Operators and quantum states, time dependent and independent Schrodinger equation, angular momentum, wave mechanics, 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.

Lande's g factor and Zeeman effect. Raman effect; Waves and particles and De Broglie's Hypothesis.

VI. 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.

VII. Nuclear Physics

- Structure of Nuclei; Radioactivity, α , β and γ decay. Methods of detection, Phenomenon of fission; reactor and nuclear power, nuclear fusion and its application.

Paper-II (For Psychology): 100 Marks (MCQ)

- 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.

Paper-II (For Zoology): 100 Marks (MCQ)

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

Case No.	F.4-134/2025-R
Particulars of post	Deputy Director (BS-18) , Local Government & Rural Development Department Gilgit Baltistan, Ministry of Kashmir Affairs, Gilgit Baltistan and SAFRON.
Minimum Qualification & Experience:	<p>i. Second Class or Grade "C" Master's / Bachelor's (16 years education) degree in Project Management / Human Resource Management / Business Administration / Public Administration / Management Science or equivalent qualification from a University recognized by the HEC.</p> <p>ii. Five (5) years post qualification experience in planning and rural development, personnel management, public administration and financial matters from a Public / Private Sector Organization.</p>

Max Marks: 200Qualifying Standard: 40%

(Note: Negative marking of 0.25 per wrong answer)

Paper-I: 100 Marks (MCQ)**I. English 50%**

- Comprehension
- Grammar Usage
- Vocabulary
- Sentence Structuring
- Sentence Correction
- Grouping of Words
- Pairs of Words
- Idiomatic Phrases
- Synonyms/ Antonyms
- Translation

II. General Intelligence/Ability 50%

- Basic Arithmetic/Quantitative Ability
 - Algebra
 - Ratios
 - Percentages
 - Arithmetic Means
- Logical Reasoning and Analytical Ability
- Current Affairs.
 - Developments at National and International Levels in last 2 years
- Pakistan Affairs
 - Basic Level knowledge
- Basic IT (Hardware and Software)

Paper-II (Professional): 100 Marks (MCQ)**I. Management 60%**

- Principles of Management
 - Functions of Management and Roles of Manager
 - Types of Plans and Planning Process
 - Types of organizations
 - Leadership Styles and Theories
 - Types of Control and Control Process
 - Basic Concepts of Quality Management (Total Quality management, ISO 9001 Standard)

- Human Resource Management
 - Definition, Significance and Scope of Human Resource Management;
 - Recruitment and Selection
 - Training and Development
 - Theories of Motivation
 - Performance Management
- Financial Management
 - Principles of Budgeting, Auditing and Accounting.

II. Professional 40%

- Government of Gilgit-Baltistan Order, 2018.
- GB Civil Servants Act 2011 & Rules made thereunder,
- GB Procurement Rules, 2022
- Esta Code, 2021

Case No.	F.4-140/2025-R
Particulars of post	Assistant Professor (BS-18) , Pakistan Institute of Medical Sciences (PIMS), Islamabad, Ministry of National Health Services, Regulations & Coordination.
Minimum Qualification & Experience	<p>MINIMUM QUALIFICATION: (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>POST GRADUATE QUALIFICATIONS: (i) D.Sc., Ph.D., FCPS, MD, M.S., M.Phil etc. in the respective subjects. (ii) FCPS/ MD with DPH (for Public Health Institution only). OR equivalent qualification recognized by PMDC. (iii) Qualification should be in the respective speciality and not the general qualification. (iv) For all Basic Science subjects, a non-medical graduate is eligible provided a Medical Graduate with requisite qualification is not available. (v) Candidates possessing D.Sc./ Ph.D., Degree the thesis or major subjects/ courses should be related to the subject in which they are applying. (vi) Candidates without a basic medical qualification are eligible for appointment as Assistant Professor Provided they possess at least D.Sc./ Ph.D., Degrees and provided a medical graduate with the requisite qualification is not available.</p> <p>EXPERIENCE: (i) Five years teaching or practical experience before or after the postgraduate qualification in the relevant subject for the holders of higher postgraduate qualification like FCPS etc. in order of preference as: 1ST PREFERENCE: Teaching experience. 2ND PREFERENCE: Practical experience after postgraduate qualification. 3RD PREFERENCE: Practical experience before postgraduate qualification. (ii) Credit shall be given to the original published research work in Standard Medical Journal.</p>
Categories	<p>A. Anaesthesia B. General Medicine C. Neonatology D. Orthopaedic E. Urology</p>

Max Marks: 200

Qualifying Standard: 40%

(Note: Negative marking of 0.25 per wrong answer)

Paper-I (For all categories): 100 Marks (MCQ)

Core Courses of **MBBS**

Paper-II (For Anaesthesia): 100 Marks (MCQ)

Core courses of Specialization in **Anaesthesia**

Paper-II (For General Medicine): 100 Marks (MCQ)

Core courses of Specialization in **Medicine/Internal Medicine**

Paper-II (For Neonatology): 100 Marks (MCQ)

Core courses of Specialization in **Neonatology**

Paper-II (For Orthopaedic): 100 Marks (MCQ)

Core courses of Specialization in **Orthopaedic/Orthopaedic Surgery**

Paper-II (For Urology): 100 Marks (MCQ)

Core courses of Specialization in **Urology**

Case No.	F.4-141/2025-R
Particulars of post	Senior Radiation Officer (BS-19) , Pakistan Institute of Medical Sciences (PIMS), Ministry of National Health Services, Regulations & Coordination.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's degree in Physics/Chemistry or equivalent qualification from a University recognized by HEC. ii. Training in Nuclear Medicine and Medical Physics. iii. Twelve (12) years post qualification experience in the field of Nuclear Cardiology.

Max Marks: 200**Qualifying Standard: 40%**

(Note: Negative marking of 0.25 per wrong answer)

Paper-I: 100 Marks (MCQ)**I. English 50%**

- Comprehension
- Grammar Usage
- Vocabulary
- Sentence Structuring
- Sentence Correction
- Grouping of Words
- Pairs of Words
- Idiomatic Phrases
- Synonyms/ Antonyms
- Translation

II. General Intelligence/Ability 50%

- Basic Arithmetic/Quantitative Ability
 - Algebra
 - Ratios
 - Percentages
 - Arithmetic Means
- Logical Reasoning and Analytical Ability
- Current Affairs.
 - Developments at National and International Levels in last 2 years
- Pakistan Affairs
 - Basic Level knowledge
- Basic IT (Hardware and Software)

Paper-II (Professional): 100 Marks (MCQ)

- I. **Introduction to Nuclear Physics:** Atomic & nuclear structure, artificial & natural radioactivity, Modes of radioactive decay, exponential decay, Half-life & mean life of radionuclides, radioactive decay series & equilibrium, Nuclear Reaction & reaction cross section, nuclear fission & fusion, Nuclear fuel cycle & nuclear reactors, Cyclotron & particle accelerators.
- II. **Radiation Interaction & Detection:** Radiation sources; Interaction of radiation with matter, Basic principles of radiation detection; Design aspects of ionization chambers, Proportional and Geiger-Muller counters; Various types of scintillators; Scintillation detectors; Radiation spectroscopy using Scintillation detectors, Neutron sources; Neutron detection techniques and neutron spectroscopy. Basic electronic circuits and electronic equipment used in nuclear radiation detection systems; Measure of central tendency and dispersion; Concepts of sample space, events, random variables and probability; Probability distributions (discrete & continuous); Curve fitting and tests for goodness of fit; Errors and their propagation; Counting statistics.

- III. **Radiation Biology:** DNA Strand Breaks and Chromosomal Aberrations, Cell Survival Curves, Radio sensitivity and Cell Age in the Mitotic Cycle, Repair of Radiation Damage and the Dose Rate Effect, Oxygen Effect and Re-oxygenation, Linear Energy Transfer and Relative Biologic Effectiveness, Acute Effects of Total-Body Irradiation, Radioprotectors, Radiation Carcinogenesis, Hereditary Effects of Radiation, Effects of Radiation on the Embryo and Foetus,
- IV. **Radiation Safety Principles and Techniques:** Introduction, Radiation quantities & units, International organizations setting standards, Latest IAEA Basic Safety standards, Fundamental Safety Principles, Safety standards for medical exposure, Principles & control of external & internal exposure hazards, absorbed dose estimation from external exposure, Health Physics instrumentation, Regulatory and licensing requirements for medical facilities, Radioactive waste disposal methods, Handling of I-131 therapy patients. Practical demonstrations of radiation protection procedures in health physics, i.e., SSDL, whole body counting, bioassay counting, Verification of inverse square law, Calibration of survey meters, Bioassay technique, TLDS, Contamination and decontamination, Film badge dosimetry will be part of this course.
- V. **Physics of Nuclear Medicine:** Introduction to nuclear medicine, Radiopharmaceuticals, Basic principles & licensing considerations, Production of radioisotopes, Radioisotope generators, Dosage control techniques, Quality Control (QC) & Quality Assurance (QA) of radiopharmaceuticals, collimators, types and applications, quality control considerations in collimators, gamma camera and its components, Creation of digital image, Data Analysis, Data display and formatting, Principles of SPECT and SPECT-CT, QC and QA procedures for SPECT, Introduction to non-imaging probes & solid state gamma cameras. Physics of Positron Emission Tomography (PET) and PETCT, coincidence circuitry, PET-CT camera, Quality assurance and quality control for PET-CT