

FEDERAL PUBLIC SERVICE COMMISSION
(Curriculum & Research Wing)

Schemes and Syllabi for Screening/Professional Tests as well as Descriptive Examination
Relating to Posts Advertised under Consolidated Advertisement No. 06/2019

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
1.	90/2019	System Analyst (BS-17), National History and Literary Heritage Division.	i. Second Class or Grade 'C' Master's Degree in Computer Science/ Information Technology or equivalent qualification from a University recognized by Higher Education Commission. OR Second Class or Grade 'C' Bachelor's degree in Software Engineering/ Computer Engineering/ Computer System Engineering or equivalent qualification from a University recognized by the Higher Education Commission. OR Second Class or Grade 'C' Bachelor's degree in Computer Sciences/ IT (4 years duration) or equivalent qualification from a University recognized by the Higher Education Commission. ii. Two years post qualification experience in Computer Programming/ Systems Analysis/ Software Development.	Objective Type Test (MCQ) <u>Part-I</u> English = 20 marks <u>Part-II</u> Professional Test=80 marks	<u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring. <u>Part-II</u> <ul style="list-style-type: none"> • Software Architecture, • Software Quality Assurance, • Coding, Writing, Testing and Debugging of Software Applications, • Computer Networks and Internet, • Object Oriented Programming, • Unified Modeling Language (UML) • Database Management Systems, • Online Systems, • IT Audit and Security, • Data Communication/Protocols

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
2.	111/2019	Medical Officer (BS-17), Pakistan Institute of Medical Sciences (PIMS), Islamabad, Ministry of National Health Services, Regulations and Coordination.	MBBS Degree or equivalent qualification recognized by PMDC.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> • Core courses of MBBS Degree Program. • Health Policies of the Government of Pakistan. • Care vs Cure for Health Management. • Major Challenges being faced by the Health Sector.
3.	115/2019	Data Processing Assistant (BS-16), Economic Affairs Division, Ministry of Finance, Revenue & Economic Affairs.	i. Second Class or Grade 'C' Bachelor's Degree in Computer Science/ IT or equivalent from an Institute/ University recognized by the HEC. OR Second Class or Grade 'C' Bachelor's Degree with Math/ Statistics/ Physics/ Economics and one year diploma in computer from an Institute/ University recognized by the HEC. ii. Two (2) years post qualification experience in relevant field.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> • Arithmetic Logical Unit, Memory (RAM, ROM) Types of RAM, Ports, etc. • Input and Output Devices, • Use of Microsoft Office • Application and System Software, • Electronic Data Processing • Management Information System • Storage and Multimedia, • Network & Security Issues,
4.	133/2019	Assistant Director (Investigation) (BS-17) Federal Investigation Agency, Ministry of Interior.	Second Class or Grade 'C' Master's degree from a University recognized by the HEC.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II General Intelligence/ Professional Test = 80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> • Basic Arithmetic. • Current Affairs. • Pakistan Affairs & Islamic Studies • Everyday/General Science • FIA Act, 1974 Note : (Equal weightage for each topic at Part-II)

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
5.	137/2019	Seed Analyst (BS-17), Federal Seed Certification and Registration Department, Ministry of National Food Security & Research.	Second Class or Grade 'C' Master's Degree in Agriculture in one of the subjects of Seed Technology, Plant Breeding, Plant Pathology, Horticulture, Plant Protection, Agriculture Extension, Entomology or M.Sc. (Botany).	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structure. Part-II <ul style="list-style-type: none"> • Seed Technology • Plant Breeding and Genetics • Plant Pathology • Horticulture • Agriculture Extension • Plant Protection • Agricultural Entomology • Botany.
6.	143/2019	Veterinary Officer (BS-17 with 25% Special Pay), Agriculture, Livestock and Fisheries Department, Gilgit Baltistan, Ministry of Kashmir Affairs and Gilgit Baltistan.	D.V.M/B.Sc. (Hons.) Animal Husbandry/ M.Sc. Animal Husbandry from a University recognized by HEC.	Objective Type Test (MCQ) Part-I English =20 marks Part-II Professional Test =80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Livestock & Poultry Diseases • Veterinary Medicines and Vaccines • Veterinary Parasitology • Animal Nutrition/Physiology • Poultry, Sheep/Goat & Dairy Farming • Livestock Management and Development • Epidemiology • Procurement/ arrangement of Chemicals/Lab. Machines and their usage

**Scheme and Syllabus for Written Examination (Descriptive)
for all Posts in BS-20 advertised under Consolidated
Advertisement No. 06/2019**

Case No.	F.4-128/2019-R
Particulars of post	Registrar Trade Union (BS-20), National Industrial Relations Commission (NIRC), Ministry of Overseas Pakistanis & Human Resource Development.
Minimum Qualification & Experience:	<ul style="list-style-type: none"> i. Second Class or Grade 'C' LLB degree or equivalent qualification from a University recognized by HEC. ii. Seventeen (17) years post qualification experience in BS-17 and above in the field of Labour Administration. OR Five (5) years post qualification experience in BS-19 in case of initial appointment in BS-19 in the field of Labour Administration.

PAPER: ENGLISH (100 MARKS)

English Essay: Candidates will be required to write an Essay in English from three topics comprising approximately **2000 words**. Candidates are expected to reflect comprehensive and research based knowledge on a selected topic related to the advertised post. Candidate's articulation, expression and technical treatment of the style of English Essay writing will be examined.

OR

Case Study: Candidates will be given real situation case studies related to advertised posts/ organization concerned and will be expected from the candidates to present (i) identification of issues (ii) evaluation of issues (iii) legal or case related theories (iv) evaluation of case facts if required and (v) possible solution of the case or writing judicial order, if the case so requires.

**Schemes and Syllabi for Written Examination (Descriptive)
for All Posts in BS-18 & BS-19 included in Consolidated
Advertisement No. 06/2019**

PAPER-I: ENGLISH

Max Marks: 100

Time Allowed: 3 Hours

(i) **English Essay-50 Marks:** Candidates will be required to write an Essay in English comprising **1500 words** from a set of **six given topics**. Candidates are expected to reflect comprehensive and research based knowledge on a selected topic. Candidate's articulation, expression and technical approach to the style of English Essay writing will be examined.

(ii) **English (Composition and Précis)-50 Marks:**

The examination will test the candidate's abilities to handle Précis Writing, Reading Comprehension, Sentence Structuring, Translation, Grammar and Vocabulary, etc.

Précis Writing (10 marks): A selected passage with an orientation of generic understanding and enough flexibility for compression shall be given for précising and suggesting an appropriate title.

Reading Comprehension (10 marks)

A selected passage that is rich in substance but not very technical or discipline-specific shall be given, followed by five questions, each carrying 2 marks.

Grammar and Vocabulary (10 marks): Correct usage of Tense, Articles, Prepositions, Conjunctions, Punctuation, Phrasal Verbs, Synonyms and Antonyms etc.

Sentence Correction (5 marks): Ten sentences shall be given each having a clear structural flaw in terms of grammar or punctuation. The candidates shall be asked to rewrite them with really needed correction only, without marking unnecessary alterations. No two or more sentences should have exactly the same problem, and 2-3 sentences shall be based on correction of punctuation marks.

Grouping of Words (5 marks): A random list of ten words of moderate standard (neither very easy nor utterly unfamiliar) shall be given, to be grouped by the candidates in pairs of those having similar or opposite meaning, as may be clearly directed in the question.

Pairs of Words (5 marks): Five pairs shall be given of seemingly similar words with different meanings, generally confused in communication, for bringing out the difference in meaning of any five of them by first explaining them in parenthesis and then using them in sentences.

Translation (5 marks): Ten short Urdu sentences involving structural composition, significant terms and figurative/idiomatic expressions shall be given, to be accurately translated in English.

SUGGESTED READINGS

Sr. No.	Title	Author
1.	English Grammar in Use	Raymond Murphy (Cambridge University Press)
2.	Practical English Usage	M. Swan (Oxford University Press)
3.	The Little, Brown Handbook	H. Ramsey Flower & Jane Aaron (The Little, Brown & Co; Harper Collins)
4.	A University English Grammar	R. Quirk & S. Greenbaum (ELBS; Longmans)
5.	Write Better, Speak Better	Readers Digest Association
6.	Modern English in Action	Henry Christ (D.C. Heath & Co.)
7.	Exploring the World of English	Syed Saadat Ali Shah

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

Case No.	F.4-35/2019-R
Particulars of post	Executive Veterinary Officer (BS-19), Remount Veterinary and Farms Directorate, GHQ, Ministry of Defence.
Minimum Qualification & Experience:	i. Ph. D (Veterinary Science) with basic degree of D.V.M. from a university recognized by HEC. ii. Registration with PVMC. iii. Eight (8) years post qualification experience in the relevant field. OR Retired Brig/ Col. Of RV&FC.

Veterinary Medicine: 100 Marks**I. Veterinary Protozoology**

Protozoology: definition, history and differences from other unicellular organisms, Anatomy and physiology of protozoa, Classification, Morphology, Life cycle, Pathogenesis, Diagnosis and Control of the species of the following genera of Protozoa, Trypanosoma / Leshmania, Trichomonias and Histomonas, Entamoeba, Giardia and Balantidium, Eimeria and Isospora, Toxoplasma and Sarcocystis, Toxoplasmosis and Sarcocystosis and Plasmodium, Plasmodium, Haemoproteus, Leucocytozoan and Hepatozoan, Babesia, Theileria, Anaplasma & Cryptosporidium, Ehrlichia & Eperythrozoan, Protozoan zoonosis.

II. Systemic Veterinary Pathology

Digestive system, Skin and Appendages, Dermatophytes (Ring Worms), Mange: Psoroptic, chorioptic mange, neoplasia, Urinary system, Cardiovascular system, Nervous system, Respiratory system, Musculo-skeleton system, Rickets, Osteomalacia, Osteodystrophy, Osteoporosis, Osteopetrosis, Exostoses, neoplasia, Reproductive System, Postparturient Haemoglobinuria,

III. Small Ruminant Production

Scope and role of small ruminants, Sheep and goat as milch, meat and wool/hair producer. Grazing management systems and supplementary feeding, Management during drought, Record keeping of sheep and goat, Fencing on ranges, Shearing and handling wool/hair,

IV. Ruminant Nutrition

Nutrients, their classification and requirements, Concept of forage, concentrate and non-conventional feed resources in feeding of ruminants, Feeding standards, their usefulness and limitations for large ruminants. Feeding standards, their usefulness and limitations for small ruminants. Nutrient requirements of cattle for maintenance, production and reproduction. Nutrient requirements of buffaloes for maintenance, production and reproduction. Nutrient requirements of sheep for maintenance, production and reproduction, Nutrient requirements of beef animals for maintenance and fattening. Concept of digestibility and nitrogen balance. Feeding management of dairy animals at different physiological stages, Feeding practices of small ruminants, Nutritional management of grazing livestock, Feeding of calves from birth to puberty.

V. Beef Production

Scope and importance of meat production in Pakistan, Present situation of meat industry and Problems of meat industry in Pakistan, Feeding of beef Animals, Breeding of beef Animals, Management of Beef Animals, Feed additives, hormones and Probiotics, Vitamins etc for enhanced growth Antibiotics, Factors affecting carcass and meat quality, Meat Hygiene, Storage and Preservation of Meat, Marketing of beef animals and beef, Modern Slaughter Houses, Slaughtering Methods.

SUGGESTED READINGS

S. No.	Title	Author
1.	General Parasitology and Protozoology.	Akhtar, M., M. A. Hafeez and C. S. Hayat 2003.
2.	Techniques in Parasitology. Higher Education Commission, Pakistan	Iqbal, Z., M.S. Sajid, A. Jabbar, Z.A. Rao and M.N. Khan, 2006.
3.	Introduction to Veterinary Pathology.	Cheville, N. F., 2006.
4.	Pathologic Basis of Veterinary Disease	McGavin, D. M. and J. F. Zachary, 2006.
5.	Sheep and Goat Production, Univ. of Agriculture, Faisalabad.	Khan, B.B., A. Iqbal and M.I. Mustafa. 2003.
6.	Goats. McMillan Education Ltd..	Steel, M., 1996
7.	Recent Advances in Ruminant Nutrition.	Garnsworthy and J. Wiseman. 2002.
8.	Feeding the Dairy Cow.	Chamberlain, A.T. and J.M. Wilkinson. 2002.
9.	Commercial Poultry Nutrition,	Lesson, S. and J.D. Summers. 2001.
10.	Feed Manufacturing Technology	McEllihiney, R.R. 1994.
11.	Dictionary of Animal Nutrition and Feed Technology,.	Singhal, K.K. 1992.
12.	Meat Production and Technology in Pakistan, PARC, Islamabad.	Alvi, A.S. 1991.
13.	Meat Hygiene and Inspection.	Anwar, A.H. 1996.
14.	Meat Hygiene. Bailliere Tindall, UK.	Gracey, J. F. and Collins D.S. 1992

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

Case No.	F.4-56/2019-R
Particulars of post	Rehabilitation Specialist (BS-18), Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence.
Minimum Qualification & Experience:	i. MBBS with FCPS in Rehabilitation Medicine from CPSP. ii. Five (5) years post FCPS experience as Specialist in a Govt. Organization.

Part-I: (Qualification Based)**50 Marks**Core courses of **MBBS Degree****Part-II: (Professional)****50 Marks**Core courses of FCPS in **Rehabilitation Medicine**.

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

Case No.	F.4-117/2019-R
Particulars of post	2nd Engineer (Electronics) (System Engineer PCBRF) (BS-18), Pakistan Navy, Ministry of Defence.
Minimum Qualification & Experience:	i. Bachelor of Engineering in Electrical/ Electronics/ Computer or equivalent from the recognized University. ii. Five (5) years post qualification experience in Govt./ Semi-Govt./ or a firm of repute in repairs of the multi layer Printed Circuit Board/ use of Specialized Diagnostic Test Equipment/ handling of Programmable ICs.

Engineering: 100 Marks**I. Electricity & Electronics:**

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

II. Electrical Machines:

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

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

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

III. Electronics:

Transistors: types, calculations of voltages and currents in simple transistor circuits.

Amplifier & Oscillators: Working and classification of amplifiers, Class A and Class B Amplifiers, Feedback Amplifiers, Types of Feedback, RC Oscillators.

Integrated Circuits: OP Amps, timers, flip flop, converters, filters.

Telecommunications: EM theory, antennas, antenna gain, free space loss, fading. Modulations (AM, FM, PM, PWM, Delta, FSK, ASK, PSK), Error correction, Demodulation, Detectors, Transmitter, Receivers.

DSP and Controls; filters, stability, Z-transform, Nyquist criteria, S domain, transfer functions.

Introduction to Computing: History and evolution of computers, central processing unit, data storage, input/output put devices, multimedia, operating systems, programming languages, networking, the internet, system analyses and design, management information system, electronic commerce, security and privacy issues, ethical issues and the computing profession,

IV. **Power Systems:**

Power network analysis, Polyphase circuits, Transients, Transmission Lines, Losses.

V. **Costing, Accounting and Budgeting:**

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

VI. **Project Management:**

Time lines, milestones, resources allocation, dependency, Gant Charts,

VII. **Inventory Management:**

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

VIII. **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.	Electrical Technology	B.L. Tharaja
2.	Electronic Devices and Circuits.	Bogart
3.	DC Machines	P.C. Sen
4.	Semiconductors	Manzar Saeed
5.	Modern Digital and Analog Communication	B.P.Lathi
6.	Computers, tools for an Information age,	H.L. Captron, Addison Wesley
7.	Handbook of Engineering Management	Dennis Lock.
8.	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.4-131/2019-R
Particulars of post	Deputy Director (BS-18) , Survey of Pakistan, Ministry of Defence.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's Degree in Geography with specialization in Topography OR Second Class or Grade 'C' Master's Degree in Mathematics OR Bachelor's Degree in Engineering or equivalent qualifications. ii. Five (5) years post qualification experience in a responsible position in the field of Engineering/ Survey.

Part-I: (Professional)**50 Marks****I. Geographical Information System**

Definitions, key components, functional subsystem, Raster data model, vector data model, attribute data model, Data acquisition techniques, data sources, data capturing techniques and procedures, data transformation, visualization of spatial data, layers and projections and datums

Map design: symbols to portray points, lines, polygons and volumes, graphic variables, visual hierarchy, Data classification graphic approach, mathematical approach.

Spatial analysis: neighbourhood functions, network, and overlay analysis, buffering, spatial data quality: components of data quality, micro level components, macro level components, usage components, sources of errors, accuracy and resolution and uncertainty.

II. Remote Sensing

- History and Development
- Concepts and Foundation of Remote Sensing
- Electromagnetic spectrum
- Types of Remote Sensing Systems
- Types of Satellites
- Ground Receiving Stations (Reception of Data)
- Remote Sensing in Pakistan: Potential and Prospects

III. Land Surveying

- Instrumental survey and records
- Surveying using the following instruments:
 - ✓ Chain survey
 - ✓ Prismatic Compass
 - ✓ Determination of heights and slopes with Abney Level
 - ✓ Contouring by Indian Clinometer
 - ✓ Use of Dumpy level and Theodolite
 - ✓ Total station
 - ✓ Global Positioning System (GPS)

Part-II: 50 Marks

(Human Resource, Financial Management,
Quality Management and Information Technology)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel

Management: Selection, Communication Channels and Principles of Public Relations; Elements of Financial Administration, Principles of Budgeting,

II. Basic Concept of Quality Management

ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

III. Information Technology and MS Office

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

SUGGESTED READINGS

S. No.	Title	Author
1.	Geographic Information Systems	Aronoff, S. (2004)
2.	An Introduction to Map Work & Practical Geography	Bygot, J. (1960)
3.	Introduction to Remote Sensing,	Campbell, J. B. (2002)
4.	Fundamentals of Geographical Information Systems.	Demers, M.N. (2008)
5.	Introductory Remote Sensing: Principles and Concepts,	Jensen, J. (2000)
6.	Remote Sensing of the Environment: An Earth Resource Perspective. Second Edition.	Jensen, J. R. (2011)
7.	Cartography: Visualization of Spatial Data,	Kraak, M. J. (1996)
8.	Plane Surveying	Chandra, A. M. (2006)
9.	Advanced Surveying: Total Station, GIS and Remote Sensing	Gopi, S., Kumar, S., & Madu, R. N. (2007)
10.	Fundamentals of Surveying.	Roy, S. K. (2010)
11.	Human Resource Management	H.T. Graham & Roger Bennett
12.	Management	James A. F. Stoner, R. Eward Freeman, Daniel R. Gilbert Jr.
13.	Understanding Computer: Today and Tomorrow	Deborah Morley, Charles Parker
14.	MS Office 365 Handbook: 2013 Edition	Kevin Wilson