

राष्ट्रिय वाणिज्य बैंक लिमिटेड
तह ९, बरिष्ठ प्रबन्धक (सूचना प्रविधि) (प्रशासन सेवा, सूचना प्रविधि समूह)
खुला प्रतियोगितात्मक लिखित परिक्षाको पाठ्यक्रम

सेवा :- प्रशासन

समूह :- सूचना प्रविधि

उपसमूह :-

तह :- ९

पद :- बरिष्ठ प्रबन्धक (सूचना प्रविधि)

किसिम :- खुला

पाठ्यक्रम योजनालाई निम्नानुसारका तीन चरणमा विभाजन गरिएको छ ।

प्रथम चरण :- लिखित परीक्षा

पूर्णाङ्क :- २००

द्वितीय चरण :- प्रस्तुतिकरण

पूर्णाङ्क :- १०

तृतीय चरण :- अन्तर्वार्ता

पूर्णाङ्क :- ३०

परीक्षा योजना (Examination Scheme)

१. प्रथम चरण : लिखित परीक्षा (Written Examination)

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या × अङ्क	समय
प्रथम	Banking and Organizational Management	१००	४०	विषयगत	लामो उत्तर आउने प्रश्न	१० प्रश्न × १० अङ्क	३ घण्टा
द्वितीय	Information Technology Networking, System Security and Management	१००	४०	विषयगत	विश्लेषणात्मक प्रश्न	६ प्रश्न × १० अङ्क	३ घण्टा
					समस्या समाधानमुलक प्रश्न	२ प्रश्न × २० अङ्क	

२. द्वितीय चरण : प्रस्तुतिकरण (Presentation)

विषय	पूर्णाङ्क	परीक्षा प्रणाली	समय
प्रस्तुतिकरण	१०	व्यक्तिगत प्रस्तुतिकरण	१५ मिनेट

३. तृतीय चरण : अन्तर्वार्ता (Interview)

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	३०	मौखिक

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा सोधिने प्रश्न संख्या र अंकभार यथासम्भव सम्बन्धित पत्र/विषयमा तोकिए अनुसार हुनेछ ।
- विषयगत प्रश्नहरूको हकमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
- विषयगत प्रश्न हुने पत्र/विषयका प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परिक्षार्थीले प्रत्येक खण्डका प्रश्नको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुन सुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ । साथै द्वितीय चरणको परीक्षामा सहभागी भएका उम्मेदवारलाई मात्र तृतीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम स्वीकृत मिति: २०८२/०९/१७

प्रथम पत्र (Paper – I)

Banking and Organizational Management

Section – A (50 Marks)

1 Banking and Related Institutions

- 1.1 International Financial Institutions: World Bank Group, International Monetary Fund, Asian Development Bank, Asian Infrastructure Investment Bank (AIIB) and their role in Nepal's Economic Development.
- 1.2 Nepal Rastra Bank: Regulatory and Supervisory Dimensions
- 1.3 Rastriya Banijya Bank: Role, Contribution, Challenges and Prospects
- 1.4 Banks and Financial Institutions in Nepal: Evolution, Status, Challenges
- 1.5 Other Related Institutions:
 - 1.5.1 Credit Information Center Ltd (CICL)
 - 1.5.2 Nepal Clearing House Limited (NCHL)
 - 1.5.3 Credit Rating Agencies
 - 1.5.4 Employee Provident Fund (EPF)
 - 1.5.5 Citizen Investment Trust
 - 1.5.6 Social Security Fund (SSF)
 - 1.5.7 Nepal Insurance Authority
 - 1.5.8 Securities Board of Nepal (SEBON), Nepal Stock Exchange Ltd.
 - 1.5.9 The Institute of Chartered Accountants of Nepal (ICAN)

2. Banking Related Laws, Bylaws, Rules and Regulations

- 2.1 Nepal Rastra Bank Act, 2058
- 2.2 Bank and Financial Institution Act, 2073
- 2.3 Payment and Settlement Act, 2075
- 2.4 Money Laundering Prevention Act, 2064
- 2.5 Banking Offence and Punishment Act, 2064
- 2.6 Foreign Exchange (Regulation) Act, 2019
- 2.7 Foreign Investments and Technology Transfer Act, 2019
- 2.8 Negotiable Instrument Act, 2034
- 2.9 Electronic Transaction Act, 2063
- 2.10 The Act on Recovery of Debts of Banks and Financial Institutions, 2058
- 2.11 Directives, Bylaws, Policies, Manuals and Guidelines issued by Nepal Rastra Bank for Banks and Financial Institutions in Nepal

3. Other Related Laws, Policies

- 3.1 Company Act, 2063
- 3.2 Income Tax Act, 2058
- 3.3 Labor Act, 2074
- 3.4 Public Procurement Act, 2063
- 3.5 Secured Transaction Act, 2063
- 3.6 Securities Act, 2063
- 3.7 Insolvency Act, 2063
- 3.8 Right to Information Act, 2064
- 3.9 Bonus Act, 2030
- 3.10 National Information and Communication Technology Policy, 2015 (2072 BS)
- 3.11 National Cyber Security Policy, 2023 (2080 BS)
- 3.12 राष्ट्रिय वाणिज्य बैंक, कर्मचारी सेवा विनियमावली, २०७०

Section – B (50 Marks)

4. Financial Markets and Banking Operation

- 4.1 Financial Markets
- 4.2 Interest Rates Determination
- 4.3 Interest Rates Structures, Yield Curves
- 4.4 Commercial Banking Operations
 - 4.4.1 Sources of Funds for Banks
 - 4.4.2 Uses of Funds by Banks
 - 4.4.3 Off-Balance Sheet Activities
 - 4.4.4 International Banking

5. Organizational Management and Planning

- 5.1 Human Resource Management, Succession Planning, Knowledge Management
- 5.2 Stress Management, Conflict Management, Time Management, Change Management
- 5.3 Strategic Planning, Strategic Management, Total Quality Management
- 5.4 Risk Management
- 5.5 Business Intelligence
- 5.6 Business Continuity Plan (BCP)
- 5.7 Project Appraisal, Financial Statement Analysis and Break-even Analysis
- 5.8 Principles and Utility of Budget

6. Organizational Behavior and Development

- 6.1 Employee Motivation,
- 6.2 Performance Monitoring and Evaluation
- 6.3 Management Information System
- 6.4 Communication: Skill, Approach, Issues and Challenges
- 6.5 Decision Making: Process, Effectiveness and Efficiency
- 6.6 Managing Organizational Changes and Innovations
- 6.7 Leadership Development
- 6.8 Entrepreneurship Skills and Development
- 6.9 Emotional Intelligence, Empathy
- 6.10 Capacity Building
- 6.11 Grievance Handling

Subject	Section	Marks	Unit	Question Model
Banking and Organizational Management	A	50	1	5 Questions × 10 Marks
			2	
			3	
	B	50	4	5 Questions × 10 Marks
			5	
			6	

द्वितीय पत्र (Paper – II):

**Information Technology Networking, System Security and Management
Section – A (50 Marks)**

1. Computer Network

- 1.1. Fundamentals of Computer Network, Network Architecture, LAN architecture, Error Detection and Correction Techniques
- 1.2. OSI and TCP reference model, network topologies, Network components: Repeaters, Hub, Switch and Router, Client Server and Peer2Peer model
- 1.3. Email and Internet Technology, Common TCP and UDP ports, protocols, and their purpose
- 1.4. Application of Network utilities (e.g. IPCONFIG, PING, TRACERT, NSLOOKUP), IP Addressing, subnet mask, gateway, DNS, WINS, static and automatic address assignment
- 1.5. Switching and Routing Techniques, Multiplexing and de-multiplexing, UDP, TCP, flow control, principles of congestion control, TCP congestion control
- 1.6. Remote Networking: Remote Access Protocols, VPN Technologies, VLAN, WAN Transmission Technologies
- 1.7. Security and Privacy: Privacy and Security issues in Network, Distributed System, Firewalls, Advanced storage techniques: NAS and SAN, Disaster Recovery Mechanism

2. Cybersecurity /Information Security

- 2.1. Fundamental of Information Security: C.I.A., Non-repudiation, Cybersecurity and Information Security, Hacking, Cybercrime, common Cyber threats in financial sector
- 2.2. Cryptography: Symmetric and Asymmetric Key Cryptography, Data Encryption Standard, Digital Signature and Digital Certificate, authentication protocols,
- 2.3. Network and Application Security: Fundamental of Network Security, IPS, IDS, Firewall, WAF, VPN, DMZ, NAT, Proxy Firewall, Wireless Security, Remote Access Security, SSL/TLS, SET, Email Security, Security Principle in Software Design
- 2.4. Information Security and IT Risk Management: Threats, Vulnerabilities and IT Risk, Access Control Mechanism, Authentication and Authorization, Password Security
- 2.5. Concept of IS Audit, VAPT, Incident Handling, IT Risk Management, Disaster Recovery

3. Operating System

- 3.1. Fundamentals of Operating System (OS): Development and Functions of Operating System, Functional Architecture of OS, Types of OS, Network and Distributed OS
- 3.2. Processes and Threads: Symmetric Multiprocessing, Micro-kernels, Concurrency, Mutual Exclusion and Synchronization, Inter Process Communications, Semaphores. Features of Process Scheduling; List of the features of Inter-Process Communication and Deadlock scheduling
- 3.3. Disk Allocation and Scheduling Methods, Basic Memory Management strategies, Virtual Memory Management Techniques, Definition of a Process and Features of the Process Management System
- 3.4. Concepts of Parallel and Distributed Processing, Security Threats to Operating Systems, authentication and access authorization, system flaws and attacks, trusted system
- 3.5. Input Output and Files: I/O devices and its organization, Principles of I/O software and hardware, Disks, Files and directories organization, File System Implementation, Interrupt handling

4. Emerging Technology

- 4.1. Basics of Cloud Computing, Edge Computing, AI and Machine Learning
- 4.2. Cloud Technology: IaaS, PaaS, SaaS, , Types of Cloud Services, Virtualization
- 4.3. Fundamentals of Fintech, API, Big Data, Machine Learning, Internet of Things (IoT), DLT, QR Code and its application

Section – B (50 Marks)

5. Data Structure and Database Management System

- 5.1. Fundamental of Data Structures, Abstract Data types, Linear Data Structure
- 5.2. Trees: General and Binary Trees, Traversal, Implementations, Binary Search Trees, Balanced Search Trees, AVL Trees, 2-3 Trees, Red-black Trees
- 5.3. Indexing Methods, Hashing Trees, Suffix Trees , Time and space complexity, Bog O' Notation,
- 5.4. Analysis of Simple Recursive and Non-recursive Algorithms
- 5.5. Searching, Merging and Sorting, Divide-and-Conquer, Dynamic Programming, Greedy Methods, Backtracking, Graph algorithms: DFS, BFS, Shortest Path Problems, Minimum Spanning Trees, Directed Acyclic Graphs
- 5.6. Fundamentals of DBMS: Relational Database Model, Functional dependency, Integrity, RDBMS, Data Mining and Data Warehousing
- 5.7. SQL and Embedded SQL: Writing SQL Queries, Restricting and Sorting Data, Sub Queries, Manipulating Data and Creating & Managing Tables, Creating Views and Controlling User Access, Using Set Operators, Date time Function
- 5.8. Relational Database Design, ER Diagram, Data Flow diagram (DFD), Keys, Normalizations (1NF, 2NF, 3NF, BCNF, 4NF) and functional dependencies, Basic Concept of major RDBMS products (MSSQL, Oracle, PostgreSQL etc.)
- 5.9. Fundamentals of functions, procedures, triggers and rules in DBMS, Transaction Management and Concurrency Control techniques, Crash Recovery: Types of Failure, Recovery Techniques
- 5.10. Query Processing and Optimization

6. E-business and Information System

- 6.1. Fundamentals of E-Commerce and M-Commerce, E-Commerce Strategies, Applications
- 6.2. E-Commerce Security Issues, Success Models of E-Commerce
- 6.3. E-Business and underlying technology: B2B, B2C, B2E, C2C, G2G, G2C
- 6.4. Principles of Electronic Payment, Strategies & Systems
- 6.5. Electronic funds transfer, e-payment gateways, Electronic payment system (EPS), Mobile Banking, E-Banking, Internet Banking, EDI Methods, SWIFT, RTGS, IPS, connectIPS, ECC
- 6.6. Information System Fundamentals, Information System Development, DSS, ERP, CRM, SRM, Application of MIS and social impact of IS

7. Software Engineering and Software Architecture

- 7.1. System Designers and system Builders, System Analysts, System development life Cycle
- 7.2. Prototyping, Spiral, Waterfall, Rapid Application Development (RAD), Joint Application Development (JAD), DevOps, Agile development, Object oriented system development
- 7.3. Requirements analysis: Representing System Analysis Model, Requirement Model, Design Model
- 7.4. Fundamentals of Object-oriented system analysis and design, E-R Diagram, Context Diagram, DFD, UML diagrams
- 7.5. Software Architecture: physical vs logical architecture, module viewpoints and styles, architecture pattern and framework
- 7.6. Application Architecture: Centralized, Distributed, Client Server, peer to peer and Push, web- based architecture: Java Beans, Ms. Dot Net, SOA
- 7.7. Tools and Environment for software engineering, roles of programming paradigm, ISO standards, Software Cost Estimation: COCOMO model

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खुला प्रतियोगितात्मक लिखित परिक्षाको पाठ्यक्रम

8. IT Adoption in Nepal

- 8.1. Technology Adoption by Banking Sector of Nepal
- 8.2. Ethics and professionalism in IT
- 8.3. Fundamental of Licenses, Agreements and Intellectual Property Right, Copyright, Trademark, Patent
- 8.4. NRB IT Guidelines, 2012
- 8.5. NRB Cyber Resilience Guidelines, 2023

Subject	Section	Marks	Unit	Question Model
Information Technology Networking, System Security and Management	A	50	1	3 Question x 10 Marks 1 Question x 20 Marks
			2	
			3	
			4	
	B	50	5	3 Question x 10 Marks 1 Question x 20 Marks
			6	
			7	
			8	