कृषि विकास बैंक लि.

तह-६, कम्प्युटर अधिकृत (प्राविधिक) पदको खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

पदको बिवरण

सेवा	:-	प्राविधिक	समूह	:-	प्राविधिक	उपसमूह	:- प्राविधिक
तह	:-	६ (छ)	पद	:-	कम्प्युटर अधिकृत	किसिम	:- खुला

पाठ्यक्रम योजनालाई निम्नानुसार दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण	:-	लिखित परीक्षा	पूर्णाङ्क :- २००
द्वितीय चरण	:-	अन्तर्वार्ता	पूर्णाङ्क :- ३०

परीक्षा योजना (Examination Scheme)

१. प्रथम चरण : लिखित परीक्षा (Written Examination) **पूर्णाङ्क :- २००**

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्या X अङ्क	समय
प्रथम	व्यवस्थापन (Management)	१००	४०	विषयगत	लामो उत्तर आउने प्रश्न	३ प्रश्न x १० अङ्क	३ घण्टा
	बैंकिङ्ग (Banking)				छोटो उत्तर आउने प्रश्न	२ प्रश्न x ५ अङ्क	
					लामो उत्तर आउने प्रश्न	२ प्रश्न x १० अङ्क	
	कृषि विकास बैंक लि. (Agricultural Development Bank Ltd.)				छोटो उत्तर आउने प्रश्न	२ प्रश्न x ५ अङ्क	
					लामो उत्तर आउने प्रश्न	१ प्रश्न x १० अङ्क	
	संविधान तथा कानून (Constitution & Laws)				लामो उत्तर आउने प्रश्न	२ प्रश्न x १० अङ्क	
द्वितीय	Computer Systems, AI, Software and Design	१००	४०	विषयगत	छोटो उत्तर आउने पश्न	२ प्रश्न x ५ अङ्क	३ घण्टा
					लामो उत्तर आउने प्रश्न	४ प्रश्न x १० अङ्क	
	Information Security, DBMS and Networking				छोटो उत्तर आउने पश्न	२ प्रश्न x ५ अङ्क	
					लामो उत्तर आउने प्रश्न	४ प्रश्न x १० अङ्क	

२. द्वितीय चरण : अन्तर्वार्ता (Interview)

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	**३०**	**मौखिक**

द्रष्टव्य:

१) लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।

२) प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।

३) लिखित परीक्षामा सोधिने प्रश्नसंख्या र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा दिईए अनुसार हुनेछ ।

४) 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 ।

५) विषयगत प्रश्न हुने पत्र/विषयका प्रत्येक भाग/खण्ड/एकाइ/प्रश्नका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परिक्षार्थीले प्रत्येक भाग/खण्ड/एकाइ/प्रश्नका प्रश्नको उत्तर सोही भाग/खण्ड/एकाइ/प्रश्नको उत्तरपुस्तिकामा लेख्नुपर्नेछ ।

६) यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुन सुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका ऐन, कानून, नियम, विनियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्क्रममा परेको सम्झनु पर्दछ ।

७) प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।

८) पाठ्यक्रम स्वीकृत मिति :- २०८१/१२/१४

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तह-६, कम्प्युटर अधिकृत (प्राविधिक) पदको खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

प्रथम पत्र : Management, Banking, ADBL and Laws

Section (A) Management and Human Resource 30 Marks (3x10=30)

1. Management

1.1. Concept, Principles and Functions of Management
1.2. Difference between Management and Administration
1.3. Emerging Concepts and Issues of Management
1.4. Controlling, Coordination and Supervision
1.5. Managerial Quality and Skills
1.6. Different Levels of Management and Role of Manager
1.7. Leadership: Concept, Types, Qualities and Contemporary Issues
1.8. Knowledge Management, Time Management, Stress Management, Conflict Management
1.9. Reporting, Monitoring, Supervision and Inspection

2. Human Resource Management

2.1. Concept and Process of Human Resource Management
2.2. Mindsets, Attitude and Aptitude Management
2.3. Performance Appraisal, Recognition, Reward and Punishment System
2.4. Job satisfaction, Job Rotation and Transfer
2.5. Employee Motivation: Concept, Types, Theories, Tools and Techniques
2.6. Career Path and Succession Plan,
2.7. Training, Learning and Development, Capacity Building, Skill Enhancement
2.8. Recruitment, Socialization and Retirement
2.9. Contemporary Challenge, Issues and HR Practices
2.10. Human Resource Information System (HRIS)

3. Quality Management

3.1. Total Quality Management (TQM) Techniques
3.2. Quality Circle
3.3. Six Sigma
3.4. International Organization for Standardization (ISO)
3.5. Factors affecting Quality
3.6. Benchmarking and Quality Assurance Techniques

4. Strategic Management

4.1. Strategic Planning Framework
4.2. Environmental Scanning
4.3. Strategy Implementation
4.4. Strategy Evaluation
4.5. SWOT Analysis

5. Decision Making and Problem Solving

5.1. Decision Making: Concept, Types, Processes, Issues and Challenges
5.2. Emotional Intelligence and Decision Making
5.3. Quantitative Tools for Decision Making
5.4. Techniques for Stimulating Creativity
5.5. Intuition/Hunch Driven Decision vs. Data/Logic Driven Decision

कृषि विकास बैंक लि.

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Section (B) Banking 30 Marks (2x5+2x10=30)

1. Banking

1.1. History, Development and Present Scenario of Banking System in Nepal
1.2. Achievements, Issues and Opportunities of Banking Industry in Nepal
1.3. Types and Classification of Banks and Financial Institutions (BFIs)
1.4. Role and Functions of Central Bank and Commercial Banks
1.5. FinTech and Digital Banking: Types, Opportunities, Challenges and Risk
1.6. Financial Access, Digital/Financial Literacy and Financial Inclusion
1.7. Alternative Delivery Channel (ADCs) in Banking: Concept, Types and Issues
1.8. Shadow Banking and its Impact to Economy
1.9. Bank Marketing: Concept, Banking Products and Services, Target Customer Segments and Strategic Marketing Approaches
1.10. Banking Crimes, Fraud and Prevention

2. Modern Banking Services

2.1. Letter of Credit: Concept, Types, Process, Risk and Issues
2.2. Bank Guarantee: Concept, Types, Process, Risk and Issues
2.3. Treasury and Cash Management; Concept, instruments, associated risk and opportunities
2.4. Remittance: Concept and Economic Impact
2.5. e-Banking: Types and Importance
2.6. Any Branch Banking System (ABBS)
2.7. Mobile Banking, Internet Banking
2.8. Digital Wallet
2.9. Paperless Banking
2.10. ATM, Debit Card, Credit Card, Visa Card, Dolar Card, Prepaid Card
2.11. POS, QR based payment
2.12. C-ASBA, DEMAT
2.13. e-Commerce

Section (C) Agricultural Development Bank Ltd. (ADBL) 20 Marks (2x5+1x10=20)

1. Institutional framework and overview of Agriculture Development Bank Ltd. (ADBL)

1.1. Agricultural Development Bank Ltd.: Historical Development, Achievement, Vision, Mission, Objectives, Working Culture and Nature
1.2. ADBL: Strengths and Weaknesses, Opportunities, and Threats
1.3. Existing organizational structure of ADBL
1.4. Contribution, Role, Potentialities and Challenges of the ADBL in the Development of Nepal's Economic (Agriculture, Rural, and Banking) Sector
1.5. Current Status and progress of ADBL
1.6. Core Banking System (CBS)
1.7. ADBL Agriculture-lead Bank: Agricultural Financing, Scope, Issues, Challenges and Opportunities
1.8. Institutional linkage of ADBL (National and International)

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Section (D) Constitution and Laws 20 Marks (2x10=20)

1. Constitution and Laws

1.1. The Constitution of Nepal
1.2. Company Act, 2063
1.3. Bank and Financial Institutions Act, 2073
1.4. Nepal Rastra Bank Act, 2058
1.5. Banking Offence and Punishment Act, 2064
1.6. Asset (Money) Laundering Prevention Act, 2064 and Regulation 2073
1.7. The Act on Recovery of Debts of Banks and Financial Institutions, 2058 and Regulation 2059
1.8. Electronic Transactions Act, 2063
1.9. ADBL Employee Bylaws, 2062

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द्वितिय पत्र : Computer Systems, Software, DBMS & Networking

Section (A) Computer Systems, AI, Software & Design 50 Marks (2x5+4x10=50)

1. Computer Organization and Architecture

1.1. Basic computer Instruction (Memory reference, Resister reference)
1.2. The instruction set, the number of bits used to represent various data types, I/O mechanisms, memory addressing techniques
1.3. Structure and Function (Data processing, data storage, data movement, control)
1.4. Designing and performance (pipelining, onboard L1 & L2 cache, branch prediction,)
1.5. Computer components
1.6. RISC/CISC architecture
1.7. Parallel processing -SISD/MISD/SIMD/MIMD
1.8. Clusters: Configuration, benefits
1.9. Von Neumann/Harvard Architecture
1.10. Simplified Instructional Computer (SIC)
1.11. Input/ Output organization: I/O module function, I/O mapping

2. Design and Analysis of Algorithm

2.1. Properties of functions: Monotonicity, and basic properties of Boolean functions.
2.2. Clustering.
2.3. Minimum Spanning Tree.
2.4. Proximity of Distributions.
2.5. Streaming algorithms.

3. Artificial Intelligence

3.1. Agents in Artificial Intelligence
3.2. Difference between AI (Artificial Intelligence),BI (Business Intelligence) & Machine learning.
3.3. Search and optimization, Neural Networks, Languages, Probabilistic methods for uncertain reasoning

4. Digital Design:

4.1. Digital and Analog Systems
4.2. Number Systems
4.3. Logic Elements
4.4. Combinational Logic Circuits, Sequential Logic, Arithmetic Circuits, MSI Logic Circuits, Registers and Counters, IC logic families

5. Software Engineering Principles:

5.1. Software Architecture, Data Design, Software design: Design for reuse, design for change, design notations, design evaluation and validation, Software Architecture, Context diagram and DFD
5.2. Object Modeling: Object-Oriented Concept, Object Structure, Object Feature, Class and Object, Use Case Diagram, State Diagram, Event Flow Diagram, Software quality attributes, Software process model, Process iteration, Data and object models, Multiprocessor architecture
5.3. System design: Real-time operating systems, Monitoring and control systems, Planning verification and validation

5.4. System testing: Component testing, Test case design, Test automation, Software Risk, Risk identification, Software productivity
5.5. Quality management: quality assurance, Statistical software quality assurance, Software reliability, Capability Maturity Model Integration (CMMI)

Section (B) Information Security, DBMS & Networking 50 Marks (2x5+4x10=50)

1. Information security

1.1. Goals of Information Security
1.2. Challenges and Constraints, Cyber Threats: Cyber Warfare-Cyber Crime-Cyber Terrorism-Cyber Espionage
1.3. Cyber Security Vulnerabilities and Cyber Security Safeguards: vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak Authentication, Unprotected Broadband communications, Poor Cyber Security Awareness
1.4. Cyber Security Safeguards- Overview, Access control, Audit, Authentication, Biometrics, Cryptography, Deception, Denial of Service Filters, Ethical Hacking, Firewalls, Intrusion Detection Systems, Response, Scanning, Security policy, Threat Management
1.5. Securing Web Application, Services and Servers: Basic security for HTTP Applications and Services, Basic Security for SOAP Services, Identity Management and Web Services, Authorization Patterns

2. Database systems and Implementation

2.1. Concepts: Common Data types, concept of Tables, Fields, Records, Relationships and Indexing Data Abstraction and Data Independence, Schema and Instances, Concepts of DDL, DML and DCL
2.2. **Data Models:** Logical, Physical and Conceptual, E-R Model, Entities and Entities sets, Relationship and Relationship sets. Strong and Weak Entity Sets, Attributes and Keys, E-R Diagram
2.3. **Relational Languages:** SQL Queries and Sub-Queries, Set Operations, Relations (Joined, Derived), Queries under DDL and DML Commands
2.4. **Database Constraints and Normalization:** Assertions and Triggering, Functional Dependencies (Chase Algorithm), Multi-valued and Joined Dependencies, Different Normal Forms (1st, 2nd, 3rd, BCNF, DKNF)
2.5. **Query Processing and Optimization:** Creating, modifying and deleting Query/forms/reports
2.6. **Crash Recovery:** Failure Classification, Recovery and Atomicity, Log-based Recovery, Advanced Recovery Techniques
2.7. **Advanced database Concepts:** Concept of Object-Oriented and Distributed Database Model, Properties of Parallel and Distributed Databases, Concept of Data warehouse Database

3. Networking and Open Standards

3.1. **Computer Networking:** Network Protocols (TCP/IP and OSI), Evolution of Networking: ARPANET, WWW, Internet; Network Topologies
3.2. **Types of Networks:** PAN, LAN, WAN, MAN
3.3. **Wired Technologies:** Twisted pair cable, coaxial cable, optical fiber
3.4. **Wireless Technologies:** Bluetooth, infrared, radio link, microwave link, radio link and satellite link

3.5. **Network devices:** MODEM, Hub, switch, repeater, gateway – and their functions; Identifying computers and users over a network: Basic concept of domain name, MAC (Media Access Control) and IP Address, domain name resolution

4. Electronics Commerce

4.1. History of Electronic Commerce
4.2. Advantages and Disadvantage of E-commerce
4.3. Roadmap of e-commerce in Nepal
4.4. Managing the e-Enterprise, E-business Enterprise
4.5. Organization of Business in an e-Enterprise
4.6. E-business Models Based on the Relationship of Transaction Parties
4.7. e-commerce Sales Life Cycle (ESLC) Model
4.8. An Overview of Risks Associated with Internet Transactions, Internet Associated Risks, Intranet Associated Risks, risks associated with Business Transaction Data
4.9. Electronic Payment Systems, Electronic Cash, Smart Cards and Electronic Payment Systems, Credit Card Based Electronic Payment Systems, Risks and Electronic Payment Systems

5. Data Warehousing and Mining

5.1. OLTP Systems
5.2. Characteristics of Data Warehouse
5.3. Data Warehouse Types
5.4. Data Warehouse development Life Cycle
5.5. Kimball Lifecycle Diagram
5.6. Data warehouse architectures
5.7. E-R Modeling: Dimensional Modeling: Data Warehouse Schemas
5.8. Granularity, Star Schema Keys: Snowflake Schema: Fact Constellation Schema: Characteristics of OLAP
5.9. Process and advantageous of OLAP
5.10. Multidimensional Data: OLAP Architectures
5.11. MOLAP, ROLAP, HOLA: Hypercube & Multi cubes