साना किसान विकास लघुवित्त वित्तीय संस्था लि.

केन्द्रीय कार्यालय, काठमाडौँ, नेपाल

पद : बरिष्ठ सहायक, (सूचना प्रविधि) श्रेणी : सहायक प्रथम, तह : ५ को

खुल्ला प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

१. यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीक्षा लिइने छ :

चरण	परीक्षाको प्रकार	पत्र	विषय	पूर्णाङ्क	समय
पहिलो चरण	लिखित परीक्षा	प्रथम पत्र	आर्थिक, बैंकिङ्ग तथा कम्प्युटर सम्बन्धी आधारभूत ज्ञान	१००	३ घण्टा
		दोस्रो पत्र	सूचना प्रविधि	१००	३ घण्टा
दोस्रो चरण	अन्तरवार्ता			५०	
जम्मा				**२५०**	

२. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी वा नेपाली र अंग्रेजी दुबै हुन सक्नेछ ।

३. प्रथम चरण अन्तरगतका प्रथम र दोस्रो पत्रको लिखित परीक्षा छुट्टाछुट्टै सञ्चालन हुनेछ ।

४. प्रथम चरणबाट छनौट भएका उम्मेदवारहरूले मात्र दोस्रो चरणको परीक्षा (अन्तरवार्ता) मा भाग लिन पाउनेछन् ।

५. एउटै प्रश्नमा दुई वा दुई भन्दा बढी भाग वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू सोध्न सकिने छ ।

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

७. यो पाठ्यक्रम मिति २०७९/२/३१ देखि लागु हुनेछ । यस भन्दा अगाडि लागू भएको माथि उल्लिखित पद र समूहको पाठ्यक्रम खारेज गरिएको छ ।

प्रथम पत्र : आर्थिक, बैंकिङ्ग तथा कम्प्युटर सम्बन्धी आधारभूत ज्ञान

पूर्णाङ्क : १००   समय : ३ घण्टा   उतीर्णाङ्क : ४०

यो पत्रमा प्रत्येक एकाइबाट कम्तिमा एक प्रश्न गरी जम्मा १० प्रश्न सोधिनेछ । (१० x १० = १००)

एकाइ १. विश्व तथा नेपालको भूगोल, सामाजिक तथा आर्थिक अवस्था –
महादेश, महासागर, समय, दूरी, पर्वतश्रृंखला, मरुभूमि, भूकम्प, नदी, हिमनदी, ताल, हिमताल, जलवायु, मनसुन, आदि ।

- **नेपालको भूगोल तथा प्रशासनिक विभाजन**
  - धरातलीय स्वरुपको किसिम, विशेषताहरू ।
  - प्राकृतिक स्रोतहरू: किसिम, उपलब्धि र वर्तमान अवस्था ।
  - भौगोलिक विविधता र जनजीवन ।
  - नेपालमा पाईने हावापानीको किसिम र विशेषता ।
  - नेपालको शासकीय स्वरुप तथा प्रशासनिक विभाजन (संघीय, प्रदेश तथा स्थानीय तह) ।
- **नेपालको सामाजिक एवं सांस्कृतिक अवस्था**
  - प्रथा, परम्परा, मूल्य र मान्यता, धर्म, जातजाति, भाषाभाषी, संस्कृति, कला, साहित्य, संगीत, आदि ।
  - सांस्कृतिक सम्पदाको किसिम, विशेषता, महत्व ।
- **नेपालको आर्थिक अवस्था:** विकासका पूर्वाधारहरू (कृषि, उद्योग, व्यापार, पर्यटन, यातायात, संचार, शिक्षा, स्वास्थ्य, विद्युत, आदि) र विकास योजना ।

एकाइ २. अन्तर्राष्ट्रिय सम्बन्ध तथा संघ/संस्था तथा बैंकिङ्ग अवधारणा
  - नेपालका छिमेकी देशहरू, बेलायत, अमेरिका, जापान, आदिसँगको सम्बन्ध ।
  - संयुक्त राष्ट्रसंघ: अङ्ग, विशिष्टीकृत संस्था र गतिविधिहरू ।
  - क्षेत्रीय संगठन: सार्क, बिमस्टेक, आसियान, युरोपियन संघ ।

> ➢ साना किसान विकास कार्यक्रम ।
> ➢ बैंकिङ्ग अवधारणा, विकासक्रम, बैंकिङ्गका प्रकार तथा कार्यहरु, बैंकिङ्ग व्यवसायका आधुनिक सेवा, सुविधाहरु, केन्द्रिय बैंकको स्थापना, महत्व तथा काम, कर्तव्य र अधिकार, नेपालको आर्थिक विकासमा बैंकिङ्ग क्षेत्रको भुमिका, महत्व तथा वर्तमान अवस्था ।

एकाइ ३. नेपालको ग्रामीण विकास, गरिबी निवारण र लघुवित्त

> ➢ गरिबी निवारण सम्बन्धी कार्यक्रमहरु र तिनीहरुको उपलब्धी
> ➢ लघुवित्तको परिभाषा, सिद्धान्त तथा नेपालमा लघुवित्तको उत्पत्ति र विकास एवं उपलब्धी र चुनौतिहरु
> ➢ नेपालको लघुवित्त विकासमा सुचना प्रविधिको सम्भावना र चुनौति
> ➢ साना किसान विकास लघुवित्त वित्तीय संस्था तथा साभ्फेदार सहकारी संस्थाहरुमा सुचना प्रविधिको आवश्यकता, सम्भावना र चुनौति

एकाइ ४. सुचना प्रविधि सम्वन्धी सामान्य जानकारी तथा राष्ट्रिय र अन्र्तराष्ट्रिय महत्वका सुचना प्रविधिसंग सम्वन्धित नविनतम तथा मुख्य आविष्कारहरु तथा पुरस्कारहरु । Computer System (Input Device, Output Device), Operating System, Application Software, MS Office System, Internet, e-mail, Hardware, Networking, Database Management System, Related Threats, बैंकिङ्ग क्षेत्रमा Core Banking System (CBS) को आवश्यकता, महत्व, भूमिका, यसको कार्यान्वयन गर्दा ध्यान दिनुपर्ने विषय तथा सम्भावित जोखिमहरु ।

एकाइ ५. **Computer fundamentals and Operating system**
- Fundamentals of Computer and Information Technology
- Components and Architecture of Computers, Connecting the Components,
- Computer Hardware (I/O, Storage, CPU, Memory, Peripherals), Software (introduction and classifications)
- File and Disk Management
- Browser, E-mails, Internet, Intranet, Extranets
- Computer Viruses, Antivirus
- Definition of operating system, Developments in operating systems, The functions of Operating systems
- Basic components of the operating systems, Information storage and Management systems.
- Disk allocation and scheduling methods, Basic memory management strategies, Virtual memory management techniques, Process and features of the process management system.
- Features of process scheduling, Features of Inter process communication and deadlocks
- Concepts of parallel and distributed processing, Security threats to operating systems
- Overview of the MS-DOS operating system
- Introduction to windows family of products, Unix family of products, Linux family of products
- Windows architecture, Linux architecture
- Monitoring and Troubleshooting windows
- Users, Groups, and Permission Linux and windows

एकाइ ६. **IT in Nepal**
- History of IT in Nepal
- ICT Policy of Nepal, 2072B.S.
- Electronic Transaction Act and Regulation, 2063 B.S.
- Copyright Act, 2059 B.S.
- Uses of Computers and Software Development
- Nepali Unicode, Nepali Fonts
- Licensing Issues, Internet Governance and Digital Divide

1. Data Structure and Algorithms
- Fundamental of Data Structures. Abstract Data types.
- Lists, Linked Lists, Stacks.
- Queues, Priority Queue.
- Trees: Traversal. Implementations, Binary Trees, Binary Search Trees, Balanced Search Trees, AVI Trees.
- Indexing Methods, Hashing Trees, Suffix Trees
- Worst case and Expected time complexity
- Analysis of simple recursive and no recursive algorithms
- Searching, Merging, and Sorting
- Introductory Notions of algorithm design: Divide and conquer. Dynamic programming, Greedy Methods, Backtracking
- Graph Algorithms: Depth first search and Breadth first search. Shortest path problems. Minimum spanning trees. Directed Acyclic graphs.

2. System Analysis and Design
- Basic concepts of Systems Analysis and Design
- Defining the System, System Stakeholders (System Owner, System User, System Designers and System Builders and System Analysts), System Life Cycle
- System Investigation: Finding the Problem/Need Assessment, Feasibility Analysis (Technical Feasibility, Operational Feasibility, Economic Feasibility), Developing and Evaluating System Proposal
- System Analysis: Requirements Analysis, Fact Finding Techniques, System Requirement Specifications
- System Design: Modeling, Modeling Tools (E-R Diagram, DFD Diagram, Flow Charts)
- Entity Relationship Diagram: Notations, Entities: Strong entities, weak entities, Attributes: simple and composite, single valued and multiple valued, null and derive attribute
- Relationship sets: Degree of Relationship and Cardinality Relationship, Specialization, Generalization, Aggregation
- Data flow Diagrams: Introductions, Data flow diagram, symbol, files or data store, external entities, data flows
- Describing system by data flow diagram: context diagram, top level DFD, Expansion level DFD, Conversions of Data
- Modeling: Use case Diagram, State Diagram, Event flow Diagram
- System Implementation, System Maintenance and Support
- Documentation: Automatic and manual system

3. Databases Management System and Design
- Fundamental Concepts of Databases, Database Management Systems (DBMS) and Relational Database Management Systems (RDBMS)
- Three-Schema Architecture of Databases, Data Independence, Converting E-R diagrams to Relations
- Introduction to SQL, SQL Command Classifications (Query/SELECT Command, DDL, DML, DCL)
- Writing Basic SQL Statement

- Restricting & Sorting Data
- Single Row Functions
- Displaying Data From Multiple Tables (JOINS, Inner JOINS, Outer JOINS, Equip-JOINS, Non-equip JOINS)
- Aggregating Data Using Group Functions
- Sub-Queries
- Advanced Sub Queries
- Enhancements to the Group BY Clause
- DDL, DML, DCL commands
- Manipulating Data, Creating and Managing Tables
- Including Constraints
- Database design: Logical Design, Conceptual Design, Physical Design. Relational Algebra, Relational calculus
- Normalization: 1NF, 2NF, 3NF, BCNF, 4NF, 5NF, DKNF
- Architecture of DBMS: Client – Server, Open Architectures, Transaction Processing, Multi user and concurrency, and Backup and recovery database
- Basic concept of major RDBMS products: Oracle, Sybase, DB2, SQL Server and other Databases.

4. Programming Languages
- Overview of Programming Language: History, Programming Paradigms, The role of Language translates in the Programming Process.
- Fundamental Issues in Language Design
- Virtual Machines, Code Generation, Loop Optimization.
- Concept of Procedural Programming, Structural Programming, Object-Oriented Programming, concept of c programming, C++ programming
- Java programming for Declaration, Modularity and Storage Management software Development

5. Networking
- Network Definition, Network Models, Connectivity, Network Addressing
- Network connectivity: The data package, establishing a connection, Reliable delivery, Network connectivity, Noise control, Building codes, Connection Devices
- Advanced network theory: OSI Model, Ethernet, Network Resources, Token Ring, FDDI, Wireless Networking
- Common Network Protocols: Families of Protocols, NetBEUI, Bridge and Switches, The TCP/IP Protocol
- TCP/IP Services: Dynamic host configuration protocol, DNS Name Resolution, NetBIOS support, SNMP, TCP/IP utilities, FTP
- Network LAN infrastructure: LAN protocols on a network, IP routing, IP routing tables, Router discovery protocols, Data movement in a routed network, Virtual LANS (VLANS)
- Network WAN infrastructure: The WAN environment, WAN Transmission Technologies, WAN Connectivity devices, Voice over data services
- Remote Networking: Remote Networking, Remote access protocols, VPN Technologies
- Computer Security: Computer virus, Worm, Trojan Horse
- Network Security: Introduction, Virus Protection, Local Security, Network Access, Internet Security
- Disaster Recovery: The need for Disaster Recovery, Disaster Recovery Plan, Data Backup, Fault Tolerance
- Advanced Data Storage Techniques: Enterprise Data storage, clustering, Network attached storage, storage area networks

- Network Troubleshooting: Using systematic approach to troubleshooting
- Network Support Tools: Utilities, The Network Baseline
- Network Access Points (NAP), Common Network Component, Common Peripheral ports.

6. E-Commerce Technology, MIS and Web Engineering
- Introduction to E-Commerce
- Electronic Commerce Strategies
- Electronic Commerce Security Issues
- Success Models of E-Governance
- E-Business: b2b, b2c, b2e,e2c, g2g,g2c
- Principles of Electronic Payment, Strategies & Systems
- E-Marketing, Reverse Engineering
- E-Banking, EDI Methods, SWIFT
- Encryption and Decryption Methods, XML, Layout Managers, Event Model
- Information Systems, Client Server Computing
- Information Systems and Decision Making
- Database Design Issues, Data Mining, Data Warehousing
- Knowledge Management, The strategic use of Information Technology
- Work Process Redesign or Reengineering with Information Technology, Enterprise Resources Planning Systems, Information Systems Security, Information Privacy, and Global Information Technology Issues
- Software Supported Demonstrations including advanced Spreadsheet topics, Software Component Based Systems (CBSE)
- Multimedia
- Object Oriented Programming with COMS & DECOMS
- Group Decision Support Systems
- Basics of Website Design