

# नेपाल राष्ट्र बैंक

## केन्द्रीय कार्यालय

प्राविधिक सेवा, सूचना प्रविधि समुह तर्फको सहायक (सहायक द्वितीय) पदको लागि लिईने लिखित तथा प्रयोगात्मक परीक्षाको पाठ्यक्रम ।

### १. परीक्षा योजना

**प्रथम चरण:** लिखित परीक्षा

पूर्णाङ्क १००

समय ३ घण्टा

- (क) वस्तुगत ५० (यस अन्तर्गत ५० प्रश्न सोधिने छ, प्रत्येक प्रश्न १ अंकको हुनेछ )  
(ख) विषयगत ५० (यस अन्तर्गत १२ प्रश्न सोधिने छ, जस मध्ये कुनै दश प्रश्नको उत्तर दिनुपर्नेछ । प्रत्येक प्रश्न ५ अंकको हुनेछ ।

**द्वितीय चरण:** प्रयोगात्मक परीक्षा

पूर्णाङ्क १००

समय २ घण्टा

- (क) वस्तुगत ५० (यस अन्तर्गत २५ प्रश्न सोधिने छ, प्रत्येक प्रश्न २ अंकको हुनेछ ।  
(ख) प्रयोगात्मक ५० (यस अन्तर्गत २ वटा प्रयोगात्मक समस्या दिईनेछ जसमा सबै प्रयोगात्मक समस्याको समाधान गर्नु पर्नेछ )

**तेश्रो चरण:** अन्तर्वार्ता

पूर्णाङ्क ४०

प्रथम चरण र द्वितीय चरणको परीक्षामा उत्तीर्ण हुने उम्मेदवारहरूलाई मात्र अन्तर्वार्ता परीक्षामा समावेश गरिने छ ।

लिखित परीक्षाको पाठ्यक्रमको विस्तृत विवरण निम्नानुसार रहेको छ ।

#### 1. Basic Electronic

- Forward and reverse biasing of PN junction diode, Effects of Temperature and Junction Capacitance, LED, Zener diodes. Resistors.
- Transistors (nnp and pnp) - Types, Construction, Working principle as an amplifier and characteristics.
- Field Effect Transistor (JFET and MOSFETS) - Types, construction, working principles as an amplifier and characteristics.

#### 2. Computer Architecture

- Basic computer architecture, Registers, Memory Hierarchy, Cache Memory, External Memory, Memory Management, Direct & Indirect addressing
- Organization of hard disk, RAID, Interrupt, Auxiliary Memory, Virtual Memory-Address Space, Paging
- CPU Architecture, Parallel Processing, , CISC, RISC, Control Unit
- I/O Management, I/O Interface, I/O Requests Handling, I/O Devices

#### 3. Operating System

- Introduction to Operating System, Type of Operating System, Function of Operating System, Memory Management using Operating System, 32 bit and 64 bit Operating System
- Windows and Linux Features

#### 4. Computer Networks

- Introduction to computer network, Network architecture (LAN, MAN, WAN), Client server and peer-to-peer model, LAN architecture/standards (Token ring, Token bus).
- OSI Reference model, TCP/IP Reference model, Network Hardware and Software (NIC, Repeater, Hub, Bridge, Switch, Router, Gateway, DNS)
- Introduction to wireless LAN, Wi-Fi, TCP/IP, Subnet Mask and Subnetting, Classfull and Classless IP Addressing; Network Address Translation (NAT), Routing & Switching, Bluetooth
- Concepts on adding and removing devices in the network and domains. Sharing resources in the network.

#### 5. Network security

- Cryptography, Digital Signature, Firewalls, Virtual Private Network (VPN), Data Encryption Standard
6. Computer Repair and Maintenance
    - Concept of Hardware and Software, Power Supply, Motherboard and System Devices, BIOS, Storage Devices, Monitors (CRT, LCD, LED), Printers (Laser, Inkjet and Bubble jet), UPS
    - Installation of Operating Systems (Windows, Linux etc), Management of Hard Disk (Partition and Formatting, Shrinking), Installation of Device Drivers, Configuration, Installation of Application Programs and System Restore.
    - Antivirus Software Features, Virus Detection and Protection, Virus Scanning
    - Connecting Computers into Network: UTP cable Standards (Straight through and Cross-Cable), Optical Fiber, Co-axial Cable, Connecting through HUB, Switch or Direct connection, Assigning IP Addresses and Testing Networking.
    - Troubleshooting and Repairing Techniques: Remote Device Troubleshooting Techniques, Power Management and Protection of Devices, General Hardware/Software Failures, Performance Issues, Failure or Improper adjustment Issue.
    - Backup and Disaster Recovery: Finding Risk of Data Loss, Backup Methods, Backup Devices and Media, Backup Scheduling, Recovery of Data.
  7. Multimedia Technology
    - Sound / Audio System, Image and Graphics, Video and Animation, Data Compression, Teleconference, Data Synchronization
  8. Web Technology
    - HTML: Understanding Browsers, HTML Page Structure, Defining Web Layout, HTML Tags, Working with text/images/Tables/list/Links/ forms and its controls(Radio button, Check box, Text box, Drop-down list etc) , knowing get and post action, Use attribute Size/Max-length/Name attributes, Add/Submit/Reset Button;
    - Script: Introduction to various types of script, working with variables & functions, Working with alert, confirm and prompt, Understanding loop, arrays, Creating rollover image, Working with operators;
    - Style sheet : Introduction to Cascading Style Sheets, Types of Style Sheets (Inline, Internal and External), Class Selector, ID Selector Absolute Relative Positioning, Inline menu, CSS Layout Design, PSD to CSS Conversion
  9. Office Package
    - Word Processing : Introduction(Application/usage), Document activities, Paragraph manipulation, Document/Help Wizard, Text Creation and Manipulation, Paragraph and Tab Setting, Font manipulation, Text Alignment and formatting, Use of lists and Numbering, Header/ footer/page number, Table Manipulation, Print activities.
    - Spread Sheet : Introduction(Application/usage), Cell manipulation, Tables manipulation, Use of formulas, Spread sheets for Simple applications.
    - Presentations : Introduction(Application/usage), Making a presentation with various slides(Wizard/Manual) containing Text, bullets, images, animation elements, Slide Manipulation and Slide Show, Sorting and Printing of Slides and Handouts
  10. Database
    - Introduction (Application/Usage) of DBMS & RDBMS, ER concept, Basic SQL for manipulating database objects and information from database, Normalization, Backup and restore
  11. Prevailing ICT related act, rules and regulation .

लिखित परीक्षामा सफल हुने उम्मेदवारहरुको लागि लिईने प्रयोगात्मक परीक्षाको पाठ्यक्रम ।

(ख) प्रयोगात्मक परीक्षा

पूर्णाङ्क १०० समय २ घण्टा

(क) वस्तुगत ५०

(ख) प्रयोगात्मक ५०

प्रयोगात्मक परीक्षाको पाठ्यक्रमको विस्तृत विवरण निम्नानुसार रहेको छ ।

- Trouble shooting computers, printers, network, UPS and other devices.
- Installation of software.
- Performance tuning of the machine
- Problems related to website
- Problems related to Office package