Circular No.: NSDL/POLICY/2024/0132 September 18, 2024

Subject: Submission of Annual System Audit Report.

Attention of Participants is invited to Circular No. **NSDL/POLICY/2018/0069 dated December 6, 2018 in response to Circular No. SEBI/HO/MIRSD/CIR/PB/2018/147** dated **December 03, 2018,** on 'Cyber Security & Cyber Resilience framework for Stockbrokers / Depository Participants'.

As per paragraph 58 of the abovementioned SEBI circular, Participants were directed to audit their Systems on an annual basis by a CERT-IN empaneled auditor or an independent CISA/DISA/CISM qualified auditor to check compliance with the above areas and shall submit the report to depositories along with the comments of the Board / Partners / Proprietor of Participant within three months of the end of the financial year.

At present, Participants are required to submit a consolidated report to comply with the abovementioned circular. Pursuant to guidance received from SEBI, w.e.f. FY 2024-25, Participants shall **submit two separate reports**, i.e. one for System Audit and one for Cyber Security Audit.

All Participants are requested to take note of the periodicity and due date of submission as mentioned in the table given below. Moreover, for each non-compliance reported by the auditor, Participants are required to submit corrective Action Taken Report (ATR) as per below mentioned timelines:

Report	**Periodicity/ Frequency**	**Due date of submission**	**Action Taken Report (ATR) submission (if applicable)**
Annual System Audit Report	Annually	Within three months from the end of the financial year i.e. by 30th June.	Within three months from the due date of submission i.e. by 30th September.

Further, Participants are hereby requested to take note of the following:

- For each instance of non-compliance reported, auditors must assign a risk rating of 'High', 'Medium', or 'Low'. This is a mandatory requirement.
- Participants are advised to schedule the audit at such a time that the Cyber Security Audit report can be shared with the auditor conducting System Audit.

The steps for submitting System Audit report with NSDL will be shared via a separate circular.

Enclosure

Annexure A – Auditor selection norms.

Annexure B – Scope and Terms of Reference (TOR) for System Audit Report.

Participants are requested to take note of the above and ensure compliance with the updated requirements.

For any clarifications on the circular, kindly email at dpaudit@nsdl.com.

For and on behalf of

National Securities Depository Limited

AROCKIARAJ Date: 2024.09.18 07:45:05 +05'30'

Arockiaraj
Manager

FORTHCOMING COMPLIANCE			
Particulars	**Deadline**	**Manner of sending**	**Reference**
Investor Grievance Report (Monthly)	By 10th of the following month	Through e-PASS	Para 22 of 'Grievance Redressal' chapter and Para 28 of 'Internal Controls/Reporting to NSDL/SEBI' chapter of NSDL Master Circular for Participants
Networth Certificate and Audited Financial Statements (yearly)	October 31st	Through e-PASS	Para 20.7 of NSDL Master Circular for Participants on Internal Controls/Reporting to NSDL / SEBI chapter.

Annexure A

Auditor Selection Norms

1. The Auditor should have experience of IT audit/governance frameworks and processes conforming to industry leading practices like COBIT 5/ISO 27001.

2. The Auditor shall have a minimum of 3 years of experience in IT audit of securities market institutions e.g., Stock Exchanges, Clearing Corporations, Depositories, Trading Member, Depository Participants etc. The audit experience should cover all the major areas mentioned under Terms of Reference (ToR) of the system audit specified by SEBI / depositories.

3. The Auditor/Audit firm can perform a maximum of 3 successive audits of the Participant. However, such an auditor shall be eligible for re-appointment after a cooling-off period of one year and Auditor should not have been engaged over the last three years in any consulting engagement with any departments / units of the Participant.

4. Resources employed for the purpose of System Audit should possess at least one of the following certifications:

- CISA (Certified Information System Auditors) from ISACA.
- DISA (Post Qualification Certification in Information Systems Audit) from Institute of Chartered Accountants of India (ICAI).
- CISM (Certified Information Security Manager) from ISACA.
- CISSP (Certified Information Systems Security Professional) from International Information Systems Security Certification Consortium, commonly known as (ISC).

5. The Auditor, as being appointed by the Participant must not have any conflict of interest in conducting fair, objective, and independent audit. Further, the directors / partners of Audit firm shall not be related to any Directors/Promoters/Proprietor of the said Participants either directly or indirectly.

6. The Auditor shall not have any cases pending against its previous audited companies/firms, which fall under SEBI's jurisdiction, which point to its incompetence and/or unsuitability to perform the audit task.

7. The Participant and auditors are required to retain records of physical visits conducted during audits like name, qualification & date of visit/s of auditor, along with audit artifacts, proofs of concept (POCs), and evidence related to Terms of Reference (TOR) points for a minimum duration of three years.

Annexure B

Scope

The Scope of system audit of Participants should cover all the systems i.e. systems and applications provided by Depositories to Participants as well as Participants own system whether in house or off the shelf products etc.

Terms of Reference (TOR) for System Audit Report

System Audit TOR Clause	Checkpoints Description
1	**Software Change Management – The system auditor should check whether proper procedures have been followed and proper documentation has been maintained for the following:**
1 (a)	Processing / approval methodology of new feature request, change or patches
1(b)	Change Management process, related approvals, version control history, etc. **Change requests:** Whether the changes are tested in UAT environment before being approved for deployment into production. Whether the categorization of the change is done properly.
1 (c)	Fault reporting / tracking mechanism and process for resolution
1 (d)	Testing of new releases / patches / modified software / bug fixes
1 (e)	Testing of new releases / patches / modified software / bug fixes (Automation Level)
1 (f)	Does demonstratable segregation exist between Development / Test / Production environment. The System Auditor to check whether adequate mechanism exists to restore their systems to 'production state' at the end of testing session to ensure integrity.
1 (g)	New release in production – promotion, release note approvals
1 (h)	Production issues / disruptions reported during last year, reasons for such disruptions and corrective actions taken.
1 (i)	User awareness on software change management process.

System Audit TOR Clause	Checkpoints Description
1 (j)	**Change Management** To ensure system integrity and stability all changes to the installed system are planned, evaluated for risk, tested, approved, and documented. Has the organization implemented a change management process to avoid risk due to unplanned and unauthorised changes for all the information security assets (Hardware, software, network, application). Does the process at the minimum include the following: **Planned Changes** Are changes to the installed system made in a planned manner. a) Are they made by duly authorized personnel. b) Risk Evaluation Process c) Is the risk involved in the implementation of the changes duly factored in. **Change Approval** Is the implemented change duly approved and process documented. **Pre-implementation process** Is the change request process documented. **Change implementation process** Is the change implementation process supervised to ensure system integrity and continuity. **Post implementation process** Is user acceptance of the change documented. **Emergency Changes** In case of emergency changes, are the same duly authorized and the manner of change documented later.

System Audit TOR Clause	Checkpoints Description
	Are records of all change requests maintained. Are periodic reviews conducted for all the changes which were implemented.
1 (k)	**Patch Management** Does the organization have a documented process/procedure for timely deployment of patches for mitigating identified vulnerabilities. Whether version and patch management controls are in place. Does the organization periodically update all assets including Servers, OS, Database, Middleware, Network Devices, Firewalls, IDS /IPS, Desktops etc. with latest applicable versions and patches.
1 (l)	**SDLC - Application Development & Maintenance** In case of Depository Participant's self-developed system, SDLC documentation and procedures if the installed system is developed in-house.
1 (m)	**SDLC - Application Development & Maintenance** Does the organization have any in-house developed applications. If yes, then does the organization have a documented process/framework to include processes for incorporating, testing, and providing sign-off for information risk requirements at various stages of Software Development Life Cycle (SDLC). Does the SDLC framework incorporate standards, guidelines, and procedures for secure coding. Are roles and responsibilities clearly defined for various stakeholders in the SDLC framework. Are Application development, Testing (QA and UAT) and Production environments segregated.
1 (n)	Changes undertaken pursuant to a change to the depository applications / Depository Participant's systems.
2	**Password Security**
2 (a)	**Organization Access Policy** Whether the organization has a well-documented policy that provides for a password policy as well as access control policy for the depository applications / Depository Participant's systems.
2 (b)	**Authentication Capability** Whether the system authenticates user credentials by means of a password before

System Audit TOR Clause	Checkpoints Description
	allowing the user to login, and whether there is a system for authentication such as two-factor authentication.
2 (c)	**Password Best Practices** Whether there is a system provision for masking of password, system prompt to change default password on first login, disablement of user id on entering multiple wrong passwords (as defined in the password policy document), periodic password change mandate and appropriate prompt to user, strong parameters for password, deactivation of dormant user id, etc.
2 (d)	The password policy/standard should be documented. The installed systems password features should include: a) The installed system uses passwords for authentication. b) The system requests for identification and new password before login into the system. c) The password is masked at the time of entry. System authenticates user with a username and password as first level of security. System mandates changing of password when the user logs in for the first time. Automatic disablement of the user on entering erroneous password in excess of the number of attempts allowed as per the password policy/system feature. The system provides for automatic expiry of passwords at the end of a reasonable duration (maximum 90 Days) and re-initialisation of access on entering fresh passwords. Prior intimation is given to the user before such expiry. System controls to ensure that the password is alphanumeric (preferably with one special character), instead of just being alphabets or just numerical. System controls to ensure that the changed password cannot be the same as any of the passwords used previously as per the password policy/system feature. System controls to ensure that the login id of the user and password should not be the same. System controls to ensure that the password should be of minimum eight characters.

System Audit TOR Clause	Checkpoints Description
	User/Client is deactivated if the same is not used for a continuous period of 12 (Twelve) months from date of last use of the account. System allows user to change their passwords at their discretion and frequency.
3	**Session Management** **(Mobile Application / Client Server Application / Web Application)**
3 (a)	**Session Authentication** Whether the system has provision for Confidentiality, Integrity, and Availability (C,I,A) of the session and the data transmitted during the session by means of appropriate user and session authentication mechanisms like SSL etc.
3 (b)	**Session Security** Whether there is availability of an end-to-end encryption for all data exchanged between client and Depository Participant's systems or any other means of ensuring session security. Whether session login details are stored securely.
3 (c)	**Inactive Session** Whether the system allows for automatic session logout after a system defined period of inactivity.
3 (d)	**Log Management** Whether the system generates and maintain logs of number of users, activity logs, system logs, number of active clients.
3 (e)	Whether the installed system has provision for security, reliability and confidentiality of data through use of encryption technology, SSL or similar session confidentiality protection mechanisms: a) The system uses SSL/TLS or similar session confidentiality protection mechanisms b) The system uses a secure storage mechanism for storing of usernames and passwords c) The system adequately protects the confidentiality of the user's data

System Audit TOR Clause	Checkpoints Description
3 (f)	**Cryptographic Controls** Does the organization have a documented process/framework for implementing cryptographic controls in order to protect confidentiality and integrity of sensitive information during transmission and while at rest, using suitable encryption technology. Is the encryption methodology of information involved in business transactions based on Regulation/Law/Standards compliance requirements. Does the organization ensure session encryption for internet-based applications. Does the organization ensure that the data transferred through internet is protected with suitable encryption technologies. Are transactions on the website suitably encrypted.
3 (g)	**Cryptographic Controls** Is secret and confidential information sent through e-mails encrypted before sending. Is secret and confidential data in an encrypted format.
3 (h)	Does the organization deploy data loss prevention (DLP) solutions / processes.
4	**Database Security**
4 (a)	**Access** Whether the system allows database access only to authorized users / applications.
4 (b)	**Controls** Whether the database server is hosted on a secure platform, with username and password stored in an encrypted form using strong encryption algorithms.
4 (c)	Whether data at rest is encrypted
5	**Network Integrity**
5 (a)	**Seamless connectivity** Whether the Depository Participant has ensured that a backup network link is available in case of primary link failure with the Depository.
5 (b)	**Network Architecture** Whether the web server is separate from the Application and Database server.

System Audit TOR Clause	Checkpoints Description
5 (c)	**Firewall Configuration** Whether appropriate firewall is present between Depository Participant and various communication links to the Depository. Whether the default firewall configuration settings are changed and appropriately configured to ensure maximum security.
5 (d)	**Network Security** Are networks segmented into different zones as per security requirements. Are network segments and internet facing assets protected with Intrusion detection/prevention system (IDS/IPS) and/or Firewall to ensure security. Has the organization implemented appropriate monitoring tools to monitor network traffic both within and originating from the organization's network. Does the organization periodically conduct Network Architecture Security assessments in order to identify threats and vulnerabilities. Are the findings of such assessments tracked and closed. Are Internet facing servers placed in a DMZ and segregated from other zones by using a firewall. Is there segregation between application and database servers. Are specific port/service accesses granted on firewall by following a proper approval process. Are user and server zones segregated. Are the rules defined in the firewall adequate to prevent unauthorized access to depository applications and back office systems
6	**Access Controls**
6 (a)	**Access to server rooms** Whether adequate controls are in place for access to server rooms and proper audit trails are maintained for the same.

System Audit TOR Clause	Checkpoints Description
6 (b)	**Additional Access controls** Whether the system provides for any authentication/two factor authentication mechanism to access depository applications and back office systems. Whether additional password requirements are set for critical features of the system. Whether the access control is adequate.
6 (c)	**Access Control** Does the organization's documented policy and procedure include access control policy. Is access to the information assets based on the user's roles and responsibilities. Does the system have a password mechanism which restricts access to authenticated users. Does the system request for identification and new password before login into the system. Does the system have appropriate authority levels to ensure that the limits can be setup only by persons authorized by the risk / compliance manager. Does the organization ensure that access control between website hosting servers and internal networks is maintained. Are records of all accesses requested, approved, granted, terminated, and changed maintained. Are all accesses granted reviewed periodically. Does the organization ensure that default system credentials are disabled/locked. Are application development, testing (QA and UAT) and production environments segregated. Whether adequate controls have been implemented for admission of personnel into the server rooms / place where servers / hardware / systems are located and whether audit trails of all the entries/exits at the server room / location are maintained. Is access to the information assets based on the user's roles and responsibilities. Does the system have a password mechanism which restricts access to authenticated users.

System Audit TOR Clause	Checkpoints Description
6 (d)	**Extra Authentication Security** Whether the systems use additional authentication measures like smart cards, biometric authentication, or tokens etc.
6 (e)	**Physical & Environmental Security** Does the organization have a documented process/framework for Physical & Environmental security. Are adequate provisions made in respect of physical security of the hardware / systems at the hosting location and controls on admission of personnel into the location (audit trail of all entries-exits at location etc.). Are security perimeters defined based on the criticality of assets and operations. Are periodic reviews conducted for the accesses granted to defined perimeters. Are CCTV cameras deployed for monitoring activities in critical areas. Is the CCTV footage backed up and can it be made available in case the need arises. Are suitable controls deployed for combating fire in Data Center. Does the organization maintain physical access controls for Server Room/Network Room security w.r.t environmental controls, UPS and HVAC. Are records maintained for the access granted to defined perimeters. Are suitable controls deployed for combating fire in the data center.

System Audit TOR Clause	Checkpoints Description
6 (f)	**Privileged Identity Management** Does the organization have a documented process/procedure for defining, reviewing and assigning the administrative roles and privileges. Has the organization implemented controls/tools for Privilege Identity Management including at a minimum provisioning, maintenance, monitoring, auditing, and reporting all the activities performed by privileged users (System Admin, DBA etc.) accessing organization's IT systems. Are privileges granted to users based on appropriate approvals and in accordance with the user's role and responsibilities. Are all the activities of the privileged users logged. Are log reviews of privileged user logs of admin activity conducted periodically. Is Maker- Checker functionality implemented for all changes by admin. Are records of privileged user provisioning/deprovisioning reviewed.

System Audit TOR Clause	Checkpoints Description
6 (g)	**Closed User Group Endpoint Security** Does the Depository Participant have policies and procedures having coverage related to people, processes and technology. Does the Depository Participant have architecture that supports segregation with other businesses': Data and Processing facilities Development / Test / Production environment Corporate user and Production / server zones Application and Database servers Internet facing servers placed in a DMZ and segregated from other zones Ensure appropriately configured firewalls are used to ensure segregation wherever needed. Are technology related baseline controls established, exercised, and reviewed periodically. Are following systems and processes existing and exercised for Vulnerability Assessment and Penetration Testing: Configuration of technologies prior to go live Monitoring of perimeter / network security, infrastructure and applications for anomalies Alerts incidents and breaches Reporting of cyber-attacks, threats, cyber-incidents and breaches experienced and measures taken to mitigate vulnerabilities, threats and attacks including information on bugs / vulnerabilities, threats to be submitted to Depository and other regulatory agencies based on SEBI Circulars SEBI/HO/MIRSD/CIR/PB/2018/147 dated December 03, 2018; SEBI/HO/MIRSD/DOP/CIR/P/2019/109 dated October 15, 2019; SEBI/HO/MIRSD/TPD/P/CIR/2022/93 dated June 30, 2022 and subsequent amendments made thereto.
7	**Backup and Recovery**

System Audit TOR Clause	Checkpoints Description
7(a)	**Backup and Recovery Policy:** Whether the organization has a well-documented policy on periodic backup of data generated from the Depository Participant's operations.
7(b)	**Log generation and data consistency:** Whether backup logs are maintained, and backup data is tested for consistency.
7(c)	**System Redundancy:** Whether there are appropriate backups in case of failures of any critical system components.
7(d)	**Backup & Restoration:** Whether the installed systems backup capability is adequate for overcoming loss of data (in terms of C,I,A) Are backups of the following system generated files maintained. At the server/gateway level a) Database b) Audit Trails Reports At the user level a) Logs b) History c) Reports d) Audit Trails e) Alert logs Does the organization ensure that the audit trail data maintained is available for a minimum period of 5 years. Are backup procedures documented and backup logs maintained. Are the backup logs maintained and have the backups been verified and tested. Are the backup media stored safely in line with the risk involved. Are there any recovery procedures and have the same been tested.

System Audit TOR Clause	Checkpoints Description
	Are the backups restored and tested periodically to ensure adequacy of backup process and successful restoration.
7(e)	**Audit trail, Event logging and monitoring** Depository Participant should maintain logs of all depository operations related activity to facilitate audit trail. Whether system generates, captures, and maintains audit trail of all transactions for at least 3 years. Whether all events, changes in master, strategy parameters are logged and maintained for at least 3 years. Whether all logs generated are secured from unauthorized modifications.
7 (f)	How will the organization assure customers prompt access to their securities in the event the organization determines it is unable to continue its business in the primary location - Network / Communication Link Backup. Is the backup network link adequate in case of failure of the primary link to the Depository. Is the backup network link adequate in case of failure of the primary link connecting the users. Is there an alternate communications path between customers and the firm. Is there an alternate communications path between the firm and its employees. Is there an alternate communications path with critical business constituents, banks, and regulators. Whether detailed network diagram is prepared and available for verification. Is network and network diagram in line with each other. Does the organization have alternate means of communication including channel for communication for communicating with the clients in case of any disruption. Such communication should be completed within 30 minutes from the time of disruption.

System Audit TOR Clause	Checkpoints Description
7 (g)	How will the organization assure customers prompt access to their securities in the event the organization determines it is unable to continue its business in the primary location - System Failure Backup Are there suitable backups for failure of any of the critical system components like: a) Gateway / Database Server b) Router c) Network Switch **Infrastructure breakdown backup** Are there suitable arrangements made for the breakdown in any infrastructure components like: a) Power Supply b) Water c) Air Conditioning **Primary Site Unavailability** Have any provision for alternate physical location of employees been made in case of non-availability of the primary site **Disaster Recovery** Are there suitable provisions for books and records backup and recovery (hard copy and electronic). Have all mission-critical systems been identified and provision for backup for such systems been made.
8	**BCP/DR** **(Only applicable for Depository Participants having BCP / DR site)**
8 (a)	**BCP / DR Policy** Whether the Depository Participant has a well-documented BCP/ DR policy and plan. The system auditor should comment on the documented incident response procedures and observation on the DR drills conducted by the Depository Participant.

System Audit TOR Clause	Checkpoints Description
8 (b)	**Alternate channel of communication** Whether the Depository Participant has provided its clients with alternate means of communication including channel for communication in case of a disaster. Whether the alternate channel can authenticate the user after asking for additional details or OTP (One-Time-Password).
8 (c)	**High Availability** Whether BCP / DR systems and network connectivity provide high availability and have no single point of failure for any critical operations as identified by the BCP/DR policy.
8 (d)	**Connectivity with other FMIs** The system auditor should check whether there is an alternative medium to communicate with depositories and other FMIs.
8 (e)	**Business Continuity** Does the organization have a suitable documented Business Continuity or Disaster Recovery or Incident Response process commensurate with the organization size and risk profile to ensure a high degree of availability of the installed system Is there any documentation on Business Continuity / Disaster Recovery / Incident Response. If a BCP/DRP exists, has it been tested on regular basis. Are there any documented risk assessments. Does the installation have a Call List for emergencies maintained. Whether redundancy is built at all levels of infrastructure. Whether all critical systems / infrastructures are in HA mode.
8 (f)	**Security Incident & Event Management** Does the organization have a documented process/policy for Security Incident & Event Management. Does the organization have a documented process/procedure for identifying security related incidents by monitoring logs generated by various IT assets such as Operating Systems, Databases, Network Devices, etc. Are all events/incidents detected, classified, investigated, and resolved. Are periodic reports published for various identified security incidents.

System Audit TOR Clause	Checkpoints Description
	Does the organization ensure that the logging facilities and the log information are protected from tampering and unauthorized access.
8 (g)	**Security Incident & Event Management** Is there a dedicated Incident Response Team for managing risk and compliance activities.
8 (h)	**Business Continuity** Does the organization have a Disaster Recovery Site. Are there any documented risk assessments. Does the installation have a Call List for emergencies maintained. Does the organization have robust systems and technical infrastructure in place in order to provide essential facilities, perform systemically critical functions relating to securities market and provide seamless service to their clients.
8 (i)	The system auditor should comment on the documented incident response procedures which will cover the following: Identification of all critical operations of the Depository Participant including the process of informing clients in case of any disruptions. While putting in place the BCP/DRP, Depository Participants are advised to sufficiently review all potential risks along with its impact on the business. Declaration of incident as a “Disaster” viz. timelines etc. and restoration of operations from DR Site upon declaration of ‘Disaster’ Adequate resources (with appropriate training and experience) should be available at the DR Site to handle all operations during disasters. The declaration of disaster shall be reported in the preliminary report submitted to the Depository.
8(j)	Does the organization have distinct primary and disaster recovery sites (DRS) for technology infrastructure, workspace for people and operational processes. Does the organization have DRS set up sufficiently away (not less than 500 km), from Primary Data Centre (PDC) to ensure that both DRS and PDC are not affected by the same disasters. Has any provision for alternate physical location of employees been made in case of non-availability of the primary site as a part of Disaster Recovery process. Does the organization have suitable provisions for Books and records backup and

System Audit TOR Clause	Checkpoints Description
	recovery (hard copy and electronic). Have all mission-critical systems been identified and provision for backup for such systems been made.
9	**Segregation of Data and Processing facilities**
9 (a)	The system auditor should check and comment on the segregation of data and processing facilities at the Depository Participant in case the Depository Participant is also running other businesses.
10	**Back-office data**
10(a)	**Data consistency** The system auditor should verify whether aggregate back office data of the Depository Participant matches with the data submitted / available with the Depository through online data view / download provided by Depository to Depository Participant.
10(b)	**Trail Logs** The system auditor should specifically comment on the logs of back office data to ascertain whether editing or deletion of records have been properly documented and recorded and does not result in any irregularities.
11	**User Management**
11(a)	**User Management Policy** The system auditor should check whether the Depository Participant has a well-documented policy that provides for user management and that the user management policy explicitly defines user, database, and application access matrix.
11(b)	**Access to Authorized users** The system auditor should check whether the system allows access only to the authorized users of the depository systems. Whether there is a proper documentation of the authorized users in the form of user application approval, copies of user qualification and other necessary documents.
11(c)	**User Creation / Deletion** The system auditor should check whether new user ids were created / deleted as per user management policy and whether the user ids are unique in nature.

System Audit TOR Clause	Checkpoints Description
11(d)	**User Disablement** The system auditor should check whether non-complaint users are disabled, and appropriate logs (such as event log of the user) are maintained.
11(e)	**User Management system** User Deletion: Users Ids are deleted as per the user management policy Reissue of User Ids: User Ids are reissued as per the user management policy. Locked User Accounts: Users whose accounts are locked are unlocked only after documented unlocking requests are made
12	**IT Infrastructure Management (including use of various Cloud computing models such as Infrastructure as a service (IaaS), Platform as a service (PaaS), Software as a service (SaaS), Network as a service (NaaS))**
12(a)	**IT Governance and Policy** The system auditor should verify whether the relevant IT Infrastructure-related policies and standards exist and are regularly reviewed and updated. Compliance with these policies is periodically assessed.
12(b)	**IT Infrastructure Planning** The system auditor should verify whether the plans/policy for the appropriate management and replacement of aging IT infrastructure components have been documented, approved, and implemented. The activities, schedules and resources needed to achieve objectives related to IT infrastructure have been integrated into business plans and budgets.
12(c)	**IT Infrastructure Availability (SLA Parameters)** The system auditor should verify whether the Depository Participant has a process in place to define its required availability of the IT infrastructure, and its tolerance to outages. In cases where there is huge reliance on vendors for the provision of IT services to the Depository Participant, the system auditor should also verify that the Mean Time To Recovery (MTTR) mentioned in the Service Level Agreement (SLA) by the service provider satisfies the requirements of the Depository Participant

System Audit TOR Clause	Checkpoints Description
12(d)	**IT Performance Monitoring (SLA Monitoring)** The system auditor should verify that the results of SLA performance monitoring are documented and are reported to the management of the Depository Participant.
12(e)	**Infrastructure High Availability** Does the organization have a documented process for identifying single point of failure. Does the organization have a documented process for failover. Does the organization ensure that various components pertaining to networks, servers, storage have sufficient redundancy. Does the organization conduct periodic redundancy/contingency testing.
12(f)	To ensure information security for the organization in general and the installed system in particular, policy and procedures must be established, implemented, and maintained. Does the organization's documented policy and procedures include the following policies and if so, whether they have been implemented by the organization: Information Security Policy Password Policy User Management and Access Control Policy Network Security Policy Application Software Policy Change Management Policy Backup Policy BCP Management Policy Audit Trail Policy Capacity Management Plan Does the organization follow any other policy or procedures or documented practices that are relevant.

System Audit TOR Clause	Checkpoints Description
12(g)	**Are documented practices available for various system processes** Day Begins Day Ends **Other system processes** a) Audit Trails b) Access Logs c) Transaction Logs d) Backup Logs e) Alert Logs f) Activity Logs g) Retention Period h) Data Maintenance
12(h)	**In case of failure, is there an escalation procedure implemented.** Day Begins Day Ends Other system processes **Details of the various response procedures including for:** a) Access Control failure b) Day Begin failure c) Day End failure d) Other system Processes failure
12(i)	**Vulnerability Assessment, Penetration Testing & Application Security Assessments:** Are periodic vulnerability assessments for all the critical assets including Servers, OS, Database, Middleware, Network Devices, Firewalls, IDS /IPS etc. conducted.

System Audit TOR Clause	Checkpoints Description
12(j)	**Standards & Guidelines** Does the organization maintain standards and guidelines for information security related controls, applicable to various IT functions such as System Administration, Database Administration, Network, Application, and Middleware etc. Does the organization maintain Hardening Standards pertaining to all the technologies deployed within the organization related to Applications, OS, Hardware, Software, Middleware, Database, Network Devices and Desktops. Does the organization have a process for deploying OS, Hardware, Software, Middleware, Database, Network Devices and Desktops after ensuring that they are free from vulnerabilities. Are the defined standards, guidelines updated and reviewed periodically.
12(k)	**Information Security Policy & Procedure** Does the organization's documented policy and procedures include the information security policy and if so, are they compliant with legal and regulatory requirements. Is the defined policy and procedure reviewed on a periodic basis.
12(l)	**Information Security Policy & Procedure** Are any other standards/guidelines like ISO 27001 etc. being followed. Does the organization have an Information Security forum to provide overall direction to information security initiatives based on business objectives.
12(m)	**Information Classification & Protection** Has the organization defined systematic and documented framework for Information classification & protection. Are the information items classified and protected in accordance with business criticality and sensitivity in terms of Confidentiality, Integrity & Availability. Does the organization conduct periodic information classification process audits. Has the organization deployed suitable controls to prevent leakage of sensitive information.
12(n)	**Vulnerability Assessment, Penetration Testing & Application Security Assessments** Does the organization maintain an annual VAPT and Application Security assessment activity calendar. Is periodic router ACL review conducted as a part of vulnerability assessment.

System Audit TOR Clause	Checkpoints Description
12(o)	Does the organization have hybrid data security tools that focus on operating in a shared responsibility model for cloud-based environments.
12(p)	**CSP service Controls** Does the organization check public accessibility of all Cloud instances in use. Does the organization make sure that no server/bucket is inadvertently leaking data due to inappropriate configurations.
12(q)	Does the organization ensure proper security of Cloud access tokens. Does the organization ensure that the tokens are not exposed publicly in website source code, any configuration files etc.
12(r)	Does the organization implement appropriate security measures for production, testing, staging, and backup environments hosted on cloud. Does the organization ensure that production environment is kept properly segregated from these environments. Does the organization disable/remove older or testing environments if their usage is no longer required.
12(s)	The Apache Software Foundation released an emergency patch as part of the 2.15.0 release of Log4j that fixes the Remote Code Execution (RCE) vulnerability. Does the Organization's Application administrators and developers verify the use of Log4j package in their environment and upgrade to version 2.15.0.
13	**Software Testing Procedures - The system auditor should check whether the depository participants has complied with the guidelines and instructions of SEBI / Depository with regard to testing of software and new patches, including the following:**
13 (a)	**Test Procedure Review** The system auditor should review and evaluate the procedures for system and software/program testing. The system auditor should also review the adequacy of tests.
13 (b)	**Documentation** The system auditor should verify whether the documentation related to testing procedures, test data, and resulting output were adequate and follow the organizations standards.

System Audit TOR Clause	Checkpoints Description
13 (c)	**Test Cases** The system auditor should review the internal test cases and comment upon the adequacy of the same.
14	**Additional Points**
14 (a)	**Antivirus Management** Does the organization have a documented process/procedure for Antivirus Management. Are all information assets protected with antivirus software and the latest antivirus signature updates. Does the organization periodically perform scans for virus/malicious code on computing resources, email, internet, and other traffic at the network gateway/entry points in the IT Infrastructure. Does the organization have a documented process/procedure for tracking, reporting, and responding to virus related incidents.
14 (b)	**Antivirus** Is a malicious code protection system implemented. If yes, then Are the definition files up to date. Any instances of infection. Last date of virus checks of entire system
14 (c)	The installed system provides a system based event logging and system monitoring facility which monitors and logs all activities / events arising from actions taken on the gateway / database server, authorized user terminal and transactions processed for clients or otherwise and the same is not susceptible to manipulation. The installed systems has a provision for On-line surveillance and risk management as per the SEBI guidelines and includes - Number of users logged in / hooked on to the network including privileges of each user. The installed systems has a provision for off line monitoring and risk management and includes reports / logs on: a) Number of authorized users b) Activity logs

System Audit TOR Clause	Checkpoints Description
	c) Systems logs d) Number of active clients
14 (d)	**Insurance** The insurance policy of the Depository Participant covers the additional risk of usage of system and probable losses in case of software malfunction
14 (e)	**Firewall** Whether suitable firewalls are implemented. Are the rules defined in the firewall adequate to prevent unauthorized access to depository systems.
14 (f)	**Compliance** Does the organization have a documented process/policy implemented to ensure compliance with legal, statutory, regulatory, and contractual obligations and avoid compliance breaches. Does the organization ensure compliance to the following. · IT Act 2000 · SEBI Requirements Does the organization maintain an integrated compliance checklist. Are these defined checklists periodically updated and reviewed to incorporate changes in rules, regulations, or compliance requirements. Are the servers of depository applications and back office located in India.
14(g)	**DOS** Has the organization implemented strong monitoring, logging, detection, and analysis capability to detect and mitigate DOS/DDOS attacks. Does the organization have a documented process/procedure/policy defining roles and responsibilities and plan of action in order to deal with DOS/DDOS attacks proactively and post the incident.
14(h)	**DOS** Does the organization periodically conduct mock DOS scenarios to have insight into the preparedness in tackling with DOS/DDOS attacks.

System Audit TOR Clause	Checkpoints Description
14(i)	**Third Party Information Security Management** Does the organization have a documented process/framework for Third Party Vendor Management including at a minimum, process and procedure for on-boarding/off-boarding of vendors, checklist for prescribing and assessing compliance, assessment and audit for both onsite & offsite vendors. Does the organization conducts periodic information security compliance audits/reviews for both onsite and offsite vendors. Are risks associated with employing third party vendors addressed and mitigated. Is the defined process/framework periodically reviewed.
14 (j)	**Capacity Management** Does the organization have documented processes/procedures for capacity management for all the IT assets.
14(k)	**Independent Audits** Are periodic independent audits conducted by Third Party / Internal Auditors. Are the audit findings tracked to closure.
14(l)	**Human Resources Security, Acceptable Usage & Awareness Trainings** Are periodic surprise audits and social engineering attacks conducted to assess security awareness of employees and vendors. Has the organization implemented policy/procedure defining appropriate use of information assets provided to employees and vendors in order to protect these assets from inappropriate use. Are these policies/procedures periodically reviewed and updated. Does the organization perform background checks for employees (permanent, temporary) before employment. Does the organization conduct Information Security Awareness Program through trainings and quiz for employees and vendors.
15	**AI-ML**
15 (a)	Are adequate safeguards in place to prevent abnormal behaviour of the AI or ML application / system.

System Audit TOR Clause	Checkpoints Description
15 (b)	Has the Depository Participant reported details of applications or systems using AI/ML to Depository on an annual basis in accordance with SEBI circular SEBI/HO/MIRSD/DOS2/CIR/P/2019/10 dated January 04, 2019 and subsequent amendments made thereto along with the circulars/communiques issued by the Depository.
15 (c)	Whether AI / ML systems comply for all the points in this checklist. In case of any observation, please report.
16	**Asset Management**
16 (a)	Does the organization have a documented process/framework for managing all the hardware & software assets. Does the organization maintain a centralized asset repository. Are periodic reconciliation audits conducted for all the hardware and software assets to confirm compliance to licensing requirements and asset inventory.
17	**Remote Access Controls**
17(a)	Does the organization have proper remote access policy framework incorporating the specific requirements of accessing the enterprise resources which are securely located in the data center from home, using internet connection.
17(b)	**For implementation of the concept of trusted machine as end users:** Does the organization categorize the machines as official desktops / laptops and accordingly the same are configured to ensure implementation of solution stack considering the requirements of authorized access.
17(c)	Do the organizations' official devices have appropriate security measures to ensure that the configuration is not tampered with. Does the organization ensure that internet connectivity provided on all officials devices are not getting used for any purpose other than the use of remote access to data center resources.
17(d)	Does the organization ensure that if personal devices (BYOD – Bring Your Own Device) are allowed for general functions, then appropriate guidelines are issued to indicate positive and negative list of applications that are permitted on such devices. Further, these devices are subject to periodic audit.

System Audit TOR Clause	Checkpoints Description
17 (e)	Does the organization implement various measures such as Multi-Factor Authentication (MFA) for verification of user access to ensure better data confidentiality and accessibility. Whether Virtual Private Network (VPN) remote access through MFA is also implemented.
17 (f)	Does the organization ensure that only trusted machines are permitted to access the data center resources. Does the organization's Virtual Private Network (VPN) remote login is device specific through the binding of the Media Access Control (MAC) address of the device with the IP address to implement appropriate security control measures.
17 (g)	Does the organization have appropriate risk mitigation mechanisms whenever remote access of data center resources is permitted for service providers.
17(h)	For on-site monitoring of the Depository Participant, Does the organization implement adequate safeguard mechanisms such as cameras, security guards, nearby co- workers to reinforce technological activities.
17(i)	Does the organizations backup, restore and archival functions work seamlessly, particularly if the users have remote access to internal systems.
17 (j)	Does the organization apply only necessary and applicable patches to the existing hardware and software.
17(k)	Does the organization analyse generated alerts and alarms and take appropriate decisions to address the security concerns. Are the organizations security controls for the remote access requirements integrated with the SOC Engine and part of the overall monitoring of the security posture.
17 (l)	Has the organization updated the incident response plan in view of the current pandemic. Does the plan cover following. 1. Increase awareness of information technology support mechanisms for employees who work remotely. 2. Implement cyber security advisories received from SEBI, Depository, CERT-IN and NCIIPC on a regular basis.

System Audit TOR Clause	Checkpoints Description
	3. Further, all the guidelines developed and implemented during pandemic situation shall become SOPs post Covid-19 situation for future preparedness. 4. Disable use of Macros in Microsoft Office
18	**SEBI and Depository Compliances**
18 (a)	Auditor to list all applicable circulars, notices, guidelines, and advisories published by SEBI and Depository and ensure Depository Participant's: a. Adherence to all such circulars, notices, guidelines, and advisories published. b. Reporting adherences based on prescribed periodicity in point (a) above. c. Compliance with the SEBI circular SEBI/HO/ITD/ITD_VAPT/P/CIR/2023/032 dated February 22, 2023 regarding Cybersecurity best practices
19	**ISO Certifications**
19 (a)	Whether the Depository Participants has obtained the required ISO certifications
20	**Concentration Risk on Outsourced Agencies:**
20 (a)	Whether the Depository Participant has taken into account concentration risk (Single third-party vendors are providing services to multiple Depository Participants) while outsourcing multiple critical services to the same vendor.
21	**Phishing & Malware Protection for Depository applications/ Participant systems**
21 (a)	Has the organization implemented controls/ mechanisms to identify and respond to phishing attempts on their critical websites. Are the organization's websites monitored for Phishing & Malware attacks. Does the organization have a process for tracking down phishing sites.
22	**Information Risk Management**

System Audit TOR Clause	Checkpoints Description
22 (a)	Has the organization implemented a comprehensive risk assessment, governance, and management framework. Has the organization developed detailed risk management program that incorporates standards, guidelines, templates, processes, risk catalogues, checklist, measurement metrics and calendar to support and evidence risk management activities. If yes, is the risk management program calendar reviewed periodically. Are the risk identification and assessment processes repeated periodically to review existing risks and identify new risks. Are risks reported to the Senior Management through reports and dashboards on a periodic basis. Are evidences available to demonstrate risk decisions such as Risk Mitigation, Risk Acceptance, Risk Transfer, Risk Avoidance by Senior Management. Is there a dedicated Risk Management Team for managing Risk and Compliance activities Is the Risk Management Framework automated. Are SLAs defined for all risk management activities. Has the organization defined procedure/process for Risk Acceptance. Are reports and real time dashboards published in order to report/track risks
22 (b)	Has the organization deployed alert mechanism for detecting malfunctioning of device, software, and backup system