

CBSE/ACADEMIC/JS(SS)/2023/

6th April 2023 Circular No. Acad-45/2023

All the Heads of Schools affiliated to CBSE

Subject: Assessment and Evaluation Practices of the Board for the Session 2023-24

The National Education Policy, 2020 has affirmed the need to move from rote learning to learning more focused on developing the creative and critical thinking capacities of students to meet the challenges of the 21st century proactively. Accordingly, the Board has taken multiple steps towards implementation of Competency Focused Education in schools, ranging from aligning assessment to competencies, development of exemplar resources for teachers and students as well as continuous capacity building of teachers etc.

The Board has released guidelines vide Circular No. Acad- 05/2019 dated 18.01.2019; Circular No. Acad-11/2019 dated 06.03.2019; Circular No. Acad-18/2020 dated 16.03.2020; and Circular No.Acad-57/2022 dated 20.05.2022 to progressively align assessment to the vision of the NEP by including more *competency-based questions* in the Class X and XII Board examinations.

In continuation to these circulars, the Board is initiating further corresponding changes in the Examination and Assessment practices for the academic session 2023-24 to align assessment to Competency Focused Education. Therefore, in the forthcoming session a greater number of Competency Based Questions or questions that assess application of concepts in real-life situations will be part of the question paper.



केन्द्रीय माध्यमिक शिक्षा बोर्ड

(शिक्षा मंत्रालय. भारत सरकार के अधीन एक स्वायत संगठन)

CENTRAL BOARD OF SECONDARY EDUCATION

(An Autonomous Organisation Under the Ministry of Education, Govt. of India)

The changes for classes IX-XII (2023-24) year-end Board Examinations are as under:

	(Classes IX-X)							
Particulars	Academic Session 2022-23	Academic Session 2023-24						
Composition of question paper year-end examination/ Board Examination (Theory)	 Competency Based Questions are 40% in the form of Multiple-Choice Questions, Case Based Questions, Source Based Integrated Questions or any other type. Objective Questions are 20% Remaining 40% Questions are Short Answer/ Long Answer Questions 	 Competency Focused Questions in the form of MCQs/Case Based Questions, Source-based Integrated Questions or any other type = 50% Select response type questions(MCQ) = 20% Constructed response questions (Short Answer/Long Answer type Questions, as per existing pattern) = 30% 						

	(Classes XI-XII)							
Particulars	Academic Session 2022-23	Academic Session 2023-24						
Composition of question paperyear-end examination/ Board Examination (Theory)	 Competency Based Questions are 30% in the form of Multiple-Choice Questions, Case Based Questions, Source Based Integrated Questions or any other type. 	 Competency Focused Questions in the form of MCQs/Case Based Questions, Source-based Integrated Questions or any other type = 40% Select response type questions(MCQ) = 20% 						
	 Objective Question are 20% Remaining 50% Questions are Short Answer/Long Answer Questions 	 Constructed response questions (Short Answer Questions/Long Answer type Questions, as per existing pattern) = 40% 						

Curriculum document released by the Board for the Academic Session 2023-24 and the Sample Question Papers may also be referred to for details of the QP design of individual subjects. Learning frameworks for various subjects for classes IX-XII are now available at the <u>https://cbseacademic.nic.in</u> for reference.

(Dr. Joseph Emmanuel)

Director (Academics)

पदोत्सव

'शिक्षा सदन', 17 राऊज़ एवेन्यू, इंस्टीट्शनल एरिया, नई दिल्ली –110002 'Shiksha Sadan', 17, Rouse Avenue, Institutional Area, New Delhi – 110002



Copy to the respective Heads of Directorates, Organizations and Institutions as indicated below with a request to disseminate the information to all the schools under their jurisdiction:

- 1. The Commissioner, Kendriya Vidyalaya Sangathan, 18 Institutional Area, Shaheed JeetSingh Marg,New Delhi-16
- 2. The Commissioner, Navodaya Vidyalaya Samiti, B-15, Sector-62, Institutional Area, Noida-201309
- 3. The Secretary, Eklavya Model Residential Schools (EMRS), Ministry of Tribal Affairs, Governmentof India.
- 4. The Secretary, Sainik Schools Society, Room No. 101, D-1 Wing, Sena Bhawan, NewDelhi-110001.
- 5. The Chairman, Odisha Adarsha Vidyalaya Sangathan, N-1/9, Near DoordarshanKendra, PO SainikSchool Nayapalli, Bhubaneswar, Odhisha-751005.
- 6. The Director of Education, Directorate of Education, Govt. of NCT of Delhi, OldSecretariat, Delhi-110 054
- 7. The Director of Public Instructions (Schools), Union Territory Secretariat, Sector 9, Chandigarh-160017
- 8. The Director of Education, Govt. of Sikkim, Gangtok, Sikkim –737101
- 9. The Director of School Education, Govt. of Arunachal Pradesh, Itanagar –791 111
- 10. The Director of Education, Govt. of A&N Islands, Port Blair 744101
- 11. The Director of Education, S.I.E., CBSE Cell, VIP Road, Junglee Ghat, P.O. 744103,A&N Island
- 12. The Director, Central Tibetan School Administration, ESSESS Plaza, CommunityCentre, Sector 3, Rohini, Delhi
- 13. The Additional Director General of Army Education, A –Wing, Sena Bhawan, DHQ, PO,New Delhi- 110001
- 14. The Secretary AWES, Integrated Headquarters of MoD (Army), FDRC Building No. 202, Shankar Vihar (Near APS), Delhi Cantt-110010
- 15. The Director of School Education, Ladakh, Room No. 101, 102 Ground Floor, Council Secretariat, Kurbathang, Kargil-Ladakh
- 16. The Director of School Education, Ladakh, Room No. 101, 102 Ground Floor, Council Secretariat, Kurbathang, Kargil-Ladakh 16. The Director of School Education, Andhra Pradesh, 3rd Floor, B block, Anjaneya Towers, VTPS Rd, Bhimaraju Gutta, Ibrahimpatnam, Andhra Pradesh PIN : 521456
- 17. All Regional Directors/Regional Officers of CBSE with the request to send this circularto all the Heads of the affiliated schools of the Board in their respective regions
- 18. All Joint Secretary/ Deputy Secretary/ Assistant Secretary/SPS / Analyst, CBSE
- 19. All Head(s)/ In-Charge(s), Centre of Excellence, CBSE
- 20. In charge IT Unit with the request to put this Circular on the CBSE Academic Website
- 21. In-Charge, Library
- 22. The Director (Media & Public Relations), CBSE
- 23. DS to Chairperson, CBSE
- 24. SPS to Secretary, CBSE
- 25. SPS to Director (Academics), CBSE
- 26. SPS to Director (Information Technology), CBSE
- 27. SPS to Controller of Examinations, CBSE
- 28. SPS to Director (Skill Education), CBSE
- 29. SPS to Director (Professional Examinations), CBSE
- 30. SPS to Director (Training), CBSE
- 31. SPS to Director (CTET), CBSE
- 32. SPS to Director (EDUSAT), CBSE
- 33. Record File

Director (Academics)



'Shiksha Sadan', 17, Rouse Avenue, Institutional Area, New Delhi – 110002 U

'शिक्षा सदन' ,17 राऊज़ एवेन्यू ,इंस्टीटूशनल एरिया, नई दिल्ली –110002

SAFAL Registration 2024-25: FAQs

1. When will SAFAL 2024-25 registration start?

Schools can register for SAFAL from **31.01.2024 to 20.02.2024**

2. What is the Hardware & Software requirement for the schools?

Hardware & So	ftware Regu	irements:
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	School Server*	Client Machine**	
OS	 Windows 10 or above (Licensed version) with, Automatic updates disabled[#] System date and time in sync with Indian Standard Time (IST) 	Windows (Licensed version) with automatic updates disabled OR Ubuntu or any Linux desktop distribution Note: • Disable OS automatic updates" • System date and time in sync with Indian Standard Time (IST)	
Web Browser	Latest Google Chrome or Mozilla Firefox with JavaScript and Cookies enabled	Latest Google Chrome or Mozilla Firefox with JavaScript and Cookies enabled	
Hard Disk	SATA HDD of 7200 rpm or above having at least 50 GB free space		
RAM	16 GB or more	4 GB	
Processor	 Intel Xeon D/E/W series with at least 4 CPU cores or more OR Intel Core i7 with at least 4 CPU cores or more Note: 4 CPU Cores = 8 vCPU Threads 		

Software Requirements if Linux Operating System is used by school:						
School Server Client Machines						
Ubuntu Server 22.04 or latest LTS Version OR RHEL 8 or latest stable version	Ubuntu Desktop 22.04 or latest LTS version					
 Note: To avoid any disruptions during the SAFAL Automatic updates on both the School Serv Set system date and time to Indian Standar 	er and Client Machines.					

Please refer to the Annexure 2 of the Circular for registration for SAFAL 2024-25 at <u>https://cbseacademic.nic.in/web_material/Circulars/2024/12_Circular_2024.pdf</u>

3. What are the steps to be followed by the schools for registration?

Please refer to the User Manual given in the Annexure 3 of the circular for SAFAL 2024-25 Registration at

https://cbseacademic.nic.in/web_material/Circulars/2024/12_Circular_2024.pdf

4. Can a school login from multiple devices in the SAFAL Registration Portal?

No, the school can only log in from one system/device at a time. Multiple logins are not allowed. Multiple logins from the same system but different browsers are also not allowed.

5. SAFAL 2024-25 is available for which classes?

SAFAL 2024-25 is available for classes 5 and 8 of all schools affiliated to CBSE.

6. The details of the student is to be entered in the portal for the current academic year (2023-24) or next academic year (2024-25)?

Schools have to register the students of classes 5 and 8 of the current academic year i.e. 2023-24 and these registered students will take part in SAFAL as per schedule given in the circular. The details filled during registration can be edited before the final SAFAL assessment in July 2024. The notification for this shall be issued in due course of time.

7. What information/ details do I need to have at hand for SAFAL registration?

You will be required to submit the following information for SAFAL registration:

• For login, the school's *Affiliation number* will be the username and the *LOC/OASIS password* will be the password for SAFAL Registration.

Other details

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- School information like Region, State, Principal details, Nodal officer details etc.
- Details of Students in present class 5, 8 (all sections)
- Details of teachers teaching EVS/Science, Mathematics, Language English /Hindi subjects in classes 5 and 8
- Teacher codes of the above teachers (To be taken from OASIS portal)

Data to be kept ready is also detailed in Annexure-4 of the CBSE Circular no Acad.– Assessment-12/2024 dated on 31.01.2024

Link: https://cbseacademic.nic.in/web_material/Circulars/2024/12_Circular_2024.pdf

8. What is the helpline number for SAFAL 2024-25?

For any query or clarification regarding the registration process, kindly contact at **+91 9968313254 or +91 9968663255** during office hours. You may also reach us via email at **safal2024@cbseshiksha.in**

9. What is teacher code?

The Teacher Code is the same as in the OASIS portal. In case you do not have a teacher's code, please go to the OASIS portal, and register the said teacher.

OASIS Link: https://saras.cbse.gov.in/oasis/Login/Login

10. Who is the Nodal Officer of the school?

Nodal officer is the IT teacher of the school. He/ She is given the responsibility to coordinate SAFAL 2024-25 for the school.

11. Do I have to register all students of Grade 5 and Grade 8 on the platform?

Yes, all Grade 5 and Grade 8 students are to be registered on the SAFAL platform.

12. Do I need to add the details of all teachers on the platform?

No, details of **ONLY** teachers that teach Language English or Hindi - depending on your school's medium of instruction, EVS (class 5), Science (class 8), and Mathematics in Grades 5 and Grade 8 are to be uploaded.

13. Can schools create or prepare their sheet on their own to upload it on the portal for Teachers'/ students' details?

No. For uploading teachers' / students' details during registration, schools **have to use the sample file available on the portal.** This file is available for download on the registration portal and can be downloaded. Students'/ Teachers' details can be filled in this file. Please take care while filling columns that have dropdown options (Gender, Designation, etc.)- pick only the available options from the dropdown and <u>**do not type any new inputs**</u>.

14. When I try to submit the Sample *Teacher* and Sample *Student* Excel file, the portal gives an error message. What should I do?

Before submitting the Excel file, ensure that for columns with dropdown options (Gender, Category, Children with Special Needs) in the spreadsheet, you have picked only the available options from the dropdown and have not typed any new inputs. In case the issue persists, contact the CBSE team at the helpline number given in circular no Acad.– Assessment-12/2024 dated on 31.01.2024

15. Can school type the disability in the CWSN field of the downloaded student sheet?

No, Schools have to select predefined disability from dropdown available in downloaded sample student sheet

16. What are the acceptable formats for section names?

Acceptable formats for section names are as follows:

- 1. Alphabets (A, B, C...)
- 2. Hindu-arabic numbers (1, 2, 3...)
- 3. Roman numbers (I, II, III...)
- 4. Other names (Ganga, Yamuna, Godavari...)

17. How to edit Teachers' details in registration portal?

a. Go to Add/Edit Teachers tab

Edit School Details	School Sections	Add/Edit Teachers	Teachers Sections	Add@dt Students	Declaration
d/Edit Teachers					

b. Select the teacher whose details to be edited.

Teacher's OASIS Code	Teacher Name	Gender	Designation
112332	ANIL SINGH	MALE	OTHER

c. Click on edit icon _____ under the "Action" column of the table/grid

	Teacher's OASIS Code	Teacher Name	Gender	Designation	Actio	ons
	112332	ANIL SINGH	MALE	OTHER	1	٥
	112333	MANVI SHARMA	FEMALE	TGT	1	٥
	11233	MEHAK SHARMA	FEMALE	PRT	/	٥

- d. Change the details of the selected teacher by typing in row.
- e. Click on save icon under the "Action" column of the table/grid to save the changes else click on cross icon × to discard the changes.

C,	+ Act a few Record			d ter	a Expert 8 Same	
	Teacher's OASIS Code	Teacher Name	Gender	Designation	Actions	

18. How to delete the complete record of one/multiple teachers from uploaded details of teachers?

Teacher's record can be deleted by selecting the desired rows of teachers to be deleted and then click on Delete Selected Record(s)

Delete Selected Record(s)

19. School is facing difficulty in deleting a section.

If the section is required to be deleted, first ensure that there are no teachers' or students' details linked with that section.

20. Schools are facing issues in filling date of birth in downloaded sample student's files.

Schools may enter date of birth in **dd/mm/yyyy** format.

21. Can the school access the details that they have filled during registration even after final submission?

Yes, Schools have the ability to review and verify the information they provided during the registration process through the registration portal. However, it's important to note that all fields will be in read-only format, meaning no changes or edits can be made. To ensure they have a copy of their data, schools can export and save it for their own reference.

22. Can school add/edit students' and teachers' details after final submission?

No, all fields will be in read-only mode. Schools will only be able to access the information that they have filled out. If a correction window opens, a separate circular will be shared.

23. Which browser is recommended for using the Registration Portal?

The most recent versions of browsers including Google Chrome, Firefox, and Microsoft Edge are compatible with the Registration Portal

Additional FAQ:

1. Our school is an English medium school having both languages English and language Hindi as a subject. Can I opt both papers i.e. English and Hindi?

No. It is mandatory to select the medium of instruction followed in your school. Accordingly,

- English medium students will receive the question paper for subjects including English Language, Mathematics, and EVS/Science in English medium.
- Hindi medium students will receive the question paper for subjects including Hindi Language, Mathematics, and EVS/Science in Hindi medium.

2. How should school login to the SAFAL registration portal?

Please follow the below mentioned steps to login SAFAL registration portal:

Step 1: Open SAFAL portal using this URL: <u>https://cbsesafal.in/login</u>

Step 2: Enter the Affiliation No and LOC/OASIS password in password field to login into the SAFAL Registration portal

Please refer to the user manual of the circular for registration for SAFAL 2024-25 at <u>https://cbseacademic.nic.in/web_material/Circulars/2024/12_Circular_2024.pdf</u>

Or screencast videos may also be referred for this.

Link: https://www.youtube.com/playlist?list=PLa0hVhXUr6BKYjU7XchxrRQq0UAszgjUq

3. If School pastes data of students from their own excel file to a downloaded sample student file and receives an error as shown below regarding invalid date of birth, then what should school do?

d)	Gender (Select a value from the list)	Date of Birth (dd/mm/yyyy)	(Select
ALC: NOT		16/11/2014	OBC
		16/09/2014	OBC
OI PRIE		06/11/2014	OBC
		wist he in the dd/mm (u	
	Invalid date! Date of birth n	nust be in the dd/mm/yy	yy format.

School Teachers should ensure the format of the cells of the date of birth column must change to **Text** after pasting data.

Steps to follow to change format of cells are given below:

D Gender	E Date o	Aria	I - 10 - A' A' - 96 I = 😋 - 🛆 - 💷 - 168 -28
(Select a value from the list)	(dd/mn		
Female	12/12/201	×	Cut
			⊆ору
		6	Paste Options:
			1
			Paste Special
		æ	Smart Lookup
			Insertio
			Delete
			Clear Contents
		<u>2</u>	Quick Analysis
			Filter +
			Sort +
		₹⊐	Insert Comment
			Eormat Cells
			Pick From Drop-down List
			Define Name
		-	
		B	Hyperlink
	•		

Step1: Right click on selected cell and choose Format Cells option

Step2: After selecting Format Cells click on the Number tab and choose Text from category.

D	E	F			
Gender a value from the list)	Date of Birth (dd/mm/yyyy)	Category (Select a value from the list)	Child Wit (Sele		
Female	06/12/2014	OBC	Speech and Language		
Format Cells			? × _		
Number Alignmer	nt Font Border	Fill Protection			
General Number Currency	Sample 06/12/2014				
Accounting Date Time Percentage Fraction Scientific Text Custom		are treated as text even when a ne red exactly as entered.	umber is in the cell.		
	*				

Step3: Now ensure all date of birth column cells should be in dd/mm/yyyy format.

4. Do schools have to pay any charges/fees for SAFAL?.

No. Schools **DO NOT** have to pay any fee for this.

5. Is it necessary to update the time zone settings on the school server machine and lab machines (client machines) to Indian Standard Time (IST) during the SAFAL Assessment?

It is not necessary, but it will be crucial to synchronize the date and time of client machines and the school server during the SAFAL Assessment.

6. Is it mandatory to switch off Operating System (OS) automatic updates during the SAFAL Assessment? What are the implications, if any?

Please ensure that if any of the school server or client machines are having ongoing or pending OS automatic updates, then all such machines should be restarted to complete the system update process. To avoid any disruptions during the SAFAL test, temporarily disable OS automatic updates on both the School Server and Client Machines.

7. All our systems in the IT lab are connected to wifi, do we need to restructure to a LAN Environment during the SAFAL Assessment?

It is advantageous to make the switch to LAN, as WiFi can occasionally cause issues and disruptions.

8. How will the nodal server (school local server) connect with the SAFAL server during the SAFAL Assessment?

Nodal server i.e. school local server will connect via Internet with the SAFAL server and Internet connection must be there on School local server machine during SAFAL examination.

9. What is sufficient no of computers required during the SAFAL Assessment?.

Please refer to the circular given below for the norms to implement mandatory digital infrastructure in CBSE affiliated schools.

https://saras.cbse.gov.in/SARAS/Circulars/Circular10 2023.pdf

10. Why is Field Testing done?

Field Testing is a crucial aspect of any large scale assessment. This stage is called *Item Piloting*. Assessment questions/ items are field tested to determine whether they perform well or not, before they are used in the main assessment. Moreover, Field testing before the main assessment provides an opportunity to test the modality of implementation, identify possible hurdles and provides insights for scaling of the assessment.

11. How would the schools be selected for Field Testing?

After the registration by schools is completed on 20th February 2024, 100 sample schools will be randomly selected from the total schools registered for SAFAL 2024-25.

12. What preparations are to be done by the schools selected for field testing?

Schools need to be equipped with the digital infrastructure as notified in the annexure 2 of the Circular dated 31st January 2024 at the following link: <u>https://cbseacademic.nic.in/web_material/Circulars/2024/12_Circular_2024.pdf</u>





NO. CBSE/AFF./Circular/2023

Dated: 24.03.2023 Circular No. 10/2023

All the Heads and Managers of the schools

Subject: Implementation of Digital Infrastructure in CBSE Schools

Dear Principal,

CBSE as a national Board of education is required to play a critical role in implementing the National Education Policy 2020 by revising its norms and system in the area including digital infrastructure to align with the policy's objectives and to make schools stay up-to-date with digital tools and resources.

All the schools affiliated with CBSE are, thus, hereby directed to implement the following revised norms regarding mandatory digital infrastructure with immediate effect;

1. Availability of computers with internet connectivity

- 01 (One) Computer System per 18 (eighteen) students (Desktops/Laptops) inter-connected with
 a single LAN network with audio-video input and output (Webcam/Speakers etc.) with minimum of
 40 such computer systems including above accessories in the school computer Lab must be
 available in schools. Existing schools shall gradually enhance their infrastructure as per present
 guidelines.
- 2. Installation of Server
 - Server(s) at least 01 computer system with high configuration to be used as a Server for Assessment/ Examination purposes.

3. Data Backup provisions

- Data backup devices either Cloud-based or Physical (external Hard Disc Device HDD) for all kinds of data storage.
- 4. Internet Connectivity
 - Lease line / Wi-Fi with high-speed internet connectivity.

5. Accessories

- At least 02 printers and 02 scanners per computer lab.
- UPS Mandatory to support all computer systems in lab for providing power backup to ensure uninterrupted power supply.
- Licensed Softwares, including Anti-Virus and other Security Systems for the Digital infrastructure
- 6. Smart Boards for effective classroom transactions.
- Schools are once again directed to adhere to the Guidelines for Safe and Effective Use of Internet and Digital Technologies in Schools and School Buses issued vide circular number 32/2017 dated August 18,2017.

The mandatory requirement for the configuration of various machines is given in **annexure A**.

Anwreg Tripeth

(Anurag Tripathi) Secretary, CBSE



"शिक्षा केन्द्र", २, सामुदायिक केन्द्र, प्रीत विहार, दिल्ली-110092 "SHIKSHA KENDRA" 2, COMMUNITY CENTRE, PREET VIHAR, DELHI-110092





केन्द्रीय माध्यमिक शिक्षा खोर्ड (हिम्हा मंगलप, भारत सरकार के अधीन एक स्वायन संगठन) CENTRAL BOARD OF SECOND



1. All Managers/ Principals of Independent category schools Affiliated to CBSE.

- 2. The Commissioner, Kendriya Vidyalaya Sangathan, 18 Institutional Area, Shaheed Jeet Singh Marg, New Delhi 110016.
- 3. The Commissioner, Navodaya Vidyalya Samiti, B-15, Institutional Area, Sector 62, Noida 201307, District Gautam Budh Nagar, Uttar Pradesh.
- 4. The Director of Education, Directorate of Education, Govt. of NCT of Delhi, Old Secretariat, Delhi 110054.
- 5. The Director of Public Instruction (Schools), Union Territory Secretariat, Sector 09, Chandigarh 160017.
- 6. The Director of Education, Govt. of Sikkim, Gangtok, Sikkim 737101.
- 7. The Director of School Education, Govt. of Arunachal Pradesh, Itanagar 791111.
- 8. The Director of Education, Govt. of A& N Islands, Port Blair 744101.
- 9. All Education Secretaries of States/ UTs.
- 10. Deputy Secretary to the Chairman, CBSE for kind information to the Chairman.
- 11. CVO / All HODs / Regional Directors of the Board.
- 12. The Joint Secretary (A & L), CBSE.
- 13. All the Regional Officers/ COE Heads of CBSE with the request to disseminate the information further.
- 14. The Assistant Secretary(IT), CBSE, Preet Vihar, Delhi-92 with request to upload the Circular in the main page as well as in the SARAS Portal for information to all stake holders.

Anwieg Tripeth

(Anurag Tripathi) Secretary, CBSE



Phone (off.) : 011-22509256-59, 22041807-08, Website: www.cbse.gov.in, www.cbse.nic.in









Required Configuration

1. Desktop

In case the schools use Desktop/ Laptop, they must have the following minimum requirements. The latest versions/ latest configurations should be procured, whenever new purchases are done by the schools.

OPERATING SYSTEM	 Recommended Operating System: Linux Schools can also have the Licensed version of Windows 10 or above.
BROWSER	Latest Microsoft Edge/ Google Chrome/ Mozilla Firefox with JavaScript. (It should be regularly updated, to overcome the security threats)
Processor (CPU):	Intel Core i5 (10 th generation or newer) or equivalent
RAM	8 GB and above
Storage:	512 GB internal Solid State Drive (SSD) or 1 TB internal HDD having at least 50 GB free space
Monitor/Display	15-18" LCD monitor
Other	Internal or external Webcam, external hard drive for backups.

II. LAPTOP:

Processor (CPU)	Intel Core i5 (10th generation or newer) or equivalent
Ram	8 GB
Operating System	Recommended Operating System: Linux Schools can also have the Licensed version of Windows 10 or above. (whichever feasible for schools)
Memory	16 GB RAM
Storage	500 GB internal storage drive
Monitor/Display	15-18" LCD monitor
Other	Internal or external Webcam, lock, carrying case, external hard drive for backups.











III. SERVER

In order to perform various activities, the schools will be required to have servers with the following **minimum configurations:**

Processor (CPU):	Core i7 CPU, 16 GB RAM OR Intel Xeon D/E/W series with at least 8 CPU cores or more
Operating System:	Linux Windows 10 or above (Licensed version)
RAM:	16 GB and above
STORAGE	2 TB internal Solid State Drive (SSD) or 2 TB x4 internal HDD
MONITOR DISPLAY	15-18" LCD monitor
Other	Internal or external Webcam, external hard drive for backups.



