



Request for Proposal (RFP) Terms of Reference Version 2 (Volume-II)

**Selection of Service Provider for Online Examination
(Computer Based Test) for TE&SCERT, Odisha**

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1 About the Directorate

Directorate, Teacher Education and State Council Of Educational Research & Training, Odisha (TE & SCERT) is the Academic Authority under RTE Act declared by the School and Mass Education Department, Government of Odisha. The different Teacher Education Courses are being offered by this Directorate for admission to different Teacher Training Institutions which are recognized by NCTE, the statutory body in the field of Teacher Education. At present, existing process for conducting examination activities are limited to offline registration of candidates, generation of Admit card & publication of results. Therefore, there is a requirement of automated end to end dedicated application software for conducting entire examination process online.

Service provider may view and study this tender document containing the detailed terms & conditions from the website www.scertodisha.nic.in and <http://sme.odisha.gov.in>. The bids are to be submitted as per procedure given in the RFP document.

2 Objective

Directorate, Teacher Education and State Council Of Educational Research & Training, Odisha (TE & SCERT) proposes to engage a service provider to conduct **Online Examination System** for various teacher education courses offered by TE & SCERT.

The scope of work of the service provider is broadly divided into three categories i.e. **(a) Pre-Examination (b) Examination (c) Post-Examination**.

Following table shows the district wise number of candidates who appeared OMR based examination conducted for the session 2017-18. It is expected to increase by 10% for the current session.

Sl#	District Name	No. of Candidates
1	Angul	6,256
2	Balangir	10,410
3	Balasore	19,717
4	Baragarh	10,340
5	Bhadrak	11,474
6	Boudh	3,955
7	Cuttack	14,456
8	Deogarh	3,191
9	Dhenkanal	6,429
10	Gajapati	1,574
11	Ganjam	15,221
12	Jagatsinghpur	6,693
13	Jajpur	10,638
14	Jharsuguda	2,302
15	Kalahandi	7,100

Sl#	District Name	No. of Candidates
16	Kandhamal	2,871
17	Kendrapara	7,413
18	Keonjhar	11,434
19	Khurda	10,811
20	Koraput	2,348
21	Malkangiri	1,044
22	Mayurbhanja	15,499
23	Nawarangpur	2,209
24	Nayagarh	7,378
25	Nuapada	3,364
26	Puri	12,035
27	Rayagada	2,582
28	Sambalpur	3,963
29	Sonepur	5,466
30	Sundargarh	4,809

3 Scope Overview

TE & SCERT desires to adopt "Online Examination System" for D.El.Ed, B.E.D, B.H.Ed, B.P.Ed, M.Ed, M.Phil candidates in respect of objective type questions with an automated solution for the entire exam processing cycle right from announcement of the examination to publication of result from the system with minimum human intervention and high security measures.

- a) It is expected 3,00,000 (approximate) number candidates will appear for online examination for the session 2018-19.
- b) Online examination will be conducted in multiple-shifts in all 30 Districts of Odisha on multiple days.
- c) The service provider will deploy adequately qualified resources of different skills having experience in similar job along with necessary computer infra to support the Project Management Unit in the State Head Quarter i.e. in TE & SCERT office.
- d) The service provider must create test centres (wholly owned/ rented) in all 30 Districts in the state of Odisha having capacity as per below table to appear online examination in one shift.

SI#	District Name	Minimum Computer Node Capacity for online Test
1	Angul	100
2	Balangir	200
3	Balasore	200
4	Baragarh	200
5	Bhadrak	200
6	Boudh	50
7	Cuttack	200
8	Deogarh	50
9	Dhenkanal	100
10	Gajapati	50
11	Ganjam	200
12	Jagatsinghpur	100
13	Jajpur	200
14	Jharsuguda	50
15	Kalahandi	100

SI#	District Name	Minimum Computer Node Capacity for online Test
16	Kandhamal	50
17	Kendrapara	100
18	Keonjhar	200
19	Khurda	200
20	Koraput	50
21	Malkangiri	50
22	Mayurbhanja	200
23	Nawarangpur	50
24	Nayagarh	100
25	Nuapada	50
26	Puri	200
27	Rayagada	50
28	Sambalpur	50
29	Sonepur	100
30	Sundargarh	50

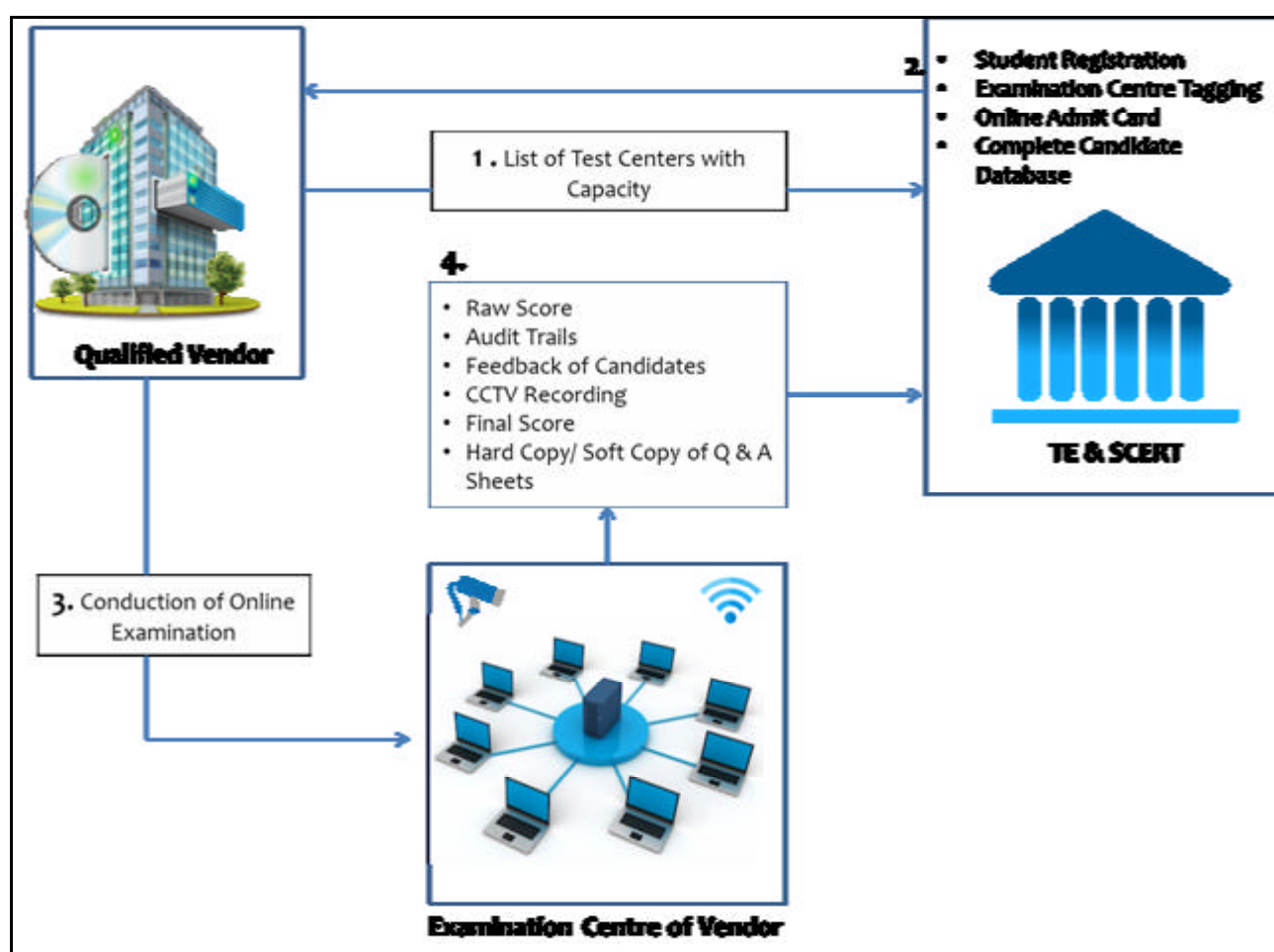
- e) The service provider will prepare a robust & comprehensive Question Bank for different sets of courses in different languages. Depending on the student's strength, there shall be different sets of questions per shift.

Course	Language in which Question bank is to be prepared*
D.El.Ed	English, Odia, Hindi, Telugu, Urdu, Shantali
B.Ed	Odia, English
B.H.Ed	Odia, Hindi, English
B.P.Ed	English
M.Ed	English
M.Phil	English
<i>* In case the Unicode of the languages mentioned above is not available, then the SCERT & Service Provider will mutually finalize the question bank</i>	

- f) Carry/ demonstrate complete System Test Run (STR) with test data to the TE & SCERT before implementation of the software. The Service provider should also be able to demonstrate click by click audit trail for any type of enquiry.
- g) Application server logs to capture all errors, warnings and exceptions that are generated in applications along with the time at which they occurred.
- h) **Special arrangement should be made for differently abled candidates as per Physically Disabled Act (PDA). One (1) shift per day shall be kept for differently abled candidates.**

- i) Joint Venture or consortium or sub-contracting is not allowed for entire scope of work.
- j) **Service provider will bear all the expenses for conducting the online examination which includes salary of the staffs engaged for this job.**
- k) **Responsibility of TE& SCERT**
 - Online student registration for examination
 - Examination Centre tagging to a student
 - Availability of online Admit Card to the students
 - Complete candidate database with mobile number & email
- l) The center tagging logic should be vetted by the service provider
- m) Data sharing between TE & SCERT and the service provider should be done in the format which is mutually agreed.

4 Overall Process Flow



5 Scope of Work

5.1 Pre Examination Phase

5.1.1 Design/Development of Application Software

- a) The service provider will have the sole responsibility to design, develop / customise, implement and maintain, web based software and provide online services, for all activities related to the examination process and deploy the same at Service provider's Server/Data Centre as per Cert-In and Government of India / Government Odisha Guidelines issued from time to time.

- b) The Application Software should be capable of publication of various notifications from time to time, generation of various MIS report as per the requirement of client, Mock-test students etc. for smooth conduct of exam. Online publication of final result as per the requirement of TE & SCERT is also the responsibility of the service provider.
- c) The service provider will also deploy technically qualified experienced adequate manpower to manage the entire command centre of TE & SCERT along with necessary computer hardware and software.

5.1.2 Setting up of Test Centres

- a) Arrange sufficient number of test centres across the State of Odisha to ensure smooth conduct of online examination. The Test Centre should be adequately equipped with necessary computing and civil infrastructure so as to accommodate minimum 200 candidates in a shift. The Test Centres list should be finalized in consultation/co-ordination with TE & SCERT. The location of examination should be centrally located within the City limits and must be accessible and suit to special needs of differently abled candidates. Sufficient parking place shall be available in examination centre to park vehicles of candidates.
- b) Special arrangement should be there for differently abled candidates as per Physically Disabled Act (PDA). One (1) shift per day shall be kept for differently abled candidates.
- c) The Online Examination in a Test Centre will be conducted in an intranet environment so that conduct of Examination will not be hampered in case of disruption in internet connectivity. Hence, the Service provider is required to set up computing infrastructure with LAN Connectivity, Desktop/Nodes, Server, and Internet Connectivity to server, required software and other required civil infrastructure. The Service provider must set up proper power back up (Generator, UPS etc.) to ensure uninterrupted conduct of examination even if there is a power failure.
- d) The Service Provider shall carry periodic audit at Examination Centres for:
 - Hardware, Operating System, Processor Speed, RAM, Network and internet connectivity, Key Boards etc.
 - Software - Screen resolution, bandwidth for internet and LAN connectivity, Browser.
 - Working condition of UPS and Generator.
- e) In order to meet the exigencies, 10% of buffer nodes must be available in each Test Centre.
- f) Periodic checking of all nodes, network equipment, electrifications and other active /passive devices should be done by the Service provider to ensure smooth functioning of all equipment in a Test Centre. More specifically, the checking of all equipment in a Test centre must be done one or two days prior to the scheduled date of examination.
- g) Ensure clean drinking water, fans/ tube lights, separate toilets for male/ female/ PH candidates, first aid etc.
- h) Preparation of online examination centre allocation sheet, examination centre checklist and fill out the details of each examination centre (seating capacity, number of nodes and other required facility). Format as per **Appendix-1**
- i) Final inspection / testing of the Servers installed at all Test Centres and Connectivity to be done at least one hour prior to the commencement of examination.
- j) The Service provider shall arrange/provide adequate displays and provide required instructions/ information to the candidates appearing for exam at exam centres.
- k) To arrange Video Surveillance (CCTV) at all examination centres. CCTV Surveillance with recordings has to be submitted after its proper sealing. The Command Centre (described later) at TE & SCERT shall be monitoring the CCTV for all the examination centres and the service provider shall provide

the CCTV footage of all the examination centres on regular basis as and when asked for by TE & SCERT.

- l) Facility for sending Bulk/individual SMS& Email

5.1.3 Mock Test

Deploy Sample Test paper / Mock Trial at given website / link at least 15 days prior to the scheduled date of examination to allow the eligible candidates to practice on the "Sample Online Test / Mock Trial". The mock test should be a replica of the examination. The service provider should inform in advance about the Schedule of Mock Test so that the candidates can be sent SMS/Email alert in advance.

5.1.4 Candidate Handling Process

- a) The service provider shall ensure that the Signature of the candidate is taken in the attendance sheet and Verification of the signature in attendance sheet is done vis-à-vis the signature in the admit card.
- b) The service provider shall also have provision to capture biometric/ thumb impression of differently abled candidates.**

5.1.5 Question Paper Management

- a) The service provider is required to have suitable provision for storing, transmitting and downloading the question papers in a highly secured environment.
- b) The service provider will create and manage examination question paper with various difficulty levels securely along with scoring key as per the following details in consultation with TE & SCERT. Complete security of the content created will be with the service provider. Following are the details required for preparation of examination question paper:

Category	No. of Question	Type of Questions	Level	Languages	Subjects
B. Ed.	90	MCQ	Graduation	English and Odia	English, Education & General Awareness, Reasoning, Teaching Aptitude
					Arts Stream- (Odia Language Capability (Odia Script)/ subjects like English, Odia, History, Political Science, Geography Science Stream- (Physical Science, Bio-science, Mathematics) as per subject mentioned in the Syllabus
B.H.Ed	90	MCQ	Graduation	English, Odia, Hindi	English, Education & General Awareness, Reasoning, Teaching Aptitude
					Odia Language Capability (Odia Script) / Literature in Hindi (Hindi Script) as per Syllabus
B.P.Ed.	90	MCQ	Graduation	English	English, Education & General Awareness, Reasoning, Teaching Aptitude
					Current Affairs on Sports and Games, Physiology and Hygiene, Common Knowledge about Major Games
D.El.Ed.	90	MCQ	12 th	English and Odia	English, Education & General Awareness, Reasoning, Teaching

Category	No. of Question	Type of Questions	Level	Languages	Subjects
					Aptitude Mathematics, Social Science, Science Odia Language Capability (Odia Script)/ Telugu Language Capability (Telugu Script) / Urdu Language Capability (Urdu Script) / Olchiki, Santhali Language Capability (Santhali Script)
M.Ed.	90	MCQ	Post-Graduation	English	Basics of Education, Understanding the learner & learning process, Curriculum and curriculum transaction, Contemporary issues in school Education, Assessing the learner; Planning and management of school,
M.Phil.	90	MCQ	Post-Graduation	English	Education as a discipline and Process of Education, Learner and Learning Process, Educational Research, Statistics and Assessment, Teacher Education at Elementary and Secondary Level, Education in Developmental Perspective

5.1.6 Establishment of Command Centre (State Project Monitoring Unit (PMU))

In order to centrally manage the entire activities under Online Examination System and smoothly conduct of the examination, the Service provider will set up a Command Centre. The Command Centre shall be at TE & SCERT, Odisha premises with proposed technical resource:

- Command Centre Manager (position-one)
- System Administrator –Network (position-one)
- System Administrator – Network Security (position-one)
- Technical Executive /Technical Support –CCTV (position-Four)
- Technical Executive /Technical Support –Application (position-Four)

The above resource shall be provided by the selected Service provider. TE & SCERT may depute one resource person to head the Command Centre to check their performance and day-to-day activities. The sitting arrangement of Command Centre Manager & System Administrator-Network shall be provided by TE&SCERT. However, the sitting arrangement of System Administrator – Network Security, Technical Executive /Technical Support –CCTV, Technical Executive /Technical Support –Application shall be done on their own by the service provider.

5.2 Examination Phase

5.2.1 Management of Examination Centre

The service provider shall provide adequately trained manpower as per the ratio mentioned below to manage each examination centre. Each examination centre should have a minimum number of personnel, as described below, deployed by the service provider:

Skill	Remarks
Exam Centre Administrator	One (1) regular employee of the service provider

Skill	Remarks
IT Manager	One (1) regular employee of the service provider
Invigilators	One (1) per 25 systems with a minimum of 2 in a room
Support Staff	Minimum one (1) per 100 students (Suitability need to be justified with centres) and locations
Security Guards	Minimum one (1) per 100 students (Suitability need to be justified with centres)
Peon	Minimum two (2) per 100 students

The above staff should be increased proportionately on the basis of size of the centre in terms of nodes for exam.

5.2.2 Conduct of Examination

- a) Test will be conducted only over the intranet at a Test Centre and the candidates will access the test through a computer.
- b) The Conduct of examination would be multidisciplinary / multiple subject/ multilingual as per scheme of examination. Henceforth the test delivery system should be able to handle this aspect of multidisciplinary / multiple subjects/ multilingual very well.
- c) The Examination shall be computer based with the questions being provided onscreen on a random basis with multiple choice answers, without any manual intervention.
- d) Sufficient time of 15-20 minutes shall be allotted before the exam for providing orientation to the candidates on the structure of the exam, time limits and guidelines for answering the question papers.
- e) The question paper shall contain 90 questions to be answered in 90 minutes. However, differently abled candidates shall be given 20 minutes extra time to complete their test. **There should also be provision of seating arrangement for a scribe with the PH Candidate.**
- f) Computer based exam software should support standard features such as automatic calculation of test score, negative marking, time left, flag questions for review, navigation to unanswered questions and prompt for submission.
- g) Leakage of question paper at any level shall be considered as breach of contract to perform on the part of the service provider.
- h) Required number of servers for a centre must be provided by the Service provider for assured performance. Additional equivalent and suitable servers for backup and minor services will need to be provided by the Service provider.
- i) While exam will be conducted on local LAN, data of test progress should be transferred to central server every 15 minutes for monitoring purposes. Service provider should provide reports to TE & SCERT to view the test progress.
- j) The Service provider shall maintain audit trails of all activities of the candidate (click by click) during the course of the examination.
- k) The Service provider shall obtain candidate's feedback through online Feed Back Form, after the examination is over.
- l) The Service provider shall provide blank paper sheet/s to the candidates as per requirement.
- m) The Service provider shall have a contingency plan for Student management/Shifting in case of any emergency.
- n) The Service provider shall monitor and supervise Exam Centre activities on monitoring console to be installed by the Service provider in TE & SCERT. The data should be real time data generated from each Exam Centre during the examination.

- o) The online exam shall stop automatically after expiry of the scheduled examination duration.
- p) Scheduling Backup Server to take continuous backup from Main Server at each Test Centre and availability of continuous Back-Up and restoration facility for Business Continuity Planning / Disaster Recovery purpose.
- q) Restart / Resume of Test (in case of node / power / network / application failure etc.)
- r) In case of Machine, Power or Network Failure, software shall be able to retrieve candidates attempted questions and its responses entered by the candidate fully along with creation of incident report and system audit trail (downtime details, additional time taken by the candidate and issue recorded etc.).
- s) Service provider should ensure that, at the end of examination, the candidates should be able see his/her score along with statistics before leaving the examination hall.

5.2.3 Infrastructure Services & Support

- a) The service provider will deploy technically qualified, experienced, adequate manpower to manage the examination process at each exam centre. There should be at-least one technical person directly from the Service provider's Organisation managing LAN (server) and one person as Centre In-charge at the Examination centre.
- b) The selected service provider has to identify the examination centres at the locations decided by /in consultation with TE & SCERT.
- c) The selected service provider will obtain necessary connectivity, provide the same to Examination centres across the State, and manage them. Service provider will be responsible for establishing Examination Centres in allocations with necessary IT Infrastructure and Manpower e.g., computer hardware / software, Firewall, Anti- Virus Software, Examination Superintendents, IT Support staff, Invigilators, Peons, Security etc. to conduct of the Computer-Based examination. Cyber Café will not be accepted for Examination Centre.

5.3 Post Examination Phase

- a) The service provider shall calculate marks obtained by each candidate as per requirement of the TE & SCERT.
- b) The candidate's responses, photograph, audit trails, CCTV recording should be uploaded automatically from the local server to Service provider's data centre in a secured manner. There should not be any traces of any data pertaining to candidate whatsoever post uploads left on the exam server.
- c) The service provider must submit the raw responses/data (answers) to TE & SCERT (same day) within 30 minutes after the candidate's response is uploaded from local exam server. The software should have capability to take the answer key during post examination.
- d) **Test Data Archiving& Handover:** The service provider shall submit both soft copy & hard copy of all question papers & responses day wise, shift wise & centre wise. The soft copy should be submitted in CD format. The hard copy is to be submitted after being duly signed.
- e) The service provider shall ensure Generation of Merit list based on the rules/validation shared by TE & SCERT and share the final result. The format of final score shall be mutually agreed upon.
- f) The service provider shall provide documented inputs and support for handling
 - Candidates queries
 - RTI queries
 - Court Cases
- g) **MIS generation/ customized reports:** The Service provider shall provide adequate information to the TE & SCERT through various MIS reports.

6 Security Provisions

Keeping in view the criticality, confidentiality & Sensitivity of such system, the Service provider is responsible for ensuring utmost security at all stages/levels, like Physical Security, Information Security, Server Security, Network Security.

- a) The service provider shall ensure utmost security for IT Infrastructure - Servers, Networks, Application and Data Storage and Transmission, Examination processes being followed at various levels as per the plan drawn in consultation with TE & SCERT.
- b) The service provider should provide full-proof information security in computer based online examination as per the provisions of Information Security.
- c) **Data Encryption and Decryption** : The service provider should provide a minimum of 256 bytes encryption for data transfer and the system to decrypt the data at examination centres without any loss or damage.
- d) PKI (Public Key Infrastructure) encrypted question set to be uploaded in Exam Application.
- e) The system should maintain a highly secured data repository for storing hash values of datasets generated at various levels as well as archiving examination records after completion of examination process.
- f) Alert through SMS and emails should be sent to the prescribed authorities for any attempt of change in system database.
- g) Access Controls must be provided to authorised users to ensure that the databases are not tampered or modified by the system operators.
- h) The bidder should take all necessary precautions for prohibition of any leakage of question papers.

7 Project Timeline

Sl#	Milestones	Timeline
a)	Deployment of resources in Command Centre (State PMU)	Within 5 days from the date of issue of work order
b)	Submission of complete list of examination centre covering all districts	Within 10 days from the date of issue of work order
c)	Demonstration of complete System Test Run (STR) with test data	Within 18 days from the date of issue of work order
d)	Setting up of Test Centre	Within 18 days from the date of issue of work order
e)	Mock test	Within 23 days from the date of issue of work order
f)	Conduct of online examination	Within 7 days from the mock examination
g)	Raw score submission	within 30 mins from end of each examination shift
h)	Candidate wise final score as per the format	Within 7 days from the date of raw score submission

8 Payment Terms

Sl#	Milestones
a)	80% payment will done after submission of candidate wise final score as per the format
b)	Balance 20% payment will be done after three months from the date of final score submission
c)	No advance payment shall be made under any circumstances.

9 Penalty

Depending on the criticality and severity of the application, the following penalty shall be imposed on the vendor due to delay in providing services:

Sl#	Services	Penalty
a)	Delay in setting up of Test Centre	Rs. 50 per candidate per course
b)	Delay in conducting Mock Test	Rs. 50 per candidate per course
c)	Unavailability of manpower in exam center during each shift of exam day	Rs. 30 per candidate per course
d)	If exam could not be conducted due to lack of performance of Service Provider /delivery by Service Provider as per Scope of Work	Rs. 30 per candidate per course
e)	Delay in Submission of Raw Scores	Rs. 10 per candidate per course

The penalty shall be recovered for delayed services from the payment due post submission of candidate wise final score as per the format. The service provider shall be considered as Black-listed /Fraud company/service provider, if the service provider withdraws the work at any time during the contract with/without notifying TE & SCERT. The maximum liquidated damage at any point of time and for any period should not exceed 10% of total project cost as per the Financial Bid submitted by the Service Provider. If the liquidated damage exceeds this amount, TE & SCERT reserves the right to terminate the contract.

10 Deliverables

- a) Soft Copy of Examination Centre Master having complete address with contact information along with centre administrator details (name, mobile & email) and capacity of the examination centre.
- b) Question paper for the conduct of examination
- c) Raw Scores and Final Scores
- d) Day wise, shift wise & centre wise soft copy & hard copy of all question papers & responses of all candidates
 - The soft copy should be submitted in CD/DVD
 - The hard copy shall be duly signed by authorised person and company seal
- e) CCTV recording at the end of each shift
- f) Feedback from candidates post examination
- g) Examination centre information (soft copy) as per the format provided by TE&SCERT
- h) Final result database (soft copy) as per the format provided by TE&SCERT

11 Appendix-1

Sl#	District Name	City Name	Name of the Examination Center	Total No. of Lab	Total No. of Computer Nodes