REQUEST FOR PROPOSAL (RFP)

Integrated Test Management System

CENTRAL BOARD OF SECONDARY EDUCATION
SHIKSHA SADAN, 17 ROUSE AVENUE
NEW DELHI-110002
www.cbseacademic.in

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1. INTRODUCTION

1.1 CBSE ORGANISATION AND OBJECTIVES

The Central Board of Secondary Education (CBSE), a registered society and an autonomous organization under Ministry of Human Resource Development, Government of India, is one of the important National Boards of the country. The main objectives of the Board are to serve the educational Institutions effectively and to be responsive to the educational needs of the students.

1.2 DETAILS OF NUMBER OF CBSE REGIONS AND AFFILIATED SCHOOLS

The Board has approx. 12,800 schools affiliated with it including 150 schools in twenty one countries. The prime focus of the Board is on (a) prescription of suitable curriculum for its various schemes of examination in both academic and vocational streams (b) regularly updating the pedagogical skills of the teachers and administrators by conducting training programme and workshops, c) setting norms for affiliation of institutions for the purpose of public examination and; d) prescribing as well as updating the course of instructions to raise the academic standards in the country.

1.3 CCE IN CBSE

The Board's policies are based on national policies of education and it has primarily adopted and adapted the National Curriculum Framework (NCF) 2005. The NCF 2005 operates on five guiding principles that envisage a learner centred curriculum, founded on the learner's ability to construct his or her own knowledge (constructivism) thus giving primacy to the learner. It advocates teaching to facilitate knowledge construction, diagnostic evaluation to remediation, refining and improving learning processes. As learner's readiness to take an examination has become paramount, thus, the examination reforms were a logical consequence. Assessment for learning was to be a major shift in the extant paradigms of examination oriented learning. A major step of reform in this direction was making the board examination in class X optional especially when the certificate is not very important for further continuance of studies. To realize the above objectives, the Board has strengthened several of its academic initiatives treading beyond its direct mandate as an examination body such as periodic guidelines and training programs to encourage innovation in teaching-learning methodologies; advocated joyous learning without burden in primary and upper primary; and implemented the process of CCE in primary encouraging for extension in upper primary. It had extended it to the secondary classes by including a component of internal assessment in the external examination of class X for the last decade and more.

Notwithstanding all these efforts to streamline pedagogic practices, the one- time board examination still reigned supreme and remained the focus of pedagogy instead of being learner centric. Hence, the MHRD/CABE endorsed the NCF recommendation of making board exam optional in class X as appropriate for implementation. This, inter alia, also included making the evaluation more comprehensive and continuous to assess both scholastic and co scholastic abilities of the students i.e. Continuous and Comprehensive Evaluation (CCE). This further required empowerment of schools to decide the selection of appropriate evaluation tools for facilitating individualized instruction and enhancing the quality of learning in respect of each child placed in the custody of the teacher. The philosophy of CCE takes cognizance of two important factors, namely the various components of human growth and potential that govern the process of learning and continuous assessment of all these to facilitate perpetual refinement of

construction of knowledge and enhancement of Life skills. In operational terms, it would mean designing effective evaluation tools that would serve for formative and summative stages of learning. The Board has taken various thoughtful initiatives to prepare a comprehensive road map to operationalize and implement the examination reforms of the government in a time bound and effective manner with public interest at focus. One such initiative is implementation of the scheme Continuous and Comprehensive Evaluation (CCE) in its strengthened form October 2009 in Class IX onwards. The Board in the year 2010 conducted Master Trainer programs at 95 venues across the country covering more than 7,000 affiliated schools and teachers in excess of 20,000 from September 2009 to January 2010. The objective was to cover maximum number of schools and at least three teachers (including principal of the school) of each school so as to make them understand and assimilate the contents and nuances of CCE and they in turn could train and sensitize other teachers in their schools. The Board also prepared and published Teachers' Manual and training modules on CCE. In year 2011, the Board conducted training programmes.

2 SCOPE OF WORK

An integrated test management system with the following 3 phases is required:

PHASE I : AUTOMATION OF GENERATION AND DELIVERY OF QUESTION PAPERS FOR SCHOOL BASED ASSESMENT

PHASE II : AUTOMATED CONDUCT OF ONLINE TEST (WEB BASED)

PHASE III : AUTOMATED CONDUCT OF CLIENT SERVER BASED TEST

BACKGROUND, AIM & OBJECTIVE

PHASE I

2.1 As part of the system of Continuous and Comprehensive Evaluation, summative assessments are conducted at the end of each of the two terms that an academic calendar is divided into. Therefore there are 2 summative assessments to be conducted by every school, one at the end of the April –September term and the other at the end of the October – March term. Schools conduct summative assessments in all subjects for question papers shared by CBSE.

2.2 CBSE would like to automate the process of generation and distribution of question papers across its schools in a manner which is transparent, secure and user friendly. It intends to use the prowess of IT to achieve the same.

2.3 The Board intends to select one agency to develop an engine to automate the generation and distribution of its question papers across the affiliated schools.

PHASE II

2.4 Extending the software developed in Phase I, the web based **Performance Analysis Test (PAT)** will be conducted

2.5 **Performance Analysis Test (PAT)** is an annual on-line examination to assess the performance of students of class IX, X and class XI of the schools which are following CBSE-I curriculum. It is a benchmark in testing of skills, application and abilities of the students in given disciplines and domains.

The major specifications of the test are as follows:

a. It is a test with four examinations of fifty multiple-choice questions each that are to be attempted by students in one and a half hour (90 minutes).

b. Each student is given a username and a password just before the start of the test in the examination hall.

c. The test should be comprised of a unique question paper for each student.

d. Each school shall be allotted a specified date and time for a given class and subject to manage the total no. of students appearing in the online exam at a given point of time.

e. There is no negative marking.

f. This year, the test will be for class IX, X and XI but with a provision for future extendibility to other classes.

Salient Features of Online PAT:

1.   Question Paper will be of objective type consisting of five parts – English, Mathematics, Science, Hindi & Social Science. Other languages also need to be supported going forward.

2.   The test should be able to run in an on-demand mode as well as event mode. An individual can take the on-demand mode test at any time during the year. There can also be an event examination where up to 10000 students can take the test at the same time.

3.   Online fee payment for the on-demand and event mode tests should be possible from any country in the world.

PHASE III

2.6 Extending the software developed in Phase I, a client server version of the test will be developed.

2.7 For examinations requiring a secure proctored environment the client server version of the test needs to be developed.

2.8 There will be a central hub server where the question bank will be kept

2.9 People appointed by CBSE will take their laptops (which will act as exam center servers) to the exam centers

2.10 Just before the examination the question bank for a particular exam center will be downloaded to the local laptop server for the exam center in encrypted format.

2.11 The candidates will work on the client machines to give the test; all test data will be stored on local laptop servers.

2.12 At the end of the test the data will be transferred in encrypted format to the central hub server. After ensuring that the data has been stored on the central hub server, it will be deleted from the local laptop server.

2.13 The candidate's photograph should be displayed on the candidate's screen at all times during the test.

2.14 Biometrics fingerprint device also should be available to gather the candidate's fingerprints. These can later be attached to the laptops to upload the fingerprint data to the central hub server.

3 QUALIFICATION CRITERIA

3.1   Organisations should have prior experience in development of software for similar work.

3.2   Financial Capability

Organisations should have financial capacity to carry out the services provided as supported by their Balance Sheets, etc. The bidder's Average Annual Turnover during last three years should be Rs 5 crores and above. This turnover/income should be from the revenue of similar work (software development) and not from other associate activity of the bidder. (Attach documentary evidence such as Balance Sheet etc).

3.3   Organisations should have adequate numbers of experienced professional staff to support the program of work either on their permanent rolls or available on a contractual basis. A list of the professional members of the team should be attached.

3.4   Organisations should have ISO 9001/ CMMi Level 3/Equivalent/Higher certification

3.5   Organisations should be registered with appropriate statutory authorities as required under law. A copy of all such registrations such as PAN, Service Tax, etc. must be enclosed.

3.6   The bidder preferably should have worked with any Examination/Educational Bodies preferably Boards on similar projects.

3.7   The bidder should have the server/s in India. It is acceptable to rent third party server/s however it should be based in India.

3.8 Organisations should enclose Earnest Money Deposit (EMD) of Rs 50,000/- (Rupees Fifty thousand only) (Except those who are registered with Central Purchase Organization, National Small Industries Corporation, NSIC as provided under rule 157 of General Financial Rules 2005 and exempted from EMD) along with the technical document. The EMD will be in the form of a Demand Draft/Bank Guarantee drawn in favour of the Secretary, CBSE and payable at Delhi.

4 EVALUATION AND SELECTION CRITERIA

4.1.1 Evaluation of Technical Bid

The following criteria are prescribed as pre-qualifications for bidders interested in undertaking the project.

ELIGIBILITY CRITERIA	
Acceptance of Terms and Conditions of the RFP	Annexure 1
Completion of Bidder Profile	Annexure 2
Completion of Authorization Letter	Annexure 3
Self-certification	Annexure 4
Declaration of Financial and Administrative details	Annexure 5
The Bidder should have submitted Rs 2,000/- towards the cost of the RFP document	
The Bidder should ensure registration with appropriate statutory authorities and should enclose copy a copy of their registration with Income Tax etc. as applicable.	
The Bidder should have furnished the Earnest Money Deposit (EMD) (Except those who are registered with Central Purchase Organization, National Small Industries Corporation, NSIC as provided under rule 157 of General Financial Rules 2005 and exempted from EMD)	
Details of similar completed works during last 3 years. Performance/Client Report of such work.	
The Bidder should have submitted the proof of financial capability as required under 3.1.1 and 3.1.2	
ISO 9001/ CMMi Level 3/Equivalent/Higher certification	
The Bidder should have well qualified staff for providing the services required (documentary evidence is required)	
The Bidder should have submitted the entire design and methodology for providing the services. The design and methodology will be the main focus in the evaluation of the technical bids.	
The bidder should be a **company/consortium** registered in India. The company/lead partner of consortium must be having its operation for more than 5 years (i.e. since 2007 and before) in India.	

The Technical Evaluation Committee will examine all of the technical pre-requisites for the conduct of the services. Each Bidder will be awarded a Technical Score (TS) out of 100 points by the Committee based on the parameter given in the table below. The bidders are required to submit documents to establish their capability.

S.NO.	CRITERIA	Marks
1.	Proven In-house Software capability in a highly secured environment.	10
2.	Proposed solution.	30
3.	Financial capability information	15
4.	Details of similar works under execution or awarded during last 3 years	15
5.	Details of similar completed works during last 3 years	5
6.	Details of Technical manpower to be employed for this project work (Name, Qualification, Total Experience Years, Experience in Exam related software Years)	10
7.	Hardware and Infrastructural availability for the work.	5
8.	ISO 9001/ CMMi Level 3/Equivalent/Higher certification.	10

4.1.2   Evaluation of Financial Proposal
- Financial Proposals of the bidders should be as per paragraph 5.12 of the RFP and will be awarded Commercial Scores (CS) out of a maximum of 100 points by the Committee.
- Financial Proposals of those bidders will be opened for those organisations who pass the Technical Score TS arrived at from the technical evaluation process described above.

The CS would be normalized on a scale of 100, with the lowest score being normalized to 100 and the rest being awarded on a pro-rata basis i.e. the proposal with the lowest total cost will be awarded the highest CS of 100 points. The CBSE would constitute a panel of agencies.

The Bidders CS is normalized as follows:

$F_n = F_{min}/F_b * 100\%$ (rounded to 2 decimal places)

where

F_n is the normalized CS for the bidder under consideration;
F_b is the absolute financial quote for the bidder under consideration; and,

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F_{min} is the minimum absolute financial quote.

4.1.3   Final Evaluation
The final evaluation will be based on a **Quality and Cost Basis (QCBS)**. There will be 70% weighting for the Technical Evaluation and 30% weight for the Financial Evaluation.

Method of calculating of the Final Score (FS)
Final Score (FS) -= TS * 0.7 + CS * 0.3
The bidder with the highest FS will be awarded the final contract.

4.1.4   Implementation Schedule
For a smooth roll out of the solution the successful bidder will meet with the CBSE to develop a commonly agreed to Implementation Schedule that will comprise a detailed plan showing deliverables and schedules through each phase of the project. The bidder should provide the following:

➢ Approach and methodology which the organization proposes to execute, illustrated with bar charts of activities. This will be followed by the Organization to achieve the stated deliverables.
o Approach
o Methodology
o Work plan
o Quality Management

➢ Complete Project Management Methodology including the following:
o Responsibilities of the Service provider
o Project planning
o Project Monitoring and Control
o Change Management

5   INSTRUCTION TO THE BIDDERS

5.1   General information

This document should be read in consonance with any Addendum that may be issued with the RFP. The bidder is required to read the RFP document and the Addendum(s) and would be deemed to be in knowledge of the provisions of both the document and the Addendum(s). No claim of any nature whatsoever shall be entertained in this regard. In case of any conflict between the addendum(s) and the RFP document, the provisions of the RFP document shall prevail for all intents and purposes.

• Tenders (non-transferable) would be considered in the prescribed RFP format in paragraph 4.1.1. Proposals duly filled-in and accompanying all supporting documents should be submitted on or before the given time after which no RFPs will be accepted.

• The bids will be opened at the given address in the presence of representatives of the participating bidders as per the bid schedule mentioned below. The Technical Bids of only those bidders who have submitted the RFP document fees and EMD(Except those who are registered with Central Purchase Organization,

National Small Industries Corporation, NSIC as provided under rule 157 of General Financial Rules 2005 and exempted from EMD) will be considered.

- The work will be initially awarded for one year and is further extendable after review of performance after each year on a year to year basis.

Schedule of Bidding Process

The Board shall endeavour to adhere to the following schedule:

Event Description Date

1. Last date for receiving queries 03.07.2012
2. Board's response to queries latest by 05.07.2012
3. Pre-Bid meeting 06.07.2012
4. Bid Due Date 10.07.2012 up to 2:00pm
5. Opening of Technical Bids 10.07.2012 at 2.30 pm
6. Validity of Bids 120 days of Bid Due Date

- Similarly, the Financial Bids of only the bidder's short- listed from the Technical bids will be opened.

- The bids will be opened on the scheduled date and time even in case of absence of the bidder. RFPs shall be submitted fully in accordance with the requirements of the General Terms and Conditions. Appropriate format prescribed with this document shall be used for filling quotations. Incomplete, illegible and unsealed bids will be rejected. Telegraphic bids will not be accepted and no correspondence will be made in this regard.

- All offers should be made in English. Conditional offers and offers qualified by vague and indefinite expressions such as "Subject to immediate acceptance"etc. will not be considered.

- The price and conditions of the offer should be valid for at least a period of 120 days from the date of RFP opening. RFP with validity of less than 120 days will be rejected.

- The bidder shall carefully examine the RFP documents and the technical specifications and fully acquaint themselves as to all the conditions and matters, which may in any way, affect the work or the cost thereof. Should a RFP find discrepancies in or omissions from the specifications or other documents, or should there be any doubt as to their meaning, he should at once notify CBSE, New Delhi and obtain clarification by fax at **011-23234324** and e-mail (**navincbse@nic.in**). This however does not entitle the bidder to ask for time beyond the due date fixed for receipt of RFPs.

- Submitted RFP forms, with overwritten or erased or illegible rate or rates not shown in figures and words in English, will be liable for rejection. In case of discrepancy between words and figures noted against each item of the RFP and between unit rates and the total amount, the decision of the competent authority will be final and binding on the bidders. Total of each item and grand total of

whole RFP should be clearly written. Corrections in the RFP, if unavoidable, should be made by rewriting with dated initial of the bidder after scoring out of the wrong entries. Clerical and arithmetical mistakes may result in rejection of the RFP.

- Request from the bidder in respect of additions, alterations, modifications, corrections etc. of either terms or conditions or rates after opening of the RFP will not be considered.

Sealing and Marking of Bids

The Bidder shall submit the Bid in the format specified in the RFP and seal it in an envelope and mark the envelope as "BID FOR INTEGRATED TEST MANAGEMENT SYSTEM"

1. The documents accompanying the Bid shall be placed in a separate envelope and marked as "Enclosures of the Bid". The documents shall include:
   a) Bid Security;
   b) Supporting documents; and

3. The Bidder shall submit the financial Bid in the format specified at paragraph 5.12, and seal it in an envelope and mark the envelope as "FINANCIAL BID FOR INTEGRATED TEST MANAGEMENT SYSTEM"

2. The envelope specified in s.no.1 & 2 above (both placed in one envelope) and another envelope for S.No.3 shall be placed in an outer envelope, which shall be sealed. Each of the three envelopes shall clearly bear the following identification: "BID FOR INTEGRATED TEST MANAGEMENT SYSTEM" and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right hand top corner of each of the envelopes.

5. Each of the envelopes shall be addressed to so as to reach latest by 10.07.2012 by 2.00 pm:

   Mr Ajay Mishra
   Deputy Secretary (A&F)
   Central Board of Secondary Education
   Shiksha Sadan 17 Rouse Avenue Delhi 110002

- If the envelopes are not sealed and marked as instructed above, the Board assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted.

- While RFPs are under consideration, bidders and their representatives or other interested parties, are advised to refrain from contacting by any means bidders' personnel or representatives, on matters relating to the RFPs under study. CBSE, New Delhi if necessary will obtain clarification on RFPs by requesting such information from any or all the bidders either in writing or through personal contact as may be necessary. The bidder will not be permitted to change the substance of his offer after the RFPs have been received in CBSE, New Delhi. Any attempt by any bidder to bring pressure of any kind, may disqualify the bidder for the present RFP and the bidder may be liable to be debarred from

bidding for CBSE, New Delhi RFPs in future for a period of two years. CBSE, New Delhi reserves all rights to cancel the RFP without assigning any reason thereof.

- Govt. Levies like service tax shall be paid at actual rates applicable on the date of delivery. Rates should be quoted accordingly giving the basic price, Service Tax etc.

- The proposal should be submitted in English Language and prices quoted in INR.

- Bidder shall sign all pages of RFP.

- In case of any discrepancy between rates mentioned in figures and words, the latter shall prevail.

- Any attempt to influence direct or indirect on the part of the RFP with the authority to whom he has submitted the RFP or authority who is competent finally to accept it after he has submitted his RFP or any endeavour to secure any interest for an actual or prospective bidder or to influence by any means the acceptance of a particular RFP will render the RFP liable to be excluded from consideration.

- The bidder should have an office in the Delhi state/ NCR and at other places with offices across India manned with their own qualified professionals.

Amendments to RFP

- At any time prior to the deadline for submission of Bids, the Board may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of Addenda.

- Any Addendum thus issued will be notified only on the website for information to all the Bidders and no other means of communications will be used by CBSE.

- In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, the Board may, at its own discretion, extend the Bid Due Date.

Pre Bid Conference

- Pre-Bid conferences of the Bidders shall be convened at the designated date. The time and place shall be notified on the Board's website. A maximum of two representatives of each Bidder shall be allowed to participate in the conference.
- During the course of Pre-Bid conferences, the Bidders will be free to seek clarifications and make suggestions for consideration of the Board. The Board shall endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

5.2 COST OF BIDDING

The Bidder shall bear all costs associated with the preparation and submission of its bid and Board will in no case be responsible or liable for these costs, whether or not the Bid is finally accepted.

Non-transferable RFP: The RFP Document can be downloaded from Board's website (www.cbseacademic.in) Rs 2,000/- as the cost of the document, to be remitted, in the form of a Cash/DD in favour of Secretary, CBSE payable at Delhi.

5.3 PROPOSAL VALIDITY

Technical and Financial Proposals shall remain valid for a period of 120 days from the date specified for opening of Technical Bid. CBSE, New Delhi shall reject the Proposal as being non-responsive if it is valid for a shorter period. In exceptional circumstances, prior to expiry of the original Proposal validity period, CBSE, New Delhi may extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing to or by facsimile on the listed contact information of the Bidders. In such cases, the Bidders shall not be required or permitted to modify the Proposal, but shall be required to extend the validity of the Proposal for the extension period.

5.4 EMD

The bidder shall furnish, as part of its general bid, an EMD of amount Rs 50,000/- (Rupees Fifty thousand only). The EMD shall be in the form of Demand Draft/Bank Guarantee from any Scheduled Commercial Bank located in India, drawn in favour of Secretary, CBSE, New Delhi , payable at Delhi and will not be liable for any interest. Any bid, not containing the EMD will be rejected as non responsive. Unsuccessful bidder's EMD will be discharged / returned as promptly as possible without interest. Those who are registered with Central Purchase Organization, National Small Industries Corporation, NSIC as provided under rule 157 of General Financial Rules 2005 are exempt from EMD.

5.5 BID OPENING

Bids will be opened in the presence of the representatives of the bidders who wish to attend the opening of the bids. Technically qualified bids will be taken up for further processing. Financial Bids of technically qualified bidders will be opened in the presence of the bidders / representatives on a separate date and time which will be notified separately. No discussion / interaction will be held with the bidders whose bids have been rejected / disqualified. CBSE, New Delhi reserves the right to accept or reject in part or full any or all the offers without assigning any reasons whatsoever. The RFP Evaluation Committee(s) shall evaluate the Technical Bids and Financial bids. The decisions of the Evaluation Committee(s) in the evaluation of the bids shall be final. No correspondence will be entertained outside the process of negotiation / discussion with the Committee(s).

At the date, time and location of the bid opening as specified in the RFP, the Evaluation Committee(s) shall open the Proposals, in the presence of Bidders' designated representatives who choose to attend. The Bidders' representatives who are present shall sign a register evidencing their attendance. The Bidders' names, and any such other details as the Evaluation Committee(s) may consider appropriate, will be announced by the Evaluation Committee(s) at 17 Rouse Avenue, New Delhi 110002 on the day of the

technical bid opening. The Evaluation Committee(s) reserves the right at any time to postpone or cancel a scheduled bid opening. The bids will be opened at the address specified in RFP.

5.6 LANGUAGE OF BID & CORRESPONDENCE

The Bid will be prepared by the Bidder in English language only. All the documents relating to the Bid (including brochures) supplied by the Bidder should also be in English, and the correspondence between the Bidder & CBSE, New Delhi will be in English language only.

5.7 BID CURRENCIES

Prices shall be quoted in INDIAN RUPEES, inclusive of all prevailing taxes.

5.8 EVALUATION & SELECTION CRITERIA

The Evaluation Committee will carry out a detailed evaluation of the Proposals as per section 4 of RFP in order to determine whether the technical aspects are in accordance with the requirements set forth in the Document. In order to reach such a determination, the Evaluation Committee will examine and compare the technical aspects and thoroughness of the proposals on the basis of information provided by the bidder, taking into account the following factors:-

• Overall completeness and compliance with the requirement.
• Proposed work-plan and methodology shall demonstrate that the bidder will achieve the performance standards within the time frame described in RFP documents.
• Any other relevant factors, listed in RFP document, or which the CBSE, New Delhi deems necessary or prudent to take into consideration.

5.9 DISQUALIFICATION OR REJECTION OF RFP

The RFP is liable to be rejected or the bidder be disqualified at any stage on account of the following. If the bid or its submission is not in conformity with the instruction mentioned herein.

• If the bid is not accompanied by the requisite RFP document cost
• If the bid is not accompanied by the requisite EMD. (Except those who are registered with Central Purchase Organization, National Small Industries Corporation, NSIC as provided under rule 157 of General Financial Rules 2005)
• If it is not signed with seal, on all the pages of the bid document.
• If it is received after the expiry of due date and time.
• If it is incomplete and required documents are not furnished.
• If it is misleading or false statements/ representations are made as part of requirements
• If found to have a record of poor performance such as having abandoned work, having been inordinately delayed completion and having faced commercial failures etc.

5.10 FORFEITURE OF EMD (BID SECURITY)

EMD submitted by the bidder may be forfeited under the following conditions:

- If the bid or its submission is not in conformity with the instruction mentioned herein.
- If the bidder withdraws the RFP before the expiry of the validity period.
- If the bidder violates any of the provisions of the terms and conditions of the RFP.

In the case of a successful bidder fails to

- accept award of work,
- sign the Contract Agreement with CBSE, New Delhi, after acceptance of communication on placement of award,
- furnish performance security, or the bidder violates any of such important conditions of this RFP document or indulges in any such activities as would jeopardize the interest of CBSE, New Delhi. The decision of Chairman CBSE, regarding forfeiture of bid security shall be final and shall not be called upon question under any circumstances.

A default in such a case may involve black-listing of the bidder by CBSE, New Delhi

5.11 COMPENSATION FOR TERMINATION OF CONTRACT

If the bidder fails to carry out the award / work order in terms of this document within the stipulated period or any extension thereof, as may be allowed by CBSE, New Delhi, without any valid reasons acceptable to it, may terminate the contract after giving one month notice, and the decision of Chairman CBSE, in the matter shall be final and binding on the bidder. Upon termination of the contract, CBSE, New Delhi shall be at liberty to get the work done at the risk and cost of the bidder through any other agency, and to recover from the bidder compensation or damages.

5.12 FINANCIAL BID FORMAT

(In Indian Rupees)

	Pricing Components	Amount in figures Rs………	Amount in words
1.	**Software development Charges : One Time charges** (Including supplying of user/operational manual, System study, Design, software platform, source code, databases, passwords, development, Testing, Implementation) . Including maintenance for first 2 terms/1 year		
2.	Maintenance Charges : Per Annum Maintenance of software with required modifications.		
3.	Support services for online software including a) Online Assistance (Telephonic Support) b) Web based support portal c) SMS support.		

4.	For hosting of application inclusive of web space and bandwidth etc (i.e. required infrastructure) to run this application if provided by agency : Per Annum/ Per Terabyte		
5.			
	a) Charges for Conversion of available question bank from hard copies to softcopies as per requirement of the developed software on per page basis.		
	b) Charges for Conversion of available question bank from MS Word/DTP software files to softcopies as per requirement of the developed software on per page basis.		
Note	The rates shall be inclusive of all cost as well as duties and taxes paid or payable.		
	The rates mentioned above for the project does not have any hidden cost.		

Date   (Signature of the Bidder)

6 AWARD OF WORK

The Chairman, CBSE reserves the right to accept or reject any or all bids-

- Notwithstanding anything else contained to contrary in this RFP Document, Chairman, CBSE reserves the right to accept or reject any Bid or to annul the bidding process fully or partially, or modifying the same and to reject all Bids at any time prior to the award of work, without incurring any liabilities in this regard.

6.1 NOTIFICATION OF AWARD

Prior to the expiry of the period of Bid validity, **Director (Training),** CBSE will notify the successful Bidder in writing by speed post or Fax or email that it's Bid has been accepted. The liability of the bidder to perform the services will commence from the date of notification of Award. The Completion Period shall be counted from the date of 'Notification of Award of Work'.

6.2 SIGNING OF CONTRACT

Within 10 (Ten) days of receipt of the Contract, the successful Bidder shall sign and date the Contract and return it to the CBSE. Any incidental expenses on execution of agreement

shall be borne by the successful Bidder A Service Level Agreement (SLA) will be signed with the bidder at the time of awarding the contract.

6.3 CORRUPT OR FRAUDULENT PRACTICES OR CONFLICT OF INTEREST

The Board requires that the bidders under this RFP observe the highest standards of ethics during the bidding and execution of the contract. In pursuance of this policy, the CBSE defines the terms set forth as follows:-

(a) "**corrupt practice**" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Board who is or has been associated in any manner, directly or indirectly with the Bidding Process or the Award of Work or has dealt with matters concerning the Service Level Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Board, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or (ii) engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the Award of Work or after the execution of the Service Level Agreement, as the case may be, any person in respect of any matter relating to the work or the Award of Work or the Service Level Agreement, who at any time has been or is a legal, financial or technical adviser of the Board in relation to any matter concerning the work; (b) "**fraudulent practice**" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process ; (c) "**coercive practice**" means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process; (d) "**undesirable practice**" means (i) establishing contact with any person connected with or employed or engaged by the Board with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and (e) "**restrictive practice**" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process. (f) "**Conflict of Interest**" means without limiting the generality of the word, a Bidder shall be considered to have a Conflict of Interest that affects the Bidding Process, if: (i) such Bidder (or any constituent thereof) have common controlling shareholders or other ownership interest, or (ii) a constituent of such Bidder is also a constituent of another Bidder; or (iii) such Bidder receives or has received any direct or indirect subsidy from any other Bidder, or has provided any such subsidy to any other Bidder; or (iv) such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or (v) such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them in a position to have access to each others' information about, or to influence the Bid of either or each of the other Bidder; or (vi) such Bidder has participated as a consultant to the Board in the preparation of any documents, design or technical specifications of the proposal. The Chairman CBSE will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices or conflict of interest in competing for the contract in question. The Chairman CBSE, will declare a Bidder ineligible, either indefinitely or for a stated period of time, to be awarded a contract if at any time it is determined that the Bidder has engaged in corrupt and fraudulent practices in competing for or in execution of the contract.

6.4 TERMINATION FOR DEFAULT

- Chairman**,** CBSE, may without prejudice to any other remedy for breach up of terms and conditions (including forfeiture of Performance Security) by written notice of default sent to the bidder, terminate the work / task in whole or in part, after sending a notice to the bidder in this regard: o If the bidder fails to deliver or complete the job assigned in the terms and conditions within the time period (s) specified in the RFP Document.
- If the bidder fails to perform any other obligations under the terms and conditions.

6.5 PROGRESS OF THE PROJECT
- Progress of the Project may be intimated in writing to Director Training**,** CBSE, on at least monthly basis. The Board shall review the progress on quarterly basis and further extension of contract shall be subject to satisfactory performance in previous quarter.

6.6 CONFIDENTIALITY
Any information pertaining to the CBSE or any other agency involved in the project, matters concerning CBSE that comes to the knowledge of the bidder in connection with this contract, will be deemed to be confidential and the contractor will be fully responsible, for the same being kept confidential and held in trust, as also for all consequences of its concerned personnel failing to observe the same. The bidder shall ensure due secrecy of information and data not intended for public distribution. The affidavit to this effect should be submitted along with security deposit.

6.7 FORCE MAJEURE
- This clause shall mean and be limited to the following in the execution of the contract of War / hostilities
- Riot or civil commotion
- Earth Quake, Flood, Tempest, Lightning or other natural physical disaster
- Restrictions imposed by the Government or other statutory bodies, which is beyond the control of the consultant, which prevent or delay the execution of the order by the consultant
- The Agency shall inform Director (Training), CBSE in writing the beginning and the end of the above clauses of delay, within 7 days of occurrence and cessation of the force majeure conditions. In the event of a delay lasting for more than one month, if arising out of clauses of force majeure, **Chairman,** CBSE, reserves the right to cancel the contract without any obligation to compensate the bidder in any manner for whatsoever reason, subject to the provision of clause mentioned.

6.8 ARBITRATION
- All disputes, differences, claims and demands arising under the contract shall be referred to the **Chairman,** CBSE, New Delhi for final decision and the same shall be binding on all parties.
- Any other terms and conditions mutually agreed prior to finalization of the order / agreement shall be binding on the bidder.
- **Chairman,** CBSE and the selected agency shall make every effort to resolve amicably through direct negotiation, any disagreement or dispute arising between them under or in connection with the work order. If any dispute arises between parties on aspects not covered by this agreement, or the construction or operation thereof, or the rights, duties or liabilities under these except as to any matter the decision of which is specially provided for by the general conditions, such disputes shall be referred to two arbitrators, one to be appointed by each party and the said arbitrators shall appoint an umpire in writing before entering into the

reference and the award of the arbitration or umpire, as the case may be shall be final and binding on both the parties. The arbitrators or the umpire as the case may be, with the consent of parties, may modify the time frame for making and publishing the award. Such arbitration shall be governed in all respects by the provision of the Indian Arbitration and Conciliation Act, 1996 or later and the rules there under and any statutory modification or re-enactment thereof the arbitration proceeding shall be held in Delhi.

6.9 LEGAL JURISDICTION

• All legal disputes are subject to the jurisdiction of Delhi courts only.

6.10 COMPLETENESS OF RFP OFFER

• The Bidder is expected to examine all instructions, forms, terms, conditions and deliverables in the RFP Documents. Failure to furnish all information required by the RFP documents or submission of a RFP offer not substantially responsive in every respect to the RFP documents will be at the Bidder 's risk and may result in rejection of its RFP offer. The RFP offer is liable to be rejected outright without any intimation to the Bidder if complete information as called for in the RFP document is not given therein, or if particulars asked for in the Forms / Performa in the RFP are not fully furnished.

6.11 SOFTWARE OWNERSHIP

- The Ownership of the software will be with CBSE. All databases, source code (all versions), test cases, passwords, requirements documents, high and low level design documents, change request documents etc will be handed over to CBSE on demand.

- Organization should have all the necessary processes in place for entire Software Development Life Cycle (SDLC)

-- It would be preferable for the bidder to have all the necessary components of source code in place and any change required in any of the components of the software, in-house technical skill should be available to make necessary changes

- Software code should be versioned, labelled and baselined appropriately in a standard version control system within the organization

- Software code should have multiple backup systems in place so that anytime source code can be recovered in case of any disaster

- Organization should have the test cases and regression testing code to prove that they have done necessary testing for the software. This should include performance testing also.

- Organization should have in-house quality assurance group and a strong quality management system to do quality check of the software

- Proper security provision for source codes

PERFORMA AND ANNEXURES

ACCEPTANCE OF TERMS & CONDITIONS CONTAINED IN THE RFP DOCUMENTS

To

The Director (Training)
Central Board of Secondary Education
17 Rouse Avenue
Delhi

Madam,

I have carefully gone through the Terms & Conditions contained in the RFP Document

I declare that all the provisions of this RFP Document are acceptable to my company. I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Signature of witness   Signature of the bidder

Date: Date:
Place: Place:

Company Seal

DETAILS OF THE ORGANISATON

a) Name of the Firms/Institutions/Agencies/Trust/Consortium:

b) Registered Address:

c) Year of Establishment:

d) Details of Registration / Incorporation

e) Details of the Technical Specialist employed with the Organization:

Sl. No.	Specialty / Skill-set	No. of People	Average length of service with the Organization

f) List of Project Handled:

1.

2.

3.

4.

PLACE :

DATE :

SIGNATURE OF AUTHORISED PERSON WITH SEAL

REPRESENTATIVE AUTHORIZATION LETTER

Date : _____

Ref : _____

To

The Director (Training)
Central Board of Secondary Education
17 Rouse Avenue
Delhi

Ms. /Mr. _____ is hereby authorised to sign relevant documents on behalf of the agency for the RFP   . She/He is authorized to attend meetings & submit technical & financial information as may be required by you in the course of processing above said RFP.

Thanking you,

Authorised Signatory

Representative Signature

Company Seal

Company Seal

SELF-DECLARATION

Date : _____

Ref : _____

To

The Director (Training)
Central Board of Secondary Education
17 Rouse Avenue
Delhi

In response to the RFP dated_____. Ms. /Mr. _____, as a _____, I / We hereby declare that our agency _____is having unblemished past record and was not declared ineligible for corrupt & fraudulent practices either indefinitely or for a particular period of time.

Signature of witness   Signature of the bidder

Date: Date:

Place: Place:

Company Seal

DECLARATION OF FINANCIAL & ADMINISTRATIVE DETAILS

Company Name & Address

Name :

Address :

City :

District :

State :

Pin :

Telephone :

Cell :

Fax :

E-mail :

Copies of Audited Balance sheets for the financial year are attached

Copies of experience and client's report in the similar work as desired in the RFP document-

Signature of witness   Signature of the bidder

Date: Date:

Place: Place:

Company Seal

STATEMENT OF REQUIREMENTS

PHASE I

While the detailed requirements (functional and non-functional) are mentioned under; CBSE would broadly like to digitize the question/question paper bank and automate the question paper generation exercise in the following manner:

a)	An expert team will prepare a blueprint of what should constitute a subject question paper. There would be a blueprint for each subject. The blueprint will have details as to how many sections would there be in a paper, how many questions per section, how many questions in a section to be picked up from a particular chapter/ topic, marking scheme etc.
b)	Questions may be MCQs, Fill in the blanks, Short answer/long answer type and Subjective, etc
c)	Content type may be textual, pictorial, maps, graphs, Mathematical Formulas etc
d)	CBSE subject matter experts will provide database with a pool of equivalent questions on each topic in the course.
e)	**The tool created by the agency should be able to:** (i) Build a template corresponding to the blueprint prepared by its experts - explained in (a) above. (ii) Generate a unique question paper through automated process from the question bank by picking up question from the bank on the basis of logic defined (randomly) and produce output based on the template explained in (i) above. (iii) Allow schools to log in to a web based system where they can request generation of a question paper for a test. (iv) The question paper will be emailed to the school principal during a nightly batch run and they will take print outs of the question paper that gets generated. (v) Since syllabus doesn't change very often but still the blue print and template should be configurable for each term. CBSE can keep growing the databank year on year to ensure uniqueness of question papers generated (vi) With the configurable Template the tool should be able to delete some of the question from the database on the basis of a predefined logic and be able to upload fresh questions.

Detailed Scope of Work for PHASE II and III is given in Appendix 5 and 6 respectively

Requirements – Functional and Non-Functional

(A) Functional Requirements for PHASE I

(i) Pre-delivery Phase:

●	Vendor will create a platform for CBSE to type/compose/generate/review/finalize large question bank.

●	If required by the board vendor should own/rent servers in highly secured environments.
●	CBSE Affiliated schools should register online through a portal / application available on the internet.
●	Schools should get unique login credentials, post successful registration.

●	**Application should be able to**
	
	➢ Capture the required details of questions, blue print and Template as specified by CBSE.
	
	➢ Define Tags (Q. No., Typology, Chapter, Topic, Subtopic, Marks, Difficulty level etc,) at the level of individual Question.
	
	➢ Categorize Questions based on the defined tags.
	
	➢ Define Rules for generation of Question Papers.
	
	➢ Map Question to Subject, Class & Term etc.
	
	➢ Provide flexibility for the user (CBSE) to enter questions on an individual / bulk mode.
	
	➢ Capture images, graphs and formulas etc. corresponding to the Questions.
	
	➢ Bulk upload facility for questions & images.
	
	➢ Individual questions can be authored, reviewed and sealed for use by geographically distributed people.
	
	➢ Workflow facility for reviewers to:
	
	    ➢ Review the question and approve / reject.
	
	    ➢ Send it back to the author to incorporate change.
	
	➢ Provide user the feature to Create, verification & Sealing of rule templates.
	
	➢ Support Format conversion of Question bank into any other format (like Image or excel etc.).
	
	➢ Provide Admin login where master details can be configured.
	
	➢ Ensure that the same question does not get repeated in the question paper.
	
	➢ Generate and assign question papers to the schools on the basis of geographical locations or any other criterion given by the CBSE.
	
	➢ Work on any browser

Functional Requirements for PHASE II and III detailed in Appendix 5 and 6 respectively

(ii)   **Delivery Phase for PHASE I**

●	During this phase the automated tool will generate Question Papers based on the selected rule template.

●	Validation of generated QP.
●	Finalize the subject for which schools can generate & download the QP.
●	Schools to be able to login and generate the QP for the corresponding subject.
●	The process of question generation will happen twice a year. For the exam to be held in September and March.
●	**Period of completion of work:** the agency will complete the entire process of delivery phase of automated QP generation for PHASE I within a two week window or as per the schedule given by the CBSE.

Delivery Phase for PHASE II and III detailed in Appendix 5 and 6 respectively

(iii) <u>**Non Functional Requirements for PHASE I, II and III**</u>

<u>**Security**</u>

- ❖ High Security to be made available to
  - ➢ <u>Type/Compose/</u>Create Questions
  - ➢ Create Question Paper Template / Rules
  - ➢ Upload of Question Papers
  - ➢ Review & Finalization/Sealing of Question Paper
  - ➢ Download of Question Papers
  - ➢ Security testing of all online systems/modules to be done using industry standard security testing software.

<u>**Performance**</u>

- ❖ High Performance to be made available to
  - ➢ <u>Take care of 10000 schools generating QPs for 16 subjects (8 subjects each in class IX and X) during a 2 week window in PHASE I</u>
  - ➢ Take care of 10000 students taking the web based PAT exam in PHASE II
  - ➢ Take care of up to 10 lakh students taking the Client Server based exam in PHASE III

<u>**Helpdesk**</u>

- ❖ (12h x 6d) helpdesk support required during delivery phase only.
- ❖ On call / SMS / Mail based support required.

1. **Project Management**

The Bidder will be required to have a project manager to direct their operations for the CBSE Test and to consult and liaise with CBSE to ensure the best outcomes for the total program. The Bidder's project manager will be responsible for:

- close and ongoing consultation between Bidder staff and CBSE staff on all aspects of test development, including item development, psychometrics, data analysis, and reporting;

- any necessary consultation with other bidders responsible (if any) for aspects of the CBSE-test program relating to item development, psychometrics, data analysis, and reporting; and,

- The management of timelines and deliverables on that component of the CBSE-test program relating to item development, psychometrics, data analysis, and reporting.

The Bidder may be required to participate in regular face-to-face or teleconference/videoconference meetings (if appropriate).

Item development will commence after an initial consultation meeting between CBSE staff and the Bidder.

Regular contact between the CBSE and the bidder will be maintained by phone, fax and e-mail, in addition to the above mentioned preliminary meetings.

2. **Psychometric and Data Analysis**

CBSE will send the Bidder data files containing the necessary school- and student-level information required to perform psychometric and data analysis. The format of these files will be jointly agreed upon by the CBSE and the Bidder.

The Bidder will be required to create and justify a reporting scale for the CBSE Test. While this scale may consist of percent correct scores during the first (i.e. census pilot) year of the program, the Contractor will consult with CBSE on

- the creation of a final reporting scale for the CBSE test;
- the feasibility of linking scores for a given class level across years; and
- The feasibility of creating a common scale between the tests of different Classes.

The Bidder will provide psychometric and data analyses that

- assess the reliability of the overall and context domain scores on the CBSE test;
- report the difficulties (facilities) and item-total correlations for each item of the CBSE test;
- report a distracter analysis for each item of the CBSE test;

- examine (where possible) the test questions for the presence of differential item functioning (DIF) or bias;
- Examine the internal structure of each CBSE test using principle components analysis, factor analysis, or other related techniques.

These results will be contained in a report to the CBSE.

In 2013, 2014, 2015 and 2016 the Bidder will negotiate with CBSE a research agenda with studies that examine

- the correlation of the CBSE TEST with other achievement tests or outcome measures;
- the power of the lower class test to predict scores on the next higher class test; and,

3. Reporting of Results

The CBSE will send the Bidder data files containing the necessary school- and student-level information required to perform psychometric and data analyses, and to prepare a report of the CBSE TEST results. The format of these files will be jointly agreed upon by CBSE and the Bidder.

The Bidder will provide to CBSE a file containing the results for each CBSE student taking the CBSE TEST ordered by the school he or she attended. This file will allow the CBSE to produce a simple roster of student results that can be sent to each CBSE school. The format of this file will be jointly agreed upon by CBSE and the Bidder.

Various other reports will be required by CBSE.

APPENDIX 2

PROJECT TIMELINE

The detail of the project timeline will be negotiated with the Contractor during the first consultation meeting, within the following dates:

The date of award of the tender is T

Delivery of PHASE I needs to be in T + 6 Weeks

Delivery of PHASE II needs to be in T + 12 Weeks

Delivery of PHASE III needs to be in T + 20 Weeks

APPENDIX 3
THE QUOTATION PRICE
(In Indian Rupees)

	Pricing Components	Amount in figures Rs………	Amount in words
1.	**Software development Charges : One Time charges** (Including supplying of user/operational manual, System study, Design, software platform, source code, databases, passwords, development, Testing, Implementation) . Including maintenance for first 2 terms/1 year		
2.	Maintenance Charges : Per Annum Maintenance of software with required modifications.		
3.	Support services for online software including d) Online Assistance (Telephonic Support) e) Web based support portal f) SMS support.		
4.	For hosting of application inclusive of web space and bandwidth etc (i.e. required infrastructure) to run this application if provided by agency : Per Annum/ Per Terabyte		
5.	c) Charges for Conversion of available question bank from hard copies to softcopies as per requirement of the developed software on per page basis.		
	d) Charges for Conversion of available question bank from MS Word/DTP software files to softcopies as per requirement of the developed software on per page basis.		
Note	The rates shall be inclusive of all cost as well as duties and taxes paid or payable.		
	The rates mentioned above for the project does not have any hidden cost.		

Date   (Signature of the Bidder)

APPENDIX 4
REFEREES

Please provide details of referees that the CBSE could contact with regard to the services provided.

Client:

Client Contact: ....

Contact: Telephone No. ....

Contact: Facsimile No.: ....

Contact: E-mail address: ....

Description of goods, works or
service provided to this client: ....

....

Period of contract: FROM   TO

Client:

Client Contact: ....

Contact: Telephone No. ....

Contact: Facsimile No.: ....

Contact: E-mail address: ....

Description of goods, works or
service provided to this client: ....

....

Period of contract: FROM   TO

Client:

Client Contact: ....

Contact: Telephone No. ....

Contact: Facsimile No.: ....

Contact: E-mail address: ....

Description of goods, works or
service provided to this client: ....

....

Period of contract: FROM   TO

BACKGROUND

About CBSE-i: CBSE has formulated an internationally benchmarked curriculum, the CBSE-i, curriculum is initially offered to schools overseas that are affiliated with the Board. The objective of the CBSE-i is to provide a learning platform where the learning is stress-free, self-actualized and open ended and is advocated by CCE prescribed by the Board.

About PAT: As a sequel to the development of curriculum of CBSE-i, there is an exigency of developing an assessment framework for the CBSE-i. **Performance Analysis Test (PAT)** is an annual on-line examination to assess the performance of students of class IX and class X of the schools which are following CBSE-I curriculum. It is a benchmark in testing of skills, application and abilities of the students in given disciplines and domains.

The major specifications of the test are as follows:

a. It is a test with four examinations of fifty multiple-choice questions each that are to be attempted by students in one and a half hour (90 minutes).
b. Each student is given a username and a password just before the start of the test in the examination hall.
c. The test should be comprised of a unique question paper for each student.
d. Each school shall be allotted a specified date and time for a given class and subject to manage the total no. of students appearing in the online exam at a given point of time.
e. There is no negative marking.
f. This year, the test will be for class IX,X and XI but with a provision for future extendibility to other classes.

Salient Features of Online PAT:

1. Question Paper will be of objective type consisting of four parts – English, Mathematics, Science & Social Science.
2. Medium of examination will be English only

Countries in which On-line PAT is proposed to be conducted:

1. Kingdom of Saudi Arabia
2. Qatar
3. Hong Kong
4. Singapore
5. UAE
6. Malaysia
7. Kuwait
8. Oman
9. Japan

SCOPE OF THE WORK:

1. To design a Portal for being the vehicle for the conduct of the CBSE-i PAT.
2. To conduct an online test which will be in real time with a unique output for each student who has a unique user ID allotted.
3. To design a date sheet where large number of users across countries can take the test in real time.
4. The portal needs to have the following facilities:
   - To register students during the uploading of the data from an Excel/Access file with due approval of the Administration and with an added facility of addition, modification and deletion of details.
     - ➢ The system must generate username and password which will be communicated to the students through principal/coordinator.
     - ➢ The students' data fields shall contain name, class, section, school ID, student ID from school, and student ID from CBSE-i.
     - ➢ Email shall be the optional data field.

Duration of Examination: The main examination is likely to be conducted subject-wise (one subject in one day). However as the examination will be conducted across multiple countries, the time of conducting the examination will be spread across multiple time zones.

Conduct of exams should be possible on demand throughout the academic year.

Scope of Work for PAT : This has been divided into following three broad phases :
D-1 Pre-Assessment Phase.
D-2 Test Delivery Phase
D-3 Post Test Delivery Phase

Note - Following shall be made available:
Soft copy of Candidates Application Master Data base having Roll No. & Shift
Soft Copy of Question Bank for each day

D-1 Pre Assessment Phase:

1. Designing the examination plan and examination process at:
   - CBSE International Office
   - Test Centres
   - Security processes
   - Student handling process
   - Audit processes
   - Other related processes involved for conducting PAT
2. To prepare and provide documentary manuals for all processes to be followed along with rules for contingency and exception handling
3. To provide specifications for Hardware and Software required at all stages of the PAT for:
   - Server Machines
   - Test Centre Machines

4. The software should work on any browser
5. To provide and setup software for Authoring and examination management process.
6. To provide examination delivery (Testing) software as per customization.
7. To provide facility to candidates for mock test – through website.
8. The questions will be prepared in MS-WORD with four options, correct option, class, subject, and topic. All questions are in English Language.
9. To provide the following facilities on the portal

- To define the test by specifying class, subject, no. of questions, time duration and format (blueprint) with the facility of addition, modifications, and deletion of details.
- To add, modify and delete any subject for a given class.
- To add, modify and delete any topic for a given subject for a given class.
- To add, modify and delete questions in the question bank with data fields such as question, four options, correct option, class, subject, Bin and topic.
- To add, modify and delete any Format for a given class and subject and shall contain the data field such as class, subject, and a set of topic, bin and marks for each question for the given test.

10. The PAT should include the following type of questions:

(i) Multiple Choice Questions: Questions with 4-5 answers or True and False type questions.
(ii) Graph/Diagram Questions: Questions with graphs/diagrams as a part of the question
(iii) Comprehension passages
(iv) Fill in the blanks

11. The software should automatically detect in MCQ that options are repeated (e.g. option a and d are the same) or missing (e.g. option d is missing)

12. The software should automatically detect if two or more questions in the database are the same.

13. The software should automatically detect if two or more answer sets in the database are the same.

D-2 Test Delivery Phase:

1. To host the test and manage the test delivery process through internet based solution.
2. The portal will have the following features:
   - Allow at least 10000 concurrent students to appear in PAT online at a given time with a scope of extendibility to more no. of candidates in future and result should be displayed at the end with the analysis of performance.
   - Allow students to login with their username and password.
   - On login, the system shall display the class and subject of the test for which the student is eligible as per the date sheet.
   - After that, the instructions shall be displayed and the countdown for the test to start.
   - When the countdown ends, questions shall appear in sequence.

- The system should display no. of questions attempted, no. of questions left and the total no. of questions.
- The test shall stop at the end of given time duration.
- To provide each student with a unique set of question paper, taking questions form the question bank and based on the specified test.

3. Questions shall appear based on the Sections in each subject
4. Questions are randomly chosen from the Question Bank with the given Topic and Bin.
5. The candidates should not have the capability to copy paste the questions in the test.
6. In case the internet connection goes down during the exam, the candidate should be able to resume the exam from the same question. The time remaining for the completion of the exam should also be the same as when the connection went down.

Security

The student should not be able to launch any web search tool like Google, Ask.com or Yahoo.com for the duration of the exam. To prevent this student should not be able to launch a second web browser during the exam.

The student should not be able to launch the calculator provided in Microsoft operating systems during the exam.

D-3 Post Test Delivery Phase:

1. The portal will have the following features:
   - After the assessment is over (as per the detailed date sheet), the Final Marks Statement shall be generated and submitted to CBSE. Final Marks Statement shall contain subject – wise marks obtained and analysis of performance of students.
   - To prepare the PAT Certificates as per the design approved by CBSE and upload on the portal.
   - To provide a capability for the schools to download and print the certificates.

2. To provide documented inputs and guidance support for handling
   - Students queries
   - Press interaction
   - RTI queries
   - Court Cases

Note : The agency shall have to carry/ demonstrate complete System Test Run (STR) with test data to the CBSE before implementation

APPENDIX 6

PHASE III: CLIENT SERVER BASED TEST

The major specifications of the client server based test are as follows:

1.1 Extending the software developed in Phase I, a client server version of the test will be developed.

1.2 For examinations requiring a secure proctored environment the client server version of the test needs to be developed.

1.3 There will be a central hub server where the question bank will be kept

1.4 People appointed by CBSE will take their laptops (which will act as exam center servers) to the exam centers

1.5 Just before the examination the question bank for a particular exam center will be downloaded to the local laptop server for the exam center in encrypted format.

1.6 The candidates will work on the client machines to give the test; all test data will be stored on local laptop servers.

1.7 At the end of the test the data will be transferred in encrypted format to the central hub server. After ensuring that the data has been stored on the central hub server, it will be deleted from the local laptop server.

1.8 The candidate's photograph should be displayed on the candidate's screen at all times during the test.

1.9 Biometrics fingerprint device also should be available to gather the candidate's fingerprints. These can later be attached to the laptops to upload the fingerprint data to the central hub server.

Salient Features:

1. Medium of examination will be English initially however going forward examination can be conducted in any language offered by the board

SCOPE OF THE WORK:

1. To design a client server software for being the vehicle for the conduct CBSE automated test.

2. To conduct an online test which will be in real time with a unique output for each student who has a unique user ID allotted.

3. The software needs to have the following facilities:
   - To register students during the uploading of the data from an Excel/Access file with due approval of the Administration and with an added facility of addition, modification and deletion of details.
     - ➢ The system must generate username and password which will be communicated to the students through principal/coordinator in case of school based candidates.
     - ➢ The students' data fields shall contain name, class, section, school ID, student ID from school, and student ID from CBSE-i.
     - ➢ Email shall be the optional data field.

Conduct of exams should be possible on demand throughout the academic year, as well as an event exam(with lakhs of candidates). For on demand tests online registration, username/password generation and online fee payment should be possible from any country.

Scope of Work: This has been divided into following three broad phases :
D-1 Pre-Assessment Phase.
D-2 Test Delivery Phase
D-3 Post Test Delivery Phase

Note - Following shall be made available:
Soft copy of Candidates Application Master Data base having Roll No. & Shift for event tests
Soft Copy of Question Bank.

D-1 Pre Assessment Phase:

1. Designing the examination plan and examination process at:
- CBSE Office
- Test Centres
- Security processes
- Student handling process
- Audit processes
- Other related processes

2. To prepare and provide documentary manuals for all processes to be followed along with rules for contingency and exception handling
3. To provide specifications for Hardware and Software required at all stages of the test for:
- Central Hub Server Machines
- Exam Center Laptop Servers
- Test Centre Candidate Machines

4. To provide LAN scaping software to ensure that the LAN of the exam center is configured properly and that all candidate workstations have the basic minimum Hardware and Software configuration setup properly
5. To provide and setup software for Authoring/Reviewing/Finalizing questions and examination management process.
6. To provide examination delivery (Testing) software as per customization.
7. To provide facility to candidates for mock test – through website.
8. The questions will be prepared in MS-WORD with four options, correct option, class, subject, and topic. All questions are in English Language.
9. To provide the following facilities on the software
- To define the test by specifying class, subject, no. of questions, time duration and format (blueprint) with the facility of addition, modifications, and deletion of details.
- To add, modify and delete any subject for a given class.
- To add, modify and delete any topic for a given subject for a given class.
- To add, modify and delete questions in the question bank with data fields such as question, four options, correct option, class, subject, Bin and topic.
- To add, modify and delete any Format for a given class and subject and shall contain the data field such as class, subject, and a set of topic, bin and marks for each question for the given test.

10. The exam should include the following type of questions:

(v) Multiple Choice Questions: Questions with 4-5 answers or True and False type questions.

(vi) Graph/Diagram Questions: Questions with graphs/diagrams as a part of the question

(vii) Comprehension passages

(viii) Fill in the blanks including cloze and passages

(ix) Higher Order Thinking Skills (HOTS) questions

(x) Image Area Questions: For example the student may be asked to locate Italy on a map of Europe. If the student clicks on Italy the question will be marked correct else it will be marked incorrect.

(xi) Short answer questions – Open ended

(xii) Essay Type Questions: The student should have the capability to write essays or short answers if required. The essays will be marked manually. So there should be a workflow to route the essay question to examiners and get responses on marks obtained by various students back from the examiners. Loss of internet/LAN connectivity may lead to the candidate losing the work already done. To work around this essay items should be auto saved after every 1 minute.

(xiii) Case Study Pop-us: 4-5 multiple choice questions can be associated to a case study pop up.

(xiv) Exam Aid Pop-ups: In examinations where scientific/normal calculators (or other aids) are allowed they should pop -up

11. The software should automatically detect in MCQ that options are repeated (e.g. option a and d are the same) or missing (e.g. option d is missing)

12. The software should automatically detect if two or more questions in the database are the same.

13. The software should automatically detect if two or more answer sets in the database are the same.

D-2 Test Delivery Phase:

1. To host the test and manage the test delivery process through client server based solution.
2. The software will have the following features:
   - Result should be displayed at the end with the analysis of performance. The result can either be displayed immediately after the exam or there can be a gap in result declaration after the exam.
   - Capability to interface with biometric fingerprint device, photography web cam and electronic signature pads
   - Allow students to login with their username and password.
   - On login, the system shall display the class and subject of the test for which the student is eligible as per the date sheet.
   - On login the photo of the candidate will also be displayed on every page of the test
   - A dashboard will also appear with Question Numbered 1- Last. Every question will be indicated with a colour code e.g. White for un-answered questions, Blue for skipped questions, Green for answered questions, Red for questions marked for further review by the candidate

- There may be multiple sections in the exam with/without a configurable time lag between different sections.
- After that, the instructions shall be displayed and the countdown for the test to start.
- When the countdown ends, questions shall appear in sequence.
- The system should display no. of questions attempted, no. of questions left and the total no. of questions.
- The test shall stop and be submitted at the end of given time duration.
- It should be configurable to make the candidate sit in an exam for a minimum duration
- To provide each student with a unique set of question paper, taking questions from the question bank. Any two students sitting adjacent should have at the most 1-2 common questions.

3. Questions shall appear based on the Sections in each subject
4. Questions are randomly chosen from the Question Bank with the given Chapter, Topic and Difficulty level.
5. The candidates should not have the capability to copy paste the questions in the test.
6. In case the internet/LAN connection goes down (or the system crashes or any other interruption occurs) during the exam, the candidate should be able to resume the exam from the same question. The time remaining for the completion of the exam should also be the same as when the connection went down.
7. The local Exam center administrator should have the privilege to pause the exam. The administrator should have the privilege to either continue with the countdown of the exam clock or to stop the exam clock during the period of the pause.
8. In either of the 2 conditions above the exam can be restarted only by the local Exam center administrator after entering the admin password.
9. Before clicking the submit button the system should enquire from the candidate twice whether s/he is sure and wants to final submit the exam
10. If a specific question has been exposed to the candidate n times (n is a configurable parameter) then that question should no longer be presented to the candidate

Security

The student should not be able to launch any web search tool like Google, Ask.com or Yahoo.com for the duration of the exam. To prevent this student should not be able to launch any web browser during the exam.

The student should not be able to launch the calculator provided in Microsoft operating systems during the exam.

The only window which the student can open during the exam should be the exam window only. No other window should be opened.

All keyboard shortcuts should be disabled during the exam. Only specified keys should be allowed during the exam.

Security testing of the application should be done through industry standard security testing software.

All kinds of disruptions like power failure, internet connectivity loss should be recoverable.

D-3 Post Test Delivery Phase:

1. The software will have the following features:
   - After the assessment is over, the Final Marks Statement shall be generated and submitted to CBSE. Final Marks Statement shall contain subject –wise marks obtained and analysis of performance of students.
   - To prepare the Certificates as per the design approved by CBSE and upload on the portal.
   - To provide a capability for the schools/candidates to download and print the certificates.

2. To provide documented inputs and guidance support for handling
   - Students queries
   - Press interaction
   - RTI queries
   - Court Cases

Note : The agency shall have to carry/ demonstrate complete System Test Run (STR) with test data to the CBSE before implementation