



TENDER DOCUMENT FOR PROCUREMENT OF EQUIPMENTS

DATE OF ISSUE	18-09-2014		
PRE BID CONFERENCE	29.09.2014	11:00 hrs	(item no. 1&2 of Annexure-I)
	30.09.2014	11:00 hrs	(item no. 3&4 of Annexure-I)
	1.10.2014	11:00 hrs	(item no.5to7 of Annexure-I)
LAST DATE OF SUBMISSION	14-10-2014 up to 12.30 P.M.		
DATE OF OPENING OF TECHNICAL BIDS	14-10-2014 at 15.00 P.M.		
PLACE OF SUBMISSION OF TENDER	Birbal Sahni Institute of Palaeobotany, 53, University Road, Lucknow – 226007 (UP) India		

**BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY
53, UNIVERSITY ROAD,
LUCKNOW – 226007 (UP) INDIA**

Tel: 91-522-2742903, Fax: 91-522-2740098

Website: www.bsip.res.in

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INTRODUCTION

1. Birbal Sahni Institute of Palaeobotany, 53, University Road, Lucknow (UP) is an autonomous institution under the Department of Science & Technology, Govt. of India. The Institute is pursuing research in Palaeobotany and allied subjects including Geochemistry and dating.
2. BSIP, Lucknow invites "Sealed bids" under **Two-Bid system** from (i) either manufacturer or (ii) an authorised agent for the equipment/item fulfilling the criteria laid down in Technical Bid format for the supply of equipments.

Tenders should be sealed, superscribed **with**
"Tender No. BSIP/TENDER/STORES & PURCHASE/2014-2015/
and submitted only at the following office:
DIRECTOR
BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY
53, UNIVERSITY ROAD,
LUCKNOW - 226007

and should be submitted on or before the closing date i.e. **14.10.2014 at 12:30 hrs.**, if delivered personally and if the quotes are sent by post/courier, the tender must reach **BSIP, LUCKNOW** at the address given above before closing time and closing date.

BSIP is not responsible for delays of any nature including postal and force majeure. Tenders received after the due date will not be accepted under any circumstances

The schedule of opening of quotes is as follows and at the following venue:

	Date	Time
Technical part Opening in the presence of intending Tenderers at BSIP, LUCKNOW	14.10-2014	15:00 hrs

BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY

53, UNIVERSITY ROAD, LUCKNOW – 226007

Tender No. **BSIP/TENDER/STORES & PURCHASE/2014-2015/**

e-Tender Notice

Director, Birbal Sahni Institute of Palaeobotany, Lucknow - 226007 (India) invites tenders **(Part – I Technical Bid, Part – II Commercial Bid)** in separate sealed covers from (i) either manufacturer or (ii) an authorised agent for the equipment/item under two bid system.

Supply of Equipments and Accessories

A T

BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY, 53, UNIVERSITY ROAD, LUCKNOW - 226007

Tender documents can be downloaded from Institute web site <http://www.bsip.res.in>. The bidder has to submit the tender document fee of **Rs.1000=00 (Rs. One Thousand only)** in the form of DD drawn in favour of **Director, BSIP, LUCKNOW** payable at **Lucknow (UP)** with the **Technical Bid-Part 1**

Date of Issue of Tender Document : 18.09.2014
Pre-Bid Meeting at BSIP, Lucknow (item no. 1&2 of Annx. I) : 29.09.2014 at 11:00 hrs
Pre-Bid Meeting at BSIP, Lucknow (item no. 3&4 of Annx. I) : 30.09.2014 at 11:00 hrs
Pre-Bid Meeting at BSIP, Lucknow (item no. 5,6&7 of Annx.I): 01.10.2014 at 11:00 hrs
Last date of receipt of Tender at BSIP, Lucknow : 14.10.2014 upto 12:30 hrs
Opening of Tenders (Technical Bid only) : 14.10.2014 at 15:00 hrs
Venue of Pre-Bid Meeting - BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY, 53, UNIVERSITY ROAD, LUCKNOW – 226007

The Institute reserves the right to reject any or all tenders without assigning any reason therefore.

Director
Birbal Sahni Institute of Palaeobotany

BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY

**53, UNIVERSITY ROAD,
LUCKNOW - 226007**

Tel: 91-522-2742903, Fax: 91-522-2740098

E-mail: registrar@bsip.res.in

Website: www.bsip.res.in

DETAILS OF TENDER AND TENDER NOTICE

Tender in sealed cover is invited by Director, BSIP from manufacturers or authorized agents **for the supply of equipments /accessories for the use of the INSTITUTE.** Details of the equipment, number of units, their specifications, are given in **Annexure I** of this the tender document.

The tender document can be downloaded from the websites of BSIP at www.bsip.res.in One tender document is adequate even if bids are submitted for more than one item. Tender documents are available: From **18.09.2014 at 11.00 am to 14.10.2014 at 12.30 am.** LAST DATE FOR SUBMISSION OF DULY FILLED UP SEALED TENDER AT BSIP, LUCKNOW is **14.10.2014 upto 12.30 am.**

A pre-bid meeting would be held at BSIP, LUCKNOW at 1400 hrs on 29-09-2014, 30.09.2014 & 01.10.2014. Maximum of 03 authorized representatives of each bidder will be allowed to attend the Pre-Bid meeting. The date of Opening the Technical Bid opening will be on same day i.e **14.10.2014.** BSIP, LUCKNOW reserves the right to accept or reject any or all the bids either in full or any part at its discretion without assigning any reason thereof.

Address for Communication: **BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY, 53,UNIVERSITY ROAD, LUCKNOW – 226 007, Tel.: 91-522-2742903 Fax 91-522-2740098.**

TERMS AND CONDITIONS – GENERAL

1. Tender documents shall be issued by BSIP at LUCKNOW to manufacturers / authorised agents.
The Tender Document fee of Rs 1000/- (non-refundable) should be separately enclosed with the technical part and be submitted on or before the closing date.
Separate Tender documents should be required for each item alongwith separate Tender fee.
2. Modifications, if any, made in the above documents will be done by addenda / corrigenda, copies of which will be sent in duplicate to each bidder before the due date of the tender. One copy should be signed, sealed and submitted along with the technical bids. The bidder shall not make any additions / deletions to or amend the text of the documents except in so far as may be necessary to comply with any addenda / corrigenda issued. **The bidders shall use only tender documents as issued for submitting his bid and shall comply with various terms and conditions.**
3. All pages of tender documents shall be signed by the person authorised to file the tender.
4. The full name of the person authorised to file the tender, designation, current and main office address, Phone No., Fax No. & E-mail address shall be indicated in the tender.
5. Tenders sent through E-mail, Fax and Telex will not be entertained.
6. The tender should be filled in and submitted in English. All accompanying literature and correspondence shall also be in English.
7. No claim for costs, charges, expenses incurred by the bidder in connection with preparation of tender submission and for subsequent clarifications of their tender shall be accepted.
8. BSIP will not be responsible for any typographical errors/ambiguity/ additions /omissions committed by the bidder while filling up of the tender.
9. **Earnest Money Deposit :**
 - 1 Tender must be accompanied by Earnest Money Deposit (EMD) as indicated in Annexure-I for each item being supplied in the form of DD/BG in favour of BSIP, payable at LUCKNOW. EMD shall be paid in **Indian currency only**. In case of receipt of EMD in Indian currency from abroad, same shall be refunded in Indian currency only. BSIP will not be responsible for refunding the EMD in foreign currency.

- 2 The bids are to be submitted in two sealed envelopes. Technical Bid (Envelope I) shall contain Earnest Money Deposit (EMD), prequalification documents, tender conditions and contract form duly signed by authorized person or persons as a token of acceptance of terms and conditions of supply and work qualification as per **Annexure VI**. Financial Bid (Envelope II) shall contain price schedule of quantity.
- 3 The EMD deposit by the successful bidders shall be held back towards the security deposit and will be refunded after six month of successful installation of the equipment/machine at site.
4. The EMD of the unsuccessful bidder will be returned within one month from the date of opening of the technical bids

Important : EMD should be kept in the technical part only. If the EMD is not found in the technical part, then the quote will be rejected outright. No Clarifications shall be taken by BSIP.

10. **The E.M.D. is payable by all categories of tenderers and no exemption from E.M.D. is permissible. Quotes without E.M.D. shall be treated as invalid/ rejected.**

EMD submitted in the form of Fixed Deposits will not be accepted.

11. Technical Compliance statement for the tendered item is a pre-requisite for evaluation. Therefore the same must be submitted with the technical part. **Any falsification / suppression of facts in the compliance statement would lead to the rejection of the quote, along with forfeiture of the E.M.D.** Corresponding to each technical specification in the compliance statement, relevant serial no. / page no. / line no. etc., in the data sheet should be indicated. Incomplete compliance statement may lead to rejection of the quote.
12. The bidder shall be deemed to have full knowledge of documents and no extra charges consequent on any misunderstanding or otherwise shall be allowed.
13. Any question regarding the tender document and discrepancies shall be directed to the Tender Issuing Authority in writing minimum 3 days prior to the due date of submission of tender. The Tender Issuing Authority will issue all clarifications, interpretations, meanings and specific directions, if any, in duplicate in writing to all the bidders. **One copy of these shall be returned duly signed and seal affixed along with the bids.**
14. The bidder shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender and about the rates quoted by him and cover all his obligations under the tender.
15. Bids submitted by manufacturers and authorised agents only shall be considered.

15(A). Authority of signing

If the tender is submitted by an individual, it shall be signed by him.

If the tender is submitted by a proprietary firm, it shall be signed by the proprietor.

If the tender is submitted by a partnership firm, it shall be signed by all the partners of the firm or by a partner holding the power of attorney for the firm for signing the tender, in which case, a certified copy of power of attorney shall accompany the technical bid.

If the tender is submitted by a limited company or a corporation, it shall be signed by a duly authorized person or the person holding the power of attorney for signing the tender, in which case a certified copy of the power of attorney shall accompany the technical bid.

16. Price & currency bid

The tender shall be filled in English with a neat hand / type and all the figures and words shall be legible.

The rates shall be written both in words and in figures. The bidder shall also show the amount of each item, the total of each section and the grand total of the whole tender.

Correction, if any, shall be made by crossing out, initialing with date and rewriting. In case of conflict between the figures and words in the rates, the latter shall prevail.

The tenders shall be verified by the bidder for accuracy in the arithmetical calculations, prior to submission.

16.1 Technical details shall contain

- Original Tender document **duly signed** by the authorised person on all pages.
- Compliance to technical specifications of the equipment/item for which bids are submitted – Authorised person to indicate the **compliance of technical specifications in the respective pages** of the tender document and sign the same.
- **Compliance to the terms and conditions** of the tender document - Authorised person to specify, “**all the above terms and conditions will be complied with**” and signed in respective pages of the tender documents, where “terms and conditions” are given.
- Adherence to the stipulated **delivery schedule** of the equipment/item – Authorised person to specify “delivery schedule given above will be complied with” and signed in respective pages of the tender documents, where “delivery schedule of each of the items” is as given in **Annexure III**.
- **Proof that the bidder** is (i) either manufacturer or (ii) an authorised agent for the equipment/item for which the bid is submitted.

- List of organisations in India and abroad, along with Contact Person, address, Tel. No., Fax No. etc., to which **similar make/model** of the equipment were supplied.
- Compliance that the bidder has manufactured or supplied the equipment during the past 2 years and **performance report from at least 2 such users** for the past 2 years.
- Covering letter, in the letter head of the bidder stating:
 - a. That the minimum **warranty period of one year**.
 - b. That the bid **conforms to the terms and conditions** of the tender
 - c. Confirmation about the **supply of Certified Reference Materials/Samples** for checking the performance of the testing equipments, wherever applicable.
 - d. Confirmation that the quoted rates are valid till 31-01-2015.
 - e. The details regarding the service centers, stocking of spares etc.,
- Addenda / corrigenda /clarification issued by BSIP before due date of tender, duly signed by the authorised person.
- Descriptive leaflet/brochure giving the technical details of the equipments.
- A letter indicating assumptions, criterion, technical alternative etc., if any. However, the alternatives suggested by the bidder would not be taken as the basis for technical/commercial evaluation of the bids.
- The probable life expectancy of the equipments under normal conditions of operation should be stated wherever applicable.
- Details of pre-installation requirements including space, size of the table required, power point ampere, etc.
- Power of attorney authorizing the person who has filed the tender, if applicable.
- A copy of the certificate for the calibration of the similar makes and model equipment for which bid is submitted from an accredited calibration laboratory or National Physical Laboratory, wherever applicable.

16.2 Commercial details shall contains

- a) Total cost of the main equipment and accessories (imported/indigenous), required for the functioning of the equipment, including the test control system, printer, packing & forwarding etc., duly filled and signed **in the format prescribed in the tender document at Annexure - II**. No money other than the total indicated above will be payable on any account.
- b) Annual Preventive Maintenance charges for the next 3 years, after the expiry of the warranty period, in the format prescribed in the tender document at **Annexure - II**.
- c) The pre installation requirement should be mentioned in the bid.

17. Validity of the tender

Rates quoted by the bidder shall be valid up to 120 days after opening of commercial bid

The Bidder shall not withdraw or revise or alter any conditions, rate(s) quoted within this stated period, unless he is called upon to do so on mutual agreement/negotiations.

17. Opening of tender

The tender shall be opened by a Committee constituted by the Director, BSIP at LUCKNOW at the time, date and venue as given in the “Tender Notice”.

18. Agreement

The successful bidder shall sign an Undertaking on letter head as per the format prescribed in **Annexure-V** before releasing of the Purchase order by BSIP. A copy of The Purchase order once received should be returned as a token of acceptance of the terms and conditions of the Purchase Order.

20. Criterion for rejection

BSIP reserves the right to accept or reject any tender or reject all tenders without giving any reasons whatsoever for their decision.

Tenders are liable to be rejected in which any of the prescribed particulars / information is either missing or incomplete in any respect and/or if the prescribed conditions are not fulfilled.

Tenders which are found to be technically non - responsive shall be rejected and their commercial details shall not be considered.

Canvassing in connection with tender is strictly prohibited and tender submitted by bidder who resorts to canvassing will be liable to rejection.

Tenders containing specific conditions of the bidder other than the terms and conditions given in the tender document and not acceptable to BSIP are liable to be rejected.

If the validity of the tender is not up to **31-01-2015**; the tender will be rejected.

If the tender document duly signed by the authorized person on all pages is not submitted, the tender will be rejected.

BSIP caters to wide range of customers / stakeholders including the manufacturers/exporters. Hence, Purchase Committee may at its discretion give preferences to more popular brands of equipments, which give results that, are widely accepted internationally by buyers abroad and the decision of the Committee will be final.

Before submission of the tender, the prospective bidders are expected to examine technical specifications of the equipments required, terms and conditions, etc., given in this tender document. Failure to furnish all information required in the tender document may result in the rejection of the bid.

BSIP reserves the right to cancel items, from the list of requirement of equipments without assigning any reason thereof.

TERMS AND CONDITIONS- SPECIAL

1. Cost details are to be filled up in the prescribed format as given at **Annexure – II** for all the equipments as applicable to imported /indigenous indicating therein total CIF charges.
2. All accessories, start up kit required for installation & commissioning the main equipments are to be specified and quoted
3. The terms of payment in case of imported equipments shall be:

100% irrevocable Letter of Credit (L/C) in favour of the principal supplier
 - a) 80% will be paid against delivery of the equipment in good condition.
 - b) 20% remaining amount will be paid after successful commissioning of the equipment, demonstration of satisfactory performance and imparting training to the technical personnel of the laboratory concerned.
5. The terms of payment in case of indigenous equipments shall be:
 - a) 90% of the ex-works price of the equipments will be paid against invoice and delivery of the equipment in good condition.
 - b) 10% remaining amount plus packing, freight and insurance charges will be paid after successful commissioning of the equipment, demonstration of satisfactory performance and imparting training to the technical personnel of the laboratory concerned.
6. For indigenous items, the bidder should take responsibility for delivering the equipments inside the premises of the respective BSIP at Lucknow and its Associate partners as mentioned in the Purchase Order.
7. The suppliers of the equipment should provide adequate training for at least 2 technical personnel of the laboratory per equipment including trouble shooting etc., and making them confident of operating the equipment independently.
8. The bidder shall adhere to the delivery period of the equipment/item as committed by him as indicated in **Annexure III** of the tender document, whichever is earlier. Penalty for non-execution of the order within the delivery period shall be 1% of the cost of the equipment/item for every week of delay.
9. The delivery installation & commissioning period of the equipments as agreed to should not be extended; under normal conditions. Suitable penalty for non-execution of the order may be enforced to the extent of 1% of the cost of equipment for every week extended. In case of the delay beyond scheduled period due to some unforeseen reason, written permission is required from the

Director, Birbal Sahni Institute of Palaeobotany, Lucknow with proper justification to avoid penalty.

9. The bidder shall give warranty for at least one year in respect of items quoted.
10. During the warranty period, regular servicing/maintenance should be undertaken free of charge, including replacement of defective parts/travel cost, etc. Subsequently, servicing/maintenance should be undertaken by the authorised agency of the manufacturer / supplier as per the annual maintenance contract conditions.
11. Operation manuals, calibration procedures and other instruction manuals should be provided along with each of the equipment.
12. The bidder shall also mention the probable life expectancy of the equipments under normal conditions of operation should be stated wherever applicable
13. Terms for service contract (comprehensive or non-comprehensive) after the expiry of warranty period are to be included.
14. The Test Control Systems like computer and printer, compatible to the main equipment, are to be supplied indigenously with latest configuration and licensed operating system.
15. If the equipment/item is not manufactured by the bidder, authorization of the manufacturer to the bidder for marketing and servicing the equipments in India should be enclosed along with the technical bid of the tender. In the absence of such authorization, the tender will not be considered at all.
16. In case of short supply or wrong supply of equipments, its parts or accessories or supply of items in damaged conditions, it is the responsibility of the bidder to arrange for the supply of the required items in working condition as per the purchase order, within a reasonable time. Any additional expenditure, whatsoever, for the above will be borne by the bidder only.
17. The specifications given in this document are the minimum requirement. The bidders are free to offer equipments with better features also. However, the evaluation shall be based on the features mentioned in the tender document. If different model are quoted, the cost details may be given in separate sheet
18. Orders for the supply of items, once placed with successful bidder is non transferable and no sub-contracting is permitted. BSIP, Lucknow reserves the right to cancel the order in such event.
19. Any non-fulfillment of the stipulation given above will make the bid invalid.
20. The full payment will be released to the bidders only after completion of satisfactory performance check of the equipment.

21. In case of computer related equipment, the bidders have to quote for indigenous computer only instead of imported computers, if any.
22. The bids shall first be evaluated for their “technical responsiveness” which shall inter-alia include,
- (i) Proof that the bidder is (i) either manufacturer or (ii) an authorized agent for the equipment/item for which the bid is submitted,
 - (ii) Compliance to technical specifications of the equipments for which the bid is submitted,
 - (iii) Adherence to the warranty period,
 - (iv) Documents in support of compliance to the calibration of the equipment and its traceability to national/international standards of measurement and proven performance through proficiency testing, wherever such requirement is specified,
 - (v) Necessary documentary proof that the bidder has manufactured or supplied the equipment during the past 2 years along with the list of such customers and performance report of the equipment from at least 2 such customers/users for the past 2 years,
 - (vi) Details regarding the service centers, stocking of spares etc.
 - (vii) Confirmation about the supply of Certified Reference Materials/Samples for checking the performance of the testing equipments, wherever applicable.
 - (viii) Compliance to all other relevant and critical terms and conditions of the tender.
 - (ix) Validity of the tender upto **31-01-2015**.
 - (x) **If any of the above mentioned parameters are not fulfilled, the bid will be considered as technically non-responsive.**
23. The commercial details of those bidders who are technically responsive only shall be evaluated based on the following criterion :
- (i) Total price of the equipment as CIP / CIF for imported items.
 - (ii) Total price of the indigenous items should include delivery charges up to the location at BSIP, Lucknow, India.
 - (iii) AMC charges for three years after the expiry of the warranty period.

DETAILS OF ANNEXURE**List of equipments to be procured**

tem No.	Particulars	Qty.	EMD in DD/ BG/ BC	Performance Security
1.	Particle Size and shape Analyzer (Specification attached)	1	4%	10 %
2.	FESEM (Field Emission Scanning Electron Microscope) with EDS (Energy Dispersive Spectroscopy) (Specification attached)	1	4%	10 %
3.	X-Ray Diffraction (XRD) (Specification attached)	1	4%	10 %
4.	Induced Couple Plasma- Optical Emission Spectrometer(ICP-OES) with accessories (Specification attached)	1	4%	10 %
5.	Liquid Scintillation Spectrometer (Counter) (Specification attached)	1	4%	10 %
6.	a. Raman Spectrometer (Specification attached)	1	4%	10 %
	b. CLSM(Confocal Laser Scanning Microscope) (Specification attached)	1	4%	10%
7.	Table Top Scanning Electron Microscope	1	4%	10 %

COMPLIANCE STATEMENT TO SPECIFICATIONS OF EQUIPMENTS

(Compliance with specification column is to be filled up by the bidder stating “YES/NO” as the case may be)

1. Particle Size And Shape Analyzer

Sr. No.	Specification	Requirements	Compliance with specifications (Y/N)
	Measurement Principle	Laser Diffraction Particle Size Distribution Analysis System 0.05microns to 2500microns	
	Particle Size Range	PSA should be capable of analyzing powders in wet & dry modes. No separate attachments. Auto switch-over from one mode to another. No need for optics alignment after every switch-over.	
	Wet & Dry Modes		
	Laser Source	Solid State Diode Laser sources having better stability n long life. Minimal laser stabilisation time; Operator should be able to do normal analyses instantly after switching ON the instrument without waiting for any stabilisation/warm-up period. Laser output during measurements should be in pulsed mode and not in continuous mode. 5 year warranty on laser source. Instrument should comply with ISO norms & Laser with safety norms . (specify with certificates/declaration etc).	
	Instrument/Laser Compliance		
	Detector System	Logarithmically spaced silicon array detectors and CCD camera.	
	Circulation system	By use of peristaltic pump. Two separate pumps to take care of recirculation and drain.	
	Solvent Compatibility	Should be compatible with most of the commercially available solvents -	

		recommended materials are Steel, Silicon, Quartz, Viton & Tygon.	
	Sample Tank	Integrated variable-power ultrasonic and variable-speed stirrer with the sample tank Provision for unattended rinsing/cleaning of the liquid circuit after every measurements. Level sensors for sensing the liquid level inside the sample tank. Should be able to use ultrasound on samples before and during the measurements.	
	Sample Cell	Sample cells should be having quartz windows, and easily removable for maintenance.	
	Operating Software	Windows2007 or WindowsXP based During measurements, signals from each detector should be displaying on screen. Also, there should be a display of signals reaching on Laser reference detectors. Depending upon sample concentration, an obscuration scale should be displayed during measurements.	
	Signal Display		
	Real-time analysis	Should be displaying the results in real time during measurements. Searching, Sorting and filtering by search criteria of data records on all parameters of interest such as Operator, Sample Name and Measurement Date.	
	Database Utility	Should be able to display superimposed results of two or more measurements for off-line comparison study. Blending/Mixing of two or more measurements by use of simple mathematical calculations	
	Result Output format	Results should be displayed both in graphical as well as tabular formats. Should be able to display results in oversize and undersize modes. Tabular format of result should consist of at least 100 classes. Should be able to include additional minimum 15-20 user defined classes. Provision for making and storing suitable SOPs for particular samples types, which can be recalled before a measurement.	

	Computer System/UPS	Compatible computer with latest configuration, with printer etc to be quoted/supplied with the System.	
	Upgradation	The PSA should be upgradeable in future for Small Volume Sampler , Shape Analyzer , etc	

SHAPE ANALYZER

	CCD Camera	Inverted microscope based on statistical image data analysis, computed by "Expert Shape" software	
	Light Source	6V Halogen Bulb 30W	
	Camera	768 x 576 – CCIR Pixel size 8.6 u (H) x 8.3 u (V)	

2. FESEM (Field Emission Scanning Electron Microscope) with EDS (Energy Dispersive Spectroscopy)

	Specifications	Requirements	Compliance with Specifications (Y/N)
1.	Resolution @ 15 kV and 1 kV	< 1.0 and 1.5 nm respectively (with Gentle and deceleration beam technology)	
2.	Emitter	Thermal field emission	
3.	EHT	Upto 30 kV	
4.	Probe current	10pA up to 300nA. Surety of constant probe current.	
5.	Magnification	~10x to 2000000x	
6.	Specimen chamber	~300mm (Ø), 8 accessories port	
7	Stage (5 Axis) X,Y,Z,T,R	100,100,50 , -15 to 75, 360 continuous	
8	Sample holder	Both single and multiple stub holders	
9	Detectors	In column – SE and BSE EBSD ETSE Cathodoluminescence EDS (LN2 free; SDD technology)(50mm and 127 eV resolution; Detecting and quantifying elements from B to U) with complete software support	
10.	Chamber Image	CCD camera for IR- illumination display of chamber with separate monitor	
11	Image processing	6144 x 4608 pixel, TIFF or JPEG	
12	System control	Windows 7 , joystick, manual user interface	
13	Image display and storage	Two-19" /24"TFT display, 1TB Hard disk Front USB,CD/DVD reader/writer	
14	Sputter coater	C and Au sputter coater (rotating stage) for uniform coating	
15	Vacuum	<i>Should be fast, clean and oil-free. (Suitable vacuum system having Ion pump. Turbo & Rotary Pump)</i>	
16	Software	<i>FE-SEM: User friendly graphical interface including fail safe protection. Latest state of art image processing Particle size analyzer. Automated mineralogy analyzer and Automated Petrography capabilities. An automated mineralogy software suite. The software can also be used off line for further advanced image analysis and reporting. Off-line Analysis,</i>	

		<i>Interpretation and Reporting Software Package.</i> <i>EDS:</i> <i>EDS system software should be latest, extremely user friendly and operator interactive catering to applications viz.</i> • <i>Elemental analysis</i> • <i>Multi element mapping with chemical information</i> • <i>Customized reporting</i> • <i>Automatic qualitative & quantitative Analysis</i> • <i>Software option to extract trace elements on each pixel stored in scanned spectrum image.</i> • <i>Multiple point analysis should be square rectangle polygon etc. for selected area analysis and automatic data collection in specified analysis area.</i> • <i>Advanced phase analysis software</i> • <i>Spectrum synthesis etc.</i> • <i>In- built help</i>	
17	Calibration	<i>Accessories to calibrate magnification, dimension and resolution.</i>	
18	Anti-vibration Table	<i>Anti-vibration table for the chamber and the microscope column.</i>	
19	Supporting tools	<i>Specimen handling tools, stage tools and specimen preparation materials and general tools for maintenance of FE-SEM.</i>	
20	Up-gradation	<i>The supplier shall supply any software for FE-SEM and EDS operation whenever they are upgraded for free of cost.</i>	
21	Optional	<i>Quote should also be submitted for recommended essential spares and consumables for uninterrupted operation of the equipment for five years.</i> <i>One set of UPS for the ion-pumps must be quoted by the manufacturer along with the system. The UPS should be able to support the ion-pump for at least 200 hours continuously in case of power failure.</i>	

3. Technical Specifications for XRD

X-ray Diffractometer for Powder, Thin Film, Microdiffraction(SAXS upgradeable) with minimum alignment to changeover from different configuration.

1. X-RAY GENERATOR:

Compact system with setting option through computer, Maximum output power 3kW or above rating, Maximum output voltage 20-60 KV or above adjustable steps of 1-2KV, Maximum Current - 2- 60mA or above adjustable with a step of 1mA; stability ($\pm 0.05\%$ for 10% fluctuation in current and voltage for variation of main supply.

Flawless safety mechanism against over-voltage, over-power, over-current, over-load, abnormal input mains voltage, or temperature. Interlock on operation panel etc. Options of X-ray power Manual and Auto start-up/shutdown. Necessary software and hardware for diagnostics capable of checking the equipment parameters/calibration etc. should be provided.

2. X-RAY TUBE:

Cu anode, long fine focus, Ceramic insulated, Capability of change from line focus to point focus without any need of disconnecting water connections, or need for realignment. Tube should be fully synchronized with X-Ray Generator. X-ray tube Guarantee period should be mentioned.

3. NI-FILTER:

Ni filter to be offered for the X-Ray Tube. Suitable Filter can be quoted for other X-Ray tubes as option. Beta filter is also required with basic offer.

4. GONIOMETER:

High Precision Goniometer with theta-2theta or theta-theta configurations with independent movements of each theta arm controlled by computer and a minimum diameter of 570 mm. Goniometer radius may be optimized for better resolution. The Goniometer should be equipped with suitable slit assembled both on the primary and secondary sides to enhance overall performance. Mention various scanning mode option available with the Goniometer.

Angular reproducibility: ± 0.0001 deg. or better.

Accuracy of 0.003 deg or better.

It should be maintenance free and does not require greasing and all.

5. OPTICS:

Receiving (detector) slit, divergence slit, anti-scatter slits (both on incident and diffracted beam sides) for low angle to high angle.

XRD system should offer easy switchover from Powder application to parallel beam Application without any need for service engineer intervention or realignment of the system.

Monochromator for removing beta lines and sample fluorescence for Cu radiation.

System should operate both in conventional Bragg-Brentano and parallel beam geometry.

Parallel beam optics on primary and secondary side should be quoted.

Point optics on primary side to carryout microdiffraction should be provided.

6. SAMPLE STAGE:

Standard sample for powder.

Also another Sample stage should be suitable for powder, pellets and thin film samples with capability to carry sample weight upto ½ Kg at least., with sample holders ~20 in number.

Stage should have provision to allow z as well as tilt and rotational movement.

7. DETECTOR:

Point detector based upon Xenon or Scintillation suitable for most diffraction experiments must be quoted.

Ultrafast 1D solid-state detector to be quoted in option.

8. CABINET:

Stand alone floor standing cabinet with front access and should have stringent safety measures with respect to X-ray radiation ensuring negligible radiation outside the cabinet with less than 1 microsievert/10cm distance. The XRD system should be equipped with real automatic component recognition features for conflict detection including X-ray tube, optics along with the detector to be used.

9. SOFTWARE:

Extensive analytical software package (latest WINDOWS based) for data handling and processing, qualitative and quantitative analysis of various kinds of samples. Windows based software packages to control all instrument parameters. It should have all possible options to measure the required parameters both powder samples. It should have option for both Qualitative and Semi quantitative analysis. Complete search/match program with background subtracted data, easy simulation and automatic refinement / smoothening of measured data.

Profile fitting, viewer software package should be offered in option.

Software should be able to accept available open source data files.

K α 2 elimination and Peak search. Multiple peak separation and multiple plotting. Task macros and ICDD access. File history and thumbnails. Creation of various types of reports. 2 θ correction. Pattern simulation from d-I list. 3D multiple pattern display. ICSD access. Crystal structure data (CIF) input and output. 3D Crystal structure display. RIR quantitative analysis

Crystalline Strain Calculation, Line profile analysis for size and strain analysis including the Williamson Hall plot.

Minimum Three No. of licenses of the software should be issued for independent computers and not thru LAN.

Hybrid search / match algorithms which combines the features of peak based and profile based phase identification techniques. It offers improves qualitative analysis performance which makes identification of crystalline phase with preferred orientation or a complex lattice deformation.

10.COMPUTER:

A branded computers with latest and completely up-to-date hardware available, Microsoft Window 7 or 8 (Compatible with the software supplied with the XRD), 21" Color LED Monitor, DVD writer Mouse / Keyboard Control etc. Color printer.

11. WATER CHILLER:

Suitable water chiller for the system should be quoted with slightly over specification than required. The model and make should be European or Japanese.

12. UPS:

UPS suitable to provide backup power (at least 30 minutes) to the complete XRD system as well as Water chiller (including pump and cooling circuit compressor).

13. SPARES:

Commitments to supply spares for at least 10 years to be ensured. Separate Spare kits for the Diffractometer should be quoted as optional items.

14. QUALIFICATION CRITERIA:

The Vendor must provide data quality Guarantee on the Angular Position and Intensity ratio to be carried out on Standard NIST Sample (Corundum/Silicon). The same standard sample should be in the scope of supply for evaluation. Vendor will have to give a detailed presentation of the quoted model explaining merits and demerits and possible applications.

15. INSTALLATION, COMMISSIONING AND TRAINING:

Vendor must install the equipment at the site. A complete pre-installation requirement should be provided before time and help the scientist for site preparation (if needed). The instrument should be installed tested and commissioned by representative of supplier or authorized engineer in India at site premises to the satisfaction of user.

Onsite training has to be arranged by the vendor for training of the scientist at least for one week or more. The training should include Operation, Software, Handling of Optics / X-Ray Tube / Detector and Maintenance at the site of installation. Application training should include all the aspects mentioned above using real samples, change of optics, equipment configuration, change of sample stages and other features of the equipment. On-site training should provide for complete functioning of the system. Installation and training should be included in the price.

16. Warranty

Warranty 1 year

17. Notes

The complete set of documentations, manuals and software manuals should be provided both in softcopy and hard copy

18. User List:

Provide user list with contact details (address and phone) of the quoted instrument (model) for last 3 years

19. ICDD PDF2 should be quoted**OPTIONAL IMPORTED ITEM TO BE QUOTED SEPARATELY**

S. No.	Specification	Compliance with Specifications (Y/N)
1	Solid State Fast Detector working in 0D & 1D mode. Also Fluorescent subtraction facility should be there.	
2	Automatic sample changer (minimum 10 position or higher)	
3	Diffracted beam Monochromator	
4	Rietveld Software	

4.SPECIFICATIONS FOR POLYCHROMATOR BASED SIMULTANEOUS DUAL VIEW INDUCTIVELY COUPLED PLASMA SPECTROMETERS

Fully PC controlled bench top design simultaneous Inductively Coupled Optical Emission Spectrometer for the Geochemical applications with following specifications.

1. The instrument should be a fully PC controlled simultaneous reading ICP using solid-state detector technology. The ICP should be true **simultaneous** in all aspects of measurements including simultaneous measurements of all analytes wavelengths, internal standard and background.
2. The instrument should be a bench-top design with Duo viewing.
3. The instrument must have the possibility to automatically switch between axial and radial view (dual view) during an analysis.
4. The Solid state RF generator must run at a frequency of 27.12/40 MHz. The RF power should be variable from 750-1350 W or better with capability to use maximum available power.
5. The instrument must have a polychromator.
6. Detector: Charge Coupled or Charge Induced (CCD/CID) detector.
7. Resolution: 0.007nm or even better at 200 nm.
8. The nebulizer argon gas flow must be controlled using a mass-flow controller & other gas flows must also be computer controlled.
9. Chiller/re-circulator must not be mounted to the instrument chassis and should be from the original manufacturer of imported origin.
10. The instrument must be able to determine all desired elements in one analytical method pass.
11. The spectrometer must cover the spectral range of 170 - 825 nm or better.
12. System should be offered with Hydride/vapor generation system in complete.
13. It should have an efficient facility for semi-quantitative analysis of unknown samples.
14. System software: The instrument system software shall be based on the Windows operating system. The software shall provide full control of all instrument functions including plasma ignition, gas flows, viewing position, and monitoring of safety interlocks. Software should also have comprehensive wavelength library with indication of preferred line for each element. It should features automatic identification of possible spectral interferences when selecting wavelengths for analysis and should have search mode for identification of unknown wavelengths. Software should be of 21 CFR Part 11 compliant.

15. The instrument should have Library of More than 50,000 wavelengths of elements.
16. The vendor should also quote the high TDS kit with the instrument.
17. Sampling Kits for aqueous & Acid Kit (Resistance to all including HF) must be offered as standard.
18. Vendor must give 3 references of Indian customers where the model is working.
19. As a part of technical evaluation, vendor has to show a demo at a customer place/application lab in India.
20. Accessories: Vendor should quote appropriate fume hood complete including exhaust fan for the ICP system. Vendor should quote filled Argon gas cylinders (02 nos) with double stage gas pressure regulator (01 no.), with double stage gas pressure regulator (01 no.) as required by system. Latest PC (Dell/HP//Compaq) and Laserjet Printer should also be quoted.

Optional Items:

1. Auto-sampler with at least 250 samples vial capacity including peristaltic pump and rinse station.

S. No.	Specification	Compliance with Specifications (Y/N)
1	SPECIFICATIONS FOR POLYCHROMATOR BASED SIMULTANEOUS DUAL VIEW INDUCTIVELY COUPLED PLASMA SPECTROMETERS	

5. Liquid Scintillation Spectrometer (Counter) for Radiocarbon Dating

For its radiocarbon lab., BSIP requires a PMT equipped Ultra Low Background level liquid scintillation spectrometer suitable for voltage and frequency matching Indian conditions (220 V, 50 Hz) with the following or better features:

1. Ultra low background measurement of low level radioactivity with low noise, facilitated by appropriate provisions such as lead shielding, multiple low background PMT's, pulse amplitude comparator and anti- coincidence guard ring to avoid interference by cosmic and environmental radiations
2. Provision for performance monitoring through appropriate protocol, live spectrum using still-supported suitable version of Windows, Excel sheet, statistical evaluation of spectrum energy etc.
3. All necessary software including simultaneous data acquisition and counting of alpha and beta should be possible using measures such as PSA, and multi channel analysers
4. Radiocarbon age calculation software incorporating statistical calculations, SQP(E), calibration (2013 or later) needed with printout provision
5. The background should be ultra low (standardized for 7 mL vial, it shouldn't exceed 0.3 CPM)
6. Sample changers necessary to facilitate counting of samples together in lots and provision for built-in cooling
7. Vials of 3 mL and 0.85 mL capacities with suitable adapters should be included (24 each)
8. Components available in Indian market should be listed separately with prices e.g. UPS, computer, printer and electronic balance
9. The warranty, spares to be supplied with instruments including chemicals, accessories should be listed. The details regarding spares' availability period, training and service contract terms should be clearly spelt out
10. To facilitate radiation clearance, the RA sources should be clearly listed with details
11. The necessary technical and operating details should be provided as hard copies also.

The response should address each attribute point-by-point.

The technical and financial bids are to be submitted in separate sealed covers addressed to Director, BSIP.

S. No.	Specification	Compliance with Specifications (Y/N)
1	Liquid Scintillation Spectrometer (Counter) for Radiocarbon Dating	

**6.AUTOMATED LASER MICRO RAMAN SPECTROMETER AND SPECTRAL
LASER SCANNING CONFOCAL MICROSCOPE (Specification)**

S.No	Item	Description	Compliance with Specifications (Y/N)
A.	<u>Automated Micro Raman Spectrometer</u>		
1.	Spectrometer	➤ Single pass, high throughput spectrometer ➤ Spectral resolution (FWHM): 0.5 cm^{-1} in Visible region ➤ Scan to scan repeatability should be better than 0.05 cm^{-1} ➤ Raman Spectral range: 100 cm^{-1} - 4000 cm^{-1} : s ➤ Spectrometer Range: 200nm – 2000nm ➤ Laser Spot size variable from $1 \mu\text{m}$ to $300 \mu\text{m}$ ➤ The spectrograph should allow spectral coverage from 100 cm^{-1} to 4000 cm^{-1} in one single continuous acquisition without any step and stitches and maintaining high resolution of 1 cm^{-1}. Spectral stitching after collection of multiple exposures is unacceptable. ➤ Edge filter for 514nm, 488nm to suppress Rayleigh background down to 100 cm^{-1}. ➤ Motorized Grating Stage with $2400 \text{ lines mm}^{-1}$ and $1200 \text{ lines mm}^{-1}$ grating ➤ Motorized neutral density filters offering 8 different power levels of the Laser at Sample	
2	Automation	Raman system should be fully automatic with no manual change of Laser/ optics is acceptable including following ➤ Auto alignment and optimisation of input laser power. ➤ Auto switching and auto alignment of laser ➤ Self validation using built-in internal reference sample.	

		➤ Built-in self calibration and intensity correction using light sources ➤ Motorised switching between laser and white light sample images using integral video	
3	Excitation Laser	Lasers should be directly coupled to spectrometer. Fiber coupling not acceptable ➤ Multiline Argon Ion laser (514/488) Output Power 150mW	
4	Microscope	Research Grade microscope allowing confocal measurements with better than 2.0 μm depth resolution. Including: ➤ Reflected Light Illumination & Transmitted Light Illumination ➤ Objectives : 5x, 20x, 50x and 100x ➤ Binocular head with color video camera.	
5	Motorized XYZ Stage	➤ Traveling Range: 110mm x 75mm or more ➤ Step size X & Y : 100nm or better ➤ Z step size: 16nm or better	
6	CCD detector	➤ CCD Array 1024x 256 pixels ➤ Peltier cooled to -70°C multi channel detector ➤ CCD spectral range- 200 -1050 nm ➤ Dark current less than or equal to $0.005 \text{ e}^- \text{ pixel}^{-1} \text{ s}^{-1}$ ➤ Read-out noise $\sim 7 \text{ e}^-$ (RMS)	

B.

Automated Spectral Laser Scanning Confocal Microscope

The specification for Advanced Spectral Confocal system with high transmission efficiency for reflected light and fluorescence application in the field of Palaeobotany, Palynology, Palaeontology, Sedimentology etc. applications to perform 3-imaging.

1	Upright Microscope Fully Motorised and Automated:	➤ Bright field, Automated DIC and fluorescence with 10x / 0.4, 20x/0.75 or better, 40x/0.85 and 100x/1.4 oil confocal grade Plan Apochromatic objectives. Polariser, Motorised & Automated Polariser, Analyser and Wollaston Prisms, Objective, Wallaston prism conditioner. The entire component should be independent. ➤ 100W halogen lamp with separate power supply unit, ➤ Scope should have minimum 7 position motorized objective turret and Motorised XY stage for XY scanning with universal slide holder. ➤ Motorized Z focus drive with encoder, with minimum stable resolution up to 15nm or better ➤ Motorized fluorescence turret for 5/6 fluorescence filter cubes with Zero pixel shift, Metal halide illumination minimum life of 2000 Hrs. Standard Filter cubes for DAPI, FITC (Blue), and Rhodamine (Green)etc ➤ Reflected fluorescence axis should have intelligent Fluorescence Intensity management system to attenuate the excitation fluorescence light in 5 steps, motorized shutter, motorized excitation manager and motorized internal filter wheel. ➤ Microscope should have touch screen display and control for various parameters of Microscope and universal sample holder. ➤ All the motorized functions of the microscope should be controlled directly from the system controller (PC) and with manual over ride control buttons on the microscope stand.	
2	Confocal Laser Scanning System	➤ A confocal point scanner and detection system based on reflection grating / Prism dispersion with low angle dichroic for laser reflection, with Individual laser ports for UV, VIS and IR which is free from glass filters, and secondary dichroics for highest system flexibility, avoiding the transmission losses and	

		better system sensitivity etc. Scan Resolution min. 8k x 8k or better with scanning area greater than or equal to 20mm, with minimum 7 frames per second at 512 x 512 in standard spectral mode, with Maximum line frequency of 3500 LPS. Or better, with Scan zoom 0.80 – 40x or better. Scan head must have built -in, confocal software controlled 0-180 degree rotatable analyser. It should be able to capture images after every 1 degree of analyser rotation.	
3	Built-in Spectral Detection	➤ At-least 2 built-in independent spectral detectors in combination of spectral PMT and spectral GaAsP/HyD having Q.E. of 45% with option for attachment of more spectral detectors. Each detector should be tunable from 400-800nm for simultaneous acquisition of fluorescence image. Additional Transmitted light detector should also be quoted. Each detectors should have its own independent voltage gain control.	
4	Lasers & AOTF for Excitation	➤ AOTF controlled 488, 514, 633 nm	
5	Software	➤ It should be capable of controlling motorized functions of microscope, scan head control, laser control including AOTF, Image acquisition and processing. Multi-dimensional data acquisition, Multiple region of interest (ROI) scan, excitation line/frame sequential scan emission, spectrum recording quantification tools, multi-color restoration, Online spectral un-mixing general time lapse experiment control it should be capable of saving all system parameters with the image for repeatable/reproducible imaging, Line, curved line, frame, Z Stack, Time series imaging capabilities, Standard Geometry Measurements like length, areas, angles etc including intensity measurements ➤ Software module or facility to image extended dynamic range while acquiring like HDR/BrightR/or equivalent with	

		GaAsP/ HyD/APD or equivalent detectors. Image acquisition for 3D, 4D, on-line spectral Imaging based on lambda stacks. Multi Time series. Imaging without bleed through and auto-fluorescence separation by online spectral un-mixing. Dedicated confocal 3D advanced software module to immediately open the multidimensional images like multichannel Z stack with time series & perform Fast 3D and 4D reconstruction; animation (different modes: shadow projection, transparency projection, surface rendering). It should be able to play the time series volume as 3D time series movie, allow to record the 3D animation with various adjustment like pseudo coloring, intensity, rotation, clipping, 3D enhancement etc., Various 3D projection modes: Transparent, Maximum Intensity, and Depth coding, Stereo images (cyan / magenta, horizontal and vertical shutter, quad-based) 3D image reconstruction from a Z-stack image series basic software co-localization with histogram analysis, intensity profiles for quantification etc.	
6	Workstation:	➤ Control Computer with Processor: Multicore Xeon Processor RAM 8GB, HDD: 2 TB SATA, 16x DVD+/- RW Supermulti Drive, NVIDIA Quadro K600 1GB high performance, Large 30" LCD TFT Monitor. Windows 7 operating system	
C	Optional		
1	Laser	➤ Laser 785 nm > 250 mW For Raman	

D	General and Important	
1	CLSM and Raman Imagery are two independent units. For successful installation and functioning it is necessary that suppliers of both units must be conversant with each other's product and give assurance in writing for compatibility of each other unit. Therefore, it is necessary that the technical part of the tender document must explicitly mention this aspect and both units must be supplied on Turn-Key basis.	
2	Presentation and Technical Discussion (Pre-Bid meeting): The bidders will be required to give a visual presentation on this aspect at the BSIP. The dates for presentation will be from onwards. • During the presentation, a detailed technical discussion shall be held with the representative/s of the bidding firm. Hence, the bidders are advised to depute technically competent personnel for the presentation so that a comprehensive discussion can be possible. The average time for presentation shall be 30 minutes for each bidding firm. • The bidder is expected to furnish all relevant information in the technical compliance sheet during Pre-Bid meeting. • Necessary pre-installation advice including power requirement should be enclosed along with the offer and also discussed in Pre-Bid meeting.	
3	Installation- The bidder should have executed at least one similar order successfully at any DST/CSIR/ ICAR/ ICMR/DAE/ DRDO/ DBT/IIT/other Govt or autonomous research Labs in India. The bidder should also provide the complete list of organizations (DST/CSIR/ ICAR/ ICMR/DAE/ DRDO/ DBT/IIT/other Govt or autonomous research Labs in India) to which these instruments have been supplied previously. Copy of their successful installation report should be enclosed.	
4	I. The Bidder should be a manufacturer who must have designed, manufactured, tested and supplied the equipment(s) similar to the type required in BSIP or a dealer exclusively authorized by the manufacturer to quote on their behalf for this bid or Indian agents of foreign principals. II. The bidder should have their own service support network in India and should have a competent manpower to handle any technical issue arising during warranty or post-warranty periods to ensure a continuous trouble-free operation of the equipment. Office in Lucknow will be preferable.	
5	Any additional advanced features of the equipment and accessories can be quoted with full details and specifications as optional.	
6	Installation and training on site for 2 users	

7	Required UPS and Anti Vibration table should be quoted.	
8	All essential and recommended spares should be informed and should be quoted.	
9	Service facility in India.	
10	Warranty one year from the date of installation	
11	Future upgradeability – Laser from UV-NIR should be upgrade on site	
12	System should be integrated in series so that if required two users can use system simultaneously	
13	Integration between Laser Micro Raman Spectrometer & Laser Scanning Confocal Microscope. Should be Direct coupling/hard coupling. Fiber coupling is not acceptable.	

S. No.	Specification	Compliance with Specifications (Y/N)
1	Automated Micro Raman Spectrometer	
2	Automated Spectral Laser Scanning Confocal Microscope	
3	Laser	

7. Specification for PC Controlled Table Top Scanning Electron Microscope and Back Scattering Electron Detector

Specification for PC controlled Table Top Scanning Electron Microscope and Back Scattering Electron detector

Supply, Installation and Commissioning of a PC controlled Table Top Scanning Electron Microscope and Back Scattering Electron detector and other essential accessories and with following specifications:

1. The table top SEM should have a **magnification** from 20 to 80,000 or more
2. The Accelerating voltage should be up to **30 kV** (1/3/5//10/15/20/25/30 kV)
3. The electron gun should be of Pre-centered **Tungsten filament cartridge** type with 2 level reducing lens system
4. The Resolution should be at-least 10 nm or better **@ 30kV** for Secondary electron image
5. The specimen stage (5 axis system) with **360 deg** rotation. 3 axis automated stage preferred for X,Y and Tilt. (X – 35 mm; Y – 35 mm; Tilt 0-45) Z axis movement should be from 5-50mm or better
6. Maximum specimen size should be **60mm (Diameter) & 45mm (H)** or better
7. Objective with preferably a portable aperture with 4 level variable aperture
8. Image Shift of $\pm 50 \mu\text{m}$ for a WD of 10mm
9. Scanning mode from 320 x 240 pixels to 2560 x 3840 pixels with 5 variable modes. Processing Mode should be of automatic control that includes – Auto Gun alignment, contrast, brightness, focus, one button image, zoom in and zoom out
10. Working distance of **5-50mm** or better
11. A fully automated vacuum system with **Rotary pump** for roughing and at-least 200 L **Turbo Molecular pump** for high vacuum
12. The control system provided must have a PC controlled by PCI
13. Software to control the system and all parameters – Length, Angle, Area, Measuring functions
14. **Sputter** coating unit with **gold/platinum** target

Additionally, **one set spares and consumable** kits to be supplied along with the SEM system

S. No.	Specification	Compliance with Specifications (Y/N)
1	Specification for PC Controlled Table Top Scanning Electron Microscope and Back Scattering Electron Detector	

Annexure II

FORMAT FOR COST DETAILS

(Cost particulars should be given in this format Equipment wise/ accessories wise separately)

Note: All the cost particulars should be furnished either in Indian Rupees or Foreign Currency. If more than one model of the Equipment is quoted, use separate sheets

Part 1: Cost details of imported equipments/instruments

Name of the Equipment:		
S.No.	Cost Details for foreign components	Cost with currency
i)	Total CIP / CIF Cost (with full detailed break- up) BSIP, Lucknow	
ii)	AMC details: - AMC rate/per year (comprehensive/non-comprehensive) for the next 3 years, after the expiry of warranty period including the accessories (Two preventive and one breakdown visits)	1 st Year: 2 nd Year: 3 rd Year:
	Total	
Delivery schedule of the equipment:-		_____months

Part 2: Cost details of Indigenous equipments/instruments

Name of the Equipment:		
S.No.	Cost Details of indigenous items	Cost in Rs.
i)	Total Cost (with detailed break-up)	
ii)	AMC details (including the accessories):- (a) AMC rate comprehensive/non-comprehensive cost for the next 3 years, after the expiry of warranty period	1 st Year: 2 nd Year: 3 rd Year:
	Total	
Delivery schedule of the equipment:-		_____months

DELIVERY SCHEDULE OF EQUIPMENT

Sr. No	Equipment	Delivery Schedule from the date of acceptance of Purchase Order – maximum
1.	Indigenous equipments	
2.	Imported equipments	

**FORMAT TO BE FILLED UP AND SUBMITTED
IN THE LETTER HEAD OF THE BIDDER**

To,

**DIRECTOR
BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY
53, UNIVERSITY ROAD,
LUCKNOW – 226007**

Sub: Supply of equipments to BSIP at Lucknow.

Dear Sir,

- a) Having examined the conditions of Tender and Specifications of the equipments, we, the undersigned, offer to supply instruments /equipment as mentioned in the **Annexure I** as per the quantity and specifications given in the tender along with standard spares/accessories as specified.
- b) **The original tender document duly signed on all pages is enclosed.**
- c) We agree to abide by this tender for the period from the opening date fixed for receiving the same and it shall remain binding upon us for a mutually extended period agreed in writing by us.
- d) If our tender is accepted, we undertake to supply the instruments/equipments and install the same in the BSIP premises as mentioned in the tender within the specified periods mentioned in **Annexure III** from receipt of the order from the BSIP, Lucknow in writing.
- e) We agree to supply consumable spare parts and replacement of the broken/damaged/non-compatible parts during the guarantee / warrantee period, free of charge, as per the terms & conditions.
- f) The probable life expectancy of the Equipments under normal conditions of operation should be stated wherever applicable.
- g) We agree to train the personnel of laboratories free of charge, as per the terms and conditions.
- h) If our tender is accepted we will, obtain and arrange:
 - 1. To sign an Undertaking on Rs. 100/- Stamp paper as per the format prescribed in **Annexure V** before releasing of the Purchase order by BSIP.
 - 2. Any other statutory obligation, if any, prior to commencement of supply of equipments.

- i) We agree for the validity of our tender upto **31-12-2014**.
- j) We have used only tender documents as issued for submitting his bid and shall comply with various terms and conditions.
- k) Unless and until a formal Agreement/order is prepared and issued, this tender together with your written acceptance thereof, shall constitute a binding contract between us and BSIP.
- l) We understand that you are not bound to accept the lowest or any tender you may receive.
- m) We agree to make a presentation of the products to be supplied by us, before the Committee if needed on a mutually convenient date.

Authorized Signatory

Signature dated
Designation / Capacity
Name

Annexure V

Tender Reference No.: BSIP/TENDER/STORES & PURCHASE/2014-2015/ Dated _____

UNDERTAKING / DECLARATION

To,

**DIRECTOR
BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY
53, UNIVERSITY ROAD,
LUCKNOW – 226007**

Dear Sir,

- i. We, _____ (Bidder's Name & Address) undertake to supply the item _____ (Name of equipments) as per the detailed specification of Tender and honour the terms and conditions of the tender document.
- ii. We undertake to supply the equipment within the stipulated period of time and accept the penalty clause imposed by BSIP as per the terms and conditions of the Tender.
- iii. We undertake that during the warranty period, regular servicing/maintenance will be carried out as per the Warranty Clause.
- iv. We undertake to provide adequate training (normal operation, trouble shooting) to two technical personnel of the laboratory on the supplied equipment and making them confident of operating the equipment independently.
- v. We agree that the full payment will be released to us only after completion of satisfactory installation, trial and training on the said equipments.

Dated at _____ this _____ day of _____ 2014.

Authorised Signatory

Signature

Name:

Designation:

Name & Address of the Company:

Seal of the Company:

(To be submitted by the bidder on ` 100 stamp paper)

Annexure VI

Technical part & Commercial part of the tender

SL.No.	Technical part should contain
1.	Tender document Fee of Rs.1000.00, towards the Tender document.
2.	EMD of 4 % of the Total quoted price
3.	Technical quote giving the compliance details of execution of the work as per the requirement. Compliance to the Detailed scope of work
4.	Makes & Models of the standard items.
5.	Technical Compliance
6.	Commercial Compliance
7.	Blanked Commercial Part
8.	Scope of Warranty
9.	Cliental list
10.	Acceptance for submission of Bank Guarantee for 10% of the PO value for a period of one year from the date of acceptance of the item from BSIP, in the event the PO is placed.
11.	Documents related to Eligibility criteria of this document.

The commercial part should contain information on price quoted for equipment upto BSIP designated place, payment terms, delivery period, warranty/guarantee period and other relevant information as per below.

SL.NO.	Commercial part should contain
1.	Commercial quote containing the price information of the make & model quoted in the technical part exactly as per Bill of Materials. : a. Supply of Equipments and Accessories as per enclose specification on total TURNKEY BASIS. b. The rates to be quoted as per Annexure - II
2.	Payment terms – Acceptance as per our Terms & Conditions - Special
3.	Delivery schedule – Supply, installation and training to be mentioned

BANK GUARANTEE & PERFORMANCE BANK GUARANTEE

**THIS BANK GUARANTEE TOWARDS THE E.M.D SHOULD BE TYPED
OUT ON RS.50/- NON-JUDICIAL STAMP PAPER GIVING FULL
POSTAL ADDRESS OF THE BANK.**

Guarantee No :

Amount :

Guarantee Cover From: To :

**Last Date for
Lodgment of Claim** :

The BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY, 53 UNIVERSITY ROAD, LUCKNOW - 226007 having floated a Tender for (Tender for _____) with Tender no. hereinafter referred to as the tender, and M/s _____ (name and address of the supplier) having the intention of participating in the above mentioned, we, the (banker's name and address) hereby irrevocably undertake and guarantee to you that in the event of the award of the Contract to the tenderer and subject to the failure of the Tenderer to perform any of the following clauses, we undertake to fully compensate the Beneficiary to a maximum amount of Rs. _____ (Rupees _____) (in words) as and when the same is claimed from us in writing during the validity of the contract as per the terms and conditions of the tender contract.

8. If the tenderer fails to accept the contract with the terms and conditions of the contract.
9. If after the acceptance of the contract, the Tenderer fails to carry out the services in accordance with the terms and conditions of the contract.
10. If the tenderer withdraws the tender during the validity period.
11. If the tenderer fails to complete their services in accordance with the terms and conditions of the contract or if there is any unexcused delay on the tenderer's part which may warrant forfeiture of E.M.D. amount and or imposition of liquidated damages and or closure/termination of the contract for default.

We, the bank, abide by your Tender terms and conditions and we shall on demand and without demur, pay to you all and any sums upto a maximum of Rs. _____ (Rupees _____) being the E.M.D. furnished by the tenderer to you in the form of this bank guarantee.

We further agree that the Beneficiary shall be the sole judge as to whether the Tenderer has failed to perform as per the Tender terms and conditions duly specified by the Beneficiary.

We further hereby undertake to pay the amount due and payable under this guarantee without any demur merely on a demand in writing from the Beneficiary stating the amount claimed due by way of loss or damage. Any such demand made on the bank shall be conclusive and binding upon us as regards the amount. Lodgment of claim through Registered Post shall be conclusive evidence of claim made on us by the Beneficiary. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____). We further agree that the claim made on us shall be settled within a period of 30 days from the date of lodgment of claim by the beneficiary.

We agree that the guarantee herein contained shall remain in full force and effect for a period of 6 months (six months). Unless a demand is made on us in writing within one month from the date of expiry of six months, we shall be discharged from all liability under this guarantee.

We further agree that any change in the constitution of the bank or the tenderer shall not affect our liability under this guarantee.

We further agree that the Beneficiary shall have the fullest liberty without in any way affecting our liability under this guarantee alter any or all of the terms and conditions of the tender.

Notwithstanding anything contained herein before our liability under this guarantee is restricted to Rs. _____ (Rupees _____). This guarantee shall remain in force upto a maximum of six months (6 months). Unless a demand in writing is made on or before _____ (one month from the date of expiry of six months (date) all your rights under this guarantee shall be forfeited and we shall be relieved and discharged from all liabilities under this guarantee.

We lastly undertake not to revoke this guarantee during the penance of the above said tender/tender contract except with the prior consent of the beneficiary in writing.

This guarantee must be returned to us in original immediately on the expiry of the validity date.

Sealed with the common seal of the bank on this the.....day of..... 2012

DATE :

For BANKERS NAME

PLACE :

SEAL, ADDRESS

PERFORMANCE BANK GUARANTEE

GUARANTEE NO :

AMOUNT :

GUARANTEE COVER FROM : **TO :**

**LAST DATE FOR
LODGEMENT OF CLAIM** :

In consideration of the BIRBAL SAHNI INSTITUTE OF PALAEOBOTANY,
53 UNIVERSITY ROAD, LUCKNOW - 226007, hereinafter referred to as the
Purchaser having placed order(s):

1. (Order no and date) 2. (Order no and date), with our constituents
M/s _____ (name of your organization) hereinafter
referred to as the contractor, having their office at _____ (address of your
organization) for the supply and installation of (give brief detail of the order
placed) and our constituents having undertaken to guarantee the faithful
performance of the contract during the warranty period as mentioned in
the purchase order(s) referred above, we the (Banker's name and address),
do hereby bind ourselves as their guarantors and undertake to be
responsible

to the purchasers and their successors and assigns for payment of all or
any sums of money, losses, damage, costs, charges and expenses, that
may become due or payable by the contractor, in the faithful performance
of his said obligations and covenants under the above contract stated
therein provided however that the total amount to be so recovered by the
purchaser from us shall not exceed Rs. _____ (Rupees
_____) amount of guarantee to be mentioned)
payable under the said Purchase Order. We, _____

_____ (name and address of the bank) do hereby
unconditionally and irrevocably guarantee payment, without demur and
without recourse to the purchaser of sums upto Rs. _____ (Rupees
_____) amount of guarantee in
Rs. _____ and words) on the purchasers first demand in writing
making claim for payment to the purchaser by reason of failure on the part
of the contractor to fulfill their obligations under the contract.

We hereby agree that lodgment of claim through registered post shall be
conclusive evidence of lodgment of claim.

We further undertake to settle the claim within 30 days of lodgment of
claim.

This guarantee shall not be revocable by notice or otherwise and is
unconditional and without recourse and our liability as surety shall not be
impaired or discharged, until the contractor has fulfilled all the obligations

under the contract and shall not be affected by any change in the constitution of the purchaser, Contractor or the bank.

Notwithstanding anything stated herein above our liability under this guarantee is restricted to Rs. _____ (Rupees

_____ amount of guarantee) and shall remain in force till (last date of guarantee) unless a demand or claim under the guarantee is made on us in writing within one month of the above mentioned date, i.e., before (date one month from the last date of guarantee cover) all your rights under this guarantee shall be forfeited and we shall be relieved and discharged of all liability hereunder.

Dated:

Place:

FOR

(Banker's name)

Address and common seal

Sr. No.	Details of Requirement for Opening L/C.(for imported items only)
1.	Foreign Supplier"s Name and Complete address on whom L/C will be opened.
2.	Foreign Banker"s Name & Address
3.	Foreign supplier's Bank Account No.
4.	Port of shipment
5.	Country of Origin
6.	Period to keep L/C open– (Validity of L/C)
7.	Period of negotiation will be 21 days
8.	Delivery Schedule from the date of issuance of purchase order

Note:

1. Additional copies may be taken for each Equipment
2. Octroi, if paid , will be reimbursed separately at actuals

CHECK LIST TO THE BIDDERS

1. Get all the clarification regarding terms and conditions, specification etc during the pre bid meeting or by writing to the Director, BSIP, Lucknow prior to submission of bids.
2. The original tender document downloaded in full has to be submitted along with the technical details duly signed on all the pages.
3. Fill up the relevant compliance columns in the specifications given for the equipments quoted by stating „YES“ or „NO“. If any deviations are there in the specifications, the details may be given separately as Annexure.
4. A covering letter duly signed by the authorized person as per the specimen given at **Annexure IV** of the tender document.
5. Ensure that User certificates from atleast two users, on their letterhead stating that the performance of similar make and model supplied to them is satisfactorily, is enclosed
6. Descriptive leaflet / brochure of the equipment quoted are enclosed along with the technical details.
7. Copy of the certificate for the calibration of similar make and model of the equipment / instrument for which bid is submitted from an accredited calibration laboratory or NPL, if applicable, is enclosed.
8. The Technical and commercial details are to be submitted separately superscribing “Cover „A“ – Technical details for equipment or Cover “B” – Commercial details for equipments. Both the details are to be put together in one envelope and sealed properly, superscribing the name of the equipments.
9. Proof regarding manufacturer / authorized agent, as the case may be, is enclosed.
10. Prior to submission of bids, bidders have to ensure that the equipment quoted by them is suitable for testing as per the national / international standard mentioned in the specification.
11. Cost details are to be given in the prescribed format only. If more than one model of equipment is quoted, separate sheet may be enclosed. may be given

Note: If the bidder fails to furnish all the relevant document/ information as mentioned in the Tender Document, the Tender will be rejected.
