

CORRIGENDUM / ADDENDUM - 02

REF: E-Tender No. NIT-34/2017- NC-000615-CHE-17-18

ITEM: 400 Mhz NMR Spectrometer

(A) The tender date is extended as per the following.

- i) The date & time of submission of E-Tender: 09/03/2018 up to 12.30 P.M.
- ii) The date & time of opening of Technical Bid : 09/03/2018 at 03.00 P.M.

All other terms and conditions of the above mentioned E-Tender will remain unchanged.

Stores & Purchase Officer

CORRIGENDUM

DT: 16.02.2018

Tender No.: NIT-34/2017

Tender Ref.: NC-000615-CHE-17-18

The tender for "NMR Spectrometer" is amended as follows.

Please Read Amended part of Terms & Conditions:

Delivery Period / Timeliness:

The deliveries, installation must be completed within 180 days

As


The deliveries, installation must be completed within 220 days from the date of receipt of LC

Please Read Amended part of Financial bid :

CIP Kolkata Charge

As

CIP/CIF Kolkata Charge


Stores & Purchase Officer



राष्ट्रीय विज्ञान शिक्षा एवं अनुसंधान संस्थान, भुवनेश्वर

(परमाणु उर्जा विभाग, भारत सरकार का एक स्वयं शासित संस्थान)

NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH

(AN AUTONOMOUS INSTITUTE UNDER DEPT. OF ATOMIC ENERGY, GOVT. OF INDIA)

**Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18)
(2 Part Tender)**

400 MHz NMR Spectrometer

Cost of Tender is 1500.00 (Non Refundable)

Paper Notice



**NATIONAL INSTITUTE OF SCIENCE EDUCATION & RESEARCH
JATNI CAMPUS, P.O. - JATNI
KHURDA – 752050, ODISHA, INDIA**

Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18) (2 Part Tender)

Sealed Tenders are invited on behalf of the Director, National Institute of Science Education and Research, Jatni from the manufacturers(Indian or Foreign) and their authorised reseller/Indian agent only for supply & installation of the following items:-

Sl. No.	Name of the Items	Tender No.	Name of Department	Indent No.	Qty.	EMD in INR
01	400 Mhz NMR Spectrometer (Solution)	NIT-34/2017	School of Chemical Sciences	NC-000615-CHE-17-18	01 No.	5,00,000.00
02	400 Mhz NMR Spectrometer (Solution & Solid)				01 No.	

Tender can be downloaded and bided from website address: www.tenderwizard.com/NISER. Tender documents for viewing only is also available in NISER web-site address: www.niser.ac.in.

Stores & Purchase Officer



**NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
NIT OPEN DOCUMENT (2 PART BID)**

**SUPPLY & INSTALLATION OF
400 MHz NMR Spectrometer**

**Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18)
(2 Part Tender)**

National Institute of Science Education & Research (NISER), Jatni is an Autonomous Institute under Dept of Atomic Energy. NISER would like to procure the following equipment. The Technical Specifications Schedule of Requirements and Allied Technical details are given in Part-1 of tender document.

- **Item:** 400 MHz NMR Spectrometer
- **Tender Enquiry No:** NIT-34/2017
- **Last date of sale of Tender document:**
- **Last date of submission of bid-** 27.02.2018 upto 11.30 A.M
- **Opening of Technical Bids:** 28.02.2018 at 03.30 P.M
- **Date and Time of Pre-Bidding** – 13.02.2018 at 2.30 P.M

E- tenders are invited for supply and installation of 400 MHz NMR Spectrometer in the National Institute of Science Education & Research, Jatni.

1. The details of tender notification can be downloaded from www.tenderwizard.com/NISER under "Tender Free View" link.
2. Vendors should obtain the USER ID and PASSWORD from www.tenderwizard.com/NISER by clicking on "REGISTER ME" link in the homepage.
3. The Vendor registration fees has to be paid to ITI Ltd for Rs. 1180/-. Using the epayment link provided at the time of registration, and the mode of payments are Credit Card, Debit Card and Internet Banking. Vendor Registration is Valid for 1year.
4. For further details on eTender participation, please contact ITI Help desk on
 - Telephone: 080-49352000/9686115318
 - Email: harishkumar.kb@etenderwizard.com, ambasa@etenderwizard.com.
5. Tenders should be submitted only through e-Tender portal and obtain the Tender Acknowledgement copy as a proof of successful submission.

(Deepak Srivastava)
Stores & Purchase Officer

The Institute can provide following documents.

1. Custom Duty exemption certificate & GST Exemption Certificate.

COST OF TENDER IS RS. 1500/- (NON REFUNDABLE).

**This is payable in cash or Demand Draft of a scheduled Bank in favour of
Director , National Institute of Science Education and Research, Jatni.**



PART – 1-
TERMS & CONDITIONS
FOR SUPPLY AND INSTALLATION OF
400 MHz NMR Spectrometer
FOR
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI
Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18)
(2 Part Tender)

1. Director, National Institute of Science Education & Research, Jatni (NISER) invites sealed tenders for 400 MHz NMR Spectrometer completed **similar supply** (at least one of them in Central Government/Central Autonomous Body/Central PSU)
A. Similar or Similar Nature of work means Supply & Installation 400 MHz NMR Spectrometer for any of the following :
 - a) **Government/Autonomous Institutions**
 - b) **Government Research Centres**
 - c) **Universities**
 - d) **Autonomous/Reputed Private Research Centres**
 - e) **Purchase Orders / Completion certificates if any, for supporting above requirements.**

The Bidders are requested to give detailed tender in the prescribed forms in two Bids
i.e. Part - I Technical Bid.
Part - II Commercial Bid.

2. **Contact for information:** (Only E-mail enquiries will be entertained)

For Technical Information of 400 MHz NMR Spectrometer :

Dr. V Krishnan

School of Chemical Sciences, NISER.

E-Mail – **V Krishnan** < krishv@niser.ac.in >

For Information regarding Commercial & all other Terms & Conditions:

Deepak Srivastava

Stores & Purchase Officer

National Institute of Science Education & Research, Jatni

E-Mail-spo@niser.ac.in

3. Supply means:

“Supply, Installation, Commissioning and satisfactory demonstration of the whole equipments”.

If any charges extra are payable for Installation and Commissioning, the same should be specified in the commercial offer.

4. Tender Document:

The Technical Offer should comprise of the following:

- a) Tenders, which are submitted without following the Two-Bid Offer System, will summarily be rejected.
- b) The technical offer should be complete to indicate that all products and services asked for are quoted. Each page of the bid and cutting/corrections shall be duly signed and stamped by the

bidder. Unsigned Tenders will also be rejected. Failure to comply with this requirement may result in the bid being rejected.

- c) The purpose of certain specific conditions is to get or procure best product/service etc. for NISER. The opinion of Technical Committee shall be the guiding factor for technical short listing.
- d) The earnest money deposit as indicated against the item should be send by post so that it reaches on or before the opening of the technical bid for e-tender system in the form of Account Payee Bank Draft payable on any branch of Nationalised/Schedule Bank at Bhubaneswar/ Jatni in favour of “Director, National Institute of Science Education & Research, Jatni”, in a separate sealed envelope. All tenders submitted without requisite amount of earnest money shall be rejected and their technical and financial bids shall not be opened. No interest is payable on EMD. The EMD will be returned to the bidders(s)/Agents whose offer is not accepted by NISER within one month from the date of the placing of the final order(s) on the selected bidder(s). In case of the bidder(s) whose offer is accepted the EMD will be returned on submission of Performance Bank Guarantee (if applicable). However, if the return of EMD is delayed for any reason, no interest /penalty shall be payable to the bidders.

EMD EXEMPTION:

PARTIES REGISTERED WITH SSI/DGS&D/DAE AND FOREIGN PARTIES QUOTING DIRECTLY ARE EXEMPTED FROM PAYING EMD. FOREIGN PARTIES QUOTING DIRECTLY UNDER ORIGINAL SEAL AND SIGNATURE (NOT SCANNED) WILL GET THE EXEMPTION.

The EMD shall be forfeited:

If the bidder withdraws the bid during the period of bid validity specified in the tender. In case a successful bidder fails to furnish the Performance Bank Guarantee (if applicable).

- e) Undertaking that the successful bidder agrees to give a Performance Bank Guaranty of 10% of the purchase order value in favour of “Director, National Institute of Science Education & Research, Jatni valid till warranty period.

Performance Bank Guarantee:

Within ten (10) days of the award of contract, the vendor shall furnish a Performance Bank Guarantee amounting to 10% of the purchase order value in the form of Bank Guarantee favouring the Director, National Institute of Science Education & Research, Jatni valid till completion of warranty period.

- f) If the bid is for branded makes, authorization letter from principals clearly indicating that the vendor is the competent authority to sell and provide services towards the items mentioned in the scope of supply given in this tender document.
- g) Copy of GST No. and PAN No. allotted by the concerned authorities.
- h) List of deliverables / Bill of materials and services.
- i) Compliance sheet with any deviation with reference to the terms and specifications.
- j) The item should be supplied with manuals and the manuals including technical drawings should be complete in all respects to operate the system without any problem.

“Commercial Bid” shall contain:

- a) Price schedule complete in all respects with proper seal and signature of authorized person.
Tender with any condition including conditional rebate shall be rejected forthwith.
- b) Cost of all the items should be mentioned clearly and individually in the Commercial Offer only.
- c) **The Bidders are requested to quote for Educational/Institutional Price for Machine/ Equipment and, since we are eligible for the same.**
- d) **Printed conditions of the vendor submitted with the tender will not be binding on NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH.**

5. Tender process & award of contract.

The technical bids will be evaluated to shortlist the eligible bidders. The commercial bids of only the short listed bidders shall be considered for further processing. Bidders whose technical offer is

found acceptable and meeting the eligibility requirements as specified in this tender will be informed about the date and time of the opening of the commercial bid.

- NISER will open commercial bids of only the short listed bidders, in the presence of the bidders or their authorized representatives who choose to attend the commercial bid opening. The Date and Time of opening the Commercial Bid will be intimated only to pre-qualified and technically acceptable Bidders for the item at a later date.
 - ONLY TECHNICALLY accepted competitive bids will be considered for placing Purchase Order. The commercial offers of the vendors whose technical offers are found to be technically deficient or do not meet the qualification criteria as specified in this tender will be returned to them without opening.
 - **Purchaser's Right to vary Quantities at the time of Award:** NISER reserves the right at the time of award of Contract to increase or decrease the quantity of items specified in the Schedule of Requirements without any change in price or other terms and conditions.
6. **The Director NISER reserves the right to accept the offer in full or in parts or reject summarily or partly.**

7. Delivery Period / Timeliness

The deliveries, installation must be completed within 180 days, after placement of purchase order. The time is the essence of the contract. It is mandatory for the bidders who respond to this bid to meet these expectations, as they are tightly linked to NISER's plans of completing the project within the time frame.

8. Locations for the Supply / Services

The Laboratory Equipments covered by this document is required to be supplied and installed at School of Biological Sciences of NISER, Jatni.

9. Order Placement and Release of Payment

The Purchase Order and payment shall be processed by –

**Stores & Purchase Officer
National Institute of Science Education & Research,
Jatni Campus, P.O. – Bhimpur-Padanpur, Via-Jatni,
Khurda – 752050, Odisha, INDIA**

Payment for the items to be supplied by the vendor against the purchase order shall be made by National Institute of Science Education & Research as follows:-

100% payment will be made through Letter of Credit. 80% will be paid after submission original shipping documents & balance 20% will be released after satisfactory installation, commissioning, warranty certificate and along with submission of Performance Bank Guarantee.

Agency Commission: Agency Commission to be paid to India Agent should be specified separately and same will be paid in INR.

The tenderers who are not agreeing to above payment terms are requested not to submit their tender otherwise their EMD will be forfeited.

10. NISER will not provide any accommodation/transportation for the engineers/ representatives for attending installation, commissioning and demonstration work. It is the absolute responsibility of the Principal Supplier/Indian Agent to make their own arrangements.
11. **The successful bidder**, on award of contract / order, must send the contract / order acceptance in writing, within 7 days of award of contract / order failing which the EMD will be forfeited.

12. Period of validity of bids

- Bids shall be valid for a period of 90 days from the date of opening the Technical bid.
- NISER may ask for the bidder's consent to extend the period of validity. Such request and the response shall be made in writing only. The bidder is free not to accept such request without forfeiting the EMD. A bidder agreeing to the request for extension will not be permitted to modify his bid.
- Bid evaluation will be based on the bid prices without taking into consideration the above corrections.

13. Corrupt or Fraudulent Practices

NISER requires that the bidders who wish to bid for this project have highest standards of ethics. NISER will reject a bid if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract. NISER may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the execution of contract.

14. Interpretation of the clauses in the Tender Document / Contract Document

In case of any ambiguity / dispute in the interpretation of any of the clauses in this Tender Document, Director, NISER's interpretation of the clauses shall be final and binding on all parties.

15. Price

- The price quoted shall be considered firm and no price escalation will be permitted at any time. The quotation should be in Indian Rupees or any known foreign currency. Packing, forwarding, freight, insurance, **Agency commission** and commissioning charges, if any extra may be quoted separately in Commercial Bid.
- In case of INR bids the price criteria should be on F.O.R., NISER, Jatni. Govt. Levies like GST, etc., if any, shall be paid at actual rates applicable on the date of delivery. Rates should be quoted accordingly giving the basic price, GST, etc., if any.
- Please provide TIN no. of the firm along with the GST No. allotted by the concerned authorities in your quotation.
- In case of Foreign Currency bid: - Price criteria should be FOB nearest airport detail break up of Price, FCA cost, **Agency Commission**, Insurance, Freight up to Kolkata Airport is required.
- NISER may place order at CIF Kolkata Airport basis.

16. Pre-installation:

Pre-installation facilities required for installation may please be intimated in the technical bid. Subsequently, before the consignment lands in NISER, Jatni the bidder shall confirm that the pre-installation requirements are sufficient for installation of the equipments. In other words the bidder should continuously monitor the pre-installation requirements and see that everything is ready before the consignment is taken to the site for installation.

17. Installation, Warranty & Support

- Bidder shall be responsible for installation / demonstration wherever applicable and for after sales service during the warranty and thereafter.
- The items covered by the schedule of requirement shall carry minimum Three years comprehensive warranty from the date of acceptance of the equipments by NISER. Warranty shall include free maintenance of the whole equipment supplied including free replacement of parts. The defects, if any, shall be attended to on immediate basis but in no case any defect should prolong for more than 24 hours. The comprehensive warranty includes onsite warranty with parts.
- The defects, if any, during the guarantee/warranty period are to be rectified free of charge by arranging free replacement wherever necessary. This includes cost, insurance, freight, custom duty, GST, local taxes if any should be borne by the beneficiary or his agent. A clear confirmation should be given for this item.

- The bidder shall assure the supply of spare parts after warranty is over for maintenance of the equipment supplied if and when required for a period of 10 years from the date of supply of equipment on payment on approved price list basis.
- The equipment must be supported by a Service Centre manned by the principal vendor's technical support engineers. The support through this Centre must be available 24 hours in a day, three days a week and 365 days a year. Also it should be possible to contract the Principal's vendor support Centre on a toll free number/web/mail.
- The vendor will have to arrange for all the testing equipment & tools required for installation, testing & maintenance etc.

18. Indemnity

- The vendor shall indemnify, protect and save NISER against all claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from infringement of any law pertaining to patent, trademarks, copyrights etc. or such other statutory infringements in respect of all the equipment's supplied by him.
- The successful will be fully responsible for payment of wages and other dues as prescribed and compliance of various Labour Laws.
- The successful tender should give an undertaking that the staff deployed at the centre in terms of this contract at all time will be employees of the agency exclusively and they shall not be entitled to any claim of employment or permanency of job with NISER.
- NISER reserves the right to forfeit whole or part of the security money towards any damage/lose caused due to the negligence on the part of the agency engaged.

19. Insurance

The equipment's to be supplied will be insured by the vendor against all risks of loss or damage from the date of shipment till such time it is delivered at NISER site in case of Rupee/Foreign currency transaction.

20. Penalty for delayed Services / LD

As time is the essence of the contract, Delivery period mentioned in the Purchase Order should be strictly adhered to. Otherwise the bidder will forfeit EMD/SD and also LD clause will be applicable /enforced.

If the supplier fails to Supply, Install and Commission the equipment as per specifications mentioned in the order within the due date, the Supplier is liable to pay liquidated damages of 1% of order value per every week of delay subject to a maximum of 10% beyond the due date. Such money will be deducted from any amount due or which may become due to the supplier.

NISER reserves the right to cancel the order in case the delay is more than 30 days Penalties, if any, will be deducted from the EMD.

21. Jurisdiction

If a dispute arises out of or in connection with the contract, or in respect of any defined legal relationship associated therewith or derived therefrom, the parties agree to submit that dispute to arbitration under the ICADR Arbitration Rules, 1996.

The authority to appoint the arbitrator(S) shall be the International Centre for alternative dispute resolution.

The International Centre for Alternative Dispute Resolution will provide administrative services in accordance with the ICADR arbitration Rules, 1996.

**Stores & Purchase Officer
NISER, Jatni**

DECLARATION BY THE VENDOR

It is hereby declared that I/We the undersigned, have read and examined all the terms and conditions etc. of the tender document for which I/We have signed and submitted the tender under proper lawful Power of Attorney. It is also certified that all the terms and conditions of the tender document are fully acceptable to me/us and I/We will abide by the conditions from serial no. 1 to 21 and we have not given any printed conditions beyond the scope of this tender. This is also certified that I/We/our principal manufacturing firm have no objection in signing the purchase contract if the opportunity for the supply of the items against this tender is given to me/us.

Date:

Signature:

Address:

Name:

Designation:

On behalf of:

(Company Seal)



PART - 1
FOR SUPPLY AND INSTALLATION OF
400 MHz NMR Spectrometer
FOR
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI
Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18)
(2 Part Tender)

General Information –Self Attested

1.	Name of the Company	Please fill details	Page No. with name of the documents attached in support of information required
2.	Full address of company along with Telephone no. Fax no. E-mail address :		
3.	Local address of company for communication, if any		
4.	Are you a manufacturer or dealer/reseller		
5.	Annual turn over in last 3 financial years in Rs. Crores. (i) Year 2013-2014 (ii) Year 2014-2015 (iii) Year 2015-2016 Please attach balance sheet		
6.	Supply & Installation of 400 MHz NMR Spectrometer or equivalent to our tendered of last 3 financial years in State Government or Govt. of India Department(s) /Reputed Organisation(s) (in Nos. and Value) (Please attach list of clients) (i) Year 2013-2014 (ii) Year 2014-2015 (iii) Year 2015-2016 Please attach copy of Purchase Order/ Completion Certificate		
7.	GST Registration no. with Place		
8.	Income Tax Registration no. with place		
9.	Photocopy of EMD		
10.	If you are claiming exemption certificate under SSI/DGS&D/DAE, Please attach self attested copy of certificate which should be valid during the tender process		
11.	Service center details & principal vendor support centre		
12.	Declaration to be submitted by Vendor		
13.	Warranty 3 years Accepted/Not Accepted		



**SUPPLY AND INSTALLATION
OF
400 MHz NMR Spectrometer
FOR**

National Institute of science education and research, JATNI

Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18)

TECHNICAL SPECIFICATION

1.	Item Specification 400 Mhz NMR Spectrometer (Solution)	Accepted/ Not Accepted/ Deviation if any. Please specify your specificati on if deviation is there	Page No. of your specifications/B rochure, etc attached in supoort of your specification
<p>Specification : State-of-the art 400 MHz standard bore Supercon Magnet FT NMR spectrometer with Z-Gradient, double resonance (Two Channels) having capabilities for the most up-to-date homo and hetero nuclear multi-dimensional NMR experiments.</p> <p>Primary Objective: To handle all application related to Chemistry, the system should be capable of handling general applications for liquid samples and also it should have capability for solid state NMR upgradation in future without change basic hardware</p> <p>The technical quote must be accompanied by a detailed technical document of the equipment components quoted from OEMs. Description proving compliance to each of the above technical requirement must be clearly highlighted in the said technical document, and the serial number of the related technical point must be noted next to the highlighting. In case the specific information is not present in the document, it must be clearly mentioned with a web-link, where in the website of the OEM such information about the quoted equipment can be found.</p> <p>Failure to satisfy these conditions, or unavailability of information to prove the technical features, or incomplete or unclear or false information provided in the technical quote will be grounds for summary disqualification. The onus is on the quoting party to provide all the information required for technical assessment, and such assessment will be carried out solely on the basis of the information provided to NISER in the technical quote.</p>			

Magnet	<ul style="list-style-type: none"> ➤ 9.4 Tesla actively shielded super-conducting magnet with an operational frequency of 400 MHz suitable for solution state. ➤ Shortest possible Radial (less than 0.5 m) and Axial distance (less than 1.0 m) of 5 Gauss stray field from the centre of the magnet. Please specify the overall Magnet dimensions/ceiling height requirements. ➤ Low drift rate (less than 4 Hz/hour or better) of the Magnetic field. ➤ Long Liquid He hold time (365 days or more) and long liquid N₂ hold time (more than 14 days). ➤ Please specify the total Liq. He and N₂ hold volume, refill interval and refill volume for He and N₂ ➤ All support equipment for cryostat (e.g., He and liq. N₂ transfer lines). ➤ Digital monitors for He (mandatory) and N₂ levels (optional) ➤ Anti-vibration legs/stand if required and please specify the lower limit on the frequency of vibrations damped. ➤ Built-in cryo-shims & room temperature shims; ➤ Pneumatic/ Automatic sample load / spin / eject system
Spectrometer Console	<p>Advance designed two channel spectrometer capable of performing all single and multi-dimensional NMR experiments in both labelled and unlabeled samples; fast switching time for all parameters without any hidden delays along with its importance in the quality of the spectra. The console should include capacity for modern pulse shaping , amplitude, phase and composite pulse decoupling creation, preamplifiers with standard filters and digital receiver control with oversampling, either equipped with digital quadrature detection with digitizer's facility for complete elimination of quadrature spikes or a direct digital receiver.</p> <p>The console should include:</p> <ul style="list-style-type: none"> ➤ Waveform generators for all channels for pulse shaping, ➤ Amplitude, phase and composite pulse decoupling generator ➤ Pre-amplifiers and filters for noise reduction ➤ High-power linear amplifier for each channel (at least 100 W for ¹H channel and 300 W for X channel) to provide the shortest possible pulse-widths. Please specify all relevant parameters including power (Wattage), frequency range, duty cycle, maximum pulse duration etc. ➤ Frequency synthesizers for each channel. ➤ Transmitter controllers for each channel. ➤ Digital ²H lock channel consisting of a ²H pre-amplifier. Lock system should have high-precision phase- and field-corrections (please provide documental evidence). ➤ ADC with high dynamic range and sampling rate. Please specify ➤ Two Cannel Amplifier System: Two high performance linear amplifier for observation or decoupling of 1H or 19F, with 100W pulse power minimum for 1H and a 300 W pulse power minimum in the range of 31P to 15N. All relevant parameters including power, frequency range, duty cycle, maximum pulse duration etc. have to be explicitly specified.
Variable temperature unit having	<ul style="list-style-type: none"> ➤ Broad temperature range (both low and high) capability is desired (at least -100 deg. C to +150 deg. C): Please provide complete kit to perform low/high temperature experiments.

	<ul style="list-style-type: none"> ➤ Please specify resolution/accuracy/stability of temperature setting as well as the high and low limits of attainable temperature. ➤ One Dewar flask (Min. capacity 25 L) and a suitable /compatible transfer line for low temperature NMR experiments.
Probes	<p>Broad band 5 mm dual resonance room temperature probe</p> <p>Broad-band 5 mm double resonance probe with ^2H locking and Auto-Tuning & matching facility</p> <p>Following probe specifications to be provided:</p> <ul style="list-style-type: none"> ➤ 90° Pulse widths and power for ^1H, ^{13}C, ^{15}N, ^{19}F, ^{31}P and other nuclei. Please also specify minimum duration of r.f. irradiation. ➤ Best resolution and line-shapes. Please specify the line-widths and resolutions achievable. ➤ Best possible signal-to-noise (S/N) ratio values for ^1H, ^{13}C, ^{15}N, ^{19}F, ^{31}P (Please provide data and mention the sample used along with the signal region and noise region). ➤ Specify highest and lowest temperature range achievable (at least -100 deg. C to +150 deg. C). ➤ Capable of performing ^1H with ^{19}F decoupling and vice versa. ➤ Pulse field gradients with amplifiers capable of generating pulsed gradients of strength of at least 30 G/cm
Data storage/ software/ Peripherals	<ul style="list-style-type: none"> ➤ High speed/memory computers with complete pre-loaded software/data cards for data acquisition, processing and analyses including tools/software for complete automation of data acquisition and peripherals including LCD monitors (21 inch or better), heavy duty B/W printers (quoted in INR preferred). Compatibility for both Windows and Linux is desirable. ➤ Multi-user licenses for the software (at least fifty numbers). ➤ All required hardware and software documents, manuals, installation CDs/DVDs etc. ➤ All standard samples should be provided for the calibration of probe along with standard sample for temperature calibration at low and high range ➤ 500 NMR quality NMR tubes (5 mm). ➤ One additional processing work station for processing purpose with license. ➤ 2 TB external HDD for data back-up ➤ Spinners for low and high temperature applications- 5 no. ➤ 5 additional spinners for room temperature experiments.
Auto Sampler	An Automatic Sample Handling System with required number of spinners capability of loading at least 20 samples from front of the magnet at the ground level.
Warranty	Comprehensive additional warranty for 1+4 years (should quote separately per year), excludes the manufacturer's basic warranty period from the date of installation on all items mentioned above. All parts and labor included with free service and maintenance. The price of additional 4 years CMC should be valid for two years from the date of installation.

	<p>Regular upgrades to all software during the warranty period The manufacturer has to take all the responsibilities (including financial, insurance, etc.) for shipping and installation.</p> <p>Liquid Helium Contract</p> <p>Vendor should enter into contract for supply of liquid helium for 5 Years after the initial refilling and charging. This rate should be quoted in Indian rupees per liter of liquid helium. The firm will be paid as per actual consumption year wise. During contract of liquid helium, if filling is not done as per magnet specifications, then vendors should be responsible for any damage to magnet.</p>
Supply of cryogen for installation and above	<p>The liquid helium required for installation should be provided by the vendor at their expense. In case of magnet-quench during the installation or at subsequent times due to any technical reason or failure, the supply (including transport) of the liquid Helium, till the magnet is restored to normalcy, is the vendors responsibility and the entire costs for cryogenics, recharging or replacing the magnet, should be borne by the vendor at no additional cost to NISER.</p>
Indigenous Items	<p>Please quote separately with specifications compatible for the NMR spectrometer:</p> <ul style="list-style-type: none"> ➤ An ISO-9001 certified or equivalent 'oil-free' scroll type compressor (minimum 3HP) along with two dryers (refrigerated and heatless) and stainless steel storage tank (80 liters or above). The compressor should have low noise (preferably less than 50dB). Installation should be included as per site requirement. ➤ ISO-9001 certified or equivalent UPS systems with suitable capacity -minimum backup of 2 hour or more (quoted in INR preferred) with compatible voltage stabilizer. Installation should be included as per site requirement ➤ Stainless steel, self-pressurised, transportable liquid nitrogen dewar (100-150 L) with accessories, wheels and safety devices
Onsite training	<p>On site complete training of maintenance and operation of the complete system, including cryogenic probe and platform, to relevant staff members.</p>
	<p>Complementary site planning should be offered by the vendor</p>
	<p>Vendors should quote price for each component separately</p>

2.	<p align="center">Item Specification 400 Mhz NMR Spectrometer (Solution and Solid)</p>	<p align="center">Accepted/ Not Accepted/ Deviation if any. Please specify your specificati on if deviation is there</p>	<p align="center">Page No. of your specifications/B rochure, etc attached in suport of your specification</p>
<p>Specification: State-of-the art 400 MHz standard bore Supercon Magnet FT NMR spectrometer with Z-Gradient, double resonance (Two Channels) having capabilities for the most up-to-date hetero nuclear multi-dimensional NMR experiments.</p> <p>Primary Objective: To handle all application related to Chemistry, the system should be capable of handling other general applications for liquid and solid samples.</p> <p>The technical quote must be accompanied by a detailed technical document of the equipment components quoted from OEMs. Description proving compliance to each of the above technical requirement must be clearly highlighted in the said technical document, and the serial number of the related technical point must be noted next to the highlighting. In case the specific information is not present in the document, it must be clearly mentioned with a web-link, where in the website of the OEM such information about the quoted equipment can be found.</p> <p>Failure to satisfy these conditions, or unavailability of information to prove the technical features, or incomplete or unclear or false information provided in the technical quote will be grounds for summary disqualification. The onus is on the quoting party to provide all the information required for technical assessment, and such assessment will be carried out solely on the basis of the information provided to NISER in the technical quote.</p>			

Magnet	<ul style="list-style-type: none"> ➤ 9.4 Tesla actively shielded super-conducting magnet with an operational frequency of 400 MHz suitable for solution state and additional solid state accessories NMR work with the following specifications. ➤ Shortest possible Radial (less than 0.5 m) and Axial distance (less than 1.0 m) of 5 Gauss stray field from the centre of the magnet. Please specify the overall Magnet dimensions/ceiling height requirements ➤ Low drift rate (less than 4 Hz/hour or better)of the Magnetic field. ➤ Long Liquid He hold time (365 days or more) and long liquid N₂ hold time (more than 14 days). ➤ Please specify the total Liq. He and N₂ hold volume, refill interval and refill volume for He and N₂ ➤ All support equipment for cryostat (e.g., He and liq. N₂ transfer lines). ➤ Digital monitors for He (mandatory) and N₂ levels (optional) ➤ Anti-vibration legs/stand if required and please specify the lower limit on the frequency of vibrations damped. ➤ Built-in cryo-shims & room temperature shims; ➤ Pneumatic/ Automatic sample load / spin / eject system
Spectrometer Console	Advance designed two channel spectrometer capable of performing all single and multi-dimensional NMR experiments in

	<p>both labelled and unlabeled samples; fast switching time for all parameters without any hidden delays along with its importance in the quality of the spectra. The console should include capacity for modern pulse shaping , amplitude, phase and composite pulse decoupling creation, preamplifiers with standard filters and digital receiver control with oversampling, either equipped with digital quadrature detection with digitizer's facility for complete elimination of quadrature spikes or a direct digital receiver.</p> <p>The console should include:</p> <ul style="list-style-type: none"> ➤ Waveform generators for all channels for pulse shaping, ➤ Amplitude, phase and composite pulse decoupling generator ➤ Pre-amplifiers and filters for noise reduction ➤ High-power linear amplifier for each channel (at least 100 W for ^1H and 300 W for hetero nuclear) to provide the shortest possible pulse-widths. Please specify all relevant parameters including power (Wattage), frequency range, duty cycle, maximum pulse duration etc. ➤ Frequency synthesizers for each channel. ➤ Transmitter controllers for each channel. ➤ Digital ^2H lock channel consisting of a ^2H pre-amplifier. Lock system should have high-precision phase- and field-corrections (please provide documental evidence). ➤ ADC with high dynamic range and sampling rate. Please specify the resolution of the ADC (in bits) and the maximum sample rate. ➤ The console should be ready for CP/MAS solid-state NMR experiments, that including necessary amplifiers, RF trans-receiver peripherals, circuitry and filters. All the necessary accessories, and pneumatic accessories-should be quoted separately. ➤ Two Cannel Amplifier System: Two high performance linear amplifier for observation or decoupling of ^1H or ^{19}F, with 100W pulse power minimum for ^1H and a 300 W pulse power minimum in the range of ^{31}P to ^{15}N. All relevant parameters including power, frequency range, duty cycle, maximum pulse duration etc. have to be explicitly specified.
<p>Variable temperature unit having</p>	<ul style="list-style-type: none"> ➤ Broad temperature range (both low and high) capability is desired (at least -100 deg. C to +150 deg. C): Please specify temperature ranges available for both magic angle spinning and static sample NMR work. ➤ Please specify resolution/accuracy/stability of temperature setting as well as the high and low limits of attainable temperature.
<p>Probes</p>	<p>Broad band 5 mm dual resonance room temperature probe</p> <p>Broad-band 5 mm double resonance probe with ^2H locking with Auto-Tuning and matching facility.</p> <p>Following probe specifications to be provided:</p> <ul style="list-style-type: none"> ➤ 90° Pulse widths and power for ^1H , ^{13}C, ^{15}N, ^{19}F, ^{31}P and other nuclei. Please also specify minimum duration of r.f. irradiation. ➤ Best resolution and line-shapes. Please specify the line-widths and resolutions achievable.

	<ul style="list-style-type: none"> ➤ Best possible signal-to-noise (S/N) ratio values for ^1H, ^{13}C, ^{15}N, ^{19}F, ^{31}P (Please provide data and mention the sample used along with the signal region and noise region). ➤ Specify highest temperature range achievable (at least -100 deg. C to +150 deg. C). ➤ Capable of performing ^1H with ^{19}F decoupling and vice versa. ➤ Pulse field gradients with amplifiers capable of generating pulsed gradients of strength of at least 30 G/cm <p>CPMAS probe: A double resonance $^1\text{H}/\text{X}$ 3.2 mm Magic Angle Spinning probe for solid state NMR with Zirconia made rotors (3.2 mm) with caps (please quote separately);. The probe should possess an X channel that should be broadband tunable from ^{15}N to ^{31}P. The high frequency side of the probe comprises ^1H High-Power decoupling. External filters for ^1H needed to be specified. A pneumatic control unit is required for operation for rotor with automatic insertion and ejection from the top of magnet along with sample spinning regulation and it should be compatible as per OQ, IQ and PQ compliance. (IQ stands for Installation Qualification. OQ is Operational Qualification and PQ is Performance Qualification for your knowledge).</p> <p>Fully automated pneumatic unit for high resolution MAS spectroscopy having the followings:</p> <ul style="list-style-type: none"> (a) spinning should be controlled through both manual/automation option. (b) accurate spinning rate (up to 15KHz or better) stabilization. (c) automated sample (rotor) ejection and insertion. <ul style="list-style-type: none"> (a) status indicator (b) interface for remote control of automated operation. (c) Keyboard for manual local operation. (d) Air Cables etc. (e) Transfer tube for pneumatic insertion of 3.2 mm Zirconium rotors MAS. (f) Ten 3.2 mm Zirconium oxide rotors (please mention the effective volume) for solid state NMR analysis (g) Sample preparation kit. (h) Standard samples for routine calibration
<p>Data storage/ software/ Peripherals</p>	<ul style="list-style-type: none"> ➤ High speed/memory computers with complete pre-loaded software/data cards for data acquisition, processing and analyses including tools/software for complete automation of data acquisition and peripherals including LCD monitors (21 inch or better), heavy duty B/W printers (quoted in INR preferred). Compatibility for both Windows and Linux is desirable. ➤ Multi-user licenses for the software (at least fifty numbers). ➤ All required hardware and software documents, manuals, installation CDs/DVDs etc. ➤ All standard samples for testing. ➤ 100 NMR quality NMR tubes. ➤ One additional work station with processing software. ➤ 1 TB external HDD for data back-up ➤ Spinners for high and low temperature applications-5 no ➤ Test sample kit with all standard samples

Warranty	<p>Comprehensive additional warranty for 1+4 years (should quote separately per year), excludes the manufacturer's basic warranty period from the date of installation on all items mentioned above. All parts and labor included with free service and maintenance. The price of additional 4 years CMC should be valid for two years from the date of installation.</p> <p>Regular upgrades to all software during the warranty period The manufacturer has to take all the responsibilities (including financial, insurance, etc.) for shipping and installation.</p> <p>Liquid Helium Contract</p> <p>Vendor should enter into contract for supply of liquid helium for 5 Years after the initial refilling and charging. This rate should be quoted in Indian rupees per liter of liquid helium. The firm will be paid as per actual consumption year wise. During contract of liquid helium, if filling is not done as per magnet specifications, then vendors should be responsible for any damage to magnet.</p>
Supply of cryogen for installation and above	<p>The liquid helium required for installation should be provided by the vendor at their expense. In case of magnet-quench during the installation or at subsequent times due to any technical reason or failure, the supply (including transport) of the liquid Helium, till the magnet is restored to normalcy, is the vendors responsibility and the entire costs for cryogenics, recharging or replacing the magnet, should be borne by the vendor at no additional cost to NISER.</p>
Indigenous Items	<p>Please quote separately with specifications suitable for the NMR spectrometer:</p> <ul style="list-style-type: none"> ➤ An ISO-9001 certified or equivalent 'oil-free' scroll type compressor (minimum 3HP) along with two dryers (refrigerated and heatless) and stainless steel storage tank (80 liters or above). The compressor should have low noise (preferably less than 50dB). Installation should be included as per site requirement. ➤ ISO-9001 certified or equivalent UPS systems with suitable capacity -minimum backup of 2 hour or more (quoted in INR preferred) with compatible voltage stabilizer. Installation should be included as per site requirement. ➤ Stainless steel, self-pressurised, transportable liquid nitrogen dewar (100-150 L) with accessories, wheels and safety devices
Onsite training	<p>On site complete training of maintenance and operation of the complete system, including cryogenic probe and platform, to relevant staff members.</p>
	<p>Additional CP/MAS sample rotor kit</p>
	<p>Complementary site planning should be offered by the vendor</p>
	<p>Vendors should quote price for each component separately</p>
Optional	<ul style="list-style-type: none"> ➤ Skilled Manpower for smooth operation and maintenance of the instrument for 6 days in a week basis for 1 year (quote separately)

	<p>➤ An Automatic Sample Handling System with required number of spinners capability of loading at least 20 samples from front of the magnet at the ground level.</p>
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**SUPPLY AND INSTALLATION
OF
400 Mhz NMR Spectrometer**

FOR

National Institute of science education and research, JATNI

Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18)

FINANCIAL BID

1.	Item Specification 400 Mhz NMR Spectrometer (Solution)	UNIT Price FOB in Foreign Currency	Unit Price in INR for items which supplier will supply from India
<p>Specification : State-of-the art 400 MHz standard bore Supercon Magnet FT NMR spectrometer with Z-Gradient, double resonance (Two Channels) having capabilities for the most up-to-date homo and hetero nuclear multi-dimensional NMR experiments.</p> <p>Primary Objective: To handle all application related to Chemistry, the system should be capable of handling general applications for liquid samples and also it should have capability for solid state NMR upgradation in future without change basic hardware</p> <p>The technical quote must be accompanied by a detailed technical document of the equipment components quoted from OEMs. Description proving compliance to each of the above technical requirement must be clearly highlighted in the said technical document, and the serial number of the related technical point must be noted next to the highlighting. In case the specific information is not present in the document, it must be clearly mentioned with a web-link, where in the website of the OEM such information about the quoted equipment can be found.</p> <p>Failure to satisfy these conditions, or unavailability of information to prove the technical features, or incomplete or unclear or false information provided in the technical quote will be grounds for summary disqualification. The onus is on the quoting party to provide all the information required for technical assessment, and such assessment will be carried out solely on the basis of the information provided to NISER in the technical quote.</p>			

1	<p>Magnet:</p> <ul style="list-style-type: none"> ➤ 9.4 Tesla actively shielded super-conducting magnet with an operational frequency of 400 MHz suitable for solution state. ➤ Shortest possible Radial (less than 0.5 m) and Axial distance (less than 1.0 m) of 5 Gauss stray field from the centre of the magnet. Please specify the overall Magnet dimensions/ceiling height requirements. ➤ Low drift rate (less than 4 Hz/hour or better) of the Magnetic field. ➤ Long Liquid He hold time (365 days or more) and long liquid N₂ hold time (more than 14 days). ➤ Please specify the total Liq. He and N₂ hold volume, refill interval and refill volume for He and N₂ ➤ All support equipment for cryostat (e.g., He and liq. N₂ transfer lines). ➤ Digital monitors for He (mandatory) and N₂ levels (optional) ➤ Anti-vibration legs/stand if required and please specify the lower limit on the frequency of vibrations damped. ➤ Built-in cryo-shims & room temperature shims; ➤ Pneumatic/ Automatic sample load / spin / eject system 		
2	<p>Spectrometer Console:</p> <p>Advance designed two channel spectrometer capable of performing all single and multi-dimensional NMR experiments in both labelled and unlabeled samples; fast switching time for all parameters without any hidden delays along with its importance in the quality of the spectra. The console should include capacity for modern pulse shaping , amplitude, phase and composite pulse decoupling creation, preamplifiers with standard filters and digital receiver control with oversampling, either equipped with digital quadrature detection with digitizer's facility for complete elimination of quadrature spikes or a direct digital receiver.</p> <p>The console should include:</p> <ul style="list-style-type: none"> ➤ Waveform generators for all channels for pulse shaping, ➤ Amplitude, phase and composite pulse decoupling generator ➤ Pre-amplifiers and filters for noise reduction ➤ High-power linear amplifier for each channel (at least 100 W for ¹H channel and 300 W for X channel) to provide the shortest possible pulse-widths. Please specify all relevant parameters including power (Wattage), frequency range, duty cycle, maximum pulse duration etc. ➤ Frequency synthesizers for each channel. ➤ Transmitter controllers for each channel. 		

	<ul style="list-style-type: none"> ➤ Digital ^2H lock channel consisting of a ^2H pre-amplifier. Lock system should have high-precision phase- and field-corrections (please provide documental evidence). ➤ ADC with high dynamic range and sampling rate. Please specify ➤ Two Channel Amplifier System: Two high performance linear amplifier for observation or decoupling of ^1H or ^{19}F, with 100W pulse power minimum for ^1H and a 300 W pulse power minimum in the range of ^{31}P to ^{15}N. All relevant parameters including power, frequency range, duty cycle, maximum pulse duration etc. have to be explicitly specified. 		
3	<p>Variable temperature unit having:</p> <ul style="list-style-type: none"> ➤ Broad temperature range (both low and high) capability is desired (at least -100 deg. C to +150 deg. C): Please provide complete kit to perform low/high temperature experiments. ➤ Please specify resolution/accuracy/stability of temperature setting as well as the high and low limits of attainable temperature. ➤ One Dewar flask (Min. capacity 25 L) and a suitable /compatible transfer line for low temperature NMR experiments. 		
4	<p>Probes: Broad band 5 mm dual resonance room temperature probe</p> <p>Broad-band 5 mm double resonance probe with ^2H locking and Auto-Tuning & matching facility</p> <p>Following probe specifications to be provided:</p> <ul style="list-style-type: none"> ➤ 90° Pulse widths and power for ^1H, ^{13}C, ^{15}N, ^{19}F, ^{31}P and other nuclei. Please also specify minimum duration of r.f. irradiation. ➤ Best resolution and line-shapes. Please specify the line-widths and resolutions achievable. ➤ Best possible signal-to-noise (S/N) ratio values for ^1H, ^{13}C, ^{15}N, ^{19}F, ^{31}P (Please provide data and mention the sample used along with the signal region and noise region). ➤ Specify highest and lowest temperature range achievable (at least -100 deg. C to +150 deg. C). ➤ Capable of performing ^1H with ^{19}F decoupling and vice versa. ➤ Pulse field gradients with amplifiers capable of generating pulsed gradients of strength of at least 30 G/cm 		
5	Data storage/ software/ Peripherals:		

	<ul style="list-style-type: none"> ➤ High speed/memory computers with complete pre-loaded software/data cards for data acquisition, processing and analyses including tools/software for complete automation of data acquisition and peripherals including LCD monitors (21 inch or better), heavy duty B/W printers (quoted in INR preferred). Compatibility for both Windows and Linux is desirable. ➤ Multi-user licenses for the software (at least fifty numbers). ➤ All required hardware and software documents, manuals, installation CDs/DVDs etc. ➤ All standard samples should be provided for the calibration of probe along with standard sample for temperature calibration at low and high range ➤ 500 NMR quality NMR tubes (5 mm). ➤ One additional processing work station for processing purpose with license. ➤ 2 TB external HDD for data back-up ➤ Spinners for low and high temperature applications- 5 no. <p>5 additional spinners for room temperature experiments.</p>		
6	<p>Auto Sampler: An Automatic Sample Handling System with required number of spinners capability of loading at least 20 samples from front of the magnet at the ground level.</p>		
7	<p>Warranty: Comprehensive additional warranty for 1+4 years (should quote separately per year), excludes the manufacturer's basic warranty period from the date of installation on all items mentioned above. All parts and labor included with free service and maintenance. The price of additional 4 years CMC should be valid for two years from the date of installation.</p> <p>Regular upgrades to all software during the warranty period The manufacturer has to take all the responsibilities (including financial, insurance, etc.) for shipping and installation.</p> <p>Liquid Helium Contract</p> <p>Vendor should enter into contract for supply of liquid helium for 5 Years after the initial refilling and charging. This rate should be quoted in Indian rupees per liter of liquid helium. The firm will be paid as per actual consumption year wise. During contract of liquid helium, if filling is not done as per magnet specifications, then vendors should be responsible for any damage to magnet.</p>		

8	<p>Supply of cryogen for installation and above: The liquid helium required for installation should be provided by the vendor at their expense. In case of magnet-quench during the installation or at subsequent times due to any technical reason or failure, the supply (including transport) of the liquid Helium, till the magnet is restored to normalcy, is the vendors responsibility and the entire costs for cryogenics, recharging or replacing the magnet, should be borne by the vendor at no additional cost to NISER.</p>		
9	<p>Indigenous Items: Please quote separately with specifications compatible for the NMR spectrometer:</p> <ul style="list-style-type: none"> ➤ An ISO-9001 certified or equivalent 'oil-free' scroll type compressor (minimum 3HP) along with two dryers (refrigerated and heatless) and stainless steel storage tank (80 liters or above). The compressor should have low noise (preferably less than 50dB). Installation should be included as per site requirement. ➤ ISO-9001 certified or equivalent UPS systems with suitable capacity -minimum backup of 2 hour or more (quoted in INR preferred) with compatible voltage stabilizer. Installation should be included as per site requirement ➤ Stainless steel, self-pressurised, transportable liquid nitrogen dewar (100-150 L) with accessories, wheels and safety devices 		
10	<p>Onsite training: On site complete training of maintenance and operation of the complete system, including cryogenic probe and platform, to relevant staff members.</p>		
	Sub-Total		
	Agency Commission		
	GST Charge If Any		
	CIP Kolkata Charges		
	Any Other Charges		
	Grand Total		



**SUPPLY AND INSTALLATION
OF
400 Mhz NMR Spectrometer**

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National Institute of science education and research, JATNI

Notice Inviting E-Tender No. NIT-34/2017 (NC-000615-CHE-17-18)

FINANCIAL BID

2.	Item Specification 400 Mhz NMR Spectrometer (Solution and solid)	UNIT Price FOB in Foreign Currency	Unit Price in INR for items which supplier will supply from India
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1	<p>Magnet:</p> <ul style="list-style-type: none"> ➤ 9.4 Tesla actively shielded super-conducting magnet with an operational frequency of 400 MHz suitable for solution state and additional solid state accessories NMR work with the following specifications. ➤ Shortest possible Radial (less than 0.5 m) and Axial distance (less than 1.0 m) of 5 Gauss stray field from the centre of the magnet. Please specify the overall Magnet dimensions/ceiling height requirements ➤ Low drift rate (less than 4 Hz/hour or better)of the Magnetic field. ➤ Long Liquid He hold time (365 days or more) and long liquid N₂ hold time (more than 14 days). ➤ Please specify the total Liq. He and N₂ hold volume, refill interval and refill volume for He and N₂ ➤ All support equipment for cryostat (e.g., He and liq. N₂ transfer lines). ➤ Digital monitors for He (mandatory) and N₂ levels (optional) ➤ Anti-vibration legs/stand if required and please specify the lower limit on the frequency of vibrations damped. ➤ Built-in cryo-shims & room temperature shims; ➤ Pneumatic/ Automatic sample load / spin / eject system 		
2	<p>Spectrometer Console:</p> <p>Advance designed two channel spectrometer capable of performing all single and multi-dimensional NMR experiments in both labelled and unlabeled samples; fast switching time for all parameters without any hidden delays along with its importance in the quality of the spectra. The console should include capacity for modern pulse shaping , amplitude, phase and composite pulse decoupling creation, preamplifiers with standard filters and digital receiver control with oversampling, either equipped with digital quadrature detection with digitizer's facility for complete elimination of quadrature spikes or a direct digital receiver.</p> <p>The console should include:</p> <ul style="list-style-type: none"> ➤ Waveform generators for all channels for pulse shaping, ➤ Amplitude, phase and composite pulse decoupling generator ➤ Pre-amplifiers and filters for noise reduction ➤ High-power linear amplifier for each channel (at least 100 W for ¹H and 300 W for hetero nuclear) to provide the shortest possible pulse-widths. Please specify all relevant parameters including power (Wattage), frequency range, duty cycle, maximum pulse duration etc. 		

	<ul style="list-style-type: none"> ➤ Frequency synthesizers for each channel. ➤ Transmitter controllers for each channel. ➤ Digital ^2H lock channel consisting of a ^2H pre-amplifier. Lock system should have high-precision phase- and field-corrections (please provide documental evidence). ➤ ADC with high dynamic range and sampling rate. Please specify the resolution of the ADC (in bits) and the maximum sample rate. ➤ The console should be ready for CP/MAS solid-state NMR experiments, that including necessary amplifiers, RF trans-receiver peripherals, circuitry and filters. All the necessary accessories, and pneumatic accessories-should be quoted separately. ➤ Two Channel Amplifier System: Two high performance linear amplifier for observation or decoupling of ^1H or ^{19}F, with 100W pulse power minimum for ^1H and a 300 W pulse power minimum in the range of ^{31}P to ^{15}N. All relevant parameters including power, frequency range, duty cycle, maximum pulse duration etc. have to be explicitly specified. 		
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	<p>and vice versa.</p> <ul style="list-style-type: none"> ➤ Pulse field gradients with amplifiers capable of generating pulsed gradients of strength of at least 30 G/cm <p>CPMAS probe: A double resonance 1H/X 3.2 mm Magic Angle Spinning probe for solid state NMR with Zirconia made rotors (3.2 mm) with caps (please quote separately);. The probe should possess an X channel that should be broadband tunable from 15N to 31P. The high frequency side of the probe comprises 1H High-Power decoupling. External filters for 1H needed to be specified. A pneumatic control unit is required for operation for rotor with automatic insertion and ejection from the top of magnet along with sample spinning regulation and it should compatible as per OQ, IQ and PQ compliance. (IQ stands for Installation Qualification. OQ is Operational Qualification and PQ is Performance Qualification for your knowledge).</p> <p>Fully automated pneumatic unit for high resolution MAS spectroscopy having the followings:</p> <ul style="list-style-type: none"> (a) spinning should be controlled through both manual/automation option. (b) accurate spinning rate (up to 15KHz or better) stabilization. (c)automated sample (rotor) ejection and insertion. <ul style="list-style-type: none"> (i) status indicator (j) interface for remote control of automated operation. (k) Keyboard for manual local operation. (l) Air Cables etc. (m)Transfer tube for pneumatic insertion of 3.2 mm Zirconium rotors MAS. (n) Ten 3.2 mm Zirconium oxide rotors (please mention the effective volume) for solid state NMR analysis (o) Sample preparation kit. (p) Standard samples for routine calibration 		
5	<p>Data storage/ software/ Peripherals:</p> <ul style="list-style-type: none"> ➤ High speed/memory computers with complete pre-loaded software/data cards for data acquisition, processing and analyses including tools/software for complete automation of data acquisition and peripherals including LCD monitors (21 inch or better), heavy duty B/W printers (quoted in INR preferred). Compatibility for both Windows and Linux is desirable. ➤ Multi-user licenses for the software (at least fifty numbers). ➤ All required hardware and software documents, 		

	<p>manuals, installation CDs/DVDs etc.</p> <ul style="list-style-type: none"> ➤ All standard samples for testing. ➤ 100 NMR quality NMR tubes. ➤ One additional work station with processing software. ➤ 1 TB external HDD for data back-up ➤ Spinners for high and low temperature applications-5 no ➤ Test sample kit with all standard samples 		
7	<p>Warranty: Comprehensive additional warranty for 1+4 years (should quote separately per year), excludes the manufacturer's basic warranty period from the date of installation on all items mentioned above. All parts and labor included with free service and maintenance. The price of additional 4 years CMC should be valid for two years from the date of installation.</p> <p>Regular upgrades to all software during the warranty period The manufacturer has to take all the responsibilities (including financial, insurance, etc.) for shipping and installation.</p> <p>Liquid Helium Contract</p> <p>Vendor should enter into contract for supply of liquid helium for 5 Years after the initial refilling and charging. This rate should be quoted in Indian rupees per liter of liquid helium. The firm will be paid as per actual consumption year wise. During contract of liquid helium, if filling is not done as per magnet specifications, then vendors should be responsible for any damage to magnet.</p>		
8	<p>Supply of cryogen for installation and above: The liquid helium required for installation should be provided by the vendor at their expense. In case of magnet-quench during the installation or at subsequent times due to any technical reason or failure, the supply (including transport) of the liquid Helium, till the magnet is restored to normalcy, is the vendors responsibility and the entire costs for cryogenics, recharging or replacing the magnet, should be borne by the vendor at no additional cost to NISER.</p>		
9	<p>Indigenous Items: Please quote separately with specifications suitable for the NMR spectrometer:</p> <ul style="list-style-type: none"> ➤ An ISO-9001 certified or equivalent 'oil-free' scroll 		

	<p>type compressor (minimum 3HP) along with two dryers (refrigerated and heatless) and stainless steel storage tank (80 liters or above). The compressor should have low noise (preferably less than 50dB). Installation should be included as per site requirement.</p> <ul style="list-style-type: none"> ➤ ISO-9001 certified or equivalent UPS systems with suitable capacity -minimum backup of 2 hour or more (quoted in INR preferred) with compatible voltage stabilizer. Installation should be included as per site requirement. ➤ Stainless steel, self-pressurised, transportable liquid nitrogen dewar (100-150 L) with accessories, wheels and safety devices 		
10	<p>Onsite training: On site complete training of maintenance and operation of the complete system, including cryogenic probe and platform, to relevant staff members.</p>		
11	Additional CP/MAS sample rotor kit		
12	Complementary site planning should be offered by the vendor		
13	Vendors should quote price for each component separately		
14	<p>Optional:</p> <ul style="list-style-type: none"> ➤ Skilled Manpower for smooth operation and maintenance of the instrument for 6 days in a week basis for 1 year (quote separately) ➤ An Automatic Sample Handling System with required number of spinners capability of loading at least 20 samples from front of the magnet at the ground level. 		
Sub-Total			
Agency Commission			
GST Charge If Any			
CIP Kolkata Charges			
Any Other Charges			
Grand Total			