



Ref. No. IISERBpr/S&P/2024-25/32

12/08/2024

**Corrigendum/Addendum – 01**

NIT No: IISERBpr/S&P/2024-25/32 dt. July 31, 2024

1. This is to inform all concerned that based on the pre-bid meeting held on August 06, 2024 and as per the Institute requirement, the technical specification, technical compliance sheet have been revised and re-uploaded in the [www.gerpegov.com/IISERBP](http://www.gerpegov.com/IISERBP) portal
2. The above changes will be part of the tender documents.
3. This is for information of all concerned.

S. No.	Section	Item	For	Read as
1	Section IV	Magnet System (Standard bore) at SL No. iii	Liquid helium hold time should be the longest with auto-level digital monitoring, recording and low-level alarm	Liquid helium hold time should be 200 days or more with auto-level digital monitoring, recording and low-level alarm

SD  
Stores & Purchase Officer

**Section IV**

**Schedule of Requirements and Compliance**

SI No.	Description	No. of Units
1	SITC of 500 MHz NMR SPECTROMETER AND ITS ACCESSORIES	1

**Annexure I**

**Technical Specification**

**Annexure –I**

**DETAILED TECHNICAL SPECIFICATIONS FOR 500 MHz NMR SPECTROMETER AND ITS ACCESSORIES**

S. No.	SPECIFICATION	REQUIREMENT
I	<b>Magnet system (standard bore)</b>	<p>The NMR magnet should be an 11.74 tesla actively shielded standard bore (54 mm) super-conducting magnet with an operational frequency of 500 MHz for 1H with the following specifications:</p> <ol style="list-style-type: none"> <li>i. The shortest possible radial and axial distance of stray (5 Gauss) field from the magnet's centre. Please specify your 5G axial and radial distances and the overall magnet dimensions/ceiling height requirements, etc.</li> <li>ii. The drift rate of the magnetic field should be <math>\leq 5</math> Hz/hour or better.</li> <li>iii. <b>Liquid helium hold time should be 200 days or more with auto-level digital monitoring, recording and low-level alarm.</b></li> <li>iv. Liquid nitrogen hold time should be at least 10 days with auto-level digital monitoring, recording and alarm.</li> <li>v. Please specify the total liquid helium and nitrogen hold volume, refill interval and refill volume for the cryogenes.</li> <li>vi. All support equipment for cryostat (e.g., Helium and liquid Nitrogen transfer lines) was provided.</li> <li>vii. Should have Anti-vibration legs/stand; the lower limits on the frequency of vibrations damped should be specified.</li> <li>viii. Built-in cryo-shims and room temperature shims (Ultra) shims; gradient shimming capability and its associated accessory (software/hardware);</li> <li>ix. The deuterium lock channel should be compatible with gradients and automated shimming hardware.</li> <li>x. The magnet should be compatible with the pneumatic sample load/spin/eject system.</li> </ol>
II	<b>Console of the Spectrometer</b>	<p>The spectrometer should have three independent RF channels (frequency range of operation should be specified) with the best frequency and phase resolution and; fast switching time for all parameters without any hidden delays. The configuration and the bandwidth of each channel should be specified.</p> <p>The console (electronics) should include the following:</p> <ol style="list-style-type: none"> <li>i. Broadband frequency synthesizer for each channel.</li> <li>ii. Each channel should have frequency, phase and amplitude shaping capabilities with simultaneous switching of the parameters possible in 10 ns or less.</li> <li>iii. Waveform generators (for pulse shaping) for all channels.</li> <li>iv. Amplitude, phase and composite pulse decoupling generator.</li> <li>v. Pre-amplifiers and filters for appropriate frequencies for noise reduction.</li> <li>vi. High-power linear broadband amplifier 100 W or better for 1H channel and 300 W or better for 13C/15N and 50 W or better for 2H channel, to provide the shortest possible pulse widths. Please specify</li> </ol>

		<p>all relevant parameters including power (Wattage), frequency range, duty cycle, maximum pulse duration etc.</p> <p>vii. The electronics should be capable of handling/executing multi-receiver experiments for simultaneous acquisition of 1H-15N/1H-13C or 1H-19F/ 1H-31P based on one, two and multidimensional experiments in dual/multi-receiver mode.</p> <p>viii. Transmitter controllers should be provided for each channel.</p> <p>ix. ADC with high dynamic range and sampling rate. Please specify the resolution of the ADC (in bits) and the maximum sample rate. (32 bits or higher)</p> <p>x. Preamplifier for multinuclear observation, 2H-lock, all necessary filters for noise and artefact reduction; Digital lock control unit and digital lock receiver; deuterium amplifier with integrated lock switch for automatic gradient (room temperature) shimming and shim control boards.</p> <p>xi. Magnetic field z-axis gradient unit 30G/cm gradient or better strength that can be generated with a minimum of 10 A external gradient amplifier, for the control for execution of gradient spectroscopy, gradient shimming, generation of pulsed field gradient (PFG) of desired shape and intensity, high-quality PFG-based solvent suppression, coherence selection and DOSY experiments etc. Accessories for this unit should be provided. An optional quote for alternate gradients should be provided.</p> <p>xii. Gradient control with a resolution of 12.5 ns or better for Z gradient.</p> <p>xiii. Variable temperature control unit having a standard temperature range (minus100 °C to plus150 °C) capability is desired:</p> <p>a. High resolution/accuracy/stability of temperature setting (at least +/- 0.1 °C).</p> <p>b. Please specify the resolution/accuracy/stability of the temperature setting of the variable temperature control unit.</p> <p>c. Accurate temperature determination and regulation are desired.</p> <p>d. All the necessary accessories to maintain the desired sample temperature within the above-mentioned range should be quoted.</p> <p>xiv. Digital quadrature detection, ethernet-based communication and control system for bi-directional connection to the host computer.</p>
III	Autosampler	<p>A fully functional autosampler with a capacity to handle at least 60 sample holders should be included along with enough number of spinners. All spinners should be applicable for the entire Variable temperature range i.e., +150 °C to -100 °C.</p>
IV	NMR probes	<p><b>1. High-resolution two channel Liquid/solution state NMR probe:</b>        A state-of-the-art high-sensitive 5 mm broadband probe with the ability to observe 1H, X, and 19F and capable of 1H and 19F decoupling. The probe should be equipped with auto-tune and match. The probe should enable to perform, 19F{1H}, 13C {1H, 19F}, 1H-19F HOESY, 19F-19F-COSY, 1H-19F-HSQC, 1H{19F}-13C{19F}-HSQC/HMBC/HMQC, 19F{1H}-13C{1H}-HSQC/HMBC/HMQC, X{1H, 19F} where X is a 31P-15N (broadband range) correlation experiment. Further, the probe should allow deuterium detection experiments using short 2H 90-degree pulses (This arrangement should be independent of the 2H lock channel). Operating temperature range at -100 °C to +150 °C or even improved ranges. The S/N ratio of 1H should be 850 or more; 19F sensitivity (1H decoupled) 600 or more on standard test samples.; 31P as 150 or more; 15N as 40 or more 13C (1H decoupled) as 310 or more on standard test samples.</p> <p><b>2. Solid-state NMR probe:</b>        One 3.2MM HXMAS PROBE with essential accessories including 10 numbers of 3.2 mm Zirconium oxide rotors for solid-state NMR analysis. Probe should have the capability to cover Nuclei for 1H, 19F, 31P, 7Li, 11B, 23Na, 27Al, 13C, 79Br, 207Pb, 29Si, 6Li, 15N.</p>

V	<b>Data storage/software/Peripherals comprising of the following:</b>	<p>i. Data Acquisition Computer:</p> <p>A compatible high-end workstation with preferable Windows/Linux operating system, high resolution 27-inch-wide screen TFT monitor, DVD +R/W drives, and minimum 04 USB ports. It should have latest operating system with the latest upgraded software for 1D, 2D, and 3D acquisition and processing. PC with minimum i5 Quad or higher processor, 2TB HDD, 16GB RAM, with at least two ethernet ports for data acquisition (One license) including NMR operation in automation, and a Compatible with high-end laser jet printer and other peripherals.</p> <p>ii. Data Processing computer:</p> <p>Latest high-performance state-of-the-art LINUX-1/Windows-10 computers (2 numbers) with a minimum of 16 GB RAM, minimum SSD hard disk with large storage space available to keep processed data and peripherals including two 27-inch TFT monitors, and heavy-duty laser color printer should be provided.</p> <p>iii. A laser jet colour Printer all in one PRINT/SCAN/Copy. Two sided. Printing; 50-sheet ADF; Scan to email/PDF; Print; Speed: 50 PPM, Network, 1200 dpi, Duplex, Wi-Fi, Additional two pairs of Laser Cartridge including with this printer). All hardware and software including drivers, monitor, device interfaces.</p> <p>iv. All hardware and software including drivers, monitor, device interfaces cards/network must be preinstalled and preconfigured on the computer provided.</p> <p>iv. All required hardware and software-related documents, manuals, installation CDs/DVDs, cables, connectors, etc. should be provided.</p> <p>v. The software should be capable of all up-to-date heteronuclear multi-dimensional NMR experiments including the latest experiments for acquisition and reconstruction from sparse data and multi-dimensional NMR spectroscopy. It should be capable of handling/executing multi-receiver experiments under simultaneous acquisition in dual/multi-receiver mode</p> <p>vi. The package should include all the latest pulse sequences for multi-dimensional NMR experiments available with the vendor. Please provide a list of pulse sequences available for ready use.</p> <p>vii. Licensed software/modules should include the following: Acquisition, processing, plotting, multiplet analysis, deconvolution, automation, multivariate statistical analysis, the study of molecular dynamics, DOSY experiments along with software-assisted structure confirmation for small molecules.</p> <p>viii. Any software upgrade (pulse sequence and processing) or new software (pulse sequence and processing) that are released during the warranty should be provided to the user free of cost.</p>
VI	<b>Consumables and Accessories</b>	<p>i. Two sets of reference/calibration standards (including doubly enriched ubiquitin protein and all the available nuclei) should be provided for full operational qualification and instrument performance verification.</p> <p>ii. Essential spare parts for the magnet/spectrometer and the initial supply of cryogen (liquid helium) required for installation should be provided by the NMR supplier at their expense.</p> <p>iii. Two self-pressured liquid nitrogen Dewar's (200L) and one transfer line with necessary accessories and connectors/pipes for refilling of cryogens in the magnet.</p>

VII	<b>The vendor should provide the following information separately:</b>	<ul style="list-style-type: none"> <li>i. Configuration of the coils,</li> <li>ii. Nuclei whose RF coils/pre-amplifiers are cryo-cooled</li> <li>iii. Pulse widths for 1H, 13C, and 15N using standard samples. Please specify the sample used.</li> <li>iv. Best resolution and line shape (under sample spinning and non-spinning conditions). Please specify the line widths measured using the standard sample.</li> <li>v. Best signal-to-noise (S/N) ratio values for each nuclei of the probe measured using standard samples (Please provide data and mention the sample used). S/N should be measured using samples in regular 5 mm thin-walled tubes (E. g.: Wilmad 535pp).</li> <li>vi. Maximum gradient strength (<math>\geq 30</math> G/cm).</li> <li>vii. Gradient recovery times.</li> <li>viii. Decoupling pulse width, power, bandwidth, and duty cycle capability on each RF channel.</li> <li>ix. The temperature range over which the probe can be used (desired zero to 80 oC).</li> <li>x. Tuning accessory for auto-tuning capability</li> </ul>
VIII	<b>Local/Indigenous items</b>	<ul style="list-style-type: none"> <li>i. A 3 HP scroll type (oil and moisture free) air compressor compatible with the instrument with an additional (min of 90L) S.S. make buffer tank, one refrigerated air dryer and one active alumina-based pressure swing dryer with suitable connectors fittings and filters to connect the instrument should be included. The equipment should be ISO-9001 certified.</li> <li>ii. A compatible ISO-9001 certified online 20 KVA UPS, with at least 30 minutes back up, 3 phase output with isolation transformer for the Air compressor unit.</li> <li>iii. A compatible ISO-9001 certified online 15 KVA UPS, with one hour back up, single phase output for NMR electronics.</li> <li>iv. A suitable control unit for high temperatures of the order of 150 deg. C is desirable)</li> </ul>
IX	<b>Warranty/Service and support</b>	<ul style="list-style-type: none"> <li>i. Three-year warranty for all parts including local/Indigenous items and labor should be included. The vendor should provide AMC for 4th and 5th years; magnet quenching and breakdown service visits along with maintenance visits should be provided during the entire period for 5 years from the date of installation. Bidder shall note this requirement while quoting their rate.</li> <li>ii. The warranty should be in comprehensive manner means that it covers the whole system, like cover liquid helium supply, and other items including all accessories and spare parts, etc.</li> <li>iii. In the warranty period minimum of one mandatory OEM engineer visit is required to check and calibrate the institute. This visit is separate from the other breakdown request.</li> <li>iv. All accessories/spare parts replaced shall be from OEM/supplier of same model or higher version.</li> <li>v. If within a period of 5 years after commission, any accessory/spare part is proved to be defective then such product shall be replaced by the manufacturer/supplier. Such replacement shall be sole obligation of the manufacturer/supplier, including payment of charges for freight delivery, custom duty and transportation, if any for IISER Berhampur.</li> <li>vi. In case of system breakdown during the warranty period, a competent/suitable Service Engineer of the supplier should make as many visits as are required to rectify the problem and replace the faulty parts, without any liability of cost to IISER Berhampur.</li> <li>vii. Service response time must be within 3-5 working days for small issues and within 10-14 working days for major breakdown/hardware changeover; otherwise, the warranty period shall automatically be extended by the time taken to rectify the defects.</li> </ul>

		<ul style="list-style-type: none"> <li>viii. Regular upgrades to all software should be provided for the entire service life of the instrument.</li> <li>ix. A full 5 (warranty-3 years + AMC-2 years) years supply and refilling of liquid helium should be provided by the vendor including installation without any additional cost.</li> <li>x. On-site training should be provided to personnel for smooth operation and maintenance of the complete system twice a year during the warranty period.</li> <li>xi. The vendor should provide trained manpower to operate the system and train in-house students for 3 years.</li> <li>xii. In case of system breakdown during the warranty period, a competent/suitable Service Engineer of the supplier should make as many visits as are required to rectify the problem and replace the faulty parts, without any liability of cost to IISER Berhampur.</li> </ul>
<b>X</b>	<b>Delivery</b>	<ul style="list-style-type: none"> <li>i. Item should be directly delivered to IISER Berhampur.</li> </ul>
<b>XI</b>	<b>General requirements</b>	<ul style="list-style-type: none"> <li>i. The vendor should have at least 5 Installations of the above equipment or a higher version of the instrument in reputed government labs in India in the last 10 years (a list of users of the said instrument should be provided).</li> <li>ii. A detailed list of the latest on-site installation requirements must be provided by the vendor.</li> <li>iii. In case of an instrument break-down during the shipment, installation or at subsequent time due to faulty design or any other technical failure, the necessary cost for recharging the magnet/replacing the magnet or any other parts should be borne by the vendor. During the downtime of the instrument, the vendor should provide alternative instrument support/parts to keep the instrument functional while replacing/repairing parts.</li> </ul>
<b>XII</b>	<b>Optional items (Must quote separately)</b>	<p><b>High resolution broadband 5 mm liquid nitrogen cooled probe (Quote separately)</b></p> <ul style="list-style-type: none"> <li>i. It should be a 5 mm double resonance 1H, 19F, 31P to 15N liquid nitrogen-cooled broadband probe with 2H locking, Z-shielded gradient and auto-tuning and matching capability. It should be compatible with a 500 MHz magnet system</li> <li>ii. It should be fitted with an actively shielded single-axis Z-gradient</li> <li>iii. Standard sample temperature ranges from -40 oC to +150 oC or better</li> <li>iv. Should have cooled 2H preamplifier</li> <li>v. Should have a sample diameter of 5 mm</li> <li>vi. Appropriate accessories for a functional liquid nitrogen-cooled probe.</li> </ul>
<b>XIII</b>	<b>Installation and Commissioning</b>	<ul style="list-style-type: none"> <li>i. Supplier or their authorized agent needs to verify/survey the site prior to installation. Company should provide all the required information (in details) regarding the site preparation (especially floor partitioning, requirements of ACs, requirement of earthing, electrical connections etc.)</li> <li>ii. The supplier shall support the site preparation activity as per the requirement of the instrument.</li> <li>iii. The vendor should provide all other consumables, including but not limited to electrical switches, standard samples to demonstrate complete functionalities, etc., and whatever is required for installation, testing and commissioning shall be provided by the vendor without any extra cost.</li> <li>iv. Supply, Installation, Testing, and Commissioning (SITC) of the entire instrument(s) should be taken care by the vendor without additional cost.</li> </ul>
<b>XIV</b>	<b>Note</b>	<ul style="list-style-type: none"> <li>i. The indenter reserves the right to withhold placement of final</li> </ul>



		<p>order. The right to reject allow any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.</p> <p>ii. All the optional items must be quoted otherwise the bid will be technically rejected.</p>
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## nexure IA

S. No.	SPECIFICATION	REQUIREMENT	Bidder Compliances: Please write YES/NO	Make/Brand & Model No. of the Quoted Item	Remarks
I	Magnet system (standard bore)	<p>The NMR magnet should be an 11.74 tesla actively shielded standard bore (54 mm) super-conducting magnet with an operational frequency of 500 MHz for 1H with the following specifications:</p> <p>i. The shortest possible radial and axial distance of stray (5 Gauss) field from the magnet's centre. Please specify your 5G axial and radial distances and the overall magnet dimensions/ceiling height requirements, etc.</p> <p>ii. The drift rate of the magnetic field should be <math>\leq 5</math> Hz/hour or better.</p> <p>iii. <b>Liquid helium hold time should be 200 days or more with auto-level digital monitoring, recording and low-level alarm..</b></p> <p>iv. Liquid nitrogen hold time should be at least 10 days with auto-level digital monitoring, recording and alarm.</p> <p>v. Please specify the total liquid helium and nitrogen hold volume, refill interval and refill volume for the cryogenes.</p> <p>vi. All support equipment for cryostat (e.g., Helium and liquid Nitrogen transfer lines) was provided.</p> <p>vii. Should have Anti-vibration legs/stand; the lower limits on the frequency of vibrations damped should be specified.</p> <p>viii. Built-in cryo-shims and room temperature shims (Ultra) shims; gradient shimming capability and its associated accessory (software/hardware);</p> <p>ix. The deuterium lock channel should be compatible with gradients and automated shimming hardware.</p> <p>x. The magnet should be compatible with the pneumatic sample load/spin/eject system.</p>			
II	Console of the Spectrometer	<p>The spectrometer should have three independent RF channels (frequency range of operation should be specified) with the best frequency and phase resolution and; fast switching time for all parameters without any hidden delays. The configuration and the bandwidth of each channel should be specified. The console (electronics) should include the following:</p> <p>i. Broadband frequency synthesizer for each channel.</p> <p>ii. Each channel should have frequency, phase and amplitude shaping capabilities with simultaneous switching of the parameters possible in 10 ns or less.</p> <p>iii. Waveform generators (for pulse shaping) for all channels.</p> <p>iv. Amplitude, phase and composite pulse</p>			



		<p>decoupling generator.</p> <p>v. Pre-amplifiers and filters for appropriate frequencies for noise reduction.</p> <p>vi. High-power linear broadband amplifier 100 W or better for 1H channel and 300 W or better for 13C/15N and 50 W or better for 2H channel, to provide the shortest possible pulse widths. Please specify all relevant parameters including power (Wattage), frequency range, duty cycle, maximum pulse duration etc.</p> <p>vii. The electronics should be capable of handling/executing multi-receiver experiments for simultaneous acquisition of 1H-15N/1H -13C or 1H-19F/ 1H-31P based on one, two and multidimensional experiments in dual/multi-receiver mode.</p> <p>viii. Transmitter controllers should be provided for each channel.</p> <p>ix. ADC with high dynamic range and sampling rate. Please specify the resolution of the ADC (in bits) and the maximum sample rate. (32 bits or higher)</p> <p>x. Preamplifier for multinuclear observation, 2H-lock, all necessary filters for noise and artefact reduction; Digital lock control unit and digital lock receiver; deuterium amplifier with integrated lock switch for automatic gradient (room temperature) shimming and shim control boards.</p> <p>xi. Magnetic field z-axis gradient unit 30G/cm gradient or better strength that can be generated with a minimum of 10 A external gradient amplifier, for the control for execution of gradient spectroscopy, gradient shimming, generation of pulsed field gradient (PFG) of desired shape and intensity, high-quality PFG-based solvent suppression, coherence selection and DOSY experiments etc. Accessories for this unit should be provided. An optional quote for alternate gradients should be provided.</p> <p>xii. Gradient control with a resolution of 12.5 ns or better for Z gradient.</p> <p>xiii. Variable temperature control unit having a standard temperature range (minus100 °C to plus150 °C) capability is desired:</p> <p>a. High resolution/accuracy/stability of temperature setting (at least +/- 0.1 °C).</p> <p>b. Please specify the resolution/accuracy/stability of the temperature setting of the variable temperature control unit.</p> <p>c. Accurate temperature determination and regulation are desired.</p> <p>d. All the necessary accessories to maintain the desired sample temperature within the above-mentioned range should be quoted.</p> <p>xiv. Digital quadrature detection, ethernet-based communication and control system for bi-directional connection to the host computer.</p>		
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III	Autosampler	<p>A fully functional autosampler with a capacity to handle at least 60 sample holders should be included along with enough number of spinners. All spinners should be applicable for the entire Variable temperature range i.e., +150 °C to -100 °C.</p>			
IV	NMR probes	<p><b>1. High-resolution two channel Liquid/solution state NMR probe:</b>          A state-of-the-art high-sensitive 5 mm broadband probe with the ability to observe <sup>1</sup>H, X, and <sup>19</sup>F and capable of <sup>1</sup>H and <sup>19</sup>F decoupling. The probe should be equipped with auto-tune and match. The probe should enable to perform, <sup>19</sup>F{<sup>1</sup>H}, <sup>13</sup>C {<sup>1</sup>H, <sup>19</sup>F}, <sup>1</sup>H-<sup>19</sup>F HOESY, <sup>19</sup>F-<sup>19</sup>F-COSY, <sup>1</sup>H-<sup>19</sup>F-HSQC, <sup>1</sup>H{<sup>19</sup>F}-<sup>13</sup>C{<sup>19</sup>F}-HSQC/HMBC/HMQC, <sup>19</sup>F{<sup>1</sup>H}-<sup>13</sup>C{<sup>1</sup>H}-HSQC/HMBC/HMQC, X{<sup>1</sup>H, <sup>19</sup>F} where X is a <sup>31</sup>P-<sup>15</sup>N (broadband range) correlation experiment. Further, the probe should allow deuterium detection experiments using short <sup>2</sup>H 90-degree pulses (This arrangement should be independent of the <sup>2</sup>H lock channel). Operating temperature range at -100 °C to +150 °C or even improved ranges. The S/N ratio of <sup>1</sup>H should be 850 or more; <sup>19</sup>F sensitivity (1H decoupled) 600 or more on standard test samples.; <sup>31</sup>P as 150 or more; <sup>15</sup>N as 40 or more <sup>13</sup>C (1H decoupled) as 310 or more on standard test samples.</p> <p><b>2. Solid-state NMR probe:</b>          One 3.2MM HXMAS PROBE with essential accessories including 10 numbers of 3.2 mm Zirconium oxide rotors for solid-state NMR analysis. Probe should have the capability to cover Nuclei for <sup>1</sup>H, <sup>19</sup>F, <sup>31</sup>P, <sup>7</sup>Li, <sup>11</sup>B, <sup>23</sup>Na, <sup>27</sup>Al, <sup>13</sup>C, <sup>79</sup>Br, <sup>207</sup>Pb, <sup>29</sup>Si, <sup>6</sup>Li, <sup>15</sup>N.</p>			
V	Data storage/software /Peripherals comprising of the following:	<p>i. Data Acquisition Computer:          A compatible high-end workstation with preferable Windows/Linux operating system, high resolution 27-inch-wide screen TFT monitor, DVD +R/W drives, and minimum 04 USB ports. It should have latest operating system with the latest upgraded software for 1D, 2D, and 3D acquisition and processing. PC with minimum i5 Quad or higher processor, 2TB HDD, 16GB RAM, with at least two ethernet ports for data acquisition (One license) including NMR operation in automation, and a Compatible with high-end laser jet printer and other peripherals.</p> <p>ii. Data Processing computer:          Latest high-performance state-of-the-art LINUX-1/Windows-10 computers (2 numbers) with a minimum of 16 GB RAM, minimum SSD hard disk with large storage space available to keep processed data and peripherals including two 27-inch TFT monitors, and heavy-duty laser</p>			

		<p>color printer should be provided.</p> <p>iii. A laser jet colour Printer all in one PRINT/SCAN/Copy. Two sided. Printing; 50-sheet ADF; Scan to email/PDF; Print; Speed: 50 PPM, Network, 1200 dpi, Duplex, Wi-Fi, Additional two pairs of Laser Cartridge including with this printer). All hardware and software including drivers, monitor, device interfaces.</p> <p>iv. All hardware and software including drivers, monitor, device interfaces cards/network must be preinstalled and preconfigured on the computer provided.</p> <p>iv. All required hardware and software-related documents, manuals, installation CDs/DVDs, cables, connectors, etc. should be provided.</p> <p>v. The software should be capable of all up-to-date heteronuclear multi-dimensional NMR experiments including the latest experiments for acquisition and reconstruction from sparse data and multi-dimensional NMR spectroscopy. It should be capable of handling/executing multi-receiver experiments under simultaneous acquisition in dual/multi-receiver mode</p> <p>vi. The package should include all the latest pulse sequences for multi-dimensional NMR experiments available with the vendor. Please provide a list of pulse sequences available for ready use.</p> <p>vii. Licensed software/modules should include the following: Acquisition, processing, plotting, multiplet analysis, deconvolution, automation, multivariate statistical analysis, the study of molecular dynamics, DOSY experiments along with software-assisted structure confirmation for small molecules.</p> <p>viii. Any software upgrade (pulse sequence and processing) or new software (pulse sequence and processing) that are released during the warranty should be provided to the user free of cost.</p>			
VI	<b>Consumables and Accessories</b>	<p>i. Two sets of reference/calibration standards (including doubly enriched ubiquitin protein and all the available nuclei) should be provided for full operational qualification and instrument performance verification.</p> <p>ii. Essential spare parts for the magnet/spectrometer and the initial supply of cryogen (liquid helium) required for installation should be provided by the NMR supplier at their expense.</p> <p>iii. Two self-pressured liquid nitrogen Dewar's (200L) and one transfer line with necessary accessories and connectors/pipes for refilling of cryogenes in the magnet.</p>			

VII	<p><b>The vendor should provide the following information separately:</b></p>	<ul style="list-style-type: none"> <li>i. Configuration of the coils,</li> <li>ii. Nuclei whose RF coils/pre-amplifiers are cryo-cooled</li> <li>iii. Pulse widths for 1H, 13C, and 15N using standard samples. Please specify the sample used.</li> <li>iv. Best resolution and line shape (under sample spinning and non-spinning conditions). Please specify the line widths measured using the standard sample.</li> <li>v. Best signal-to-noise (S/N) ratio values for each nuclei of the probe measured using standard samples (Please provide data and mention the sample used). S/N should be measured using samples in regular 5 mm thin-walled tubes (E. g.: Wilmad 535pp).</li> <li>vi. Maximum gradient strength (<math>\geq 30</math> G/cm).</li> <li>vii. Gradient recovery times.</li> <li>viii. Decoupling pulse width, power, bandwidth, and duty cycle capability on each RF channel.</li> <li>ix. The temperature range over which the probe can be used (desired zero to 80 oC).</li> <li>x. Tuning accessory for auto-tuning capability</li> </ul>			
VIII	<p><b>Local/Indigenous items</b></p>	<ul style="list-style-type: none"> <li>i. A 3 HP scroll type (oil and moisture free) air compressor compatible with the instrument with an additional (min of 90L) S.S. make buffer tank, one refrigerated air dryer and one active alumina-based pressure swing dryer with suitable connectors fittings and filters to connect the instrument should be included. The equipment should be ISO-9001 certified.</li> <li>ii. A compatible ISO-9001 certified online 20 KVA UPS, with at least 30 minutes back up, 3 phase output with isolation transformer for the Air compressor unit.</li> <li>iii. A compatible ISO-9001 certified online 15 KVA UPS, with one hour back up, single phase output for NMR electronics.</li> <li>iv. A suitable control unit for high temperatures of the order of 150 deg. C is desirable)</li> </ul>			
IX	<p><b>Warranty/Service and support</b></p>	<ul style="list-style-type: none"> <li>xiii. Three-year warranty for all parts including local/Indigenous items and labor should be included. The vendor should provide AMC for 4th and 5th years; magnet quenching and breakdown service visits along with maintenance visits should be provided during the entire period for 5 years from the date of installation. Bidder shall note this requirement while quoting their rate.</li> <li>xiv. The warranty should be in comprehensive manner means that it covers the whole system, like cover liquid helium supply, and other items including all accessories and spare parts, etc.</li> <li>xv. In the warranty period minimum of one mandatory OEM engineer visit is required</li> </ul>			

		<p>to check and calibrate the institute. This visit is separate from the other breakdown request.</p> <p>xvi. All accessories/spare parts replaced shall be from OEM/supplier of same model or higher version.</p> <p>xvii. If within a period of 5 years after commission, any accessory/spare part is proved to be defective then such product shall be replaced by the manufacturer/supplier. Such replacement shall be sole obligation of the manufacturer/supplier, including payment of charges for freight delivery, custom duty and transportation, if any for IISER Berhampur.</p> <p>xviii. In case of system breakdown during the warranty period, a competent/suitable Service Engineer of the supplier should make as many visits as are required to rectify the problem and replace the faulty parts, without any liability of cost to IISER Berhampur.</p> <p>xix. Service response time must be within 3-5 working days for small issues and within 10-14 working days for major breakdown/hardware changeover; otherwise, the warranty period shall automatically be extended by the time taken to rectify the defects.</p> <p>xx. Regular upgrades to all software should be provided for the entire service life of the instrument.</p> <p>xxi. A full 5 (warranty-3 years + AMC-2 years) years supply and refilling of liquid helium should be provided by the vendor including installation without any additional cost.</p> <p>xxii. On-site training should be provided to personnel for smooth operation and maintenance of the complete system twice a year during the warranty period.</p> <p>xiii. The vendor should provide trained manpower to operate the system and train in-house students for 3 years.</p> <p>xiv. In case of system breakdown during the warranty period, a competent/suitable Service Engineer of the supplier should make as many visits as are required to rectify the problem and replace the faulty parts, without any liability of cost to IISER Berhampur.</p>			
X	Delivery	<p>ii. Item should be directly delivered to IISER Berhampur.</p>			
XI	General requirements	<p>i. The vendor should have at least 5 Installations of the above equipment or a higher version of the instrument in reputed government labs in India in the last 10 years (a list of users of the said instrument should be provided).</p>			

		<p>ii. A detailed list of the latest on-site installation requirements must be provided by the vendor.</p> <p>iii. In case of an instrument break-down during the shipment, installation or at subsequent time due to faulty design or any other technical failure, the necessary cost for recharging the magnet/replacing the magnet or any other parts should be borne by the vendor. During the downtime of the instrument, the vendor should provide alternative instrument support/parts to keep the instrument functional while replacing/repairing parts.</p>			
XII	Optional items (Must quote separately)	<p><b>High resolution broadband 5 mm liquid nitrogen cooled probe</b>  <b>(Quote separately)</b></p> <p>i. It should be a 5 mm double resonance 1H, 19F, 31P to 15N liquid nitrogen-cooled broadband probe with 2H locking, Z-shielded gradient and auto-tuning and matching capability. It should be compatible with a 500 MHz magnet system</p> <p>ii. It should be fitted with an actively shielded single-axis Z-gradient</p> <p>iii. Standard sample temperature ranges from -40 oC to +150 oC or better</p> <p>iv. Should have cooled 2H preamplifier</p> <p>v. Should have a sample diameter of 5 mm</p> <p>vi. Appropriate accessories for a functional liquid nitrogen-cooled probe.</p>			
XIII	Installation and Commissioning	<p>v. Supplier or their authorized agent needs to verify/survey the site prior to installation. Company should provide all the required information (in details) regarding the site preparation (especially floor partitioning, requirements of ACs, requirement of earthing, electrical connections etc.)</p> <p>vi. The supplier shall support the site preparation activity as per the requirement of the instrument.</p> <p>vii. The vendor should provide all other consumables, including but not limited to electrical switches, standard samples to demonstrate complete functionalities, etc., and whatever is required for installation, testing and commissioning shall be provided by the vendor without any extra cost.</p> <p>viii. Supply, Installation, Testing, and Commissioning (SITC) of the entire instrument(s) should be taken care by the vendor without additional cost.</p>			
XIV	Note	<p>iii. The indenter reserves the right to withhold placement of final order. The right to reject allow any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.</p> <p>iv. All the optional items must be quoted otherwise the bid will be technically</p>			



भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान बरहमपुर  
Indian Institute of Science Education and Research Berhampur  
Established by the Ministry of Education, Govt. of India

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