

Tender Fee: Rs.2000/- (GST inclusive)  
(Non-Refundable)

विश्वेश्वरय्या राष्ट्रीय प्रौद्योगिकी संस्थान, नागपुर - 440010 (भारत)

VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY,  
NAGPUR - 440 010 (INDIA)



**TENDER DOCUMENT FOR**  
**X-Ray Diffractometer (XRD) WITH ACCESSORIES**

TENDER NO. VNIT/STR/FIST/2018-19/5 , Date: 01/03/2019

DATE OF ISSUE OF TENDER : Friday, 1<sup>st</sup> March 2019 at 9.30 A.M.  
LAST DATE OF SUBMISSION OF TENDER : Monday, 1<sup>st</sup> April 2019 upto 3.00 P.M.  
DATE OF OPENING OF TENDER : Monday, 1<sup>st</sup> April 2019 upto 3.30 P.M.

**EMD AMOUNT: Rs. 1,80,000**



**VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY, NAGPUR- 440 010**

**TENDER NOTICE Advt.NO: VNIT/STR/FIST/2018-19/5 DT.01/03/2019**

Tenders in sealed Envelope are invited for

**X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES**

for Physics Department

For complete details visit our website: [www.vnit.ac.in](http://www.vnit.ac.in). The bidders can download the tender form/ documents from **01/03/2019 to 01/04/2019** from Institute's website and send self addressed Envelope, invariably along-with bank draft of Rs. 2,000/- (GST Inclusive)(Rs. Two Thousand with GST inclusive Only, **Non Refundable**) drawn in favour of The Director, VNIT, Nagpur, towards the cost of **TENDER ITEM FORM** to stores section along with the cost of each tender form.

V.N.I.T will not be responsible for postal delay/ non-receipt of tender form/ D.D, sent through the post. Tender forms duly filled in all respect in Only original prescribed format, supplied by the VNIT, duly super-scribed, should reach office of the Stores officer, VNIT, Nagpur -440010, on or **01/04/2019 upto 3.00 p.m.** The tenders are likely to be opened at **3.30 p.m** on the same day. The Director, VNIT reserves the right to accept or reject any or all tender offer.

**For Enquiry contact Stores office, VNIT, Tele No : 0712-2801243, 2801369**

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निविदा सुचना क : VNIT/STR/ FIST/2018-19/5 DT.01/03/2019

निम्नलिखित मदो की खरीदी हेतु मुहरबंद आमंत्रित है ।

**X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES**

for Physics Department

संपुर्ण जानकारी के लिए इच्छुक विक्रेता संस्थान कि वेबसाइट [www.vnit.ac.in](http://www.vnit.ac.in) पर जा सकते हैं । इच्छुक विक्रेता निविदा प्रपत्र दि. **01/03/2019 to 01/04/2019** तक संस्थान कि वेबसाइट से डाउनलोड करके स्वयं के पते युक्त लिफाफा भेजकर विज्ञापन क्र. उल्लेख कर के निविदा मद प्रपत्र के मूल्य हेतु रु. २०००/- (GST inclusive) (**Non Refundable**) बैंक ड्राफ्ट निदेशक, वी.एन.आय.टी., नागपुर, के साथ निविदा प्रपत्र भंडार अनुभाग में भेज सकते हैं ।

डाक द्वारा विलंब होने पर / निविदा दस्तावेज न मिलने पर/ D.D न मिलने पर, वी.एन. आय. टी. (वि. रा .प्रो.सं) जवाबदेह नहीं होगा । संस्थान द्वारा प्रदत्त केवल वास्तविक निर्धारित प्रपत्र को पूर्ण रुप से भर कर **01/04/2019 के अपरान्ह ३.००** बजे तक या इससे पूर्व भंडार अनुभाग (वि. रा .प्रो.सं) नागपुर मे जमा करे। निविदा उसी दिन अपरान्ह **३.३०** बजे खोली जाएगी । किसी भी या सभी निविदाओ को अस्वीकृत करने का अधिकार निदेशक का होगा।

**For Enquiry contact Stores office, VNIT, Tele No : 0712-2801243, 2801369**

**INVITATION of QUOTATION/TENDER for**  
**X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES**

**Sub:** Tender Enquiry for Procurement of **X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES** for Department of Physics.

Dear Vendor,

You are invited to submit your most competitive quotation for the procurement of equipment "**X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES**" in sealed envelope for Department of Physics. Interested bidders are requested to submit the most competitive bid / quotation, details below:-

Description of the Goods / Equipment	Specifications	Unit / Quantity	Delivery Period & Place of Delivery	Price	Earnest Money Deposit (EMD) Amount in Rs	Installation
Please refer enclosed "QFA/Bill of Material" for complete details	As per QFA/Bill of Material	As per QFA/Bill of Material	<b>8 Weeks</b> from the Date of award of PO / Contract Department of Physics VNIT, Nagpur.	F.O.R. VNIT, Nagpur/ Nagpur Airport.	<b>Rs. 1,80,000=00 One Lakh Eighty Thousand only) in form of DD / BG/ FDR drawn on any of Commercial Bank in favour of the Director, VNIT, Nagpur [To be enclosed with the quotation in separate envelope]</b>	Good(s)/Equipment(s) to be / installed / commissioned at place of Delivery by the bidder at Free of Cost.

## **Schedule & Instructions for Tender/Bid Submission**

**ITEM: Procurement of “X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES” for Department of Physics.**

<b>Date of Issue</b>	:	<b>Friday, 1<sup>st</sup> March 2019 at 9.30 A.M.</b>
<b>Last Date of Submission</b>	:	<b>Monday, 1<sup>st</sup> April 2019 Upto 3.00 P.M.</b>
<b>Tender Opening Date &amp; Time</b>	:	<b>Monday, 1<sup>st</sup> April 2019 Upto 3.30 P.M.</b>
<b>Amount of EMD</b>	:	<b>Rs.1,80,000/- payable through DD/BG/FDR drawn in favour of Director, VNIT, Nagpur.</b>

### **SUBMISSION OF BID**

“**TWO BID**” viz. **Technical /Qualifying Bid** and **Price/Commercial Bid** Systems will be followed for this tender.

The Technical bid and the Financial bid should be sealed **in separate covers both duly super-scribed** and both these sealed covers are to be put **in a bigger cover** which should also be sealed and **duly super-scribed** with above mentioned item.

**For Technical /Qualifying Bid** - Envelope to be super-scribed with above mentioned item, and should be submitted with prescribed Tender Fee & EMD and the associated supporting documents. Bill of material (without any price), indicating the compliance of technical specification should also be included with the qualifying bid. The Tender Fee & EMD, DD to be put in separate envelope.

**For Price/Commercial Bid** - Envelope to be super-scribed with “**PRICE/COMMERCIAL BID for “Name of Equipment and Reference No.”**”. The Price should be indicated in the prescribed format in the Price/Commercial Bid only. Any other format will lead to disqualification.

Both above sealed covers are to be put **in a bigger envelope** which should also be sealed and **duly super-scribed** with Tender Enquiry for “**Name of Equipment and Reference No.**” for Department of **Physics**.

The sealed envelope super-scribed with - Tender Enquiry for **X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES** of Department of Physics to be sent to **Joint Registrar (Stores), VNIT, South Ambazari Road, Nagpur 440 010**. Sealed envelope can also be submitted in person in the “**Tender / Quotation Box**” kept in The Stores Section. VNIT, Nagpur. The last date of submission is **Monday, 1<sup>st</sup> April 2019 by 3.00 P.M.**

Tender received after the last date / time of submission (as mentioned in tender notice) will not be considered and will lead to rejection.

Each envelope / cover should also indicate clearly the name and address of the bidder.

## General Instructions, Terms & Conditions for the Bidder / Vendor

### 1. Price Bid

- a) The price should be quoted **FOR VNIT, Nagpur / Nagpur Airport** on delivery basis.
- b) The price/rates quoted by the bidder shall be FIRM & FIXED and shall not be variable/subject to adjustment on any account.
- c) The price bid shall be valid for a period of 180 days from the date of opening.
- d) The duties, taxes and other levies payable by the vendor shall be shown separately in bidding document. The basic price per unit should be separately mentioned in price bid in the given format.
- e) Duties & taxes viz. Custom, GST, Freight / Transportation, Packing & Forwarding, Insurance, Price Ex-Works etc. shall be indicated separately in the given format only.
- f) **The bidder is requested for special educational discount to the Institute.**
- g) The contract shall be for the full quantity as described in QFA/Bill of Material. Correction if any shall be made out by crossing out, initialling, dating and re-writing.
- h) In case of price quoted in foreign currency, its conversion rate to INR on the date of opening the quotation/tender shall be considered.

### 2. Technical Bid

- a) The good/s offered must meet / comply with the Technical Specifications detailed in "**Technical/Qualifying Bid**" given in tender. In case of deviation if any, the firm's bid is liable to be treated as non – responsive.
- b) VNIT has the sole discretion to accept or reject tenders / bids based on deviations, if any, from the technical specification.
- c) The price bids of the bidders who **do not conform** to the Technical Specifications & Eligibility Criteria given in Technical/Qualifying Bid will not be opened. The EMD of such bidder/s will be returned in due course.

### 3. Bid Evaluation

The Purchaser will evaluate and compare the bids determined to be substantially responsive i.e. which;

- a) Are properly signed, and
- b) Conform to the general terms and conditions, special conditions, and technical specifications.

4. Each Bidder shall submit only one bid. VNIT Ref. No. and item name must be mentioned on envelope / cover containing the quotation.
5. Bidder shall submit Firm's registration certificate, GST registration certificate, PAN, Delivery Period, Warranty/Guarantee, others etc with the bid.
6. Bidder shall furnish the information in the prescribed format of Technical and Price Bid only (as applicable). Any other format will lead to disqualification. Each and every document submitted with Technical and Price Bid should be duly signed/attested & stamped. **Incomplete or Conditional Bid(s) will not be accepted.**
7. **Earnest Money Deposit (EMD):** Bidder shall submit EMD in form of Demand Draft / Fixed Deposit Receipt / Bank Guarantee in favor of "**Director, VNIT Nagpur**" payable at Nagpur. The EMD to be submitted strictly in a separate envelope superscribed with Vendor / Firm's name & address & also on back side of DD with stamp. **Bid received without EMD will be summarily rejected.**
8. **EMD Exemption:** Exemption is applicable to MSE Firms engaged in Manufacture/ Production of goods or providing of any service or services, as per MSMED Act, 27/2006 Chapter-1 2(e), subject to furnishing of relevant valid certificate (indicating terminal validity date of their registration) for the item tendered. Selling Agent/ Authorized Distributors/ Dealers/ Suppliers are not eligible for exemption in tendered items.
9. **Specification and Make:** Bid should be given for the exact specification and make as shown in the tender enquiry against Sr. No. of the item / good. The bid which is not as per our tender enquiry will be treated as non responsive. **Product Catalogue/Technical Specification shall be separately attached** for each make wherever necessary. Price for each make be separately mentioned in price bid.

10. **Product Catalogue:** Information brochures/Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
11. **Client List:** Bidder shall furnish information of Client list along with the order copy of similar good/s / equipment supplied to any IIT/NITs/ any Govt. Organization including details of price & all other charges / duties with the bid.
12. **ISI Certification:** Where ISI certification marked goods / items are available in market, procurement should generally be limited to goods with those or equivalent marking only.
13. **Authorization Certificate:** Sole selling agent/ Authorized distributors/ Dealers/ Suppliers are eligible to bid on behalf of Original Equipment Manufacturers (OEM) provided they submit requisite authorization and self certification from the (OEM). The bidder should enclose the latest authorization certificate from the (OEM).
14. **Taxes:** GST or any other taxes as per Govt. norms shall be applicable from time to time. The % of Tax must be indicated separately in the bid.
15. **Valid Period of Quotation/offer:** The bidder should clearly mention the valid period of quotation/offer in the bid. The quotation/offer shall be normally valid for a period of **180 days** from the date of opening the tender.
16. **Rate Contract:** If the Good/s under enquiry is mentioned under the Govt of India, DGS&D rate contract, Vendor shall supply the good/s at DGS&D contract rate as VNIT Nagpur is Government of India's Institute of National Importance under the Ministry of HRD.
17. **Installation:** Goods / Equipments shall be delivered / installed at concerned laboratory / department of VNIT by the Bidder at free of cost.
18. **Service centre:** Vendor shall provide the details of Service Centre in Nagpur or other region with name of contact person, their contact nos. & address.
19. **Items for Research Purpose: Concessional GST @ 5% will be applicable for purchase of goods viz Scientific & Technical instruments and other required for the Research purposes only.** This is in accordance of Govt. of India, Ministry of Finance Notification 45/2017-Central Tax (Rate) dated 14<sup>th</sup> November, 2017 and VNIT Circular Ref.- VNIT/Acct/2017-18-GST/5390 dated 27<sup>th</sup> November, 2017. The description of goods is given in Govt of India notification dated 14<sup>th</sup> November, 2017 mentioned above. A certificate in this respect will be issued to the vender by the Institute.
20. **Taxes (For Import Item):** - Govt of India Ministry of Science & Technology, DSIR, New Delhi vide letter No TU/V/RG-CDE (190)/2016 dated 20.02.2018 has issued Certificate of Registration to VNIT, Nagpur for purposes of availing customs duty exemption in terms of Govt. Notification 51/96-Customs dated 23<sup>rd</sup> July, 1996 and this registration is valid up to 31.08.2021.VNIT is eligible to avail partially exemption for Customs Duty. Necessary documentation / exemption certificate for the same will be provided by the Institute wherever applicable. The supplier who has quoted the price in Rupees, but importing the items from the foreign country has to sign the High Sea Sale Agreement. Against High Sea Sales Agreement GST is not applicable; Custom Duty is applicable under Notification No 51/96. The charges towards HSS agreement, if any, will have to be borne by the firm.
21. **Payment (Indigenous Item):** Institute will release the full & final (100%) payment after delivery of items and its successful installation/ demonstration at concerned department / laboratories of VNIT Nagpur. The vendor will be required to submit the bills in triplicate along with delivery memo. Payment will be made through Crossed Cheque / ECS / NEFT / RTGS. For electronic payment mode, Firm / Company bank details on letter head will be required.
22. **Payment (Import Item):** In case of import good/s, the payment term shall be 100% through irrevocable Letter of Credit/Telegraphic Transfer, the 90% will be released against dispatch of original documents and items/goods received at the Nagpur Airport and the balance 10% will be released after delivery and successful installation of the goods at VNIT, Nagpur. Letter of Credit amendment charges will be borne by the beneficiary.
23. Vendor shall furnish price & other information in the prescribed Price Bid format. Each document submitted with quotation should be duly attested & stamped by the vendor, failing which submitted

quotation will be treated as **Non-Responsive**. Incorrect, Incomplete or Conditional Quotation(s) will not be accepted and will be treated as **Non-Responsive**.

24. If any document of tender /quotation enquiry, certificate etc. submitted by the vendor is observed to be incorrect / false / forged / having ambiguity, intentionally or un-intentionally at any stage, the tender/quotation submitted by the vendor is liable to be treated **Disqualified/Non-Responsive**. Further the Institute reserves the right to initiate any action as deemed fit in such case against the vendor including the action of blacklisting of firm.
25. Incomplete or conditional quotation/bid shall be summarily rejected.
26. **Educational Discount:** VNIT, Nagpur is a Govt. of India's Institute of National Importance engaged in education & research of National & International repute, the Vendors shall give / offer the special educational discount on quoted rates.
27. The vendor shall take full responsibility in case of any damage, loss or injury to any person / building or to any part thereof, and shall repair / and make good the loss, at his own cost.
28. Statement of Annual turnover/Balance sheet of last 3 financial years must be enclosed.
29. Copies of purchase/ work orders executed by the vendor in the last 3 financial years must be enclosed with the bid.
30. **Guarantee or Warranty & Delivery of Goods**
- a) **Guarantee/Warranty:** Normal comprehensive **Warranty/ Guarantee of 3 years** shall be applicable to the supplied goods. In case any part or whole of the equipment is found to be defective during the guarantee period, then the same will have to be replaced/repaired free of cost at our premises. The Vendor should guarantee that the goods/items and its accessories supplied are complete in every respect and confirm to the technical specification mentioned in the Bill of Material
- b) **Performance Guarantee:** A performance guarantee of 10% of the total invoice value for goods/items costing 10 Lacs & above, and valid for three year covering the entire warranty period will be required from the vendor executing the purchase order. In case of violation of any of the conditions of guarantee / warranty (for Three years), the aforesaid performance guarantee shall be invoked by VNIT.
- c) **Delivery of Goods:**
- i) Vendor shall deliver/supply the goods within **8 (Eight) weeks** period.
- ii) Goods shall be supplied / delivered by the bidder at the installation site in concerned laboratory/department of VNIT Nagpur at free of cost on working days. Vendor shall strictly be adhered to above, failing which **Liquidated Damages Clause will be applicable**.
- iii) Goods should be securely, safely and adequately packed and dispatched at the risk of supplier. Purchase order Ref. No. & date must be mentioned/should be kept in all packing's.
- iv) Bidder shall deliver the goods in concerned laboratory/department perfectly before 4.00 pm on working day/s. Delivery of goods will not be accepted on Saturday, Sunday and Institute Holiday.
31. **Liquidated Damages Clause:**
- a) The Director, V.N.I.T. Nagpur reserves the right to recover from the vendor, liquidated damages a sum equivalent to  $\frac{1}{2}$  percent of the price of the undelivered stores at the stipulated rate for each week or part thereof, during which the delivery of such stores may be delayed subject to, a maximum limit in the case of an order exceeding Rs. One Lakh in value, upto **10** percent and in the case of an order not exceeding Rs. One Lakh in value upto **5** percent of the stipulated price, of the stores so undelivered.
- b) To purchase elsewhere, on vendor's accounts, at his risk, the stores etc. undelivered, or other of a similar description, where others exactly employing with the particulars, are in the opinion of the Director, Visvesvaraya National Institute of Technology, Nagpur are not readily procurable, without cancelling the contract, in respect of consignment not yet due for delivery.

- c) If the Supplier fails to deliver the material/goods within the stipulated delivery period, then Amount of EMD given by the Vendor shall be forfeited.
- d) To cancel the contract.  
In the event of action being taken under (b) or (c) above, the vendor shall be liable to make good for any loss, which the Institute may sustain, by reason of higher price of items/goods, so purchased or the otherwise, howsoever:  
The decision of the Director, Visvesvaraya National Institute of Technology, Nagpur shall be final as regards to the acceptability of stores supplied by the seller and the Director, Visvesvaraya National Institute of Technology, Nagpur, shall not be required to give any reason in writing or otherwise at any time for the rejection of stores.

**32. Award of Purchase Order / Work Contract**

- a) Notwithstanding the above, the Purchaser reserves the right to accept or reject any bid and to cancel the bidding process and reject all bids at any time prior to the award of contract.
- b) The Purchaser will issue the **Purchase Order / Work Contract** to the vendor / bidder whose bid has been determined to be substantially responsive and who has offered the lowest evaluated bid price. The terms of the accepted offer shall be mentioned in the purchase order.
- c) On receiving of order by vendor, the vendor shall deliver / supply / install the good/s at free of cost up to installation site of concerned department of VNIT, Nagpur, failing which cost of delivery / installation will be deducted from the Vendors bill payment.
- d) After receiving of the Purchase Order / award of contract, it will be Vendor's obligation / responsibility to supply or delivery of the good/s as per specifications within specified time schedule/delivery period.
- e) Expression of vendor's inability for the supply or delivery of good/s as per specifications will lead to cancellation of PO and EMD (as submitted) will be forfeited. Further Institute may also disqualify / debar the Vendor from participating in any of its future enquiries for a period as recommended by institute authorities.

**33. Post Delivery / Installation Warranty & Support:**

- a) The Vendor should have their office or authorized representative / dealer in Nagpur. They should mention in detail their support infrastructure by which minimum downtime will be ensured.
- b) The Vendor shall submit details of Service Centres / Factory and information on service support facilities that would be provided after warranty period [Form].
- c) The Vendor will have to give undertaking that in case of any breakdown / damages during warranty period the goods / equipment will be restored back to its original status within **12 Hours** (This may include replacing some spares also).

**34.** Any corrigendum / amendment regarding this tender enquiry will be issued on institute website only. [\[www.vnit.ac.in/stores\]](http://www.vnit.ac.in/stores)

**35.** Bidder shall not be permitted to withdraw or modify the bids after the Last date of submission.

**36.** Director, VNIT, Nagpur reserves the right to increase/decrease the quantity of goods at any stage.

**37.** Director, VNIT, Nagpur reserves the right to accept or reject or cancel any or all enquires or bids/PO at any stage without assigning any reason thereof.

**38. For any disputes, the place of jurisdiction shall be Nagpur, Maharashtra (India) only.**

**39. It will be presumed that the vendor has read carefully all the above mentioned instructions, terms & conditions and abide by same.**

**40. All Communication are to be addressed to –**

**Director**

Visvesvaraya National Institute of Technology,  
South Ambazari Road,  
Nagpur 440 010  
Maharashtra (India)

**41.** We look forward to receiving your bids and thank you for your interest in this project.

Sd/-

**Dean (P & D)  
VNIT, Nagpur**



**TECHNICAL/  
QUALIFYING BID**

**Technical Specifications and Eligibility Criteria**

**[A] Technical Specifications**

**QUOTATION FORMAT ANNEXURE (QFA)**

TENDER NO. VNIT/STR/FIST/2018-19/5

Date: 01/03/2019

S.N	Name of Item & Specifications	Qty.
1.	<p><b>X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES</b> (for Research purpose)</p> <p><b>Specifications :</b></p> <p>Supply, installation and performance demonstration of floor mounted, fully automated powder X-Ray Diffraction (XRD) System and Upgradable for higher configuration :</p> <p>1) The proposed High resolution x-ray diffractometer will be used for analysis Powder and thin films and should be capable of measuring following</p> <ul style="list-style-type: none"> <li>• Omega-2-theta scans</li> <li>• Reciprocal space maps</li> <li>• Reflectometry</li> <li>• In-plane diffraction</li> <li>• Texture measurements</li> <li>• Residual stress measurements</li> <li>• Grazing incidence measurements</li> </ul> <p><b>The HRXRD should have minimum following specifications:</b></p> <p>2) <b>X-Ray Generator:</b> 3 KW (up to 60 kV, 60 mA) solid state x-ray generator. Maximum variations in HV &lt; 0.01 % per 10 % mains variations. Fully controllable by software for tube power ramping, stand by modes when system is idle, recording of the number of hours of operation, etc.</p> <p>3) <b>X-Ray tube:</b> Anode – Copper (Cu) Sealed Type, Ceramic insulation, Long Fine Focus type and High Resolution type. Should stabilize within five minutes after switch ON with high resolution Ka1 Optics mounted. Recommended operating power should be between 1.5 – 2.0 KW.</p> <p>4) <b>Goniometer :</b></p> <ul style="list-style-type: none"> <li>• The base goniometer should be with independent theta and 2-theta drives for accurate positioning</li> <li>• Operating Mode : Horizontal theta/2theta decoupled</li> <li>• Minimum Step size: +/- 0.0001 deg.</li> <li>• Angle reproducibility : +/- 0.0001 deg</li> <li>• Goniometer Diameter : &gt; 450 mm</li> <li>• Absolute linearity accuracy of minimum 0.0025deg for both theta and 2theta drive</li> </ul> <p>5) <b>Fully automated Thin Film sample stage</b> <b>Cradle</b> for high resolution, triple axis, texture, stress, phase and reflectivity measurements with all axes i.e.(tilt), (rotation) with following detailed specifications:</p> <ul style="list-style-type: none"> <li>• <math>\chi</math> (<b>tilt</b>): Range – 180Degrees (+90 degrees to -90 degrees) ; Minimum step size – 0.01° deg or better with a minimum reproducibility of &lt;0.01 deg.</li> <li>• <math>\phi</math> (<b>rotation</b>) – 360 degree; Minimum step size – 0.01 deg. Reproducibility &lt;0.01 deg.</li> <li>• <b>Z Range</b> – 6 mm or better; Minimum step size &lt;10 <math>\mu</math>m ; Reproducibility &lt;10 <math>\mu</math>m.</li> </ul>	01 No.

- 6) **Sample Platform:**
- Mounting platform for stable and clean mounting of thin flat samples of diameter 2mm x 2mm to 4inch
- 7) **X-Ray beam Optics:**
- A combination of parabolic Multigraded mirror beam mirror and 2 bounce Ge monochromator (**Two bounce monochromator to be optionally quoted**) based optics for parallel high intensity should be quoted. It should be possible to use either of them or combination of both in the beam path. This would serve the need of the experimental setup depending upon the need for intensity or resolution and/or both intensity and resolution.
  - A schematic drawing of the incident beam side optics showing the various components in the beam path being quoted for as standard or as options must be included.
- 8) **X-Ray Detector:**
- Solid State Area detector for fast reciprocal space maps with static and dynamic scanning
  - Number of channels/pixels in 1D Mode shall be > 190
  - 97% linearity range for Cu K-Alpha radiation between 0-1 billion or better cps over the whole detector.
  - Maximum background < 1 cps over the whole detector
  - Efficiency for Cu Ka > 90%, frame transfer in static mode <3 seconds.
  - Spatial resolution of Detector should be 80µm or less.
  - Point Spread Function should be 1pixel or better.
  - The detector should have facility for Fluorescence suppression
  - The quote should include in tabular form the following detector characteristics (for source and optics being suggested):
    1. type of detector (1-D, 0-D etc. and any relevant explanation)
    2. mode of detection
    3. Angular resolution
    4. Energy resolution
    5. Max CPS
    6. Dynamic range.
    7. Active area
    8. Background noise.
- 9) **Software:**
- Software for system and instrument parameter setting and monitoring of the system parameters data.
  - Qualitative/Quantitative Analysis
  - Crystallinity, Lattice Parameter determination, Indexing
  - Rietveld analysis
  - Software for data collection for reciprocal space map, x-ray reflectivity, stress and texture.
  - Software for displaying the data so collected in standard and user friendly forms
  - Software for simulation of Reflectivity including Automated fitting.
  - All software should be with minimum 10 User Licenses.
  - Please quote for other software modules available as options
- 10) **SAXS**-for the determination of particle Size for nano materials with Transmission optics should be quoted. The software for particle size should also be quoted.
- 11) **Optionally quote for High Temperature attachment.**  
 Should work from Room Temperature to 1300 deg C  
 Should have vacuum facility with vacuum pump  
 Should be able to take on air and inert gas as sample environment  
 The ramping and control of this attachment should be from the XRD software.

	<p><b>12) Computer :</b></p> <ul style="list-style-type: none"> <li>• Latest computer with Intel i 5 or higher processor with 2.8 GHz</li> <li>• Motherboard, 16 GB DDR2 memory, 1TB hard disk, 24" LED colour monitor, 512 MB graphics card, DVD RW drive and a color printer.</li> </ul> <p><b>13) High efficiency Chiller for the Generator and Tube:</b> High stability chiller of Indian make suitable for operating the XRD machine continuously should be quoted</p> <p><b>14) Power requirement</b> 230 VAC single phase 50 Hz</p> <p><b>15) Training and documentation</b> The supplier should provide complete application training for XRD at site with Data collection Software and DataAnalysis of</p> <ul style="list-style-type: none"> <li>• Powder XRD</li> <li>• reciprocal space maps</li> <li>• texture</li> <li>• stress and</li> <li>• XRR deducible parameters like thickness, composition and density.</li> <li>• Complete documentation of the instrument should be provided in both hard copy and soft copy format.</li> </ul> <p><b>16) Warranty and AMC :</b> Minimum three year warranty from the date of installation followed by 2 years AMC separately quoted.</p> <p><b>17) The system should follow Indian and International Radiation norms.</b></p>	
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**[B] Eligibility Criteria**

- i) The Bidder should be OEM or authorized representative / supplier of the OEM. In case of authorized representative/supplier, the authorization letter from the OEM is essential.
- ii) The Bidder should be able to supply / manufacture the good/s of the most recent series models incorporating the latest developments and meeting technical specifications given in this tender.
- iii) The Bidder must have supplied & satisfactorily installed / commissioned the similar Good/s as specified in "QFA/Bill of Material" in the preceding 3 years (2015-16, 2016-17, 2018-19) period. Please attach necessary documents in support of above.
- iv) The Bidder shall furnish brief write-up, backed with adequate data, explaining firm's present capacity and experience (both technical and commercial) for the manufacture and supply of the required Good/s within the period specified for time of completion after meeting all their current commitments.
- v) The bidder shall clearly confirm the manufacturing unit / factory information and their in-house testing facilities and same will be available for the inspection.

**FORM 1**  
**Check List for TECHNICAL / QUALIFYING BID**

Tender for **X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES**

Department: **Physics**

Ref No. & Date: **VNIT/STR/FIST/2018-19/5 Dt. 01/03/2019**

Following is the check list of requirements for item/good tendered. Vendor / Bidder should clearly mention YES/NO in the remarks column. All enclosures shall be arranged in the following order only.

Sr. No.	Requirement	Details of Certification Enclosed Mention – “YES/NO”	Page No. (in Ascending Order)
1.	<b>EMD of ₹ 1,80,000=00</b>	<b>YES/NO</b>	
2.	Authorization Letter from the Original Equipment /Goods Manufacturer <b>(Form 2)</b>	<b>YES/NO</b>	
3.	Goods Technical Specification, Product Catalogue/ Information Brochure	<b>YES/NO</b>	
4.	Brief Profile of Firm/ Company	<b>YES/NO</b>	
5.	PAN	<b>YES/NO</b>	
6.	GST Registration Certificate	<b>Yes/No</b>	
7.	Certificate of Incorporations and/or Firm Registration Certificate	<b>YES/NO</b>	
8.	Copy of ISO/ Equivalent certification	<b>YES/NO</b>	
9.	Guarantee/ warranty : _____ yrs	<b>YES/NO</b>	
10.	Service Support Details <b>(Form 3)</b> Name of official, Address & Contact Nos.(Mob)	<b>YES/NO</b>	
11.	Client list	<b>YES/NO</b>	
12.	Statement of Annual Turnover/ Balance of last 3 financial years(2015-16 onwards)	<b>YES/NO</b>	
13.	Performance Statement <b>(Form 4)</b> Copies of Orders (duly certified of preceding 3 financial years from 2015-16 onwards.	<b>YES/NO</b>	
14.	Capability Statement <b>(Form 5)</b>	<b>YES/NO</b>	

**FORM 2**

**MANUFACTURERS (OEM) AUTHORIZATION LETTER**

REF No.

Date :

To

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Dear Sir,

We ..... who are established and reputable manufacturers of ..... *(Name and description of goods offered)* having factories at ..... *(address of factory)* do hereby authorize M/s ..... *(Name and address of Agent)* to submit a bid, and sign the contract with you for the goods manufactured by us against the above IFB No. VNIT/STR/. We hereby extend our full guarantee and warranty of 3 years for the goods and services offered for supply by the above firm against this IFB.

Yours truly,

(Name with Stamp/Seal of Competent Authority)

**Note:** This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to legally bind the manufacturer. It should be included by the Bidder in its bid.

**FORM 3**

**SERVICE SUPPORT DETAILS**

LOCATION OF NEAREST SERVICE CENTER:-

Phone No.	Fax / Telex No.	Status of Office working Days & Hours	Number of Engineers	Value of Min. Stock Available at all times	List of Models & Types of Equipment under Service during last 2 years	Name of the Organization where the equipment are currently under AMC/ Service

**FORM 4**

**PERFORMANCE STATEMENT**

**(From 2015-16 onwards)**

Name of the Firm \_\_\_\_\_

Order placed by (Complete Address of Purchaser)	Purchase Order No. & Date	Description and Quantity of ordered equipment	Value of order	Date of completion of delivery		Remarks indicating Reasons for late delivery, if any	Has the equipment been satisfactorily Functioning (Attach a certificate from the Purchaser /Consignee)
				As per Contract	Actual date of supply		
1	2	3	4	5	6	7	8



**FORM 5**

**CAPABILITY STATEMENT (CS)**

1. Name & Address of the Bidder:

2. Phone:

3. Classification

- (1) Manufacturer: Y/N
- (2) Authorized Agent: Y/N
- (3) Dealer: Y/N
- (4) Other (Please specify)

4. Plant:

Location:

Description, Type & size of building:

Is property on lease or free hold? If on lease, indicate date of expiry of lease in such case:

5. Type of equipment(s) manufactured and supplied during last 2 years.

Name of Equipment	Capacity/Size	Quantity Manufactured	Nos. of Purchase Orders on hand

6. Types of Equipment(s) supplied during last 2 years other than those covered under 5 above.

Name of Equipment	Capacity / Size & Model	Name of Manufacturer & Country of origin	Total Nos. of Equipment(s) Supplied in India	No. of orders on hand

7. Turnover for similar equipments sold in last two years:

8. Details of Testing facilities available :

- i) List of testing equipment available.
- ii) Give details of type tests, which can be carried out using testing equipment.
- iii) Details of the staff available for testing.

9. Personnel/Organization: Give Organization chart for following indicating clearly the No. of employees at various levels.

Quality assurance	
Production	
Marketing	
Service	
Spare parts	
Administrative	

10. Nearest Service Centres to each of the destination of installations:

Location	
Phone No.	
Year of Establishment	

11. Details of Organization (Enclose details of Organization Chart & Span of Control)at Service Centre:

No. of skilled employees	
No. of Unskilled employees	
No. of Engineering employees	
No. of Administrative employees	
List of special repair/workshop Facilities available (Specify Details of Equipments And Test(s) those which are performed)	
The storage space available for spare parts (Sq.m)	
Value of minimum stock of spares available at all the service centre in Respective currency	
Value of the models/types by number of equipment serviced by the centre in the last two years	

12. Enclose details of services provided duly authenticated by certification from the user in each case
13. Names of two buyers to whom similar equipment was supplied in the past and to whom reference may be made by the Purchaser regarding the bidder's technical and delivery ability.

**Buyer 1; Address & Contact No**

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**Buyer 2; Address & Contact No**

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**PRICE/  
COMMERCIAL BID**

**PRICE / COMMERCIAL BID**

TENDER NO. VNIT/STR/FIST/2018-19/5

Date: 01/03/2019

Sr. No	Name of Item & Specifications	Qty	Basic Rate P.U.(Rs.)	GST 5% & Amt P.U.(Rs.)	Total Amt P.U. (Rs.)
1.	<p><b>X-RAY DIFFRACTOMETER (XRD) WITH ACCESSORIES</b> (for Research purpose)</p> <p><b>Specification :</b></p> <p>Supply, installation and performance demonstration of floor mounted, fully automated powder X-Ray Diffraction (XRD) System and Upgradable for higher configuration :</p> <p>1)The proposed High resolution x-ray diffractometer will be used for analysis Powder and thin films and should be capable of measuring following</p> <ul style="list-style-type: none"> <li>• Omega-2-theta scans</li> <li>• Reciprocal space maps</li> <li>• Reflectometry</li> <li>• In-plane diffraction</li> <li>• Texture measurements</li> <li>• Residual stress measurements</li> <li>• Grazing incidence measurements</li> </ul> <p><b>The HRXRD should have minimum following specifications:</b></p> <p><b>2) X-Ray Generator:</b></p> <p>3 KW (up to 60 kV, 60 mA) solid state x-ray generator. Maximum variations in HV &lt; 0.01 % per 10 % mains variations. Fully controllable by software for tube power ramping, stand by modes when system is idle, recording of the number of hours of operation, etc.</p> <p><b>3) X-Ray tube:</b></p> <p>Anode – Copper (Cu) Sealed Type, Ceramic insulation, Long Fine Focus type and High Resolution type. Should stabilize within five minutes after switch ON with high resolution Ka1 Optics mounted. Recommended operating power should be between 1.5 – 2.0 KW.</p> <p><b>4) Goniometer :</b></p> <ul style="list-style-type: none"> <li>• The base goniometer should be with independent theta and 2-theta drives for accurate positioning</li> <li>• Operating Mode : Horizontal theta/2theta decoupled</li> <li>• Minimum Step size: +/- 0.0001 deg.</li> <li>• Angle reproducibility : +/- 0.0001 deg</li> <li>• Goniometer Diameter : &gt; 450 mm</li> <li>• Absolute linearity accuracy of minimum 0.0025deg for both theta and 2theta drive</li> </ul>	01			

<p><b>5) Fully automated Thin Film sample stage</b></p> <p><b>Cradle</b> for high resolution, triple axis, texture, stress, phase and reflectivity measurements with all axes i.e.(tilt), (rotation) with following detailed specifications:</p> <ul style="list-style-type: none"> <li>• <math>\chi</math> (<b>tilt</b>): Range – 180Degrees (+90 degrees to -90 degrees) ; Minimum step size – 0.01° deg or better with a minimum reproducibility of &lt;0.01 deg.</li> <li>• <math>\phi</math> (<b>rotation</b>) – 360 degree; Minimum step size – 0.01 deg. Reproducibility &lt;0.01 deg.</li> <li>• <b>Z Range</b> – 6 mm or better; Minimum step size &lt;10 <math>\mu\text{m}</math> ; Reproducibility &lt;10 <math>\mu\text{m}</math>.</li> </ul> <p><b>6) Sample Platform:</b></p> <ul style="list-style-type: none"> <li>• Mounting platform for stable and clean mounting of thin flat samples of diameter 2mm x 2mm to 4inch</li> </ul> <p><b>7) X-Ray beam Optics:</b></p> <ul style="list-style-type: none"> <li>• A combination of parabolic Multigraded mirror beam mirror and 2 bounce Ge monochromator (<b>Two bounce monochromator to be optionally quoted</b>) based optics for parallel high intensity should be quoted. It should be possible to use either of them or combination of both in the beam path. This would serve the need of the experimental setup depending upon the need for intensity or resolution and/or both intensity and resolution.</li> <li>• A schematic drawing of the incident beam side optics showing the various components in the beam path being quoted for as standard or as options must be included.</li> </ul> <p><b>8) X-Ray Detector:</b></p> <ul style="list-style-type: none"> <li>• Solid State Area detector for fast reciprocal space maps with static and dynamic scanning</li> <li>• Number of channels/pixels in 1D Mode shall be &gt; 190</li> <li>• 97% linearity range for Cu K-Alpha radiation between 0-1 billion or better cps over the whole detector.</li> <li>• Maximum background &lt; 1 cps over the whole detector</li> <li>• Efficiency for Cu Ka &gt; 90%, frame transfer in static mode &lt;3 seconds.</li> <li>• Spatial resolution of Detector should be 80<math>\mu\text{m}</math> or less.</li> <li>• Point Spread Function should be 1pixel or better. The detector should have facility for Fluorescence suppression</li> <li>• The quote should include in tabular form the following detector characteristics (for source and</li> </ul>				
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	<p>optics being suggested):</p> <ol style="list-style-type: none"> <li>9. type of detector (1-D, 0-D etc. and any relevant explanation)</li> <li>10. mode of detection</li> <li>11. Angular resolution</li> <li>12. Energy resolution</li> <li>13. Max CPS</li> <li>14. Dynamic range.</li> <li>15. Active area</li> <li>16. Background noise.</li> </ol> <p><b>9) Software :</b></p> <ul style="list-style-type: none"> <li>• Software for system and instrument parameter setting and monitoring of the system parameters data.</li> <li>• Qualitative/Quantitative Analysis</li> <li>• Crystallinity, Lattice Parameter determination, Indexing</li> <li>• Rietveld analysis</li> <li>• Software for data collection for reciprocal space map, x-ray reflectivity, stress and texture.</li> <li>• Software for displaying the data so collected in standard and user friendly forms</li> <li>• Software for simulation of Reflectivity including Automated fitting.</li> <li>• All software should be with minimum 10 User Licenses.</li> <li>• Please quote for other software modules available as options</li> </ul> <p><b>10) SAXS</b>-for the determination of particle Size for nano materials with Transmission optics should be quoted. The software for particle size should also be quoted.</p> <p><b>11) Optionally quote for High Temperature attachment.</b></p> <p>Should work from Room Temperature to 1300 deg C Should have vacuum facility with vacuum pump Should be able to take on air and inert gas as sample environment The ramping and control of this attachment should be from the XRD software.</p> <p><b>12)Computer :</b></p> <ul style="list-style-type: none"> <li>• Latest computer with Intel i 5 or higher processor with 2.8 GHz</li> <li>• Motherboard, 16 GB DDR2 memory, 1TB hard disk, 24" LED colour monitor, 512 MB graphics card, DVD RW drive and a color printer.</li> </ul> <p><b>13)High efficiency Chiller for the Generator and Tube:</b></p> <p>High stability chiller of Indian make suitable for operating the XRD machine continuously should be quoted</p>						
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	<p><b>14)Power requirement</b></p> <p>230 C single phase 50 Hz</p> <p><b>15)Training and documentation</b></p> <p>The supplier should provide complete application training for XRD at site with Data collection Software and DataAnalysis of</p> <ul style="list-style-type: none"> <li>• Powder XRD</li> <li>• reciprocal space maps</li> <li>• texture</li> <li>• stress and</li> <li>• XRR deducible parameters like thickness, composition and density.</li> <li>• Complete documentation of the instrument should be provided in both hard copy and soft copy format.</li> </ul> <p><b>16)Warranty and AMC :</b></p> <p>Minimum three year warranty from the date of installation followed by 2 years AMC separately quoted.</p> <p><b>17) The system should follow Indian and International Radiation norms.</b></p>				
	<b>Basic Cost</b>				
	Educational Discount				
	<b>Total Cost F.O.R. V.N.I.T. Nagpur/ Nagpur Airport</b>				

- **[Note - The bidder should offer / quote special educational discount for the Institute.]**

**[A] DUTIES & TAXES (if applicable):**

1. Custom Duty if any : Rs. \_\_\_\_\_
2. Freight/ Transportation : Rs. \_\_\_\_\_
3. Insurance @ \_\_\_\_\_% : Rs. \_\_\_\_\_
4. Packing & Forwarding : Rs. \_\_\_\_\_
5. Others, (if any) : Rs. \_\_\_\_\_
6. **Final Offer (Including Installation Charges & Taxes) FOR VNIT Nagpur/ Nagpur Airport** : **Rs. \_\_\_\_\_**

**[B] Others Details (Enclosed)**

1. EMD No. & Amount : No.:\_\_\_\_\_ Dt.\_\_\_\_/\_\_\_\_/2019, Rs. 1,80,000/-
2. NSIC or MSME or SSI : \_\_\_\_\_
3. Specification as per Requirements : Yes / No
4. Warranty/Guarantee : \_\_\_\_\_ Years
5. Delivery period : \_\_\_\_\_
6. Firms Registration Certificate : Yes / No
7. Authorization Certificate : Yes / No

Signature of Bidder  
(Authorized Signatory)

Stamp:

Date:  
Page | **23 of 26**

- 8. Details of client lists : Yes / No
- 9. GST Registration Certificate : Yes / No
- 10. PAN / GST No. : Yes / No
- 11. Others, (if any) : \_\_\_\_\_

**Note: Price/Commercial Bid & other details should be furnished as per Institute's prescribed format if failed, the Price / Commercial Bid is treated as unresponsive and will be disqualified.**

The Firm/Company agrees to supply the above items for **final offer price (Rs. \_\_\_\_\_/- [In Words Rs.....) inclusive of duties & taxes at [A] above within the period specified in the Invitation for Quotations. We also confirm that the normal commercial warrantee /guarantee of 36 months shall apply to the offered goods.**



**FORM 6**

**FORMAT OF QUOTATION / BILL OF MATERIAL**

Sr. No.	Description of Goods	Specifications	Qty.	Unit	Quoted Unit Rate in Rs. /	Total Amount	
						In Figures	In Words
	Please refer enclosed "QFA/Bill of Material" for complete details.	As per "QFA/Bill of Material"					
						GST % GST Amt.	

**Gross Total Cost: Rs. ....**

We agree to supply the above Goods/Equipment/Software in accordance with the technical specifications for a total contract price of ..... (In figure) (In word Rs .....) within the period specified in the Invitation for Quotations. We also confirm that the normal commercial warrantee /guarantee of **36 months** shall apply to the offered goods.

**FORM 7**

**PRICE SCHEDULE**

1	2	3	4	5					6	7	8
Schedule No	Item Description	Country of Origin	Quantity & Unit	Price for each unit					Unit Price	Total Price	GST (%) & Amount payable
				Ex-factory, Ex-ware House, Ex-Show Room, Off the shelf	Custom Duty, as per actual	Packing & Freight	Inland transportation insurance and other local Costs Incidental to delivery	Incidental services			(To be mentioned clearly as Extra)
				(a)	(b)	(c)	(d)	(e)	<b>a+b+c+d+e</b>	<b>4 x 6</b>	

**Note:** In case of discrepancy in unit price and total price, the unit price shall prevail.

Total Bid Price in figure \_\_\_\_\_

In word \_\_\_\_\_

Signature of Bidder \_\_\_\_\_

Name \_\_\_\_\_

Business Address \_\_\_\_\_

Place: