



Bid Number/बोली क्रमांक (बिड संख्या):
GEM/2024/B/5406457
Dated/दिनांक : 17-09-2024

Bid Document/ बिड दस्तावेज़

Bid Details/बिड विवरण	
Bid End Date/Time/बिड बंद होने की तारीख/समय	08-10-2024 21:00:00
Bid Opening Date/Time/बिड खुलने की तारीख/समय	08-10-2024 21:30:00
Bid Offer Validity (From End Date)/बिड पेशकश वैधता (बंद होने की तारीख से)	180 (Days)
Ministry/State Name/मंत्रालय/राज्य का नाम	Ministry Of Mines
Department Name/विभाग का नाम	Na
Organisation Name/संगठन का नाम	Jawaharlal Nehru Aluminium Research Development And Design Centre (jnarddc)
Office Name/कार्यालय का नाम	West
Total Quantity/कुल मात्रा	1
Item Category/मद केटेगरी	X-Ray Florescence Spectrometer (XRF)
GeMARPTS में खोजी गई स्ट्रिंग / Searched Strings used in GeMARPTS	XRF (X-Ray Florescence Spectrometer)
GeMARPTS में खोजा गया परिणाम / Searched Result generated in GeMARPTS	X - Ray Baggage Inspection System as per MHA QRs, Digital Medical X - Ray Films (V2), X - Ray Detectable Absorbent Cotton Gauze, Portable X - Ray Machine (V2), X-Ray Detectable Gauze Swab/Laparotomy Sponge (V2), LED X - Ray Illuminator (V2), Dental X - Ray Machine (V2), 500 mA X - Ray Machine (V2), Medical X - Ray Films, C Arm Fluoroscope X - Ray Machine (V2)
अधिसूचना के लिए चयनित प्रासंगिक श्रेणियाँ / Relevant Categories selected for notification	<ul style="list-style-type: none">Dental X - Ray Machine (V2)C Arm Fluoroscope X - Ray Machine (V2)Portable X - Ray Machine (V2)
Minimum Average Annual Turnover of the bidder (For 3 Years)/बिडर का न्यूनतम औसत वार्षिक टर्नओवर (3 वर्षों का)	75 Lakh (s)
OEM Average Turnover (Last 3 Years)/मूल उपकरण निर्माता का औसत टर्नओवर (गत 3 वर्षों का)	600 Lakh (s)
Years of Past Experience Required for same/similar service/उन्हीं/समान सेवाओं के लिए अपेक्षित विगत अनुभव के वर्ष	3 Year (s)

Bid Details/बिड विवरण	
MSE Exemption for Years of Experience and Turnover/ अनुभव के वर्षों से एमएसई छूट	No
Startup Exemption for Years of Experience and Turnover/ अनुभव के वर्षों से स्टार्टअप छूट	No
Document required from seller/विक्रेता से मांगे गए दस्तावेज	Experience Criteria,Past Performance,Bidder Turnover,Certificate (Requested in ATC),OEM Authorization Certificate,OEM Annual Turnover,Additional Doc 1 (Requested in ATC),Compliance of BoQ specification and supporting document *In case any bidder is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer
Do you want to show documents uploaded by bidders to all bidders participated in bid?/	No
Past Performance/विगत प्रदर्शन	80 %
Bid to RA enabled/बिड से रिवर्स नीलामी सक्रिय किया	No
Type of Bid/बिड का प्रकार	Two Packet Bid
Time allowed for Technical Clarifications during technical evaluation/तकनीकी मूल्यांकन के दौरान तकनीकी स्पष्टीकरण हेतु अनुमत समय	3 Days
Inspection Required (By Empanelled Inspection Authority / Agencies pre-registered with GeM)	No
Evaluation Method/मूल्यांकन पद्धति	Total value wise evaluation
Financial Document Required/वित्तीय दस्तावेज की आवश्यकता है।	Yes

EMD Detail/ईएमडी विवरण

Advisory Bank/एडवाइजरी बैंक	IDBI Bank
EMD Amount/ईएमडी राशि	450000

ePBG Detail/ईपीबीजी विवरण

Advisory Bank/एडवाइजरी बैंक	IDBI Bank
ePBG Percentage(%) / ईपीबीजी प्रतिशत (%)	5.00
Duration of ePBG required (Months) / ईपीबीजी की अपेक्षित अवधि (महीने).	26

(a). EMD EXEMPTION: The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category as per GeM GTC with the bid. Under MSE category, only manufacturers for goods and Service Providers for Services are eligible for exemption from EMD. Traders are excluded from the purview of this Policy./जेम की शर्तों के अनुसार ईएमडी छूट के इच्छुक बिडर को संबंधित केटेगरी के लिए बिड के साथ वैध समर्थित दस्तावेज़ प्रस्तुत करने है। एमएसई केटेगरी के अंतर्गत केवल वस्तुओं के लिए विनिर्माता तथा सेवाओं के लिए सेवा प्रदाता ईएमडी से छूट के पात्र हैं। व्यापारियों को इस नीति के दायरे से बाहर रखा गया है।

(b). EMD & Performance security should be in favour of Beneficiary, wherever it is applicable./ईएमडी और संपादन जमानत राशि, जहां यह लागू होती है, लाभार्थी के पक्ष में होनी चाहिए।

Beneficiary/लाभार्थी :

Senior Admin Officer

West, NA, Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), Ministry of Mines (R Srinivasan)

MII Purchase Preference/एमआईआई खरीद वरीयता

MII Purchase Preference/एमआईआई खरीद वरीयता	No
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Details of the Competent Authority for MII

Name of Competent Authority	SHER BAHADUR
Designation of Competent Authority	UNDER SECRETARY (PROCUREMENT POLICY)
Office / Department / Division of Competent Authority	MINISTRY OF FINANCE
CA Approval Number	F.4/1/2024-PPD
Competent Authority Approval Date	28-02-2024
Brief Description of the Approval Granted by Competent Authority	XRF has been exempted under sl.no. E-5 (WAVELENGTH DISPERSIVE XRF) of above OM issued by Ministry of Finance

Competent Authority Approval for not opting Make In India Preference : [View Document](#)

MSE Purchase Preference/एमएसई खरीद वरीयता

MSE Purchase Preference/एमएसई खरीद वरीयता	Yes
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1. The minimum average annual financial turnover of the bidder during the last three years, ending on 31st March of the previous financial year, should be as indicated above in the bid document. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid. In case the date of constitution / incorporation of the bidder is less than 3-year-old, the average turnover in respect of the completed financial years after the date of constitution shall be taken into account for this criteria.
2. Experience Criteria: In respect of the filter applied for experience criteria, the Bidder or its OEM {themselves or through reseller(s)} should have regularly, manufactured and supplied same or similar Category Products to any Central / State Govt Organization / PSU for number of Financial years as indicated above in the bid document before the bid opening date. Copies of relevant contracts to be submitted along with bid in support of having supplied some quantity during each of the Financial year. In case of bunch bids, the category of primary product having highest value should meet this criterion.
3. OEM Turn Over Criteria: The minimum average annual financial turnover of the OEM of the offered product during the last three years, ending on 31st March of the previous financial year, should be as indicated in the bid

document. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid. In case the date of constitution / incorporation of the OEM is less than 3 year old, the average turnover in respect of the completed financial years after the date of constitution shall be taken into account for this criteria.

4. Purchase preference will be given to MSEs having valid Udyam Registration and whose credentials are validated online through Udyam Registration portal as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail themselves of the Purchase preference, the bidder must be the manufacturer / OEM of the offered product on GeM. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises and hence resellers offering products manufactured by some other OEM are not eligible for any purchase preference. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service and Buyer will decide eligibility for purchase preference based on documentary evidence submitted, while evaluating the bid. If L-1 is not an MSE and MSE Seller (s) has / have quoted price within L-1+ 15% (Selected by Buyer) of margin of purchase preference /price band defined in relevant policy, such MSE Seller shall be given opportunity to match L-1 price and contract will be awarded for 25% (selected by Buyer) percentage of total quantity. The buyers are advised to refer the OM No. F.1/4/2021-PPD dated 18.05.2023 [OM No.1 4 2021 PPD dated 18.05.2023](#) for compliance of Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017. Benefits of MSE will be allowed only if seller is validated on-line in GeM profile as well as validated and approved by Buyer after evaluation of documents submitted.

5. Past Performance: The Bidder or its OEM {themselves or through re-seller(s)} should have supplied same or similar Category Products for 80% of bid quantity, in at least one of the last three Financial years before the bid opening date to any Central / State Govt Organization / PSU. Copies of relevant contracts (proving supply of cumulative order quantity in any one financial year) to be submitted along with bid in support of quantity supplied in the relevant Financial year. In case of bunch bids, the category related to primary product having highest bid value should meet this criterion.

X-Ray Florescence Spectrometer (XRF) (1 set)

Technical Specifications/तकनीकी विशिष्टियाँ

Buyer Specification Document/क्रेता विशिष्टि दस्तावेज़	Download
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Consignees/Reporting Officer/परेषिती/रिपोर्टिंग अधिकारी and/ तथा Quantity/मात्रा

S.No./क्र. सं.	Consignee Reporting/Officer/ परेषिती/रिपोर्टिंग अधिकारी	Address/पता	Quantity/मात्रा	Delivery Days/डिलीवरी के दिन
1	Lalit Mohan	440023,Opp Wadi Police Station Amarawati Road	1	120

Buyer Added Bid Specific Terms and Conditions/क्रेता द्वारा जोड़ी गई बिड की विशेष शर्तें

1. **Generic**

OPTION CLAUSE: The Purchaser reserves the right to increase or decrease the quantity to be ordered up to 25 percent of bid quantity at the time of placement of contract. The purchaser also reserves the right to increase the ordered quantity by up to 25% of the contracted quantity during the currency of the contract at the contracted rates. Bidders are bound to accept the orders accordingly.

2. **Generic**

Actual delivery (and Installation & Commissioning (if covered in scope of supply)) is to be done at following address

JNARDDC
Opposite Wadi police Station
Amravati Raod
Wadi
Nagpur - 440023
.

3. **Generic**

Data Sheet of the product(s) offered in the bid, are to be uploaded along with the bid documents. Buyers can match and verify the Data Sheet with the product specifications offered. In case of any unexplained mismatch of technical parameters, the bid is liable for rejection.

4. **Generic**

End User Certificate: Wherever Bidders are insisting for End User Certificate from the Buyer, same shall be provided in Buyer's standard format only.

5. **Generic**

Experience Criteria: The Bidder or its OEM {themselves or through reseller(s)} should have regularly, manufactured and supplied same or similar Category Products to any Central / State Govt Organization / PSU for 3 years before the bid opening date. Copies of relevant contracts to be submitted along with bid in support of having supplied some quantity during each of the year. In case of bunch bids, the primary product having highest value should meet this criterion.

6. **Generic**

Installation, Commissioning, Testing, Configuration, Training (if any - which ever is applicable as per scope of supply) is to be carried out by OEM / OEM Certified resource or OEM authorised Reseller.

7. **Generic**

Manufacturer Authorization:Wherever Authorised Distributors/service providers are submitting the bid, Authorisation Form /Certificate with OEM/Original Service Provider details such as name, designation, address, e-mail Id and Phone No. required to be furnished along with the bid

8. **Generic**

Scope of supply includes Training: Number of employees to be trained

2
, Place for Training
JNARDDC, Nagpur
and Duration of training
14
days.

9. **Generic**

Supplier shall ensure that the Invoice is raised in the name of Consignee with GSTIN of Consignee only.

10. **Generic**

The successful bidder has to supply all essential accessories required for the successful installation and commissioning of the goods supplied. Besides standard accessories as per normal industry practice, following accessories must be part of supply and cost should be included in bid price:

Delivery, Installation, Training and 02 (TWO) years comprehensive warranty.

11. **Generic**

While generating invoice in GeM portal, the seller must upload scanned copy of GST invoice and the screenshot of GST portal confirming payment of GST.

12. **OEM**

IMPORTED PRODUCTS: In case of imported products, OEM or Authorized Seller of OEM should have a registered office in India to provide after sales service support in India. The certificate to this effect should be submitted.

13. **Scope of Supply**

Scope of supply (Bid price to include all cost components) : Supply Installation Testing Commissioning of Goods and Training of operators and providing Statutory Clearances required (if any)

14. **Inspection**

Nominated Inspection Agency: On behalf of the Buyer organization, any one of the following Inspection Agency would be conducting inspection of stores before acceptance:

Pre-dispatch Inspection at Seller Premises (applicable only if pre-dispatch inspection clause has been selected in ATC):

Not Required

Post Receipt Inspection at consignee site before acceptance of stores:
After Delivery and Installation

15. **Service & Support**

Availability of Service Centres: Bidder/OEM must have a Functional Service Centre in the State of each Consignee's Location in case of carry-in warranty. (Not applicable in case of goods having on-site warranty). If service center is not already there at the time of bidding, successful bidder / OEM shall have to establish one within 30 days of award of contract. Payment shall be released only after submission of documentary evidence of having Functional Service Centre.

16. **Service & Support**

Dedicated /toll Free Telephone No. for Service Support : BIDDER/OEM must have Dedicated/toll Free Telephone No. for Service Support.

17. **Warranty**

Warranty period of the supplied products shall be 2 years from the date of final acceptance of goods or after completion of installation, commissioning & testing of goods (if included in the scope of supply), at consignee location. OEM Warranty certificates must be submitted by Successful Bidder at the time of delivery of Goods. The seller should guarantee the rectification of goods in case of any break down during the guarantee period. Seller should have well established Installation, Commissioning, Training, Troubleshooting and Maintenance Service group in INDIA for attending the after sales service. Details of Service Centres near consignee destinations are to be uploaded along with the bid.

18. **Forms of EMD and PBG**

Bidders can also submit the EMD with Account Payee Demand Draft in favour of

JNARDDC
payable at
Nagpur

. Bidder has to upload scanned copy / proof of the DD along with bid and has to ensure delivery of hardcopy to the Buyer within 5 days of Bid End date / Bid Opening date.

19. **Forms of EMD and PBG**

Bidders can also submit the EMD with Payment online through RTGS / internet banking in Beneficiary name

JNARDDC
Account No.
041104000192392
IFSC Code
IBKL0000041
Bank Name
IDBI Bank
Branch address
CIVIL LINES NAGPUR

. Bidder to indicate bid number and name of bidding entity in the transaction details field at the time of on-line transfer. Bidder has to upload scanned copy / proof of the Online Payment Transfer along with bid.

20. **Forms of EMD and PBG**

Successful Bidder can submit the Performance Security in the form of Payment online through RTGS / internet banking also (besides PBG which is allowed as per GeM GTC). On-line payment shall be in Beneficiary name

JNARDDC
Account No.
041104000192392
IFSC Code
IBKL0000041
Bank Name
IDBI Bank
Branch address
CIVIL LINES, NAGPUR

. Successful Bidder to indicate Contract number and name of Seller entity in the transaction details field at the time of on-line transfer. Bidder has to upload scanned copy / proof of the Online Payment Transfer in place of PBG within 15 days of award of contract.

21. **Buyer Added Bid Specific ATC**

Buyer Added text based ATC clauses

1. Catalogue of the offered product must be submitted with bid documents for technical evaluation. Catalogue and offered model submitted with this bid must be available at OEM website. Fabricated /customized catalogue will not be accepted.

2. If any deviation in offered model with JNARDDC technical specifications, same to be mentioned in technical compliance sheet.

3. Bidder have to submit 05 satisfied customers (Govt/PVT/PSU/Educational Institution) details where bidder has sold this product. For this copy of purchase order along with installation report to be submitted. Name of buyers, mobile no and e-mail address also to be submitted. Without this bid will be simply rejected.

4. Demonstration of offered model will be the part of technical evaluation. JNARDDC reserve the rights to ask any bidder to arrange demonstrate the offered model.

5. OEM/Bidder must have experience of manufacturing of XRF since last 10 (TEN) years. It should be submitted

t on letter head.

6. Bidder should submit self-declaration on his letter head or spares and maintenance support for next 15 (FIFTEEN) years.

22. Past Project Experience

Proof for Past Experience and Project Experience clause: For fulfilling the experience criteria any one of the following documents may be considered as valid proof for meeting the experience criteria: a. Contract copy along with Invoice(s) with self-certification by the bidder that service/supplies against the invoices have been executed. b. Execution certificate by client with contract value. c. Any other document in support of contract execution like Third Party Inspection release note, etc. **Proof for Past Experience and Project Experience clause:** For fulfilling the experience criteria any one of the following documents may be considered as valid proof for meeting the experience criteria: a. Contract copy along with Invoice(s) with self-certification by the bidder that service/supplies against the invoices have been executed. b. Execution certificate by client with contract value. c. Any other document in support of contract execution like Third Party Inspection release note, etc.

23. Generic

Without prejudice to Buyer's right to price adjustment by way of discount or any other right or remedy available to Buyer, Buyer may terminate the Contract or any part thereof by a written notice to the Seller, if:

- i) The Seller fails to comply with any material term of the Contract.
- ii) The Seller informs Buyer of its inability to deliver the Material(s) or any part thereof within the stipulated Delivery Period or such inability otherwise becomes apparent.
- iii) The Seller fails to deliver the Material(s) or any part thereof within the stipulated Delivery Period and/or to replace/rectify any rejected or defective Material(s) promptly.
- iv) The Seller becomes bankrupt or goes into liquidation.
- v) The Seller makes a general assignment for the benefit of creditors.
- vi) A receiver is appointed for any substantial property owned by the Seller.
- vii) The Seller has misrepresented to Buyer, acting on which misrepresentation Buyer has placed the Purchase Order on the Seller.

Disclaimer/अस्वीकरण

The additional terms and conditions have been incorporated by the Buyer after approval of the Competent Authority in Buyer Organization, whereby Buyer organization is solely responsible for the impact of these clauses on the bidding process, its outcome, and consequences thereof including any eccentricity / restriction arising in the bidding process due to these ATCs and due to modification of technical specifications and / or terms and conditions governing the bid. If any clause(s) is / are incorporated by the Buyer regarding following, the bid and resultant contracts shall be treated as null and void and such bids may be cancelled by GeM at any stage of bidding process without any notice:-

1. Definition of Class I and Class II suppliers in the bid not in line with the extant Order / Office Memorandum issued by DPIIT in this regard.
2. Seeking EMD submission from bidder(s), including via Additional Terms & Conditions, in contravention to exemption provided to such sellers under GeM GTC.
3. Publishing Custom / BOQ bids for items for which regular GeM categories are available without any Category item bunched with it.
4. Creating BoQ bid for single item.
5. Mentioning specific Brand or Make or Model or Manufacturer or Dealer name.
6. Mandating submission of documents in physical form as a pre-requisite to qualify bidders.
7. Floating / creation of work contracts as Custom Bids in Services.
8. Seeking sample with bid or approval of samples during bid evaluation process. (However, in bids for [attached categories](#), trials are allowed as per approved procurement policy of the buyer nodal Ministries)
9. Mandating foreign / international certifications even in case of existence of Indian Standards without specifying equivalent Indian Certification / standards.

10. Seeking experience from specific organization / department / institute only or from foreign / export experience.
11. Creating bid for items from irrelevant categories.
12. Incorporating any clause against the MSME policy and Preference to Make in India Policy.
13. Reference of conditions published on any external site or reference to external documents/clauses.
14. Asking for any Tender fee / Bid Participation fee / Auction fee in case of Bids / Forward Auction, as the case may be.

Further, if any seller has any objection/grievance against these additional clauses or otherwise on any aspect of this bid, they can raise their representation against the same by using the Representation window provided in the bid details field in Seller dashboard after logging in as a seller within 4 days of bid publication on GeM. Buyer is duty bound to reply to all such representations and would not be allowed to open bids if he fails to reply to such representations.

[This Bid is also governed by the General Terms and Conditions/ यह बिड सामान्य शर्तों के अंतर्गत भी शासित है](#)

In terms of GeM GTC clause 26 regarding Restrictions on procurement from a bidder of a country which shares a land border with India, any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action in accordance with the laws./जेम की सामान्य शर्तों के खंड 26 के संदर्भ में भारत के साथ भूमि सीमा साझा करने वाले देश के बिडर से खरीद पर प्रतिबंध के संबंध में भारत के साथ भूमि सीमा साझा करने वाले देश का कोई भी बिडर इस निविदा में बिड देने के लिए तभी पात्र होगा जब वह बिड देने वाला सक्षम प्राधिकारी के पास पंजीकृत हो। बिड में भाग लेते समय बिडर को इसका अनुपालन करना होगा और कोई भी गलत घोषणा किए जाने व इसका अनुपालन न करने पर अनुबंध को तत्काल समाप्त करने और कानून के अनुसार आगे की कानूनी कार्रवाई का आधार होगा।

---Thank You/धन्यवाद---

XRF Technical Specifications_JNARDDC

S. No	XRF Technical Specifications
1	Requirement
	<p>Latest model, fully automated, PC controlled Sequential Wavelength Dispersive X-Ray Fluorescence Spectrometer (WDXRF) performing high speed, accurate and high precision qualitative and quantitative analysis of major, minor and trace elements. The instrument should be capable of analysing elements and compounds from Beryllium to Uranium in the concentration range from PPM (parts per million) to 100% in Metal, solid, pressed pellet, fused bead samples. The instrument and accessories should be of latest version and should have the following technical specification and configuration. The offer should be with all essential auxiliary accessories, connectors, software, manuals, etc., and meet all kinds of safety protections, like electrical, electronic and radiations should be inbuilt and as per the international and AERB Govt.of India norms and should be clearly specified in the offer document. Type Approval Documents for AERB approval should be submitted along with the bid for verification. Without type approval the bid will not be considered for evaluation.</p>
2	GENERAL
2.1	Mains supply: Line Voltage will be 220V/415V AC \pm 10%, 50 Hz \pm 5%, Single/Three phase with proper grounding (chemical earth pit). The grounding resistance should be very less as per instrument requirement. Earthing material and work to be done by the XRF supplier.
2.2	The instrument shall be capable of analysing the samples with high precision qualitative and quantitative analysis of metal and alloys, wide range of geological and environmental samples.
3	SAMPLE LOADING & PRESENTATION
3.1	The system shall be capable of handling metal, pressed powder, and fused beads in a variety of sample holders. The sample holders to be supplied must be specified. (The minimum and maximum diameter ϕ and the maximum thickness of samples to be specified). Any advanced technologies for sample handling shall be offered.
3.2	The sample loading system should be dual position as standard feature (while analysing one sample, next sample can be loaded). The XRF should be supplied with automatic sample changer (X-Y robotic sample changer) with a capacity to load and handle at least 60 samples of various dimensions and facility for priority sample analysis. The medium X-ray path shall be selectable by the operator or be programmable for automatic selection when working with a robotic sample changer. The medium of X-ray path should be vacuum. Sample spinner should be present and its r.p.m. should be 0.5 rev/sec or better. Option for manual loading of the sample also should be available for the analysis.
3.3	There must be a provision for dust collection/removal system to collect loose powders/dust from the samples during loading (evacuation), so that system can protect X-

	ray tube window and crystals from contamination. This system should be easily accessible to the user for cleaning without affecting x-ray analysis.
4	X-RAY GENERATOR
4.1	The generator should be microprocessor controlled, high frequency type and the power rating (output) of the generator should be 4.0 kW or more. The generator should have rating of 60 kV (or more) & 160 mA (or more). The minimum increment of kV and mA should be in steps of one unit. This function should be controlled through computer.
4.2	The generator stability should be $\pm 0.0005\%$ per 1% mains variation or better. The generator or X-ray tube should not switch off/in standby mode during sample changeover.
4.3	Safety interlocks for overload & over/under voltage flow, flashes in HT generator and X-ray tube and target over heat must be provided.
5	X-RAY TUBE
5.1	Rh-tube with end window, 4kW or more with ceramic insulation having Be window thickness should lie between 50-75 microns and with very high transmission and resistance to corrosion. The tube should be operational on 60 KV or more and 160 mA or more. The power rating (range) of X-ray tube has to be specified. The Rh-tube should be capable of analysing the elements from Be to Uranium.
5.2	The X-Ray tube must have a protective shield (covering)/ feature to deal with spillage/breakage of sample accidentally. Manufacturing source of X-ray tube should be specified. X-ray tube catalogue to be submitted for verification.
5.3	The sample to anode distance should be minimum so that maximum intensity can be obtained. The X-ray tube should give drift free performance of minimum 10,000 hrs.
5.4	It should have facility for Auto Tube breeding , monitoring tube life, generator flashes, water flow, temperature, and other status.
6	OPTICS
6.1	Programmable filter changer with sufficient numbers of primary beam (tube) filter (minimum 4 Nos.) should be provided to eliminate interfering lines if any in the primary X-ray beam. One of the filters should be a beam stop filter .
6.2	Programmable minimum 03 Nos. of primary collimators with choice from ultra-high resolution to coarse.
6.3	Programmable minimum 03 Nos of Channel masks should be made available to provide optimal peak to background ratios and also to eliminate radiation form sample holder/masks.
7	SPECTROMETER
7.1	The Spectrometer must be microprocessor controlled and it should be equipped with minimum eight position bi-directional crystal changer and the same should be supplied with crystals to be selected from the list of crystals quoted by the vendors. The list should essentially include the following Crystals LiF200, LiF220, PE002 (PET), GE & Multi-layered synthetic crystal for analysing lower atomic number elements from magnesium downwards.
7.2	The Spectrometer Chamber (Cabinet) temperature should be stable up to $\pm 0.05^\circ$ Celsius or better. The XRF should function/work under normal room temperature of 25° to 28° Celsius.

8	DETECTORS/COUNTING ELECTRONICS
8.1	Provision for at least two (2) types of detectors namely Gas Flow proportional counter and Scintillation Counter. These two detectors should cover the entire elemental range i.e., from Be to U with better detection limits and resolution. The detectors should be capable of operating singly or in tandem mode.
8.2	Detector with fast scanning speed and linearity up to 3000 Kcps should be supplied. Flow detector should have a maximum count rate of 3000 Kcps.
8.3	Scintillation Detector should have a maximum count rate of 1500 Kcps. Dynamic corrections for pulse shift correction and automatic dead time correction should be incorporated.
9	GONIOMETER
9.1	The High precision goniometer shall be microprocessor controlled and it should be preferably gearless with Direct Optical Position Sensors or its equivalent with theta-two Theta decoupled. Angular accuracy and reproducibility figures to be specified by supplier with documentary evidence. In case of any back-lash error, the system should be capable of correcting it automatically.
9.2	Angular accuracy must be at least 0.0025° or better. Angular reproducibility must be equal or better than 0.0001° or better. To ensure shortest analysis, slewing speed should be 40° per second or better.
9.3	The Step scan range i.e. with minimum step and max step should be given. The Goniometer design shall be such that it shall attain high speed, accuracy, and reliability. The procedure should be explained in detail with supporting documents.
10	BEAM PATH
10.1	The X-ray beam path medium shall be selectable by the operator. The X-ray beam path should be Vacuum (vacuum level should be < 10 Pascal).
10.2	The Foreline trap has to be installed to the inlet of rotary vacuum pump {to avoid vacuum pump oil vapours entering into analysing chamber). The vacuum pump should be of single rotary vacuum only for fast and better stability of vacuum.
11	COMPUTER & PERIPHERALS
11.1	Computer: Bidder have to supply the latest configuration (1TB HDD, i7,16 GB RAM) computer with instrument with 24” Monitor . PC must be included for data Acquisition, analysis, remote system diagnosis and offline data processing.
11.2	Printer : Bidder have to supply latest configuration, colour laser jet printer and other peripherals and it should be compatible to the system with supplied software and program.
12	CONTROL (COMPUTER) SOFTWARE: User friendly intelligent software with following Features:
12.1	Spectrometer software should be windows latest version including multipoint background correction, line overlap correction, ratio calculation, auto PHD measurement, calibration curve, qualitative analysis incorporating matrix correction, recalibration programme, limit checks, statistical evaluation, calculation of concentrations, functions for quantitative analysis, data storage & retrieval with connecting facilities.
12.2	Calibration programme for different groups are required. Software for trace element analysis to be included. Calibration to be provided by the supplier for trace elements.
12.3	Programme for theoretical alpha generation should be inbuilt in the software.

12.4	Extensive analytical software package for data handling, data processing qualitative & quantitative and standard less operation particularly the software package to quantitative analysis of totally unknown samples.
12.5	QUANTITATIVE ANALYSIS: A choice of calibration models, higher order matrix corrections and as an option fundamental parameter must be included in the analytical software package.
13	QUALITATIVE ANALYSIS
13.1	For maximum speed, different instrument conditions should be selectable within one scan.
13.2	Both digital and graphical recording of continuous and step scan should be possible.
13.3	Selection should be possible of linear root and log scales for count rates as a function of two-theta, wavelength, energy or atomic number.
13.4	Comprehensive diagnostic software to diagnose all the parts of the equipment. Hardware and software for remote diagnostics should be built in. The remote facility should access the XRF directly, to facilitate servicing in case of occurrence.
13.5	Standard less analysis software: The standard less software should be capable of analysis from Be to U using fundamental parameter calculations along with the line overlap correction, thin film correction and should have capacity to analyse from the data derived from scan and or channels. The software should be capable to handle a wide variety of samples.
13.6	The analytical software for the analysis of trace elements in geological samples must include features for accurate background estimation, corrections, integrated spectral overlap correction, correction for low level spectral impurity, correction for inter element matrix effects using mass absorption co-efficients, background correction for fixed channels, smart element selection etc.
13.7	The licensed copy of the XRF software shall be provided in CD- ROM along with all operational manuals/flow charts, instrument manual, service manuals , important published literature of reference should be supplied free of cost. Any updates of software shall be supplied free of cost up to 5 years from the date of purchase of the instrument.
14	ACCESSORIES:
14.1	External water chiller: The party shall supply one external chiller of a reputed manufacturer. The exhaust venting & ducting should be done by the vendor. The flow rate, water pressure and required temperature of water must fulfil the requirement of XRF (X-ray Tube). If chiller can take care of the above parameters by sensing generator settings so that head of X-ray tube will be kept at constant temperature.
14.2	Air Compressor: The compressor if required should be of reputed make & compatible with XRF. The compressed air should be instrument grade, dry and preferably oil free.
14.3	Gas Cylinder and regulator : Bidder have to supply one new P-10 gas cylinder with regulator with necessary adaptors and connectors to connect (fix it) to XRF instrument.
14.4	UPS : Bidder have to supply UPS-15kVA (Qty-01) with reputed brand for WDXRF and one 5 kVA UPS (Qty-01) for chiller with 30 minutes backup. (With batteries and stand)
15	SAMPLE HOLDERS
15.1	40 nos. of steel sample holders to handle sample of 40 mm dia.

16	WARRANTY: 2 (two) years comprehensive warranty from the date of installation of the equipment. Warranty should cover all major and minor components including HV Generator and X-ray Tube. Set of consumables with detailed part no. and quantity for minimum 2 years for trouble free operation of the instrument to be included.
17	INSTALLATION: Installation & commissioning of the equipment at our site. All expenditures towards the installation to be borne by the vendor.
18	PRE-INSTALLATION Pre-installation details (requirements of power connections, space, water chiller, connections etc.) with full instructions to be provided as soon as possible after finalization of the offer.
19	TRAINING
19.1	Two weeks on-site operation training should impart at the time of installation of the instrument in the laboratory to a group of Scientists/Officers of JNARDDC. All expenditures for imparting all sorts of training will be at no additional cost.
19.2	Training (application & maintenance), after instrument installation, for Two (2) persons in factory abroad (travel, lodging & living expenses included) should be imparted. Dates to be agreed at least 3 months before the beginning of the training.
20.	Certified Reference Materials
20.1	Certified Reference Materials to be supplied as per below ranges for Geological and Mineral samples. The CRMs are to be supplied along with certificates which are to be manufactured and traceable as per ISO-17034. The vendor has to calibrate the XRF at site using these CRMs. Na ₂ O 0-40, MgO 0-70, Al ₂ O ₃ 0-75, SiO ₂ 0-80, P ₂ O ₅ 0-40, SO ₃ 0-45, K ₂ O 0-30, CaO 0-70, TiO ₂ 0-70, Mn ₃ O ₄ 0-70, Fe ₂ O ₃ 0-80, V ₂ O ₅ 0-10, Cr ₂ O ₃ 0-10, NiO 0-10, CuO 0-10, ZnO 0-10, SrO 0-40, ZrO ₂ 0-40, BaO 0-40, HfO ₂ 0-10, PbO 0-10.