

**TENDER (E-PUBLISHING MODE)**

FOR

**SUPPLY & INSTALLATION OF NEXT GENERATION SEQUENCING SYSTEM**

**AT SCHOOL OF BASIC SCIENCE IIT MANDI**



**Tender No.: IITMANDI/S&P/PUR-247/2015-16/10297-298**

**Tender date: 12<sup>th</sup> March, 2016**

**Last Date of submission: 01<sup>st</sup> April, 2016**

Indian Institute of Technology Mandi

Transit Campus: Mandav Hotel, 2<sup>nd</sup> Floor (Near Bus Stand), Mandi – 175001 (H.P)

**Tel.:** 01905-267039

**Email:** [tulika@iitmandi.ac.in](mailto:tulika@iitmandi.ac.in) & [arsp@iitmandi.ac.in](mailto:arsp@iitmandi.ac.in)

Indian Institute of Technology Mandi, Mandi invites tender for supply, erection, installation, commissioning, testing, demonstration and training of **Next Generation Sequencing System**, as per specifications given in the Annexure attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the website (<http://iitmandi.ac.in/administration/tenderseoi.html>) of the Institute. Tender document also published on e- tendering (<http://eprocure.gov.in/eprocure/app>). The bidder can also submit bids online.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, IIT Mandi, Kamand reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

### **Terms and Conditions:**

1. The technical and financial bids should be quoted separately and put in different sealed envelopes marked “**Technical bid**” or “**Financial bid**” as applicable. These separate bids envelopes are to be put in an outer envelope which should also be sealed.
2. The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
3. The technical and financial bids should be submitted in original. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
4. Each individual sealed envelope as well as the outer envelope should be marked with the following reference on the top left hand corner: “**IITMANDI/S&P/PUR-247/2015-16/10297-298/Item Name.\_\_\_\_dated 12<sup>th</sup> March, 2016**”
5. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.
6. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.
7. Any bids received after **2:00 P.M. on 01<sup>st</sup> April, 2016** shall not be considered
8. The Technical Bids will be opened on **01<sup>st</sup> April, 2016 at 03:00 P.M.** The date & time for opening of Financial Bids will be informed later on to the technically qualified bidders.
9. While sending rates, the firm shall give an undertaking to the effect that “*the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.*” In case the firms do not give this undertaking, their rates will not be considered.
10. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should be attached.

11. The quantity shown against the item is approximate and may vary as per demand of the Institute at the time of placing order.
12. All tender documents should have to be sent through courier, speed post or registered post only. All tender documents received after the specified date and time shall not be considered.

The postal address for submitting the tenders is:

**“Assistant Registrar, Stores and Purchase”  
Indian Institute of Technology Mandi (IIT Mandi),  
Administrative Block at Bambo Hut, Near Director Office Kamand,  
Distt – 175005 (H.P), India”**

13. In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, IIT Mandi”, Kamand who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act,1996. The decision of the arbitrator shall be final and binding on both the parties.
14. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
15. All disputes shall be subject to Mandi Jurisdiction only.
16. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tenderer shall be summarily rejected.
17. IIT Mandi reserves the right to cancel the tender at any point of time without assigning any reason.
18. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

**Note:** Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee. Information in this regard will be intimated to the technically qualified bidders. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

19. **Clarifications:**

In case the bidders require any clarification regarding the tender documents, they are requested to contact our office (e-mail: [tulika@iitmandi.ac.in](mailto:tulika@iitmandi.ac.in) & [arsp@iitmandi.ac.in](mailto:arsp@iitmandi.ac.in)) on or **before 22/03/2016**.

20. **Tender Cost:** A Demand draft of **Rs. 1,000/- (Rupees One Thousand only)** towards non-refundable **tender fee, drawn in favour of “The Registrar, IIT Mandi”** payable at Mandi should submit sealed envelope in super-scribed a Tender fee & NIT No. **“IITMANDI/S&P/PUR-247/2015-16/10297-298/Item Name. dated 12<sup>th</sup> March, 2016”** at the time of submission of bids or before the last date of submission of bids. If the same firm is submitting bids for

more than one Part, they should submit the same in separate envelopes along with respective tender cost for each Part. In the absence of tender cost, the tender will not be accepted

21. **Earnest Money Deposit (EMD):**

The bidder can quote for Part A & Part B and they should submit separate EMD for each Part. For “**Part A**” a refundable amount of **Rs 7,44,000/-** as earnest money deposit (EMD) and For “**Part B**” a refundable amount of **Rs 2,56,000/-** as earnest money deposit (EMD). The EMD should be submitted in the shape of DD from a scheduled bank in India. The DD drawn in favour of “The Registrar, IIT Mandi” payable at Mandi should accompany the bid documents. The EMD should be kept in a separate sealed envelope, should be marked clearly and put in the outer envelope that contains the technical and financial bid envelopes. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. Failure to deposit **Earnest Money** will lead to rejection of tender. In the event of the awardee bidder backing out, EMD of that bidder will be forfeited.

22. **Pre – Qualification Criteria:**

- a. Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- b. The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
- c. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- d. OEM should be internationally reputed Branded Company.
- e. Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid.
- f. **Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

23. **Prices:**

- a. The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi/Kamand). IIT Mandi is registered with DSIR, Govt. of India and is exempted from Custom / Excise Duty. Exemption Certificate to this effect will be issued by IIT Mandi. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. Nothing extra shall be paid on any account. **In the price bid/financial bid, the vendor should clearly mention the final price breakup i.e. ex-work price/FCA price, FOB price, CIP/CIF price & FOR IIT Mandi, Kamand Campus price, as applicable in their bid.**
- b. In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. For imported equipment, the Letter of

Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.

**24. Validity:**

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

**25. Delivery:**

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 24 weeks of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipments or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

**26. Training:**

Bidders need to provide adequate training to the nominated persons of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure.

**27. Warranty Declaration:**

Bidders must give the comprehensive on-site warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *“everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.*

Any deviation in the material and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction / specifications specified in the order / contract and demonstrate at their own cost.

**28. Performance Bank Guarantee:** A performance bank guarantee from a scheduled bank in India for an amount equal to 10% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.

**29. Terms of Payment:** Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. **This must be specified in the tender/quotation.**

- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80 % of the money will be released on submission of shipping of documents. Remaining 20 % will be released after successful installation of the instrument and submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.
- In case of required item quoted in INR, 100% payment will be made through wire transfer after receipt of material in good condition and successful installation of the instrument and on submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.

**30. Tender expenses and documents:** All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.

31. **Tender Evaluation Criteria:** The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.
32. **Return of EMD:**
- The earnest money of unsuccessful bidders will be returned to them without any interest within 15 working days after awarding the contract.
  - The earnest money of the successful bidder will be returned to them without any interest within 15 Days after supply of material.
33. **Manual and documentation:** All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.
34. The IIT Mandi reserves the right to cancel the tender at any stage (point of time) without assigning any reason.
35. Bidders should go through the tender terms, conditions and specifications carefully and fill in the attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

Sd/-  
**Assistant Registrar**  
**Stores & Purchase**

**BID PARTICULARS**

1. Name of the Supplier :

2. Address of the Supplier :

3. Availability of demonstration of equipment : Yes / No

4. Tender cost enclosed: : Yes/No if yes

D.D. No. \_\_\_\_\_ Bank \_\_\_\_\_ Amount \_\_\_\_\_

5. EMD enclosed : Yes / No if (Yes)

D.D. No. \_\_\_\_\_ Bank \_\_\_\_\_

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry.

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web

The mandate of BioX program at IIT Mandi is currently focused on two broad areas including systems biology and synthetic biology. Next-generation sequencing is one of the major tools for systems biology research. Therefore, IIT Mandi is planning to set up a state of the art next-generation sequencing facility at IIT Mandi as a core research facility. Towards this IIT Mandi requires the following two NGS machines and related accessories (**Part A** and **Part B**) which are capable of handling both high-throughput and routine smaller scale projects for specific applications in a cost effective manner.

Given below are the requirements for the Next-Generation Sequencing (NGS) facility planned at IIT Mandi. The manufacturer quoting must specify that the machine should offer all the applications mentioned below in the specifications satisfactorily.

## **Technical Specifications:**

### **PART A**

1. The next-generation sequencing (NGS) system should be a benchtop model with minimal foot print (less than two square feet) and it should support a broad range of applications including metagenomic sequencing, de-novo sequencing and re-sequencing of microbes, complete de-novo sequencing and re-sequencing of higher eukaryotes including human and plant genomes, ChIP sequencing, small RNA sequencing, transcriptome sequencing (microbial, plants and human), etc.
2. The system should offer a high data output of 100GB or higher (at least 300 million clusters) in a single run to support a broad range of applications as mentioned in point 1.
3. The System should be capable of sequencing 10 or more whole transcriptome samples of the order to human in a single run irrespective of the organism.
4. Single instrument performs clonal amplification, sequencing, and primary data analysis (e.g. base calling). It is desirable for the instrument to perform paired-end runs.

5. For those who are offering paired-end chemistry it is desired to support a total read length of 150 base pairs or higher.
6. The system should have a reasonable runtime to perform integrated massively parallel sequencing of DNA/RNA libraries loaded directly on the system. For those who are offering paired-end chemistry it should offer both single end and paired end sequencing.
7. The sequencing technology should offer accurate sequencing of homopolymers and repetitive regions in the genome of 15 bases or more and highest read quality score of Q30 for more than 75% of the base calls having >99% accuracy ensuring quality control steps.
8. System should be able to sequence multiple samples at a time with option of using barcodes for sample multiplexing (up to 384).
9. The sample requirement for metagenomic sequencing should be in the range including 50ng - 2µg.
10. The instrument should be positioned with global dominance in NGS. It should produce high quality, accurate and highly mappable data.
11. Apart from the list of equipment provided by the supplier (including the ones provided by the supplier and the others which are needed to be procured separately), there must be no other equipment needed to carry out the high-throughput sequencing. In case, if anything is needed and not specified by the supplier, it will be provided by the supplier at no extra cost.
12. The manufacturer should also provide kits and reagents for library preparation from DNA/RNA.
  - a. Bacterial RNAseq starting from bacterial cells : 48 Samples
  - b. Human RNAseq starting from cells : 48 Samples
  - c. Whole metagenome sequencing starting from DNA: 10 Samples
13. The system should also include an option to integrate with the genomic computing environment, an easy, secure and cost-effective way to store, analyze, and share genomic data. The system should include latest software, hardware, accessories and technology available at the time of installation which is needed for generating high quality sequence reads. All the necessary kits, reagents and other consumables needed for the test runs during both the installations will be provided by the supplier at no extra cost. All

necessary kits, reagents and other consumables needed for both the trainings will be provided by the supplier at no extra cost.

14. The vendor should also supply the specific vibration free table for the installation of the NGS system(s).
15. The vendor should supply one 8 KVA branded UPS with at least one hour backup along with the system.
16. The vendor should quote for 5 yrs CMC and AMC separately.
17. The warranty will commence only after the system is successfully installed, tested by trial runs and certified by the technical committee at IIT Mandi.
18. The vendor should quote for a trained manpower (for 3 years) for wet lab experiments including library preparation and operating the sequencers and the related accessories.
19. The supplier must install the complete system at the space provided by IIT Mandi and demonstrate a successful installation using two complete test runs. The test runs must demonstrate the promised quality and output as specified in the proposal.
20. The supplier should be willing to take the responsibility to move the sequencer (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed.
21. Adequate training by trained engineers and specialists using one complete run should be provided by the supplier to a few users including faculties, technical staff and some students, at no extra cost during both the installations. The details of trained engineer and specialist, clearly mentioning their experience of working with the supplier and handling a similar training in the past, should be provided with the proposal.
22. Future upgrades in the instrument or chemistry should be provided at no extra cost.
23. The vendor should provide a quote for the necessary inventory of the critical spare parts required for the instrument.
24. The vendor should undertake to supply the reagents to be used with the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.
25. The vendor should undertake to supply the spare parts (including critical and others) to be used in the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.
26. The vendor should ensure proper and smooth functioning of the equipment by supplying appropriate product care which includes full coverage for parts, labor and travel; Reagent

replacement upon hardware failures; zero product maintenance; Remote Technical Support; 5 business day average on-site response; hardware/software updates; On-site applications support; Discounts on advanced training.

27. If the downtime of the machine is more than two weeks after the information of malfunctioning or trouble in the instrument to the vendor, then the vendor will be penalized.
28. **The following two ancillary equipment** required for NGS library preparation must be quoted and supplied along with the NGS instrument by the vendor:

**(1) Specifications for On -chip Electrophoresis System**

The system should perform simultaneous electrophoresis of DNA/RNA on exchangeable cartridge from 1 to 10 samples. The kit/software should provide size information of the fragments and also able to provide RIN (RNA integrity Number) of RNA samples. Compatible Laptop with software and B/W laser printer. The supplier should provide a 2 KVA online UPS with 30 mins backup. The supplier should provide a suitable table for installation of the equipment and accessory. The supplier should quote for 5 yrs CMC and AMC and also provide the rates for additional CMC/AMC. The supplier should be willing to take the responsibility to move the instrument (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed.

**(2) DNA fragmentation system specifications**

System should perform optimized shearing to generate fragment sizes between 150 and 5,000 bp using focus acoustic energy (500 KHz and approximately 1mm wavelength) into a sample vial or tube to provide a closed tube, non-contact. Integrated thermo-electric chiller to provide isothermal processing and no heat generation in the sample during processing. The system frequency must be ultrasonic and thus outside the human audible range. 1 KVA online UPS with 30 mins backup should be provided along with the instrument. The vendor should quote for 5 yrs CMC and AMC and also provide the rates for additional CMC/AMC. The supplier should be willing to take the responsibility to move the instrument (at least once) after installation from one location to another location

at a later stage in the permanent campus, if needed. The system should be supplied with a laptop with appropriate connectivity preinstalled with suitable software for running DNA shearing protocols preinstalled.

**(3) MIDI plate heating system:**

Compact, flexible high precision tube and plate heating system with heated lid along with MIDI Heatblock Insert and regulates sample temperatures  $\pm 0.1^{\circ}\text{C}$ . Temperature Range: ambient  $+5.0^{\circ}\text{C}$  to  $99.0^{\circ}\text{C}$ . The vendor should quote for 3 yrs CMC and also provide the rates for additional CMC/AMC. The supplier should be willing to take the responsibility to move the instrument (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed.

**29. The following optional equipment required** for NGS library preparation must be quoted and supplied along with the NGS instrument by the vendor. The vendor should quote for 5 yrs CMC and AMC and also provide the rates for additional CMC/AMC. The supplier should be willing to take the responsibility to move the instrument (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed:

- a. **Fluorometer for DNA/RNA quantitation:** System should be able to quickly and accurately quantify DNA, RNA, and protein, in  $<5$  seconds per sample with as little as  $1\ \mu\text{l}$  sample by a fluorescent dye with a dynamic range of 5 orders of magnitude.
- b. **Thermomixture for nucleic acid dissolution:** Thermomixture system for 1.5 ml/ 2.0 ml tubes up to  $100^{\circ}\text{C}$ , 3000 rpm. Temperature accuracy Max.  $\pm 0.5^{\circ}\text{C}$  at  $20 - 45^{\circ}\text{C}$  and PCR cooler racks 96 well (2 numbers).
- c. **Non UV transilluminator for DNA/RNA visualization on agarose gel:** Viewing surface dimensions:  $46 \times 30.5\ \text{cm}$ . Overall dimensions:  $50.8 \times 34.8 \times 12.5\ \text{cm}$ . Weight: 6.5 kg approx, Optical: 2 x 32W compact fluorescent twin-tube lamps.
- d. **Mini vertical electrophoresis system:** Mini-Cell Electrophoresis System to run up to two precast gels ( $8\ \text{cm} \times 8\ \text{cm}$ ) for protein/DNA electrophoresis.

- e. **High speed micro plate shaker:** Specifically designed to shake and/or vortex microplates in timed or continuous modes. Shaker features programmable speed from 600 to 2500rpm ( $\pm 25$ rpm), and programmable timed mode from 1 to 9999 seconds (166 minutes) for molecular biology applications, mechanical and chemical cell lysis, mixing tissue samples, mixing cytogenetic suspensions, and vortexing cell suspensions.
- f. **Magnetic stand 16 well:** Performs efficient magnetic separation of paramagnetic beads in working volume: 10–2,000  $\mu$ L, holds up to 16 standard 1.5–2 mL microcentrifuge tubes.
- g. **Magnetic stand 96 well:** Perform paramagnetic bead precipitation from standard 96-well, U-bottom microplates and 0.2 mL PCR plates with no additional accessories in easy and fast magnetic separation in as little as 30 seconds.
- h. **Liquid handling autopipettes:** Branded single channel adjustable autopipette set (2 no.) to handle 0.5  $\mu$ L to 5 mL, Adjustable 8- channel autopipette 30 - 300  $\mu$ L and 0.5 - 10  $\mu$ L (one each), along with pipette stand (4 numbers).

## PART B

1. The next-generation sequencing (NGS) system should be a benchtop model with minimal foot print (less than two square feet) and it should support a broad range of applications including amplicon sequencing, de-novo sequencing and re-sequencing of microbes (including fungi and algae), target region enrichment, ChIP sequencing, small RNA sequencing, targeted RNA expression (pathway analysis), transcriptome sequencing (microbial, plants and human), etc.
2. Single instrument should perform automated template DNA amplification, sequencing, and data analysis (base calling, alignment, variant calling, and reporting). It is desirable for the instrument to perform paired-end runs.
3. The system should offer flexible scalability from 300 Mb–15 Gb (1-25 million clusters) in a single run to support a broad range of applications as mentioned in point 1.
4. For those who are offering paired-end chemistry it is desired to offer a minimum of 15 Gb of high-quality data passing filter from  $2 \times 300$  bp reads to enable high throughput multiplexed sequencing of diverse genomes and longer amplicons.
5. The system should have a reasonable runtime to perform integrated massively parallel sequencing of DNA/RNA libraries loaded directly on the system. For those who are offering paired-end chemistry it should offer both single end and paired end sequencing.
6. The sequencing technology should offer accurate sequencing of homopolymers and repetitive regions in the genome of at least 15 bases and highest read quality score of Q30 for greater than 80% bases at 2x150 bp read length with >99% accuracy ensuring quality control steps.
7. System should be able to sequence multiple samples at a time with option of using barcodes for sample multiplexing (up to 384).
8. The instrument should be positioned with global dominance in NGS. It should produce high quality, accurate and highly mappable data.
9. The manufacturer should also offer kits and reagents for library preparation from DNA/RNA.
  - a. Metagenomic amplicon sequencing starting from amplicons: 200 Samples
  - b. Bacterial genome sequencing starting from cells: 20 Samples
  - c. Small RNA Sequencing starting from cells: 20 Samples

10. The system should also include an option to integrate with the genomic computing environment, an easy, secure and cost-effective way to store, analyze, and share genomic data. The system should include latest software, hardware, accessories and technology available at the time of installation which is needed for generating high quality sequence reads. All the necessary kits, reagents and other consumables needed for the test runs during both the installations will be provided by the supplier at no extra cost. All necessary kits, reagents and other consumables needed for both the trainings will be provided by the supplier at no extra cost.
11. The vendor should also supply the specific vibration free table for the installation of the NGS system(s), one 8 KVA branded UPS with at least one hour backup along with the system.
12. The vendor should quote for 5 yrs CMC and AMC separately.
13. The warranty will commence only after the system is successfully installed, tested by trial runs and certified by the technical committee at IIT Mandi.
14. The supplier must install the complete system at the space provided by IIT Mandi and demonstrate a successful installation using two complete test runs. The test runs must demonstrate the promised quality and output as specified in the proposal.
15. The supplier should be willing to take the responsibility to move the sequencer (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed.
16. Adequate training by trained engineers and specialists using one complete run should be provided by the supplier to a few users including faculties, technical staff and some students, at no extra cost during both the installations. The details of trained engineer and specialist, clearly mentioning their experience of working with the supplier and handling a similar training in the past, should be provided with the proposal.
17. Future upgrades in the instrument or chemistry should be provided at no extra cost.
18. The vendor should provide a quote for the necessary inventory of the critical spare parts required for the instrument.
19. The vendor should undertake to supply the reagents to be used with the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.

20. The vendor should undertake to supply the spare parts (including critical and others) to be used in the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.
21. The vendor should ensure proper and smooth functioning of the equipment by supplying appropriate product care which includes full coverage for parts, labor and travel; Reagent replacement upon hardware failures; zero product maintenance; Remote Technical Support; 5 business day average on-site response; hardware/software updates; On-site applications support; Discounts on advanced training.
22. If the downtime of the machine is more than two weeks after the information of malfunctioning or trouble in the instrument to the vendor, then the vendor will be penalized.

## Compliance statement for Next Generation Sequencing System

Sr. No.	Required Indent Specifications	Please mention your remarks in Yes or No format or mention the value
1	Is Tender fees attached?	
2	Is EMD attached? (if applicable)	
3	Is the bidder original equipment manufacturer (OEM)/ authorised dealer?	
4	If authorized dealer, recent dated certificate to this effect from OEM, attached or not ?	
5	Undertaking from OEM regarding technical support & extended warranty present	
6	Validity of 180 days or not?	
7	Undertaking from bidder regarding acceptance of tender terms & conditions	
8	List of reputed users for the past three years specific to the instrument specific to the instrument	
9	Whether special educational discount for IIT Mandi given	
10	Whether two weeks of training of operator and research students without any charge offered	
	<b>Technical Specifications</b>	
	<b>Part A (Main Equipment)</b>	
11	Broad range of applications including metagenomic sequencing, de-novo sequencing and re-sequencing of microbes, complete de-novo sequencing and re-sequencing of higher eukaryotes including human and plant genomes, CHIP sequencing, small RNA sequencing, transcriptome sequencing (microbial, plants and human), etc.	
12	High data output of 100GB or higher (at least 300 million clusters) in a single run	
13	Capable of sequencing 10 or more whole transcriptome samples of the order to human in a single run irrespective of the organism	
14	Performs clonal amplification, sequencing, and primary data analysis (e.g. base calling).	
15	Perform paired-end runs (Desirable)	
16	If offering paired-end chemistry, supports a total read length of 150 base pairs or higher (Desirable)	
17	Has a reasonable runtime to perform integrated massively parallel sequencing of DNA/RNA libraries loaded directly	

	on the system	
18	For those who are offering paired-end chemistry it offers both single end and paired end sequencing	
19	Offers accurate sequencing of homopolymers and repetitive regions in the genome of 15 bases or more.	
20	Offers highest read quality score of Q30 for more than 75% of the base calls having >99% accuracy ensuring quality control steps	
21	Able to sequence multiple samples at a time with option of using barcodes for sample multiplexing (up to 384)	
22	Sample requirement for metagenomic sequencing is in the range including 50ng - 2µg.	
23	Instrument is positioned with global dominance in NGS.	
24	Produce high quality, accurate and highly mappable data.	
25	Apart from the list of equipment provided by the supplier (including the ones provided by the supplier and the others which are needed to be procured separately), there are no other equipment needed to carry out the high-throughput sequencing. In case, if anything is needed and not specified by the supplier, it will be provided by the supplier at no extra cost.	
26	<p>Manufacturer will also provide kits and reagents for library preparation from DNA/RNA.</p> <ol style="list-style-type: none"> <li>1. Bacterial RNAseq starting from bacterial cells : 48 Samples</li> <li>2. Human RNAseq starting from cells : 48 Samples</li> <li>3. Whole metagenome sequencing starting from DNA: 10 Samples</li> </ol>	
27	System includes an option to integrate with the genomic computing environment, an easy, secure and cost-effective way to store, analyze, and share genomic data.	
28	System includes latest software, hardware, accessories and technology available at the time of installation which is needed for generating high quality sequence reads	
29	All the necessary kits, reagents and other consumables needed for the test runs during both the installations will be provided by the supplier at no extra cost.	
30	All necessary kits, reagents and other consumables needed for both the trainings will be provided by the supplier at no extra cost.	
31	Vendor will supply the specific vibration free table for the installation of the NGS system(s)	
32	Vendor will supply one 8 KVA branded UPS with at least one hour backup along with the system.	

33	Vendor has quoted for 5 yrs CMC and AMC separately	
34	Warranty will commence only after the system is successfully installed, tested by trail runs and certified by the technical committee at IIT Mandi	
35	Vendor has quoted for a trained manpower (for 3 years) for wet lab experiments including library preparation and operating the sequencers and the related accessories.	
36	Supplier must install the complete system at the space provided by IIT Mandi and demonstrate a successful installation using two complete test runs. The test runs must demonstrate the promised quality and output as specified in the proposal	
37	Supplier should be willing to take the responsibility to move the sequencer (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed	
38	Adequate training by trained engineers and specialists using one complete run should be provided by the supplier to a few users including faculties, technical staff and some students, at no extra cost during both the installations. The details of trained engineer and specialist, clearly mentioning their experience of working with the supplier and handling a similar training in the past, should be provided with the proposal	
39	Future upgrades in the instrument or chemistry should be provided at no extra cost	
40	Vendor should provide a quote for the necessary inventory of the critical spare parts required for the instrument	
41	Vendor should undertake to supply the reagents to be used with the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.	
42	Vendor should undertake to supply the spare parts (including critical and others) to be used in the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.	
43	Vendor should ensure proper and smooth functioning of the equipment by supplying appropriate product care which includes full coverage for parts, labor and travel; Reagent replacement upon hardware failures; zero product maintenance; Remote Technical Support; 5 business day average on-site response; hardware/software updates; On-site applications support;	

	Discounts on advanced training	
44	Vendor agrees to the condition that if the downtime of the machine is more than two weeks after the information of malfunctioning or trouble in the instrument to the vendor, then the vendor will be penalized.	
	<b>Part A: (1) On -chip Electrophoresis System</b>	
1	Perform simultaneous electrophoresis of DNA/RNA on exchangeable cartridge from 1 to 10 samples.	
2	The kit/software should provide size information of the fragments and also able to provide RIN (RNA integrity Number) of RNA samples.	
3	Compatible Laptop with software and B/W laser printer.	
4	2 KVA online UPS with 30 mins backup	
5	A suitable table for installation of the equipment and accessory	
6	Supplier should quote for 5 yrs CMC and AMC and also provide the rates for additional CMC/AMC	
7	The supplier should be willing to take the responsibility to move the instrument (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed.	
	<b>Part A: (2) DNA fragmentation system</b>	
1	System should perform optimized shearing to generate fragment sizes between 150 and 5,000 bp using focus acoustic energy (500 KHz and approximately 1mm wavelength) into a sample vial or tube to provide a closed tube, non-contact	
2	Integrated thermo-electric chiller to provide isothermal processing and no heat generation in the sample during processing.	
3	The system frequency must be ultrasonic and thus outside the human audible range.	
4	1 KVA online UPS with 30 mins backup should be provided along with the instrument.	
5	Vendor should quote for 5 yrs CMC and AMC and also provide the rates for additional CMC/AMC.	
6	The supplier should be willing to take the responsibility to move the instrument (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed.	
7	The system should be supplied with a laptop with appropriate connectivity preinstalled with suitable software for running DNA shearing protocols preinstalled.	
	<b>Part A: (3) MIDI plate heating system</b>	
1	Compact, flexible high precision tube and plate heating	

	system with heated lid along with MIDI Heatblock Insert and regulates sample temperatures $\pm 0.1^{\circ}\text{C}$ .	
2	Temperature Range: ambient $+5.0^{\circ}\text{C}$ to $99.0^{\circ}\text{C}$ .	
3	vendor should quote for 3 yrs CMC and also provide the rates for additional CMC/AMC.	
4	The supplier should be willing to take the responsibility to move the instrument (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed.	
	<b><u>Part A: (a) Fluorometer for DNA/RNA quantitation:</u></b> System should be able to quickly and accurately quantify DNA, RNA, and protein, in $< 5$ seconds per sample with as less as $1\ \mu\text{l}$ sample by a fluorescent dye with a dynamic range of 5 order of magnitude.	
	<b><u>Part A: (b) Thermomixture for nucleic acid dissolution:</u></b> Thermomixture system for 1.5 ml/ 2.0 ml tubes up to $100^{\circ}\text{C}$ , 3000 rpm. Temperature accuracy Max. $\pm 0.5^{\circ}\text{C}$ at $20 - 45^{\circ}\text{C}$ and PCR cooler racks 96 well (2 numbers).	
	<b><u>Part A: (c) Non UV transilluminator for DNA/RNA visualization on agarose gel:</u></b> Viewing surface dimensions: $46 \times 30.5\ \text{cm}$ . Overall dimensions: $50.8 \times 34.8 \times 12.5\ \text{cm}$ . Weight: 6.5 kg approx, Optical: $2 \times 32\text{W}$ compact fluorescent twin-tube lamps.	
	<b><u>Part A: (d) Mini vertical electrophoresis system:</u></b> Mini-Cell Electrophoresis System to run up to two precast gels ( $8\ \text{cm} \times 8\ \text{cm}$ ) for protein/DNA electrophoresis.	
	<b><u>Part A: (e) High speed micro plate shaker:</u></b> Specifically designed to shake and/or vortex microplates in timed or continuous modes. Shaker features programmable speed from 600 to 2500rpm ( $\pm 25\text{rpm}$ ), and programmable timed mode from 1 to 9999 seconds (166 minutes) for molecular biology applications, mechanical and chemical cell lysis, mixing tissue samples, mixing cytogenetic suspensions, and vortexing cell suspensions.	
	<b><u>Part A: (f) Magnetic stand 16 well:</u></b> Performs efficient magnetic separation of paramagnetic beads in working volume: $10-2,000\ \mu\text{L}$ , holds up to 16 standard $1.5-2\ \text{mL}$ microcentrifuge tubes.	
	<b><u>Part A: (g) Magnetic stand 96 well:</u></b> Perform paramagnetic bead precipitation from standard 96-well, U-bottom microplates and $0.2\ \text{mL}$ PCR plates with no additional accessories in easy and fast magnetic separation in as little as 30 seconds.	

	<b>Part A: (h) Liquid handling autopipettes:</b> Branded single channel adjustable autopipette set (2 no.) to handle 0.5 µL to 5 mL, Adjustable 8- channel autopipette 30 - 300 µL and 0.5 - 10 µL (one each), along with pipette stand (4 numbers).	
	<b>Part B</b>	
1	Support a broad range of applications including amplicon sequencing, de-novo sequencing and re-sequencing of microbes (including fungi and algae), target region enrichment, ChIP sequencing, small RNA sequencing, targeted RNA expression (pathway analysis), transcriptome sequencing (microbial, plants and human), etc.	
2	Single instrument performs automated template DNA amplification, sequencing, and data analysis (base calling, alignment, variant calling, and reporting).	
3	Performs paired-end runs (Desirable)	
4	Offers flexible scalability from 300 Mb–15 Gb (1-25 million clusters) in a single run to support a broad range of applications	
5	For those who are offering paired-end chemistry it is desired to offer a minimum of 15 Gb of high-quality data passing filter from 2 × 300 bp reads to enable high throughput multiplexed sequencing of diverse genomes and longer amplicons.	
6	Has a reasonable runtime to perform integrated massively parallel sequencing of DNA/RNA libraries loaded directly on the system.	
7	For those who are offering paired-end chemistry it should offer both single end and paired end sequencing.	
8	Sequencing technology offers accurate sequencing of homopolymers and repetitive regions in the genome of at least 15 bases and highest read quality score of Q30 for greater than 80% bases at 2x150 bp read length with >99% accuracy ensuring quality control steps.	
9	Able to sequence multiple samples at a time with option of using barcodes for sample multiplexing (up to 384).	
10	Positioned with global dominance in NGS.	
11	Produce high quality, accurate and highly mappable data.	
12	Manufacturer should also offer kits and reagents for library preparation from DNA/RNA. 1. Metagenomic amplicon sequencing starting from	

	<p>amplicons: 200 Samples</p> <p>2. Bacterial genome sequencing starting from cells: 20 Samples</p> <p>3. Small RNA Sequencing starting from cells: 20 Samples</p>	
13	System includes an option to integrate with the genomic computing environment, an easy, secure and cost-effective way to store, analyze, and share genomic data.	
14	System includes latest software, hardware, accessories and technology available at the time of installation which is needed for generating high quality sequence reads	
15	All the necessary kits, reagents and other consumables needed for the test runs during both the installations will be provided by the supplier at no extra cost.	
16	All necessary kits, reagents and other consumables needed for both the trainings will be provided by the supplier at no extra cost.	
17	Vendor will supply the specific vibration free table for the installation of the NGS system(s)	
18	Vendor will supply one 8 KVA branded UPS with at least one hour backup along with the system.	
19	Vendor has quoted for 5 yrs CMC and AMC separately	
20	Warranty will commence only after the system is successfully installed, tested by trial runs and certified by the technical committee at IIT Mandi	
21	Supplier must install the complete system at the space provided by IIT Mandi and demonstrate a successful installation using two complete test runs. The test runs must demonstrate the promised quality and output as specified in the proposal	
22	Supplier should be willing to take the responsibility to move the sequencer (at least once) after installation from one location to another location at a later stage in the permanent campus, if needed	
23	Adequate training by trained engineers and specialists using one complete run should be provided by the supplier to a few users including faculties, technical staff and some students, at no extra cost during both the installations. The details of trained engineer and specialist, clearly mentioning their experience of working with the supplier and handling a similar training in the past, should be provided with the proposal	
24	Future upgrades in the instrument or chemistry should be provided at no extra cost	
25	Vendor should provide a quote for the necessary inventory	

	of the critical spare parts required for the instrument	
26	Vendor should undertake to supply the reagents to be used with the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.	
27	Vendor should undertake to supply the spare parts (including critical and others) to be used in the machine upon every demand raised by the users for at least 10 years from the purchase of the machine even if the machine becomes obsolete and discontinued.	
28	Vendor should ensure proper and smooth functioning of the equipment by supplying appropriate product care which includes full coverage for parts, labor and travel; Reagent replacement upon hardware failures; zero product maintenance; Remote Technical Support; 5 business day average on-site response; hardware/software updates; On-site applications support; Discounts on advanced training	
29	Vendor agrees to the condition that if the downtime of the machine is more than two weeks after the information of malfunctioning or trouble in the instrument to the vendor, then the vendor will be penalized.	