NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(An Autonomous Research Institution of the Department of
Biotechnology Ministry of Science and Technology, Govt. of India)
Aruna Asaf Ali Marg, New Delhi – 110 067 Phone: 26735139,
26735141 Fax: 26741658, 26741146

TENDER NOTICE
Tender No. 8/44/2019-20/NIPGR/S&P

Online Turnkey tenders (in two bid system) are invited on behalf of the Director, NIPGR from manufactures or their authorized dealer for the Supply, Installation, Testing & Commissioning of **installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms** including all the minor equipment's, accessories, consumables etc. along with site preparations required for making these platforms fully functional and operational at NIPGR Campus, Aruna Asaf Ali Marg, New Delhi 110067.

Sl.No.	Estimated Cost in (₹)	EMD in (₹)	Time for Completion	Date & Time of Pre-Bid Meeting	Last Date & Time of Sale / Submission of Tenders	Date & Time of Opening of Tenders
1.	20.14 crores	40.00 lacs	08 Weeks	01/10/2019 1200 Hrs.	17/10/2019 1500 Hrs.	18/10/2019 1500 Hrs.

The Earnest Money should be deposited in the form of Demand Draft drawn in favour of the Director, NIPGR, payable at New Delhi so as to reach the undersigned latest by 17/10/2019 (3.00 P.M). The Tender documents and detailed specifications can be obtained in person by the interested firms from the Purchase-Cum-Store Officer, NIPGR, during office hours against non-refundable cash payment of ₹ 2,000.00 (Rs. Two Thousand only) as mentioned above from 20/9/2019 to 17/10/2019 upto 1500 hrs. The tender document is available on eprocure.gov.in and can also be downloaded from our website: **www.nipgr.ac.in** and CPP Portal https://eprocure.gov.in/eprocure/app. The tender document downloaded from the website is exempt from payment of tender document cost (₹ 2,000/-).

The tenderers registered with MSME & NSIC in the above-mentioned Service / Activity are exempt from deposit of EMD.

The Director, NIPGR, reserves the right to accept or reject all or any of the bids without assigning any reasons thereof.

Purchase cum Stores Officer

TENDER DOCUMENTS

Name of Work: Supply, Installation, Testing & Commissioning of installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments at NIPGR Campus, New Delhi

Owner: Director, NIPGR, Aruna Asaf Ali Marg, New Delhi – 110 067

Tender Issued to: _____

_____

_____

Place for submission/ Place of opening tender document:	Purchase Section NIPGR, Aruna Asaf Ali Marg, New Delhi-110067
Date & time of Pre-bid Meeting	01/10/2019 (12:00 hrs.)
Last date & time for sale / submission of Tender Documents:	17/10/2019 up to 15:00 hrs.
Date & Time of opening of Technical Bid:	18/10/2019 at 15:00 hrs.

COST OF TENDER DOCUMENT: ₹ 2,000.00 (Non-refundable)

Purchase cum Stores Officer
NIPGR, New Delhi

TENDER FORM

To

The Director
NIPGR,
ARUNA ASAF ALI MARG,
New Delhi

Dear Sir,

I/We have read and examined the following Tender Documents relating to the **Supply, installation, testing and commissioning of installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments** at **National Institute of Plant Genome Research, Aruna Asaf Ali Marg, New Delhi 110067**.

• General Conditions	Page No: 4
• Instructions to bidders	Page No: 5-7
• General Information	Page No: 8
• Specific condition of contract	Page No: 9-10
• Terms and Conditions of Contract Agreement	Page No: 11-13
• Special Terms and conditions of Contract	Page No: 14-16
• Instructions for Online Bid Submission	Page No: 17-20
• Technical specifications	Page No: 21-47
• Technical bid	Page No: 48-79
• Price Bid (Excel Format)	Seperate

I/We hereby offer to execute the work complete in all respects specified in the underwritten Memorandum within the time specified therein, at the rates specified in the Price Bid and in accordance with the specifications, designs, drawings and instructions in writing referred to in the conditions of tender.

Tenderers Signature and Seal

GENERAL CONDITIONS

1. Online Turnkey tenders are hereby invited from manufacturers/ authorized dealers for the **Supply, installation, testing and commissioning of installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments at National Institute of Plant Genome Research, Aruna Asaf Ali Marg, New Delhi 110067**.

   The tender document consists of General Conditions, Instructions to bidders, General Information, Tender form, Terms and Conditions of Contract Agreement, Special Terms and conditions of Contract, Technical specification and Price Bid which can be obtained at a cost of ₹ 2,000.00 (Rs. Two Thousand only) (Non-refundable) in cash from 20/9/2019 to 17/10/2019 from the Purchase-cum-Stores Officer at NIPGR, Aruna Asaf Ali Marg, New Delhi. The tender document can also be downloaded from our website: www.nipgr.ac.in **free of cost**. The tender document is obligatory on the part of the tenderers & bid in no other form will be accepted.

2. The time allowed for the supply, testing and commissioning of above equipment's is 12 weeks from the date of issue of Supply order.

3. Every tender shall be accompanied by earnest money of ₹ 40.00 Lacs (Rupees Forty Lacs only) the form of Demand Draft drawn in favour of the "Director, NIPGR" payable at New Delhi. Any tender not accompanied by such earnest money will be rejected straight away.

4. The Tenderer will submit his tender in prescribed format after examining the tender documents, scope of work, specific conditions of contract, Instructions to bidders, General Information, Terms and Conditions of contract agreement, technical specification, Price Bid, special terms and conditions of contract, specific conditions of contract.

5. The tender shall be submitted online in two parts, viz., Technical bid and Financial bid. Submission of the complete tender document duly stamped and signed by tenderer with technical bid is mandatory i.e. The Complete tender document issued/published by the Institute for the purpose should be sealed/signed and submitted by the bidders.

6. The tenderer shall submit a copy of the audited balance sheets / turnover certificate of the past three financial years ending 31/3/2019.

7. If a tenderer whose tender is accepted fails to undertake the work as per terms of the contract within 10 days to be reckoned from the date of issue of award letter, the earnest Money deposited will be forfeited.

8. NIPGR does not bind itself to accept the lowest or any tender and reserves the right to reject any or all tenders without assigning any reason.

9. NIPGR will not pay any expense, whatsoever incurred by tenderer for the preparation and submission of tenders.

10. The notice inviting tender, will form part of the contract agreement to be executed by the successful tenderer with the NIPGR.

11. All the correspondence on the tender shall be addressed to the Director, NIPGR, Aruna Asaf Ali Marg, New Delhi and any communication addressed to anyone else shall not in any manner to be binding upon the NIPGR, Aruna Asaf Ali Marg, New Delhi.

12. The tenderer shall submit a copy of Authorization Letter from the manufacturer (Original Equipment Manufacturer) along with copy of PAN/GST numbers allotted to them.

Tenderers Signature with Seal **Purchase cum Stores Officer**

INSTRUCTIONS TO BIDDERS

1. GENERAL INSTRUCTIONS:

The items referred here-in shall cover the entire scope of the proposal which includes supplying and installation of the equipment including the successful completion and the tests which the NIPGR desires testing and commissioning shall be carried out.

2. TENDERERS TO STUDY ENTIRE TENDER DOCUMENT CAREFULLY:

Submission of a tender by a tenderer implies that he has read all the stipulations contained in this tender document and has acquainted himself of the nature, scope and specifications of the items to be followed.

3. TENDERER TO SUBMIT THE ENTIRE TENDER DOCUMENT:

The tenderer shall submit all documents issued to him for the purpose of this tender after duly filling the same in all respects. Tenders which are found to be vague or incomplete shall be rejected summarily.

4. TENDER SHALL BE WRITTEN IN ENGLISH LANGUAGE:

Every tender shall be written in English language. All information such as documents and drawings supplied by the tenderer will also be in the English language only. Drawings and designs shall be dimensioned according to the metric system of measurements. Tenders shall be forwarded under cover or a letter type written on the tenderer's letter-head and duly signed by the tenderer. Signatures must be in long hand, executed in ink by a duly authorized principal of the tendering firm. No oral, telegraphic or telephonic tenders or subsequent modifications there-to shall be entertained; If a tender is submitted on behalf of the firm, then all the partners shall sign or may be signed by one in whose favour all the partners have given General Power of Attorney. In case of tender submitted by a company, it shall be signed by one who has been authorized by the Board of Directors through a resolution. Copy of resolution and the authority letter in favour of the person signing must accompany the tender.

5. VALIDITY PERIOD OF OFFERS:

A. The rates quoted in the tender shall hold good for 90 days from the date of opening of the tender. No tenderer can withdraw/or modify his tender or revoke the same within the said period of 90 days. If a tenderer on his own withdraws or revokes the tender or revises or alters or modifies the tender for any item or condition within a period of aforesaid 90 days his earnest money deposit shall stand forfeited.
B. The validity of accepted rates is extendable for a period of 180 days from the date of issue of Award Letter, with mutual consent of both the parties.

6. TENDERER TO SIGN ALL PAGES:

The tenderer shall stamp and sign at the bottom right hand corner of every page of the tender documents in token of acceptance of tender conditions and for the purpose of identification.

7. ERASERES AND ALTERATIONS:

Tenders containing erasures and alterations of the tender documents are liable to be rejected unless these are authenticated by the person signing the Tender Documents.

8. TENDERER TO SATISFY HIMSELF OF SITE CONDITIONS:

Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tender regarding nature of the site conditions, the means of access of the site, the accommodation they may require and in general obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender in any manner. A tenderer shall be deemed to have full knowledge of the site, whether he inspects it or not and no compensation or otherwise of any charges incurred or to be incurred consequent on any misunderstanding or otherwise shall be admissible.

9. EARNEST MONEY:

The tender shall be accompanied by earnest money of ₹ 40.00 Lacs (Rupees Forty Lacs only) in the form of Demand Draft only drawn in favour of the Director, NIPGR payable at New Delhi. Earnest money of the unsuccessful bidder(s) shall be refunded after expiry of the validity period of the tenders/placement of Supply Order whichever is earlier. In case of the Successful tenderer the earnest money shall be adjusted against performance security.

10. TENDERER TO QUOTE BOTH IN FIGURES AND WORDS:

The bidder shall quote their rates for all the items both in figures as well as words given as per the attached format of Price bid. The amount of each item shall be worked out and the requisite total given. Special care shall be taken to write percentage in figures and words, and the amount in figures only in such a way that interpolation is not possible. The total amount shall be written both in figures and in words.

11. TENDER LIABLE TO REJECTION:

Tenders which do not fulfill all or any of the conditions laid down in this notice, or contain conditions not covered and / or not contemplated by the Conditions of tender document and/or expressly prohibited therein or stipulate additional/alternative conditions shall be liable to be rejected and his earnest money will be forfeited.

Tenders shall also be liable for rejection on any of the following grounds:-

i) Tenders containing remarks uncalled for.
iii) Conditional tenders
iv) Tenders not submitted on prescribed Performa.
v) Telegraphic/Fax/Postal tenders.
vi) Tender submitted without EMD.
vii) Tender with NIL consideration

13. CORRESPONDENCE:

Tenderers must mention their postal address and telephone number(s) of the Chief Executive/authorized agent or attorney in the tender. The tender submitted by the tenderer will be rejected if he or his agent cannot be contacted on the last known address or on the intimated telephone number(s) after reasonable search in which event earnest money may be forfeited by the NIPGR.

14. NIPGR NOT TO ASSIGN ANY REASON FOR REJECTION OF TENDER:

Director, NIPGR hold absolute discretion to accept or reject the lowest or any other tender without assigning any reason. No claim on this account shall be entertained.

15. AMENDMENT IN TENDER DOCUMENTS:

NIPGR reserves the right to revise or amend the Bid Documents upto the date prior to the date notified for opening of the tenders and also the right to postpone the date of submission and opening of tenders without assigning any reason, whatsoever.

NIPGR also reserves the right to change the quantities of the units while issuing the letter of award of work.

16. REFERENCE IN TENDER DOCUMENTS:

Director, NIPGR, shall be referred as "Owner" in all the documents of Tender documents/contract agreement.

17. PROGRAMME DIRECTOR, NGGF

Where ever the word "Programme Director, NGGF" occurs it shall mean the authorized Scientist appointed by the NIPGR for the superintendence of the execution of related works.

Tenderers Signature with Seal **Purchase cum Stores Officer**

GENERAL INFORMATION

1.	Accepting Authority	Director, NIPGR, New Delhi.
2.	Earnest Money	₹ 40.00 Lacs (Rupees Forty Lacs only) to be furnished with the tender in the form of the Demand draft in favour of "Director, NIPGR" payable at New Delhi. **(No interest is payable on this deposit)**
3.	Security Deposit	The EMD submitted by successful tenderer shall be treated as part of performance security deposit.
4.	Performance Security	The successful tenderer shall be required to deposit an amount equal to 10% of the tender value of the contract as Performance Security after adjusting the Security Deposit within 10 days from the date of issue of award letter. Performance Security may be deposited in the form of Demand Draft or Bank Guarantee from State Bank of India or any Scheduled bank.
5.	Authority competent to grant extension of time	Director, NIPGR.
6.	Tools & Plants	To be arranged by Tenderer
7.	Authority competent to reduce the Compensation amount	Director, NIPGR
8.	Defect Liability/warranty period	**36 months from the date of installation and acceptance by the NIPGR**
9.	Authority Competent to Appoint Arbitrator	Director, NIPGR
10.	Release of Security Deposit	The Performance Security shall be released after completion of the defect liability period.

Tenderers Signature with Seal

Specific Conditions of Contract

1. **Scope of work**: The scope of work generally consists of providing of installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments as described in the equipment specifications of the tender documents. The supplier shall carryout and complete the work under the contract in every respect in accordance with this tenders' documents and under directions & to the entire satisfaction of the Programme Director, NGGF. If any item of the work to be executed is not covered under specification, the same shall be executed as decided by the Programme Director, NGGF.

   It is not the intent to specify completely herein all aspect of design and constructional features of equipment and details of work to be carried out, nevertheless, the equipment and work shall confirm in all respect to high standard of engineering, design and workmanship and shall be capable of performing in continuous commercial operation in a manner acceptable to the Programme Director, NGGF, who will interpret the meaning of the specifications and drawings and shall have the right to reject or accept any work or material, which in his assessment is not complete to meet the requirements of the specifications and or applicable code, and standards mentioned elsewhere in the specifications.

2. **Operation & Maintenance manuals**: Prior to completion of the work and handing over the installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments, the supplier shall submit 3 sets of following details:

   i) Comprehensive operation instructions, preventive and routine maintenance schedules
   ii) Manufacturer's equipment catalogues and operating & maintenance instructions
   iii) Electrical control diagrams, piping scheme diagrams and other diagrams of the connections
   iii) List of recommended spare parts with spare part codes, specifications & source of procurements.

   Supplier to provide all for testing: The supplier shall provide and pay for all necessary tools, instruments gadgets and testing equipment required for conducting various tests. Any defects in material and / or in workmanship detected during initial testing shall be rectified by the supplier at his own cost. Initial testing shall be carried out in the presence of Programme Director, NGGF or his representative to his entire satisfaction. The installation shall be commissioned after approval by Programme Director, NGGF.

3. **Virtual completion**: On satisfactory completion of initial testing and commissioning, the installation shall be put to continuous running test for a period of 2 days for the purpose of taking over. Any defect in material and/ or in workmanship detected in the course of testing shall be rectified by the supplier at his own cost to the entire satisfaction of the Programme Director, NGGF. The test shall be repeated after removal of defects. After successful completion of above tests, the equipment shall be taken over.

4. **Guarantee & Defect liability period**: The equipment covered by this contract shall be guaranteed by the supplier against faulty material and workmanship for a period of **36** months from the date of virtual completion and taking over the installation. Any part found

defective shall be replaced free of all costs by the supplier. The supplier shall guarantee that all equipment shall work satisfactorily and that the performance and efficiency of the equipment shall not be less than the specified values. If performance of equipment during guarantee period is not found satisfactory, the guarantee period will be extended till satisfactory performance is established for further period of reasonable time decided by NIPGR. The services of the supplier's personnel if
requisitioned during the defect liability period shall be made available free of any cost to NIPGR. If the defects noticed during the guarantee period are not remedial within a reasonable time and / or some equipment or system as a whole remain out of order for a total period of one month (4 weeks) (Unless or otherwise extended) NIPGR shall have the right to remedy the defects at the supplier's risk & cost without prejudice to any other rights.

5. **Maintenance**: During the guarantee & defect liability, the supplier shall provide at no extra cost necessary material and personal to carry out the repairs & routine maintenance of equipment. The supplier shall attend to all problems experienced in the operation of the system within a reasonable time but not more than 48 Hrs. of receiving the complaint and take corrective action immediately.

6. **Operation of the equipment/Platform and Training of Personnel at site**: In order to enable NIPGR/NGGF staff get acquainted with the operation and maintenance of the said Equipment/platform, the supplier at no extra cost to NIPGR shall run the facility for a period of one year from the date of installation and train the departmental personnel during the said period.

7. **Storage of materials & safe custody**: Lockable storage space, if available shall be made available to the supplier by NIPGR. However, the supplier shall be responsible for watch & ward and safe custody of his equipment and installation till they are formally taken over by NIPGR. Non-availability of lockable storage space due to any reasons shall not relieve the supplier of his contractual obligations in any way.

8. **Completion period**: All work of installation, testing, commissioning and handing over of the installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments in accordance with this contract shall be completed within the stipulated period or within the extended time as has been allowed by the Institute.

9. **Rate reasonability:** The bidders should provide the Price reasonability Certificates for the rates quoted by them duly supported with Supply Orders issued by other Government Institutes/ Organizations, Completion Certificates along with the Price Catalogues.

10. The supplier/manufacturer should ensure timely service and calibration of machine for successful installation and satisfactory operation.

Tenderers Signature with Seal

TERMS & CONDITIONS OF CONTRCT AGREEMENT

SECURITY DEPOSIT

1. The earnest money amounting of ₹ 40.00 Lacs (Rupees Forty Lacs only) will be treated as part of performance security deposit of the successful tenderer.

COMPENSATION CLAUSE

2. The time allowed for carrying out the work as entered in the tender shall be strictly observed by the Tenderer, and shall be reckoned from the day of the date on which the order to commence the work is given to the Tenderer. The Tenderer shall prepare and submit the details of delivery and installation for the execution of the said work within ten days of award of work for approval of the Programme Director, NGGF, NIPGR. The work on the contract shall be executed according to the approved schedule as aforesaid and shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of the contract on the part of the Tenderer) and the Tenderer shall pay as compensation an amount equal to one percent or such smaller amount as Programme Director, NGGF, NIPGR may decide on the value of work as per contract, for every week that the work remains un-commenced or unfinished as per the agreed terms of Supply/work Order. Further to ensure good progress during the execution of the work, the Tenderer shall be bound in all cases in which the time allowed for any work exceeds one month to complete one fourth of the whole of the work before one fourth of the whole time allowed under the contract has elapsed, one half of work before one half of such time has elapsed and three fourth of the work before three fourth of such time has elapsed. In the event of the Tenderer failing to comply with this condition he shall be liable to pay as compensation an amount equal to one percent or such smaller amount as the Programme Director, NGGF, NIPGR, may decide of the value of balance work for everyday that the due quantity of work remains incomplete. Provided always that the entire amount of compensation to be paid under the provisions of this clause shall not exceed ten percent of the awarded cost of work as shown in the tender. The Director, NIPGR, on a representation from the Tenderer, is however, empowered to reduce the amount of compensation and his decision in writing shall be final.

TIME EXTENSION

3. If the Tenderer shall desire an extension of the time limit for completion of the work on the grounds of his having been unavoidably hindered in its execution or on any other ground he shall apply in writing to the Programme Director, NGGF, NIPGR within 10 days of the date of the hindrance on account of which he desires such extensions as aforesaid but before the expiry of time limit and the Programme Director, NGGF, if in his opinion(which shall be final) reasonable grounds as shown thereof ,authorized such extension of time if any, as may, in his opinion be necessary or proper.

COMPLETION

4. Without prejudice to the rights of Programme Director, NGGF under any clause hereinafter contained on completion of the work, the Tenderer shall be furnished with a certificate by the Programme Director, NGGF or his representative of such completion, but no such certificate shall be given nor shall the work be considered to be complete until the Tenderer shall have removed from the premises on which the work has been executed,

all surplus materials and rubbish, and cleaning off the dirt from all doors, walls, floors, or any other parts of buildings said to have been completed, and the measurements in the said certificate shall be binding and conclusive against the Tenderer, if the Tenderer shall fail to comply with the requirements of this clause as to the removal of scaffolding, surplus materials, and rubbish and cleaning off dirt on or before the date fixed for the completion of the work, Programme Director, NGGF, NIPGR may at the expense of the Tenderer have removed such scaffolding ,surplus materials and rubbish and dispose of the same as he thinks fit and clean off such dirt as aforesaid and the Tenderer shall forth with pay the amount of all expenses so incurred, and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any such sale proceeds actually realized by the sale thereof.

ARBITRATION

5. Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, designs , drawings and instructions here in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim , right, matter or thing whatsoever, in any arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitrator appointed by the Director, NIPGR, at the time of dispute. It will be no objection to any such appointment that the arbitrator so appointed was associated with the work and that he had to deal with the matters to which the contract relates and that in the course of his duties in association with the Programme Director, NGGF, he had expressed views on all or any of the matters in dispute or difference. The arbitrator to whom the matter is originally referred being unable to act for any reason, the Director, NIPGR shall appoint another person to act as arbitrator in accordance with the terms of the contract. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by the Director, NIPGR as aforesaid shall act as arbitrator. If for any reason(s) the reference cannot be made by the Director, NIPGR, then there shall be no reference to Arbitration. In such eventuality, the decision of Director, NIPGR shall be final and binding on both the parties. In all cases where the amount of the claim in dispute is ₹ 50000/- (Rs. Fifty thousand only) or above, the arbitrator shall give reasons for the award. Subject as aforesaid the provisions of Arbitration and Cancellation Act 1996 or any statutory modifications or reenactment thereof and the rules framed there under and for the time being in force shall apply to the arbitration proceeding under this clause. It is also a term of the contract that while invoking arbitration the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute. It is also a term of the contract that if a party does not make any demand for arbitration in respect of any claim(s) in writing within 90 days of receiving the intimation from the Programme Director, NGGF that the bill is ready for payment, the claim if any, shall be deemed to have been waived and absolutely barred and the owner shall be discharged and released of all liabilities under the contract in respect of these claims.

CARRYING OUT OF WORK

6. All the work shall be carried out strictly and in accordance with the specifications given in the tender to the total satisfaction of the Programme Director, NGGF. In the case of an item for which specification are not available in the said specifications relevant BIS specifications applicable as on the date of tenders shall be followed.

INSPECTION OF WORK

7. All work under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of Programme Director, NGGF, NIPGR or his subordinate in-charge of the work and the Tenderer shall at all times, during the usual working hours and at all other times at which reasonable notice of the intention of the Programme Director, NGGF to visit the works shall have been given to the Tenderer, either himself be present to receive order and instructions or have a responsible agent duly accredited in writing present for that purpose. Orders given to the Tenderer's agent shall be considered to have the same force as if they had been given to the Tenderer himself.

INSURANCE

8. The following insurance cover is to be provided by the Tenderer in the joint names of the employer and the Tenderer for the period from the start date till completion of entire work.
   a) Cover against damage to other people's property caused by the
   b) Tenderer's acts or omission;
   c) Cover against death or injury caused by the Tenderer's acts or omission to:
      i) Anyone authorized to be on the site;
      ii) Third parties who are not on the site;
9. No Escalation in rates shall be paid.

10. The Tenderer shall provide all necessary superintendence during execution of the work and as along thereafter as may be necessary for proper fulfilling of the obligations under the contract.

11. The tenderer must visit the site at NIPGR campus, Aruna Asaf Ali Marg, New Delhi - 110067 before quoting the rates.

12. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the Tenderers who resort to canvassing will be liable to rejection.

13. The rates quoted for foreign equipments shall be CIF/CIP New Delhi.

14. The rates for Local equipments shall be inclusive of all taxes, octroi, cartage etc., and nothing extra will be paid.

15. No T&P will be issued by the department.

16. The final payment shall be made only after completion of the work subject to certification by Scientist –in- Charge.
17. The site of work is at NIPGR Campus, Aruna Asaf Ali Marg, New Delhi – 110067.

18. The **Technical specifications** of the equipments required are detailed at page **21 – 47** of this Tender Document.

19. Installation, Testing & Commissioning of the supplied equipments will be done at our site by the bidder in the presence of Programme Director, NGGF of our Institute.

Tenderers Signature with Seal

SPECIAL TERMS AND CONDITIONS OF CONTRACT

1. TENDERER TO BE LIABLE FOR ALL TAXES ETC.

The rates specified in the tender shall be CIF/CIP New Delhi/ FOR NIPGR and inclusive of all taxes, duties and other charges etc., in respect of the this contract and the rates shall be firm irrespective of any variation in the prevailing rates of taxes, levies, octroi, etc., and any fresh imposition of any of these by State/Central/Statuary bodies. The supplier shall indemnify the Director against levy of any taxes, etc., in regard to this contract and in the event of the Director being assessed for any of the said imports,
Director shall have the right to recover the total amount so assessed from the supplier's dues and the supplier shall also be responsible for all costs or expenses that may be incurred by Director in connection with any proceedings or limitation in respect of the same. We are eligible for concessional tax (rate) exemption under notification no**. 45/2017-** Central tax (rate)/Union territory tax (rate) **& 47/2017** – Integrated tax (rate) dated 14/11/2017 and fall under the category of Public funded research institution.

2. FORCE MAJEURE:

The right of the Tenderer to proceed with the work shall not be terminated because of any delay in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of the Tenderer, including not limited to acts of God, or of the public enemy, restraints of a sovereign state, firms, floods, unusually severe weather.

3. JURISDICTION:

Not with standing any other courts having jurisdiction to decide the questions forming subject matter of a suit any and all actions and proceedings arising out of or relative to this contract (including any arbitration in terms thereof) shall lie only in the court of competent Civil jurisdiction in this behalf at New Delhi., where this contract is to be signed on behalf of Director, NIPGR and only the said court shall have jurisdiction to try any such actions and/or proceedings to the exclusion of all other courts.

4. SCOPE OF WORK:

The scope of work is as per enclosed details. The Tenderer should note that during the preparation of detailed working drawings, according to which the Tenderer has to execute the work covered under this contract, may undergo changes. The scope drawings for the entire work are not enclosed, but only a few indicating the probable nature of construction are attached. The scope of work is thus not limited only to the details.

5. Programme Director, NGGF Role:

The Programme Director, NGGF shall carry out general supervision and direction of the work. He/she has authority to stop the work. Whenever he/she considering such stoppage necessary to ensure the proper execution of the work. He/she shall also have authority to inspect and reject all work and materials, which do not conform to the specifications and to direct the application of Tenderer's forces to any portion of the work, as in his/her judgment is required, and to order the said force increased or diminished and to decide questions which arise in the execution of the work.
The Programme Director, NGGF shall have the right to suspend the work or part thereof at any time and no claim whatsoever on this account shall be entertained. In case of any clarification the Tenderer may appeal to the Director, NIPGR whose decision shall be final and binding on the Tenderer. The above inspection shall, however, not relieve the

Tenderer of his responsibilities in regards to defective materials or workmanship and the necessity for rectifying or replacing the same.

6. TENDERER'S RESPONSIBILITY FOR THE MANNER OF EXECUTION OF WORKS

The Tenderer shall be solely responsible for the manner and the method of executing the work. The work shall be subject to the approval of Programme Director, NGGF from time to time for purposes of determination of the question whether the work is executed by the Tenderer in accordance with the contract.

7. SUBMISSION OF BILLS:

Tenderer is to submit the bills in triplicate along with delivery challans to the Programme Director, NGGF for works executed by him. Payment will be released on completion of entire work subject to certification by the Programme Director, NGGF.

8. ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK:

If it shall appear to Programme Director, NGGF, NIPGR or his representatives, that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of any inferior description or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to the contracted for, or otherwise not in accordance with the contract specifications the Tenderer shall on demand in writing from the Programme Director, NGGF specifying the work materials, articles complained or not with-standing that the same have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the work so specified in whole or in part as the case may require, or as the case, remove the materials or articles so specified and provide other and suitable materials or articles so specified at his own cost and in the event of his failing to do so within a period to be specified by the Programme Director, NGGF in his demand aforesaid, then the Tenderer shall be liable to pay compensation at the rate of one percent on the amount of the estimate for every day not exceeding ten days while his failure to do so that continue and in the case of any such failure Programme Director, NGGF, NIPGR may rectify or remove, and re-execute the work or remove and replace with other materials or articles complained of, as the case may be at risk and expenses in all respects of the Tenderer.

9. It shall always prevail, unless otherwise specifically stated, that the entire provisions of Tender document been opened upon and accepted for compliance by the Tenderer without any reservation.

10. Exemption of Customs Duty and Excise Duty

The NIPGR is exempted from payment of Custom Duty and Excise Duty for supply of equipments etc. vide Govt. of India Notification No. 51/96 dt. 23/07/1996. Since the Customs Duty/ Excise Duty and clearance charges will be borne by the Institute, Bidders are requested to quote their rates accordingly. However, it will be the responsibility of the Supplier to shift the equipment to site of work including opening of crates, transportation, loading and unloading. Nothing extra will be paid on any account.

11. Terms of payment

100% of the equipments value against irrevocable LC on receipt of order acknowledgement and Performance Guarantee/Security from Principles of supplier or their Indian Agent subject to fulfillment of condition at Sl.No. **4** under General Information.

In case of the payment in Indian Rupees, payments shall be released upon successful/satisfactory installation of the equipment. The payment will be released after deduction of taxes at source as per Rules.

12. Bidder should provide quotations directly enclosed from the manufacturer.

13. Bidder providing misleading or wrong information will be disqualified.

14. Bidder will support all the claims by product catalogue, public website of the manufacturer.

15. The Tender Compliance Sheet attached with the tender document should be properly filled with complete details.

Tenderers Signature with Seal

Instructions for Online Bid Submission

1. The tender documents are available on our website www.nipgr.ac.in **& ww.eprocure.gov.in** and same can be downloaded.

2. Tender documents may be downloaded from ITPO's website www.nipgr.ac.in and CPPP site https://eprocure.gov.in/eprocure/app as per the schedule as given in the tender document.

3. Bids shall be submitted online only at CPPP website: https://eprocure.gov.in/eprocure/app. Tenderers/Contractors are advised to follow the instructions provided in the 'Instructions to the Contractors/Tenderer for the esubmission of the bids online through the Central Public Procurement Portal for eProcurement at https://eprocure.gov.in/eprocure/app**'.** Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

4. Not more than one tender shall be submitted by one contactor or contractors having business relationship. Under no circumstance will father and his son(s) or other close relations who have business relationship with one another (i.e when one or more partner(s)/director(s) are common) be allowed to tender for the same contract as separate competitors. A breach of this condition will render the tenders of both parities liable to rejection.

5. The bidders are advised to visit CPPP website https://eprocure.gov.in/eprocure/app at least 3 days prior to closing date of submission of tender for any corrigendum / addendum/ amendment.

6. Bids will be opened as per date/time as mentioned in the **Tender Document.** After online opening and evaluation of technical bids, the results of their qualification as well Price-Bid opening will be intimated later.

Submission of Tender

The tender shall be submitted online in two parts, viz., Technical bid and Financial bid.

All the pages of bid being submitted must be sequentially numbered by the bidder irrespective of nature of content of the documents before uploading.

The offers submitted by Post/Fax/email shall not be considered. No correspondence will be entertained in this matter.

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at: https://eprocure.gov.in/eprocure/app**.**

REGISTRATION

1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: https://eprocure.gov.in/eprocure/app) by clicking on the link "**Online Bidder Enrolment**" on the CPP Portal which is free of charge.

2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.

3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.

4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra/ Nic etc.), with their profile.

5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.

6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.

2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.

3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

Bidder should take into account any corrigendum published on the tender document before submitting their bids.

1) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

2) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

3) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GST Certificate etc.) has been provided to the bidders. Bidders can use "My Space" or ''Other Important Documents'' area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS

1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.

3) Bidder has to select the payment option as "offline" to pay the tender fee / EMD as applicable and enter details of the instrument.

4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official before bid opening date/time as mentioned in critical date sheet or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.

5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

6) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to

asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

8) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

9) Upon the successful and timely submission of bids (i.e after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

10) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

ASSISTANCE TO BIDDERS

1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is 1800 3070 2232, 91-7878007972 and 91-7878007973.

Technical Specification

Specifications for supply, installation of installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments.

A. Main Platform

ITEM2 A	Supply, Installation, Testing & Commissioning of High-throughput Sequencing Platform including all the minor equipment's, accessories, consumables etc. along with site preparations required for making this platform fully functional and operational at NGGF-NIPGR Campus. •The ultra-high throughput short Read sequencing system should be a single unit, capable for automated onboard isothermal cluster generation using by exclusion amplification of NGS libraries in patterned flow cells and generate the sequence information in form of short reads up to 2 x 250 bp. • The sequencing workflow should allow fully automated operation paired-end chemistry without user intervention and support read lengths up to 150 bp and data output of up to 6000 Gb from 20 billion clusters in single run in 44 hr. • The sequencing chemistry should employ robust imaging-based Sequencing by Synthesis method using fluorescent labelled nucleotide(s) with reversible terminator and should mimic the natural biological chemistry and simultaneous addition of all four bases in the sequencing reaction for competitive addition to DNA template allowing massively parallel sequencing of billions of DNA fragments. • The instrument should able to address multiple applications like sequencing of large genomes, transcriptomes, targeted resequencing, shotgun metagenomics, small RNA seq, methylation analysis, GBS, ChIP seq, Single-cell genome/transcriptome, Linked long-read applications, etc. • The sequencing chemistry should allow for highly accurate sequencing through homopolymeric regions up to at least 15 bp.	Unit 1

	• The system should offer flexibility in terms of flow cell types and runtime configurations for flexible output. • Clonal amplification of DNA template should be fully automated and integrated part of the system. • The system should also generate flexible data output of 80 to 6000 Gb per run, and support sequencing of different read length required various applications: 2 x 50 bp, 2 x 100 bp, 2 x 150 bp and 2 x 250bp. • The instrument should generate accurate base calls and high quality, error free data with greater than 75% or more data over Q30 for 2 x 150 bp. • The system should also offer sample loading in individual lanes of the flow cell to increase the multiplexing capacity up to 384 samples. • System should support ready-to-use cartridges containing preconfigured reagents for amplification and sequencing; reagents snap into position, ensuring proper loading. • The platform should include all reagents and consumables for demonstration of sequencing and genotyping for at least 200 DNA samples. This is needed to ascertain the validity of the sequencing chemistry and platforms procured for further use and wider applications in genomics. • The system should come with an option of cloud-based server for data storage, sharing and analysis. In addition, there should be an option of deployment of an onsite server, for the same function. • The system should generates base calls and quality scores in real time, as per cycle base call (*.cbcl) files. • The sequencing chemistry should be robust and globally proven, demonstrated with peer reviewed publications and should have at least minimum 2 to 3 installations in India. • In order to enable NIPGR/NGGF staff get acquainted with the operation and maintenance of the said Equipment/platform, the	

	supplier at no extra cost to NIPGR shall run the facility for a period of one year from the date of installation and train the departmental personnel during the said period. • Warranty as per rules.Standard Warranty: 3-year warranty. Charges on account of CMC for 2years besides, 3year Standard Warranty, unless otherwise specified.	
ITEM2 B	Supply, Installation, Testing & Commissioning Medium-throughput Sequencing Platform . • A high-throughput next-generation sequencing (NGS) system. • Should be a benchtop model with minimal foot-print (less than two square feet) and capable of sequencing a 30X human genome in a single run. • Single instrument performs clonal amplification, sequencing, paired-end run and primary data analysis (e.g. base calling). • The manufacturer should also offer kits and reagents for library preparation from DNA/RNA. • System should offer flexible scalability from 20 – 120 Gb (130-400 million cluster) in a single run to 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, transcriptome sequencing (microbial, plants and human), etc. • The system should have onboard cluster generation, in 12–30 hours, to perform integrated massively parallel sequencing of DNA/RNA libraries loaded directly on the system, through integrated cluster generation (emulsion free) and sequencing by synthesis (SBS) and offers both single end (1 x 75 bp) and paired end sequencing (2 x 75 bp and 2 x 150 bp). • The system should also be capable to scan arrays and required ancillary equipment to process the array to be provided by manufacturer.	Unit 1

	• The system should also include an option to integrate with the dedicated/compatible genomic computing environment, for an easy, secure and cost-effective way to store, analyze, and share genomic data. • The sequencing technology should offer accurate sequencing of homopolymers and highest read quality score of Q30 for more than 75% of the base calls having > 99% accuracy ensuring quality control steps. • The sequencer should be able to read through at least 15 bases homo-polymer stretches in the genome accurately. • The sequencing chemistry should be cited in more than 5,000 peer-reviewed publications. • Alignment, variant calling, and reporting should be supported through in Base Space cloud computing. • Library preparation should be easy and completed within 12 hrs with minimal hands on time. Ease of library preparation and time required will be one of the important criteria for selection. • System should be able to sequence multiple samples at a time with option of using barcodes for sample multiplexing (up to 384). • The sample requirement for metagenomic sequencing should not be more than 1µg. • 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. • The platform should include all reagents and consumables for demonstration of sequencing and genotyping for at least 200 DNA samples. This is needed to ascertain the validity of the sequencing chemistry and platforms procured for further use and wider applications in genomics. • Apart from the list of equipments provided by the supplier (including the ones provided by the supplier and the other which	

	are needed to be procured separately), there must be no other equipment needed to carry out the high-throughput sequencing. • Should take responsibility of furnishing the laboratory including partitioning of space assigned as per recommendations of manufacturer to provide end-to-end solution for efficient running and functioning of the platform without any fail. • Should set-up the sequencing facility and have responsibility to hand-over the facility in complete running condition. • Should also provide below list of small equipments/accessories with a centralized UPS for complete workflow to run the samples in the genotyping platform. • All major platforms, accessories, workstations, softwares, UPS and minor equipments (enlisted below) should be under five years comprehensive maintenance cost warranty/CMC for completing the workflow to run the samples in the sequencing platform and efficient functioning of the facility. • The sequencing chemistry should be robust and globally proven, demonstrated with peer reviewed publications and should have at least minimum three installations in India. • In order to enable NIPGR/NGGF staff get acquainted with the operation and maintenance of the said Equipment/platform, the supplier at no extra cost to NIPGR shall run the facility for a period of one year from the date of installation and train the departmental personnel during the said period. • Warranty as per rules. • Standard Warranty: 3-year warranty. • Charges on account of CMC for 2years besides, 3year Standard Warranty, unless otherwise specified.	

B. Minor Accessories

1B	Ultra Sonicator for DNA Fragmentation	• An automatable ultrasonicator for fragmentation of DNA with dedicated notebook computer and software. • Fragmentation of DNA samples of desired size library preparation. Should perform automated processing for 8 samples. System should support sonication of DNA for massively parallel sequencing applications. • System should shear the sample by employing focused ultra-sonic acoustic energy to ensure isothermal processing and reduce heat induced damage of samples. • System should be able to perform acoustic based focused shearing at ultrasonic range of 500 Khz for minimum sound generation in audible range. • System should be able to process 1-8 or more samples simultaneously either by single or by multiple processing with flexible sample processing volume (15 ul -1 ml). • System should be able to shear DNA fragments in the range of 100bp - 5Kb. • Should generate 150 bp DNA fragments within processing times as low as 7 minutes. • System should have integrated solid state chiller for temperature control and automated water bath management. • System should have less than 2 minute start-up time. • Ability for real time monitoring and integrated quality control by software. • Warranty as per rules.	1
2B	Fragment Analyzer/Tape Station	• Size determination of DNA library & RNA QC On -chip /Tape/ Capillary Electrophoresis System. Perform simultaneous electrophoresis of DNA/RNA on exchangeable cartridge from 1 to 10 samples. The kit/software should provide size information of the fragment's length and also able to provide RNA quality assessment or RIN (RNA integrity Number) of RNA samples or similar. • Separate upto 12 samples in parallel in as little as 15 minutes • Provide choice between 2-3 different capillary array lengths for the required blend of speed or resolution • Minimize instrument preparation time with no daily array handling requirements and room-temperature stable	2

		reagents • With separation resolution as good as 3 bp from fragments under 300 bp • Ability to adjust run priorities by moving samples up or down in queue • Uses quality metrics for RNA (RQN) and genomic DNA (GQN) to remove subjective quality assessments • Kits providing a wide dynamic range covering two orders of magnitude • Must achieve accurate molarity calculations with reliable smear analysis. • Warranty as per rules.	
3B	Benchtop refrigerated centrifuge with swing-out rotor (for Microplate and MIDI plates) and microcentrifuge rotor	• Centrifugation of samples during library preparation protocol Refrigerated Centrifuge with Swing-bucket rotor. • Plate rotor options for centrifugation of all types of MTP, PCR or Deep well Plates. • Fixed-angle rotors for high-speed molecular biology applications in tubes from 0.2 mL to 250mL • High centrifugation speed of up to 22,132 × g (14,000 rpm) • Automatic rotor recognition and imbalance detection for maximum operational safety • Temperature range from 4 °C to 40 °C • Warranty as per rules.	2
4B	Bench-top ultra-centrifuge with suitable rotor and tube	• Ultracentrifuge should be efficient in separations from samples ranges from approximately 200 µL up to 30 ml and should have speeds of up to 150,000 RPM and more than 1,000,000 x g. • Should be provided with appropriate rotors and accessories for isolation of organelles. • Automatic rotor recognition and imbalance detection for maximum operational safety Warranty as per rules Technical specification Maximum Speed (rpm): 150,000 Maximum RCF (x g): 1,019,000 Speed Control: ±50 rpm of set speed Set Temperature: 0° C to 40° C in 1° C increments Temperature Control: ±2° C of set temperature	1

		Ambient Operating Range: 15° C to 35° C	
5B	Refrigerated High Speed Benchtop Centrifuge	• Temperature range of -10^{0}C to + 40^{0}C • Should come with short-spin key, fast pre-cooling and stand-by/ continuous cooling option • With high centrifugation speed 30,000 x g (17,000 rpm) or more, adjustable from 100 rpm upwards • Must have a standby cooling and auto shut-off function so that the compressor is deactivated after inactivity in user defined period of 1/2/4/8 hrs. to save energy and extend compressor life. • Timer for run can be set up to 99 minutes/ continuous • Must have "At set rpm" function which enables timer countdown to be started only when selected speed is achieved • Digital display of time, speed and temperature. Programmable time and speed using Key pad • Must be able to store at least 50 routine procedures with minimum 5 programmable buttons for frequently used programs in the first level • Able to switch display between rcf and rpm speed setting, Separate short spin key • Acceleration time to max rpm ≤ 14 sec, Braking time to max rpm ≤14 s • Low noise levels less than 56db at max speed • The centrifuge must be CE, IVD (in-vitro diagnostic) & ISO/IEC 1010-2-020 certified. • Stainless steel chamber, Brushless maintenance free drive, Automatic motorised locking when lid almost closed• Versatility with 12 different rotors option: 10 fixed angle rotors and 2 swing out rotors. • Fixed angle rotor: - 30x1.5/2ml, high speed rotor 24x1.5/2ml with 30000xg, 48x1.5/2ml with 18000xg, 16x5.0ml with 21000xg, 6x15/50ml falcon with 7500xg, 18x1-2ml cryo tubes, 24 spin column tubes, 8x8- PCR strips• Swing-bucket rotors for 24x1.5/2.0 ml tubes with 16,000xg and for 2 x DWP or MTP not higher than 29 mm with 2,200xg or more. • Rotors and lids should be made of anodised aluminium to ensure chemical resistance, with aerosol tight lid • Automatic imbalance and rotor recognition • Rotors must be fitted with quick lid opening and closing system	1

		• Rotor must be autoclavable at 121ºC for 20 min to completely eliminate any contaminating • material • Following rotors and accessories should be included: • Fixed angle rotor 48x1.5/2.0ml tubes with least 18,000xg with aerosol tight lid. • Swing out rotor 2 x DWP or MTP not higher than 29 mm with 2,200xg or more. • The centrifuge should come up with suitable stabilizer. • Warranty as per rules.	
6B	Centrifuge for 1.5/2ml tubes	➢ Centrifugation of samples during library preparation protocol Centrifuge: 100 – 10,000 rpm or higher (100 rpm steps) Max. RCF 15,000 × g or higher tube format: 1.5/2.0 mL	2
7B	Table Top Centrifuge	• Should be a table top model • Maximum RCF 17,000xg • Maximum Speed above 13,200 RPM • Supplied with 24x2/1.5 ml rotor • Large LED display for Time, Speed and Temperature • Max Noise Level: 50 dBA • Temperature set range from minus 9 °C to plus 40°C • Acceleration/Deacceleration time 10Sec/12 Sec • Time set range 1 to 99 min, 1 min increments • Toggle between RPM and RCF. • Should be ISO and CE certified • Induction maintenance free motor • Comprehensive warranty of 24 months. • Should be Refrigerated • Warranty as per rules.	2
8B	Fluorometer	• Should able to Quantification of DNA libraries 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 less as 1 µl sample by a fluorescent dye with a dynamic range of 5 order of magnitude. • Next generation of the popular benchtop fluorometer designed for accurate measurement of DNA, RNA, and protein quantity. • Should be fluorescence-based quantitation system for precise results. • Should be compact and touch screen enabled.	2

		• Should have capability of low detection range and all different kits for DNA, RNA and protein must be provided for demonstration. • Should be able to accurately quantifies DNA, RNA, and protein in < 3 seconds per sample • Ability of fast, reliable detection of degraded RNA with the RNA IQ assay and with integrated reagent calculator reporting amount of dye and buffer needed. • Storage of upto 1000 samples and with flexible data transfer options by wifi and USB. • To be supplied with NGS starter kit (1 dsDNA HS (high sensitivity) Assay Kit (500 assays and Assay Tubes (500). • Warranty as per rules.	
9B	Thermomixer	• Dissolution of isolated DNA Thermomixture for nucleic acid dissolution. • Thermomixture system for 1.5 ml/ 2.0 ml tubes up to 100 °C, 3000 rpm. • Temperature accuracy Max. ±0.5 °C at 20 – 45 °C and PCR cooler racks 96 well. • Warranty as per rules.	2
10B	Refrigerator (-30^{0}C)	• Ultra-low temperature, frost-free, freezer should be upright and provide uncompromised sample protection for -16° to -25°C with ~800 capacity. • Vertical with shelves in upper portion and there should be pullout drawers in lower portion. • Voltage stabilizer to work on 230 Volts AC. • Adjustable shelves, temperature controller, auto lamp on/off feature, should be supplied with all standard accessories as per manufacturer catalogue for the model supplied. • Warranty as per rules.	4
11B	Refrigerator (4°C)	• Refrigerators should be designed with features that support sample protection and sustainability objectives for the storage of pharmaceuticals, vaccines, chemotherapy and other medical and pharmacy-grade storage requiring 2° to 8°C. • Capacity : Approximately 650 Litre • Temperature Range : 2 to 8oC • Defrost : Auto • No. of Shelves: Six (6) • Door Style: Glass	4

		• Drawers: 6 Basket Drawers • Warranty as per rules.	
12B	Mini Centrifuge	• Quick spin of the samples during library preparation protocol Quick spin centrifuge for 1.5 ml/ 2.0 ml tubes up to 1200 rpm. • Provide additional rotor option for up to 2 x 8–tube PCR strips. • Max RCF- 12100Xg • Speed- 800-13,400 rpm • Display- large LCD • Noise level- less than 49 dB (A) • Warranty as per rules.	4
13B	Temp Heating System with heating inserts (Midi plate insert)	• Incubation of samples during library preparation protocol MIDI plate heating system Compact, flexible high precision tube and plate heating system with heated lid along with MIDI Heat block Insert and regulates sample temperatures ± 0.1°C. Warranty as per rules.	2
14B	96 well microsample insert	• Incubation of samples during library preparation protocol96 Well Micro plate adapter for Midi plate heating system	2
15B	High Speed Micro Plate Shaker	• Shaking the samples in microplates during library preparation protocol 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 (±25rpm), 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 vertexing cell suspensions. •Warranty as per rules.	2
16B	Tissue Lyser	• Tissue grinding for nucleic acid extraction High-speed shaking of samples in 1.2 ml collection tubes or 2 ml microcentrifuge tubes with stainless steel or glass beads 220–240 V, 50/60Hz; variable speeds from 3 to 30 Hz (180–1800 oscillations/minute) Bead Mill technology2 x 24 microcentrifuge tubes (2 ml). • The Tissue Lyser is required for high-throughput disruption of plant tissues, bacteria and yeast cells. Highly reproducible purification of high-quality DNA, RNA, miRNA, and protein is achieved, even with difficult-to-lyse tissues. High-speed shaking of samples	2

		in 1.2 ml collection tubes or 2 ml micro centrifuge tubes with stainless steel or glass beads. • Simultaneous processing of 192 in 2 to 4 minutes. Should work on animal, plants, bacteria and yeast samples. • Should prevent carryover from tube to tube. Should work with dry, wet and cryogenic samples. • Should be based on bead milling by high frequency impact action • Simultaneous processing of 192 in 2 to 4 minutes. Should work on animal, plants, bacteria and yeast samples. • Should prevent carryover from tube to tube. Should work with dry, wet and cryogenic samples. • High-speed shaking of samples in 1.2 ml collection tubes or 2 ml microcentrifuge tubes with stainless steel or glass beads. • Convenient and secure disruption process. Adapter sets optimized for high-throughput disruption. Wide range of accessories available (e.g. grinding jar set to process large samples). Reproducible results with difficult-to-lyse tissues. • Technical data: 100–120/220–240 V, 50/60Hz; variable speeds from 3 to 30 Hz (180–1800 oscillations/minute). • Throughput should be 2 x 96 collection microtubes (1.2 ml) or 2 x 24 microcentrifuge tubes (2ml) • Typical run time; 15sec – 2 x 3 minutes at 15-30 Hz. • Warranty as per rules.	
17B	Geno Grinder	• Seed grinding for DNA extraction Automated, high-throughput mechanical disruption ideal for high-throughput applications involving sample preparation for DNA, RNA, and protein extractions, pesticide residue analysis, and more. • Typical pressing cycle is less than two minutes. • Equipped with digital timer, lockdown lid, and safety interlock for operator protection. • Laboratory mill designed for vigorous up-and-down shaking of deep-well titer plates, vial sets, and centrifuge tubes. • The system should offer rapid, 1-2 min, simultaneous disruption of upto six deep-well 96 well titer plates at a single go. It should also accept 2 ml, 5ml, 15 ml and 50 ml tubes and accessories. • It is equipped with an adjustable clamp that	2

		accommodates a full range of sample vials from 2mL to 50mL centrifuge tubes and up to six deep-well titer plates. • The equipment must come with nesting tray for adjustable clamp assembly • The system must be capable of using grinding balls of stainless steel, silica or zirconium beads. • The system should have provision of effective tissue disruption and homogenization in frozen condition through cryo blocks for 2ml, 15 ml, 50 ml sample tubes and for 96 well titer plates. • The equipment must be password protected, with digital timer and touch screen control panel, which enables the user to program run time, rate, cycles and pause time where up to 50 protocols can be saved. • Adjustable clamp must be present with a release button that allows users to secure vials or titer plates of various sizes. • It must include the following safety feature: lid interlock to prevent machine from running if top cover is open. • Cryo-Tech Accessories enable cryogenic grinding and preserve temperature sensitive samples for RNA and protein extractions. • Large Clamp Assembly holds four deep-well titer plates, multiple centrifuge tubes, and other large grinding vials. • Standard Clamp Assembly holds two deep-well titer plates, vial sets, or cryo-blocks. • Strong vertical clamp movement of 500-1750 strokes/minute ensures that grinding media directly impact the sample each and every time. • Typical sample processing time of 1-2 minutes. • Warranty as per rules.	
18B	Automated DNA isolation	• Required for DNA extraction of large number of samples. The system should be based on magnetic particle separation with revolutionary resuspension technology and represents the top quality fast fully automated sample preparation system in a compact benchtop instrument. • The system should be capable to do reliable and reproducible results for any biological samples like blood, body fluids tissues etc; even old, compromised, fresh or frozen, EDTA or citrate stabilized blood samples can be processed without any restriction. • The system should realize cost effectiveness through automated dispensing of buffers into standard plastic	1

		devices instead of using expensive prefilled cartridges. • The system should have the capability to do the magnetic separation-based on the use of metal rods that are lowered into a process solution for collecting beads from the solution, the rods are magnetized. Pellets form at the tips of the rods, and the rods are withdrawn from the solution with the pelleted beads attached. • The system should have the capability to avoid any cross contamination, to avoid sample loss and better quality of nucleic acid. • The run time of the bench to system per batch [1-96 samples] should be within 40 minutes, as per requirement. • The system should capable to do the sample volumes 10 µl – 10 ml and 1-12, 24 and 96 samples in a batch. • Kit should be supplied to run various sample material in one run. In combination with plastic wares all the consumables should be available in the kit and supplied through the vendor who will be supplying the system to avoid any confusion. • System should have option for integration with liquid handling platforms. System should come with patented technology and kits. • Instrument should be CE-IVD approved. The vendor should have ISO certificate for the service. • The system should have the bar code reading facility, USB port and LIMS compatible. • The vendor should support with maintenance, application training and regular update with new protocols. • Warranty as per rules.	
19B	Automated NGS library prep Automated Library prep	• An Automated next generation sequencing (NGS) Library Preparation System. • The Library preparation system should come with 96 well type head. • Should be Capable of multi dispensing. Volume accuracy of the 96 head should be <5% CV for 1-5 µl and < 2% for up to 200 µl. • Should be compatible with third party tips or other accessories including microplates. The head must be capable of attaching tips in row/column wise manner. Must be capable of attaching one tip at once. • Must be capable of making serial dilutions. • Should have minimum 20 deck positions. Head should	1

		have inbuilt gripper option for movement of labwares, Lidding and delidding. • Should be having options for shaking and on deck thermal cycling for smooth NGS library preparation. • Should have temperature options from 4-110 °C. • The system should be able to construct more than 96 libraries in a day. • Should be having the integrated robotic tip storage options to a minimum of 25 tip boxes. • The software should have the capability to maintain accurate time gaps across different steps in the protocol. • Should be having proven standardized protocols for various NGS protocols including kits • Should have capability to integrate third party accessories in the system. • Local application and service support from the direct company must be available. • Should have options for z-8 dispenser, bulk reagent dispenser, and positive pressure filtration station. • System should be capable of following Library prep methods: Nextera XT DNA, Nextera Flex DNA, Truseq Nano DNA, Truseq DNA PCR Free, Truseq Small RNA, Truseq Stranded mRNA and Truseq Stranded Total RNA. • Operating system should be Windows 10. • Warranty as per rules.	
20B	Magnetic rack for 1.7 ml microcentrifuge tubes	• Magnetic bead-based purification steps during library preparation protocol Magnetic stand 16 well. Performs efficient magnetic separation of paramagnetic beads in working volume: 10–2,000 µL, holds up to 16 standard 1.5–2 mL microcentrifuge tubes.	2
21B	Magnetic stand	• 96 Magnetic bead-based purification steps during library preparation protocol in 96 well format 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.	2
22B	Vortex	• Required for Sample mixing. Variable speed mixer to eliminate hand mixing using orbital shaking movement. Suitable for short-time operation (touch function) activated by pressing shaker attachment or continuous operation. Compact Design and Stable at high speeds. Suitable for continuous operation with low self-heating.	2

		Voltage 220 - 240 V, Frequency 50 / 60 Hz, Speed Range 200 - 2500 RPM and Permissible Ambient Temperature 5 - 40 Deg. Warranty as per rules.	
23B	DNA/RNA electrophoresis system	• Agarose gel electrophoresis Mini-Cell Electrophoresis System to run up to two precast gels (8 cm x 8 cm) for protein/DNA/RNA electrophoresis. • Gel size: 8 x 8cm; Gel cassette: 10 x 10cm; Thickness: 1.0mm or 1.5mm. • Unit Dimension: 14 x 13 x 16 cm (height with lid on). approx • Electrode limit :1,500 VDC or 75 Watts • Material polycarbonate and electrode wire platinum. • Warranty as per rules.	2
24B	Gel documentation system	• Gel Doc Application Types: Colorimetric, UV Fluorescent Camera Resolution 1.3 Megapixels, A/D 12-bit, Lens 8-48 mm, f/1.2 Zoom, Manual, Maximum Field of View 21.8 x 15 cm, Filter Positions 1 Size Unit: 14" W x 11" D x 19" H (35.5 x 28 x 48 cm), approx.. UV Trans: 13.5" W x 10" D x 3.5" H (34.3 x 25.4 x 9 cm), approx. • System should have Trans UV excitation source and CCD based detector. • Pixel Size should be minimum 4.6 x 4.6 μm or better. • Image resolution should be minimum 4 megapixels or better. • Should have lens flat-fielding calibration for each sample tray to deliver image data that are always optimized and reproducible without imaging artefacts and should provide superior image uniformity and quantitation. • System should have a dynamic range of minimum 3.0 orders of magnitude and a pixel density of minimum 4,096 grey levels or better. • System should be able to do automatic camera adjustments like zoom focus adjust aperture or select light source during image acquisition and should provide flexibility to image a wide variety of applications including nucleic acid and protein detection via colorimetric and fluorescent stains • System should have one universal emission filter to accommodate a large portfolio of detection methods like ethidium bromide, SYBR Green SYBR, Safe SYBR, Gold Gel, Green Gel, Red Fast Blast, SYPRO, Ruby, flamingo, oriole, CY3, rhodamine green, fluorescent Fluor orange	2

		and other spectrally similar stains labels and dyes • System should be able to visualize stain free DNA, RNA and protein gels • 2 pack of 10% fast running stain free gel solution sufficient to cast as many as 250 gels of 1.00 mm thickness should be provided • System should come with gel analysis software compatible with mac or PC computers • Software should generate 16-bit and 8-bit tiff images with export option • Software should be able to do automatic normalization of bands using total lane as a loading control. • Software should have customizable reports user-defined data charts with instant access to excel functionality snapshot tool to copy images lane profiles and graphs easily accessible targeted analysis features flexible lane and band detection and quantification tools including volumetric tools. • System should be provided with a thermal printer and a branded compatible desktop with 21" LED screen, anti-virus software, MS Office software, 16GB RAM, 2X1 TB HDD, I3 processor with 7 th generation or better. • Warranty as per rules.	
25B	96 well PCR system	• PCR application in Library prep, Peltier based 96 well gradient PCR system • Should be 96 well Peltier based thermal cycler. • Should have gradient span of 40°C and linear gradient tool for programming of equal temperature increments between the 12 columns of the block • Should have a temperature range of 3-99 °C with control accuracy of ± 0.1 °C • Should have a maximum ramp rate of 6.0°C/sec and average ramp rate of 5.0°C/sec. • Should have temperature uniformity down to +/- 0.15 °C • Warranty as per rules.	2
26B	Real-Time PCR System	• Library quantification, 3 color or higher, Peltier based 96 well real time PCR system with temp range from 4ºC to 99 ºC and heated lid. • Automation compatible, high-throughput, touch screen interface, reliable, sensitive and accurate quantitative PCR (qPCR) system for broadest range of qPCR applications.	1

		• Should accommodate 4 different block types 96-well, 96-well Fast, 384-well, TaqMan Array Card, (384-well microfluidic card) • Responsive touch-screen, automation capabilities, and effortless block exchange without the need for any tools • Run hundreds of real-time PCR reactions effortlessly using TaqMan® Array 384-well microfluidic cards and integrated robotics system • Detect changes in target quantity as small as 1.5-fold in single-plex reactions and obtain 10 logs of linear dynamic range • With 6 colors (21 filter combinations) for ease of wide range of genotyping experiments. • Dimensions: 52.5 x 33.8 x 54.7 cm. • Max. ramp Temp. 6.5°C/sec • Temperature Range: 4 to 99.9°C • Warranty as per rules.	
27B	Microvolume spectrophotometer	• Required for Quantitation of DNA/RNA • Multimode microplate reader designed for multiple measurements- absorbance (UV-vis), fluorescence intensity including FRET, luminescence, Time-resolved fluorescence (TRF, including TR-FRET, homogeneous TRF (HTRF)) Flexible wavelength selection • Should be Modular, upgradable with allowing 5 measurement modes; end point, kinetic, spectra, multipoint, and kinetic spectra • Should have smart safety control and auto calibration • Should have automatic dynamic range, which allows selection of optimal reading range based on signal intensity • Other specifications: • Absorbance: • Plate types: 6- 384 well plates • Wavelength range- 200-1000 nm • Light source- Xenon flash lamp • Linear measurement range: 0–4 Abs (96-well plate) at 450 nm, ±2% 0–3 Abs (384-well plate) at 450 nm, ±2% • Accuracy:	2

		• 0.003 Abs or ±2%, at 200–399 nm (0–2 Abs) 0.003 Abs or ±1%, at 400–1,000 nm (0–3 Abs • Precision Standard deviation (SD) • Fluorescence intensity • Plate types: 6- to 1,536-well plates • Wavelength selection Double excitation and emission monochromators • Excitation wavelength range 200–1,000 nm • Emission wavelength range 270–840 nm • Light source Xenon flash lamp • Sensitivity Top reading: Top reading: <0.4 fmol fluorescence/well • BOTTOM READING: <4 FMOL FLUORESCENCE/WELL • Luminescence • Plate types: 6- to 1,536-well plates (spectral scanning from 6- to 384-well plates) • Wavelength selection Direct or filters (spectral scanning with double monochromators) • Wavelength range 360–670 nm • Sensitivity: <7amol ATP/well • Measurement speed: Reads a 96-well plate in 15 sec, a 384-well plate in 45 sec, and a 1,536-well plate in 135 sec (minimum times) • Interface PC software • Dimensions (D x W x H) 58 x 53 x 51 cm (23 x 21 x 20 in.) approx. • Warranty as per rules.	
28B	UPS 50 KVA	• 1 hr. backup Uninterrupted Power Supply. Warranty as per rules.	3
29B	Ice Flaking Machine	• Flake ice machines should be self-contained with ~ 27kg Storage Capacity. • Should be capable of production of ~120kg of flake ice in 24 Hour. • Voltage: 220-240 V / 50Hz • Dimensions: (W x D x H mm) 680 x 510 x 1000 approx • Ice Type: Flake • Interior and exterior should be made of Stainless steel • R134 Refrigerant • Machine should be Ozone Friendly • Warranty as per rules.	2

30B	Molecular grade water purifier	• Water purification system to generate Pure (Type II) and Ultra-pure (Type I) water from drinking/potable water with Conductivity <2000us, hardness <300 ppm, SDI <7, CO2 <30ppm and Chlorine levels up to 3ppm. • Pre-filtration Unit based on our feed water Quality to ensure the longer life of Cartridge • System should contain pre-treatment to take care of hardness, chlorine and particulate load, followed by Reverse osmosis, continuous self-regenerating EDI technology and UV to reduce microbial load. • Three in one pre-treatment cartridges having inbuilt 0.5 Depth filter to control the Particulate load, Activated Carbon filter to control on free chlorine & polyphosphate to control on hardness, • Reverse osmosis technology should have an inbuilt water recovery loop programmed to save tap water based on water quality up to 50% • Purification system should have conductivity cell before and after RO membrane to measure the performance of RO cartridge. And it should give constant permeate flow and percentage of recovery, irrespective of variation in temperature. • Mixed bed ion electro deionization module with auto regeneration by a weak electric current, eliminating the need for chemical regeneration or replacement of DI resin cartridges. Carbon beads at cathode of the EDI module to prevent scaling of the module. No additional filter to be used to prevent from scaling. • System should provide 24/7 real time monitoring remote control with advanced user interface touch screen. • System should have full monitoring capabilities and automatic e-record archiving data which should be available for upto two years, ensuring traceability. E-records should be able to retrieve remotely or via USB key from system memory as and when required. • Cartridges to be installed in the system should have traceable tag reader to know cartridge details and usage. • System should have colour display for alerts and alarms to enable the user to aware of right water quality and system performance. • System should be able to be qualified as per GMP and GLP guidelines which involves onsite qualification.	1

		• Consumable replacement should be only push fit and no tools should be required. • System be supplied with 200 Lit fully drainable Tank, should have an option to upgrade it with submersible UV to prevent bacterial contamination. • Type I system should give assurance of water quality with precise in-line resistivity cell, with a 0.01 cm-1 low cell constant and a 0.1° C sensitive thermistor. • Should have in built online TOC meter. It should have a detection range of 0.5-999.9 ppb • System should have mercury-free UV lamp to reduce organic contaminants. • Dispensing unit should allow the quality of the water to be determined at the point of use. This should allow water for several different applications to be accessed from the same system. • Dispensing unit should have touch screen which can provide dispense report that can be archived in system history, System history should include not only water quality and volumes, but also any events such as alerts, setting modifications, consumables replacement, and other service activities. • Dispenser handle should have volumetric dispensing option for ease of use for laboratory reagent preparation. • One set of cartridges for the pre-filter as well as for the ultrapure unit to be provided. • Warranty as per rules. **Type I Water Specifications** Resistivity : 18.2 MΩ.cm @ 25 degree C Conductivity : 0.054 µS/cm @ 25 degree C TOC : 5 ppb Bacteria : < 0.1 cfu/ml Flow Rate : > 2 ltr/min • Warranty as per rules.	
	Pipettes		
31B	Manual Single channel pipette (Volume ranges for pipette)	• Variable volume; Volume should be continuously adjustable. • Built-in shock absorber inside the tip ejector which reduces thumb impact. • Fully Autoclavable, robust and calibrated one handed • Corrosion free; easy to clean tip ejector. • Pipette should be colour coded for easy recognition and 4	

		digit display, have adjustable and specific to liquid nature. • Removal of lower parts of pipette for easy cleaning. • Spring loaded tip cones for smooth fittings to tips and compatible with tips of other companies • Warranty for 3 years and certification from CE, ISO and IVD must be provided • Pipette should attach to stand by handle for prevention of cross contamination. • A compatible rotating carousel type pipette stand made of high-density ABS plastic that can hold upto 6 pipette should be supplied along with pipette. • RFID tags for asset management for easy handling and calibration management. • Comfortable handle, light springs and "Magnetic Assist" technology ensure light and smooth operation. • Small sealing area and positive stop ensure tips load quickly, seal perfectly and easy to eject. • Liquid handling during library preparation protocol. • Ergonomic handle design with comfortable finger hook to rest hand between pipetting cycles. • Very light spring forces resulting in less Aspiration and dispensing force. • Ejaculator metallic type. • Warranty as per rules. **Volume ranges for pipette** • 0.1-2.5 µl • 0.2-2 µl • 0.5-10 µl • 2-20 µl • 10-100 µl • 50-200 µl • 100-1000 µl • 500-5000 µl • 1000- 10,000 µl	2 2 2 2 2 2 2 2 2
32B	Number of pipette stand		5

33B	Manual Multichannel Pipette	• Fully autoclavable 8 channel and 12 channel pipette • Robust and calibration • One-handed and one button operation with low operating force even while wearing gloves. • Variable volume; Volume should be continuously adjustable. • Built-in shock absorber inside the tip ejector which reduces thumb impact. • Fully Autoclavable, robust and calibrated one handed • Corrosion free; easy to clean tip ejector. • Pipette should be colour coded for easy recognition and 4 digit display, have adjustable and specific to liquid nature. • Removal of lower parts of pipette for easy cleaning. • Spring loaded tip cones for smooth fittings to tips and compatible with tips of other companies. • Warranty for 3 years and certification from CE, ISO and IVD must be provided • Pipette should attach to stand by handle for prevention of cross contamination. • A compatible rotating carousel type pipette stand made of high-density ABS plastic that can hold upto 6 pipette should be supplied along with pipette. • RFID tags for asset management for easy handling and calibration management. • Comfortable handle, light springs and "Magnetic Assist" technology ensure light and smooth operation. • Small sealing area and positive stop ensure tips load quickly, seal perfectly and easy to eject. • Liquid handling during library preparation protocol. • Ergonomic handle design with comfortable finger hook to rest hand between pipetting cycles. • Very light spring forces resulting in less Aspiration and dispensing force. • Ejaculator metallic type. • Warranty as per rules. **Volume ranges for pipette** • 0.1-2.5 µl • 0.5-10 µl • 2-20 µl • 10-100 µl	4 4 4 4

		• 50-200 µl • 100-1000 µl	4 4
34B	Number of pipette stand		5
35B	Automatic Multichannel different volume range pipettes	• Fully auto-clavable 8 and 12 channel pipette, robust and calibratable, one handed and one button operation with low operating force even while wearing gloves. • Fast loading, ergonomic handling and absolute precision. • The pipette should be very light, color-coded for easy recognition, with 4-digit display, have adjustable volume and to specific liquid nature. • Password-protect pipette settings, protocols and service alarms. • Non-corrosive and light piston with smooth movement. • Removal of lower part of pipette without any tools for easy cleaning. • Spring loaded tip cone for smooth fitting to tips, compatible with tips from different companies. • Provision for removing individual channel must be there. • Warranty for 3 years and certification for CE, ISO and IVD must be provided. • A compatible rotation carousel-type pipette stand made of high density ABS plastic that can hold up to 6 pipettes each should be supplied along with the pipettes. • The pipettes should attach to the stand by the handle for prevention of cross-contamination. • There should be cushioned joystick selector. • Extremely light operating forces and a silicone shock absorber built in to the tip ejector. • At the end of each pipetting cycle it should re-calibrates itself by resetting the zero point. • It should have long-life battery enough for a day with minimal charging and should last for thousands of recharges. • Warranty as per rules. **Volume ranges for pipettes** Type: 8 Channel Volume Range: 1 – 10 µL *Accuracy: 0.04 µL: ± 4.0 %*	2

		0.075 µL: ± 1.5 % *0.1 µL: ± 1.0 %* Volume Increment: 0.01 Ml	
		Type: 8 Channel Volume Range: 2 – 20 µL Accuracy: 0.15 µL: ± 7.5 % 0.15 µL: ± 1.5 % 0.2 µL: ± 1.0 % Volume Increment: 0.02 µL	2
		Type: 8-Channel Volume Range 5 – 50 µL Accuracy 0.18 µL: ± 3.5 % 0.3 µL: ± 1.2 % 0.4 µL: ± 0.8 % Volume Increment0.05 µL	2
		Type: 8-Channel Volume Range 20 – 200 µL Accuracy 0.5 µL: ± 2.5 % Volume Increment0.2 µL	2
		Type: 8-Channel Volume Range 20 – 300 µL Accuracy 0.75 µL: ± 2.5 % Volume Increment0.2 µL	2
		Type: 8-Channel Volume Range100 – 1200 µL Accuracy 3.6 µL: ± 3.6 % Volume Increment1.0 µL	2
		Type12-channel Volume Range1 – 10 µL Accuracy 0.04 µL: ± 4.0 % Volume Increment0.01 µL	2
		Type12-Channel Volume Range2 – 20 µL Accuracy 0.15 µL: ± 7.5 % Volume Increment0.02 µL	2

		Type12-Channel Volume Range5 – 50 µL Accuracy 0.18 µL: ± 3.5 % Volume Increment0.05 µL Type12-Channel Volume Range20 – 200 µL Accuracy 0.5 µL: ± 2.5 % Volume Increment0.2 µL Type12-Channel Volume Range20 – 300 µL Accuracy 0.75 µL: ± 2.5 % Volume Increment0.2 µL Type12-Channel Volume Range100 – 1200 µL Accuracy 3.6 µL: ± 3.6 % Volume Increment1.0 µL	2 2 2 2
36B	Number of pipette stand		4
37B	Water Bath	• Water bath should be refrigerated high quality, durable and should be trouble-free and low-maintenance in everyday operations. • Working temperature range should be +18 °C to + 99.9 °C. • Should have dynamic temperature control systems • Heating capacity: 0.5kV • Power: 230 V, 50-60 Hz • Temperature stability : ±0.15 • Should be equipped with bath cover. • Filling volume maximum capacity: 4- 4.5L. • Warranty as per rules.	2
38B	Server	• 1TB RAM, 96 Core Processor, 450 TB HD Storage Data analysis for WGS-4 TB RAM, 96 Core Processor, 450 TB Storage. Warranty as per rules.	1
39B	Workstation for data analysis	• 8 Core, 2 TB RAM, 5 TB storage per workstation. Warranty as per rules.	5
40B	Lab renovation, furniture, etc. Creation of Turnkey Facility	As per requirement.	

41B	Air-Conditioners (ACs)(4 Ton each)	Supply, Installation, Testing and Commissioning of 4TR (Not less than 48000BTU/hr), 3 phase cassette type split A.C. Units (EER shall not be less than 3.00) complete with all components like indoor unit cooling coil, Centrifugal type fan including pumping of water, Outdoor unit (Air cooled condenser) comprising of Condenser coil scroll type compressor, condensor motor etc Controls, interlocking, electrical accessories etc as required for proper functioning of cassette unit controlled by cordless remote complete suitable for operation on 415 volts +/-10%, 50 Hzs A.C. Supply etc. Capable of performing functions like cooling, dehumidifying, air circulating, filtering etc complete as read as per technical specifications attached. (Make: M/s Blue Star, Hitachi, Voltas, Carrier, LG, Daikin, Mitsubishi, O- General,) NOTE- Condenser coil tube and evaporator coil tube shall be made from copper of high-quality grade. Warranty as per rules.	4
42B	Warranty:	3-year warranty on all the Equipments supplied and installed against the said tender.	
43B	Comprehensive Maintenance Contract	Two years after completion of Warranty period of three Years.	

TECHNICAL BID

Reg; Tender No. 8-44/2019-20/NIPGR/S&P for supply, installation of installation of NGS (next-generation sequencing)-based sequencing and genotyping Platforms and other related equipments.

A. Main Platform

ITEM2 A	Supply, Installation, Testing & Commissioning of High-throughput Sequencing Platform including all the minor equipment's, accessories, consumables etc. along with site preparations required for making this platform fully functional and operational at NGGF-NIPGR Campus. •The ultra-high throughput short Read sequencing system should be a single unit, capable for automated onboard isothermal cluster generation using by exclusion amplification of NGS libraries in patterned flow cells and generate the sequence information in form of short reads up to 2 x 250 bp. • The sequencing workflow should allow fully automated operation paired-end chemistry without user intervention and support read lengths up to 150 bp and data output of up to 6000 Gb from 20 billion clusters in single run in 44 hr. • The sequencing chemistry should employ robust imaging-based Sequencing by Synthesis method using fluorescent labelled nucleotide(s) with reversible terminator and should mimic the natural biological chemistry and simultaneous addition of all four bases in the sequencing reaction for competitive addition to DNA template allowing massively parallel sequencing of billions of DNA fragments. • The instrument should able to address multiple applications like sequencing of large genomes, transcriptomes, targeted resequencing, shotgun metagenomics, small RNA seq, methylation analysis, GBS, ChIP seq, Single-cell genome/transcriptome, Linked long-read applications, etc. • The sequencing chemistry should allow for highly accurate sequencing through homopolymeric regions up to at least 15 bp. • The system should offer flexibility in terms of flow cell types and runtime configurations for flexible output. • Clonal amplification of DNA template should be fully automated and integrated part of the system.	Unit 1	**Compliance Yes/No**	**Please indicate Page No. of the Catalogue.**

	• The system should also generate flexible data output of 80 to 6000 Gb per run, and support sequencing of different read length required various applications: 2 x 50 bp, 2 x 100 bp, 2 x 150 bp and 2 x 250bp. • The instrument should generate accurate base calls and high quality, error free data with greater than 75% or more data over Q30 for 2 x 150 bp. • The system should also offer sample loading in individual lanes of the flow cell to increase the multiplexing capacity up to 384 samples. • System should support ready-to-use cartridges containing preconfigured reagents for amplification and sequencing; reagents snap into position, ensuring proper loading. • The platform should include all reagents and consumables for demonstration of sequencing and genotyping for at least 200 DNA samples. This is needed to ascertain the validity of the sequencing chemistry and platforms procured for further use and wider applications in genomics. • The system should come with an option of cloud-based server for data storage, sharing and analysis. In addition, there should be an option of deployment of an onsite server, for the same function. • The system should generates base calls and quality scores in real time, as per cycle base call (*.cbcl) files. • The sequencing chemistry should be robust and globally proven, demonstrated with peer reviewed publications and should have at least minimum 2 to 3 installations in India. • In order to enable NIPGR/NGGF staff get acquainted with the operation and maintenance of the said equipment/platform, the supplier at no extra cost to NIPGR shall run the facility for a period of one year from the date of installation and train the departmental personnel during the said period. •Warranty as per rules. • Standard Warranty: 3-year warranty. • Charges on account of CMC for 2years besides, 3year Standard Warranty, unless otherwise specified.			

ITEM2 B	Supply, Installation, Testing & Commissioning Medium-throughput Sequencing Platform . • A high-throughput next-generation sequencing (NGS) system. • Should be a benchtop model with minimal foot-print (less than two square feet) and capable of sequencing a 30X human genome in a single run. • Single instrument performs clonal amplification, sequencing, paired-end run and primary data analysis (e.g. base calling). • The manufacturer should also offer kits and reagents for library preparation from DNA/RNA. • System should offer flexible scalability from 20 – 120 Gb (130-400 million cluster) in a single run to 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, transcriptome sequencing (microbial, plants and human), etc. • The system should have onboard cluster generation, in 12–30 hours, to perform integrated massively parallel sequencing of DNA/RNA libraries loaded directly on the system, through integrated cluster generation (emulsion free) and sequencing by synthesis (SBS) and offers both single end (1 x 75 bp) and paired end sequencing (2 x 75 bp and 2 x 150 bp). • The system should also be capable to scan arrays and required ancillary equipment to process the array to be provided by manufacturer. • The system should also include an option to integrate with the dedicated/compatible genomic computing environment,	Unit 1		

	for an easy, secure and cost-effective way to store, analyze, and share genomic data. • The sequencing technology should offer accurate sequencing of homopolymers and highest read quality score of Q30 for more than 75% of the base calls having > 99% accuracy ensuring quality control steps. • The sequencer should be able to read through at least 15 bases homo-polymer stretches in the genome accurately. • The sequencing chemistry should be cited in more than 5,000 peer-reviewed publications. • Alignment, variant calling, and reporting should be supported through in Base Space cloud computing. • Library preparation should be easy and completed within 12 hrs with minimal hands on time. Ease of library preparation and time required will be one of the important criteria for selection. • System should be able to sequence multiple samples at a time with option of using barcodes for sample multiplexing (up to 384). • The sample requirement for metagenomic sequencing should not be more than 1μg. • 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. • The platform should include all reagents and consumables for demonstration of sequencing and genotyping for at least 200 DNA samples. This is needed to ascertain the validity of the sequencing chemistry and platforms procured for further use and wider applications in genomics. • Apart from the list of equipments provided by the supplier (including the ones provided by the supplier and the other which are needed to be procured separately), there must be			

	no other equipment needed to carry out the high-throughput sequencing. • Should take responsibility of furnishing the laboratory including partitioning of space assigned as per recommendations of manufacturer to provide end-to-end solution for efficient running and functioning of the platform without any fail. • Should set-up the sequencing facility and have responsibility to hand-over the facility in complete running condition. • Should also provide below list of small equipments/accessories with a centralized UPS for complete workflow to run the samples in the genotyping platform. • All major platforms, accessories, workstations, softwares, UPS and minor equipments (enlisted below) should be under five years comprehensive maintenance cost warranty/CMC for completing the workflow to run the samples in the sequencing platform and efficient functioning of the facility. • The sequencing chemistry should be robust and globally proven, demonstrated with peer reviewed publications and should have at least minimum three installations in India. • In order to enable NIPGR/NGGF staff get acquainted with the operation and maintenance of the said Equipment/platform, the supplier at no extra cost to NIPGR shall run the facility for a period of one year from the date of installation and train the departmental personnel during the said period. • Warranty as per rules.			

B. Minor Accessories

1B	Ultra Sonicator for DNA Fragmentation	• An automatable ultrasonicator for fragmentation of DNA with dedicated notebook computer and software. • Fragmentation of DNA samples of desired size library preparation. Should perform automated processing for 8 samples. System should support sonication of DNA for massively parallel sequencing applications. • System should shear the sample by employing focused ultra-sonic acoustic energy to ensure isothermal processing and reduce heat induced damage of samples. • System should be able to perform acoustic based focused shearing at ultrasonic range of 500 Khz for minimum sound generation in audible range. • System should be able to process 1-8 or more samples simultaneously either by single or by multiple processing with flexible sample processing volume (15 ul -1 ml). • System should be able to shear DNA fragments in the range of 100bp - 5Kb. • Should generate 150 bp DNA fragments within processing times as low as 7 minutes. • System should have integrated solid state chiller for temperature control and automated water bath management. • System should have less than 2 minute start-up time. • Ability for real time monitoring and integrated quality control by software. • Warranty as per rules.	1		
2B	Fragment Analyzer/Tape Station	• Size determination of DNA library & RNA QC On -chip /Tape/ Capillary	2		

		Electrophoresis System. Perform simultaneous electrophoresis of DNA/RNA on exchangeable cartridge from 1 to 10 samples. The kit/software should provide size information of the fragment's length and also able to provide RNA quality assessment or RIN (RNA integrity Number) of RNA samples or similar. • Separate upto 12 samples in parallel in as little as 15 minutes • Provide choice between 2-3 different capillary array lengths for the required blend of speed or resolution • Minimize instrument preparation time with no daily array handling requirements and room-temperature stable reagents • With separation resolution as good as 3 bp from fragments under 300 bp • Ability to adjust run priorities by moving samples up or down in queue • Uses quality metrics for RNA (RQN) and genomic DNA (GQN) to remove subjective quality assessments • Kits providing a wide dynamic range covering two orders of magnitude • Must achieve accurate molarity calculations with reliable smear analysis. • Warranty as per rules.			
3B	Benchtop refrigerated centrifuge with swing-out rotor (for Microplate and MIDI plates) and microcentrifuge rotor	• Centrifugation of samples during library preparation protocol Refrigerated Centrifuge with Swing-bucket rotor. • Plate rotor options for centrifugation of all types of MTP, PCR or Deep well Plates. • Fixed-angle rotors for high-speed molecular biology applications in tubes from 0.2 mL to 250mL • High centrifugation speed of up to 22,132 × g (14,000 rpm) • Automatic rotor recognition and imbalance detection for maximum operational safety	2		

		• Temperature range from 4 °C to 40 °C • Warranty as per rules.			
4B	Bench-top ultra-centrifuge with suitable rotor and tube	• Ultracentrifuge should be efficient in separations from samples ranges from approximately 200 µL up to 30 ml and should have speeds of up to 150,000 RPM and more than 1,000,000 x g. • Should be provided with appropriate rotors and accessories for isolation of organelles. • Automatic rotor recognition and imbalance detection for maximum operational safety Warranty as per rules Technical specification Maximum Speed (rpm): 150,000 Maximum RCF (x g): 1,019,000 Speed Control: ±50 rpm of set speed Set Temperature: 0° C to 40° C in 1° C increments Temperature Control: ±2° C of set temperature Ambient Operating Range: 15° C to 35° C	1		
5B	Refrigerated High Speed Benchtop Centrifuge	• Temperature range of -10^0C to + 40^0C • Should come with short-spin key, fast pre-cooling and stand-by/ continuous cooling option • With high centrifugation speed 30,000 x g (17,000 rpm) or more, adjustable from 100 rpm upwards • Must have a standby cooling and auto shut-off function so that the compressor is deactivated after inactivity in user defined period of 1/2/4/8 hrs. to save energy and extend compressor life. • Timer for run can be set up to 99 minutes/ continuous • Must have “At set rpm” function which enables timer countdown to be started only when selected speed is achieved • Digital display of time, speed and	1		

		temperature. Programmable time and speed using Key pad • Must be able to store at least 50 routine procedures with minimum 5 programmable buttons for frequently used programs in the first level • Able to switch display between rcf and rpm speed setting, Separate short spin key • Acceleration time to max rpm ≤ 14 sec, Braking time to max rpm ≤14 s • Low noise levels less than 56db at max speed • The centrifuge must be CE, IVD (in-vitro diagnostic) & ISO/IEC 1010-2-020 certified. • Stainless steel chamber, Brushless maintenance free drive, Automatic motorised locking when lid almost closed• Versatility with 12 different rotors option: 10 fixed angle rotors and 2 swing out rotors. • Fixed angle rotor: - 30x1.5/2ml, high speed rotor 24x1.5/2ml with 30000xg, 48x1.5/2ml with 18000xg, 16x5.0ml with 21000xg, 6x15/50ml falcon with 7500xg, 18x1-2ml cryo tubes, 24 spin column tubes, 8x8- PCR strips• Swing-bucket rotors for 24x1.5/2.0 ml tubes with 16,000xg and for 2 x DWP or MTP not higher than 29 mm with 2,200xg or more. • Rotors and lids should be made of anodised aluminium to ensure chemical resistance, with aerosol tight lid • Automatic imbalance and rotor recognition • Rotors must be fitted with quick lid opening and closing system • Rotor must be autoclavable at 121^{o}C for 20 min to completely eliminate any contaminating • material • Following rotors and accessories should be included: • Fixed angle rotor 48x1.5/2.0ml tubes with			

		least 18,000xg with aerosol tight lid. • Swing out rotor 2 x DWP or MTP not higher than 29 mm with 2,200xg or more. • The centrifuge should come up with suitable stabilizer. • Warranty as per rules.			
6B	Centrifuge for 1.5/2ml tubes	• Centrifugation of samples during library preparation protocol Centrifuge: 100 – 10,000 rpm or higher (100 rpm steps) Max. RCF 15,000 × g or higher tube format: 1.5/2.0 mL	2		
7B	Table Top Centrifuge	• Should be a table top model • Maximum RCF 17,000xg • Maximum Speed above 13,200 RPM • Supplied with 24x2/1.5 ml rotor • Large LED display for Time, Speed and Temperature • Max Noise Level: 50 dBA • Temperature set range from minus 9 °C to plus 40°C • Acceleration/Deacceleration time 10Sec/12 Sec • Time set range 1 to 99 min, 1 min increments • Toggle between RPM and RCF. • Should be ISO and CE certified • Induction maintenance free motor • Comprehensive warranty of 24 months. • Should be Refrigerated • Warranty as per rules.	2		
8B	Fluorometer	• Should able to Quantification of DNA libraries 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 less as 1 µl sample by a fluorescent dye with a dynamic range of 5 order of magnitude. • Next generation of the popular benchtop fluorometer designed for accurate measurement of DNA, RNA, and protein quantity.	2		

		• Should be fluorescence-based quantitation system for precise results. • Should be compact and touch screen enabled. • Should have capability of low detection range and all different kits for DNA, RNA and protein must be provided for demonstration. • Should be able to accurately quantifies DNA, RNA, and protein in < 3 seconds per sample • Ability of fast, reliable detection of degraded RNA with the RNA IQ assay and with integrated reagent calculator reporting amount of dye and buffer needed. • Storage of upto 1000 samples and with flexible data transfer options by wifi and USB. • To be supplied with NGS starter kit (1 dsDNA HS (high sensitivity) Assay Kit (500 assays and Assay Tubes (500). • Warranty as per rules.			
9B	Thermomixer	• Dissolution of isolated DNA Thermomixture for nucleic acid dissolution. • Thermomixture system for 1.5 ml/ 2.0 ml tubes up to 100 °C, 3000 rpm. • Temperature accuracy Max. ±0.5 °C at 20 – 45 °C and PCR cooler racks 96 well. • Warranty as per rules.	2		
10B	Refrigerator (-30^0C)	• Ultra-low temperature, frost-free, freezer should be upright and provide uncompromised sample protection for -16° to -25°C with ~800 capacity. • Vertical with shelves in upper portion and there should be pullout drawers in lower portion. • Voltage stabilizer to work on 230 Volts AC. • Adjustable shelves, temperature controller, auto lamp on/off feature, should be supplied with all standard accessories as per manufacturer catalogue for the model supplied. • Warranty as per rules.	4		
11B	Refrigerator (4°C)	• Refrigerators should be designed with features that support sample protection and sustainability objectives for the storage of	4		

		pharmaceuticals, vaccines, chemotherapy and other medical and pharmacy-grade storage requiring 2° to 8°C. • Capacity : Approximately 650 Litre • Temperature Range : 2 to 8oC • Defrost : Auto • No. of Shelves: Six (6) • Door Style: Glass • Drawers: 6 Basket Drawers • Warranty as per rules.			
12B	Mini Centrifuge	• Quick spin of the samples during library preparation protocol Quick spin centrifuge for 1.5 ml/ 2.0 ml tubes up to 1200 rpm. • Provide additional rotor option for up to 2 x 8–tube PCR strips. • Max RCF- 12100Xg • Speed- 800-13,400 rpm • Display- large LCD • Noise level- less than 49 dB (A) • Warranty as per rules.	4		
13B	Temp Heating System with heating inserts (Midi plate insert)	• Incubation of samples during library preparation protocol MIDI plate heating system Compact, flexible high precision tube and plate heating system with heated lid along with MIDI Heat block Insert and regulates sample temperatures ± 0.1°C. Warranty as per rules.	2		
14B	96 well microsample insert	• Incubation of samples during library preparation protocol96 Well Micro plate adapter for Midi plate heating system	2		
15B	High Speed Micro Plate Shaker	• Shaking the samples in microplates during library preparation protocol 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 (±25rpm), and programmable timed mode	2		

		from 1 to 9999 seconds (166 minutes) for molecular biology applications, mechanical and chemical cell lysis, mixing tissue samples, mixing cytogenetic suspensions, and vertexing cell suspensions. •Warranty as per rules.			
16B	Tissue Lyser	• Tissue grinding for nucleic acid extraction High-speed shaking of samples in 1.2 ml collection tubes or 2 ml microcentrifuge tubes with stainless steel or glass beads 220–240 V, 50/60Hz; variable speeds from 3 to 30 Hz (180–1800 oscillations/minute) Bead Mill technology2 x 24 microcentrifuge tubes (2 ml). • The Tissue Lyser is required for high-throughput disruption of plant tissues, bacteria and yeast cells. Highly reproducible purification of high-quality DNA, RNA, miRNA, and protein is achieved, even with difficult-to-lyse tissues. High-speed shaking of samples in 1.2 ml collection tubes or 2 ml micro centrifuge tubes with stainless steel or glass beads. • Simultaneous processing of 192 in 2 to 4 minutes. Should work on animal, plants, bacteria and yeast samples. • Should prevent carryover from tube to tube. Should work with dry, wet and cryogenic samples. • Should be based on bead milling by high frequency impact action • Simultaneous processing of 192 in 2 to 4 minutes. Should work on animal, plants, bacteria and yeast samples. • Should prevent carryover from tube to tube. Should work with dry, wet and cryogenic samples. • High-speed shaking of samples in 1.2 ml collection tubes or 2 ml microcentrifuge tubes with stainless steel or glass beads. • Convenient and secure disruption process. Adapter sets optimized for high-throughput disruption. Wide range of accessories	2		

		available (e.g. grinding jar set to process large samples). Reproducible results with difficult-to-lyse tissues. • Technical data: 100–120/220–240 V, 50/60Hz; variable speeds from 3 to 30 Hz (180–1800 oscillations/minute). • Throughput should be 2 x 96 collection microtubes (1.2 ml) or 2 x 24 microcentrifuge tubes (2ml) • Typical run time; 15sec – 2 x 3 minutes at 15-30 Hz. • Warranty as per rules.			
17B	Geno Grinder	• Seed grinding for DNA extraction Automated, high-throughput mechanical disruption ideal for high-throughput applications involving sample preparation for DNA, RNA, and protein extractions, pesticide residue analysis, and more. • Typical pressing cycle is less than two minutes. • Equipped with digital timer, lockdown lid, and safety interlock for operator protection. • Laboratory mill designed for vigorous up-and-down shaking of deep-well titer plates, vial sets, and centrifuge tubes. • The system should offer rapid, 1-2 min, simultaneous disruption of upto six deep-well 96 well titer plates at a single go. It should also accept 2 ml, 5ml, 15 ml and 50 ml tubes and accessories. • It is equipped with an adjustable clamp that accommodates a full range of sample vials from 2mL to 50mL centrifuge tubes and up to six deep-well titer plates. • The equipment must come with nesting tray for adjustable clamp assembly • The system must be capable of using grinding balls of stainless steel, silica or zirconium beads. • The system should have provision of effective tissue disruption and homogenization in frozen condition through cryo blocks for 2ml, 15 ml, 50 ml sample	2		

		tubes and for 96 well titer plates. • The equipment must be password protected, with digital timer and touch screen control panel, which enables the user to program run time, rate, cycles and pause time where up to 50 protocols can be saved. • Adjustable clamp must be present with a release button that allows users to secure vials or titer plates of various sizes. • It must include the following safety feature: lid interlock to prevent machine from running if top cover is open. • Cryo-Tech Accessories enable cryogenic grinding and preserve temperature sensitive samples for RNA and protein extractions. • Large Clamp Assembly holds four deep-well titer plates, multiple centrifuge tubes, and other large grinding vials. • Standard Clamp Assembly holds two deep-well titer plates, vial sets, or cryo-blocks. • Strong vertical clamp movement of 500-1750 strokes/minute ensures that grinding media directly impact the sample each and every time. • Typical sample processing time of 1-2 minutes. • Warranty as per rules.			
18B	Automated DNA isolation	• Required for DNA extraction of large number of samples. The system should be based on magnetic particle separation with revolutionary resuspension technology and represents the top quality fast fully automated sample preparation system in a compact benchtop instrument. • The system should be capable to do reliable and reproducible results for any biological samples like blood, body fluids tissues etc; even old, compromised, fresh or frozen, EDTA or citrate stabilized blood samples can be processed without any restriction. • The system should realize cost effectiveness through automated dispensing of buffers into standard plastic devices instead of using	1		

		expensive prefilled cartridges. • The system should have the capability to do the magnetic separation-based on the use of metal rods that are lowered into a process solution for collecting beads from the solution, the rods are magnetized. Pellets form at the tips of the rods, and the rods are withdrawn from the solution with the pelleted beads attached. • The system should have the capability to avoid any cross contamination, to avoid sample loss and better quality of nucleic acid. • The run time of the bench to system per batch [1-96 samples] should be within 40 minutes, as per requirement. • The system should capable to do the sample volumes 10 µl – 10 ml and 1-12, 24 and 96 samples in a batch. • Kit should be supplied to run various sample material in one run. In combination with plastic wares all the consumables should be available in the kit and supplied through the vendor who will be supplying the system to avoid any confusion. • System should have option for integration with liquid handling platforms. System should come with patented technology and kits. • Instrument should be CE-IVD approved. The vendor should have ISO certificate for the service. • The system should have the bar code reading facility, USB port and LIMS compatible. • The vendor should support with maintenance, application training and regular update with new protocols. • Warranty as per rules.			
19B	Automated NGS library prep Automated Library prep	• An Automated next generation sequencing (NGS) Library Preparation System. • The Library preparation system should come with 96 well type head. • Should be Capable of multi dispensing.	1		

		Volume accuracy of the 96 head should be <5% CV for 1-5 µl and < 2% for up to 200 µl. • Should be compatible with third party tips or other accessories including microplates. The head must be capable of attaching tips in row/column wise manner. Must be capable of attaching one tip at once. • Must be capable of making serial dilutions. • Should have minimum 20 deck positions. Head should have inbuilt gripper option for movement of labwares, Lidding and delidding. • Should be having options for shaking and on deck thermal cycling for smooth NGS library preparation. • Should have temperature options from 4-110 °C. • The system should be able to construct more than 96 libraries in a day. • Should be having the integrated robotic tip storage options to a minimum of 25 tip boxes. • The software should have the capability to maintain accurate time gaps across different steps in the protocol. • Should be having proven standardized protocols for various NGS protocols including kits • Should have capability to integrate third party accessories in the system. • Local application and service support from the direct company must be available. • Should have options for z-8 dispenser, bulk reagent dispenser, and positive pressure filtration station. • System should be capable of following Library prep methods: Nextera XT DNA, Nextera Flex DNA, Truseq Nano DNA, Truseq DNA PCR Free, Truseq Small RNA, Truseq Stranded mRNA and Truseq Stranded Total RNA. • Operating system should be Windows 10.			

		• Warranty as per rules.			
20B	Magnetic rack for 1.7 ml microcentrifuge tubes	• Magnetic bead-based purification steps during library preparation protocol Magnetic stand 16 well. Performs efficient magnetic separation of paramagnetic beads in working volume: 10–2,000 µL, holds up to 16 standard 1.5–2 mL microcentrifuge tubes.	2		
21B	Magnetic stand	• 96 Magnetic bead-based purification steps during library preparation protocol in 96 well format 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.	2		
22B	Vortex	• Required for Sample mixing. Variable speed mixer to eliminate hand mixing using orbital shaking movement. Suitable for short-time operation (touch function) activated by pressing shaker attachment or continuous operation. Compact Design and Stable at high speeds. Suitable for continuous operation with low self-heating. Voltage 220 - 240 V, Frequency 50 / 60 Hz, Speed Range 200 - 2500 RPM and Permissible Ambient Temperature 5 - 40 Deg. Warranty as per rules.	2		
23B	DNA/RNA electrophoresis system	• Agarose gel electrophoresis Mini-Cell Electrophoresis System to run up to two precast gels (8 cm x 8 cm) for protein/DNA/RNA electrophoresis. • Gel size: 8 x 8cm; Gel cassette: 10 x 10cm; Thickness: 1.0mm or 1.5mm. • Unit Dimension: 14 x 13 x 16 cm (height with lid on). approx • Electrode limit :1,500 VDC or 75 Watts • Material polycarbonate and electrode wire platinum. • Warranty as per rules.	2		

24B	Gel documentation system	• Gel Doc Application Types: Colorimetric, UV Fluorescent Camera Resolution 1.3 Megapixels, A/D 12-bit, Lens 8-48 mm, f/1.2 Zoom, Manual, Maximum Field of View 21.8 x 15 cm, Filter Positions 1 Size Unit: 14" W x 11" D x 19" H (35.5 x 28 x 48 cm), approx.. UV Trans: 13.5" W x 10" D x 3.5" H (34.3 x 25.4 x 9 cm), approx. • System should have Trans UV excitation source and CCD based detector. • Pixel Size should be minimum 4.6 x 4.6 μm or better. • Image resolution should be minimum 4 megapixels or better. • Should have lens flat-fielding calibration for each sample tray to deliver image data that are always optimized and reproducible without imaging artefacts and should provide superior image uniformity and quantitation. • System should have a dynamic range of minimum 3.0 orders of magnitude and a pixel density of minimum 4,096 grey levels or better. • System should be able to do automatic camera adjustments like zoom focus adjust aperture or select light source during image acquisition and should provide flexibility to image a wide variety of applications including nucleic acid and protein detection via colorimetric and fluorescent stains • System should have one universal emission filter to accommodate a large portfolio of detection methods like ethidium bromide, SYBR Green SYBR, Safe SYBR, Gold Gel, Green Gel, Red Fast Blast, SYPRO, Ruby, flamingo, oriole, CY3, rhodamine green, fluorescent Fluor orange and other spectrally similar stains labels and dyes • System should be able to visualize stain free DNA, RNA and protein gels • 2 pack of 10% fast running stain free gel	2		

		solution sufficient to cast as many as 250 gels of 1.00 mm thickness should be provided • System should come with gel analysis software compatible with mac or PC computers • Software should generate 16-bit and 8-bit tiff images with export option • Software should be able to do automatic normalization of bands using total lane as a loading control. • Software should have customizable reports user-defined data charts with instant access to excel functionality snapshot tool to copy images lane profiles and graphs easily accessible targeted analysis features flexible lane and band detection and quantification tools including volumetric tools. • System should be provided with a thermal printer and a branded compatible desktop with 21" LED screen, anti-virus software, MS Office software, 16GB RAM, 2X1 TB HDD, I3 processor with 7 th generation or better. • Warranty as per rules.			
25B	96 well PCR system	• PCR application in Library prep, Peltier based 96 well gradient PCR system • Should be 96 well Peltier based thermal cycler. • Should have gradient span of 40°C and linear gradient tool for programming of equal temperature increments between the 12 columns of the block • Should have a temperature range of 3-99 °C with control accuracy of ± 0.1 °C • Should have a maximum ramp rate of 6.0°C/sec and average ramp rate of 5.0°C/sec. • Should have temperature uniformity down to +/- 0.15 °C • Warranty as per rules.	2		

26B	Real-Time PCR System	• Library quantification, 3 color or higher, Peltier based 96 well real time PCR system with temp range from 4ºC to 99 ºC and heated lid. • Automation compatible, high-throughput, touch screen interface, reliable, sensitive and accurate quantitative PCR (qPCR) system for broadest range of qPCR applications. • Should accommodate 4 different block types 96-well, 96-well Fast, 384-well, TaqMan Array Card, (384-well microfluidic card) • Responsive touch-screen, automation capabilities, and effortless block exchange without the need for any tools • Run hundreds of real-time PCR reactions effortlessly using TaqMan® Array 384-well microfluidic cards and integrated robotics system • Detect changes in target quantity as small as 1.5-fold in single-plex reactions and obtain 10 logs of linear dynamic range • With 6 colors (21 filter combinations) for ease of wide range of genotyping experiments. • Dimensions: 52.5 x 33.8 x 54.7 cm. • Max. ramp Temp. 6.5°C/sec • Temperature Range: 4 to 99.9°C • Warranty as per rules.	1		
27B	Microvolume spectrophotometer	• Required for Quantitation of DNA/RNA • Multimode microplate reader designed for multiple measurements- absorbance (UV-vis), fluorescence intensity including FRET, luminescence, Time-resolved fluorescence (TRF, including TR-FRET, homogeneous TRF (HTRF)) Flexible wavelength selection	2		

		• Should be Modular, upgradable with allowing 5 measurement modes; end point, kinetic, spectra, multipoint, and kinetic spectra • Should have smart safety control and auto calibration • Should have automatic dynamic range, which allows selection of optimal reading range based on signal intensity • Other specifications: • Absorbance: • Plate types: 6- 384 well plates • Wavelength range- 200-1000 nm • Light source- Xenon flash lamp • Linear measurement range: 0–4 Abs (96-well plate) at 450 nm, ±2% 0–3 Abs (384-well plate) at 450 nm, ±2% • Accuracy: • 0.003 Abs or ±2%, at 200–399 nm (0–2 Abs) 0.003 Abs or ±1%, at 400–1,000 nm (0–3 Abs • Precision Standard deviation (SD) • Fluorescence intensity • Plate types: 6- to 1,536-well plates • Wavelength selection Double excitation and emission monochromators • Excitation wavelength range 200–1,000 nm • Emission wavelength range 270–840 nm • Light source Xenon flash lamp • Sensitivity Top reading: Top reading: <0.4 fmol fluorescence/well • BOTTOM READING: <4 FMOL FLUORESCENCE/WELL • Luminescence • Plate types: 6- to 1,536-well plates (spectral scanning from 6- to 384-well plates) • Wavelength selection Direct or filters (spectral scanning with double monochromators) • Wavelength range 360–670 nm			

		• Sensitivity: <7amol ATP/well • Measurement speed: Reads a 96-well plate in 15 sec, a 384-well plate in 45 sec, and a 1,536-well plate in 135 sec (minimum times) • Interface PC software • Dimensions (D x W x H) 58 x 53 x 51 cm (23 x 21 x 20 in.) approx. • Warranty as per rules.			
28B	UPS 50 KVA	• 1 hr. backup Uninterrupted Power Supply. Warranty as per rules.	3		
29B	Ice Flaking Machine	• Flake ice machines should be self-contained with ~ 27kg Storage Capacity. • Should be capable of production of ~120kg of flake ice in 24 Hour. • Voltage: 220-240 V / 50Hz • Dimensions: (W x D x H mm) 680 x 510 x 1000 approx • Ice Type: Flake • Interior and exterior should be made of Stainless steel • R134 Refrigerant • Machine should be Ozone Friendly • Warranty as per rules.	2		
30B	Molecular grade water purifier	• Water purification system to generate Pure (Type II) and Ultra-pure (Type I) water from drinking/potable water with Conductivity <2000us, hardness <300 ppm, SDI <7, CO2 <30ppm and Chlorine levels up to 3ppm. • Pre-filtration Unit based on our feed water Quality to ensure the longer life of Cartridge • System should contain pre-treatment to take care of hardness, chlorine and particulate load, followed by Reverse osmosis, continuous self-regenerating EDI technology and UV to reduce microbial load. • Three in one pre-treatment cartridges having inbuilt 0.5 Depth filter to control the Particulate load, Activated Carbon	1		

		filter to control on free chlorine & polyphosphate to control on hardness, • Reverse osmosis technology should have an inbuilt water recovery loop programmed to save tap water based on water quality up to 50% • Purification system should have conductivity cell before and after RO membrane to measure the performance of RO cartridge. And it should give constant permeate flow and percentage of recovery, irrespective of variation in temperature. • Mixed bed ion electro deionization module with auto regeneration by a weak electric current, eliminating the need for chemical regeneration or replacement of DI resin cartridges. Carbon beads at cathode of the EDI module to prevent scaling of the module. No additional filter to be used to prevent from scaling. • System should provide 24/7 real time monitoring remote control with advanced user interface touch screen. • System should have full monitoring capabilities and automatic e-record archiving data which should be available for upto two years, ensuring traceability. E-records should be able to retrieve remotely or via USB key from system memory as and when required. • Cartridges to be installed in the system should have traceable tag reader to know cartridge details and usage. • System should have colour display for alerts and alarms to enable the user to aware of right water quality and system performance. • System should be able to be qualified as per GMP and GLP guidelines which involves onsite qualification. • Consumable replacement should be only push fit and no tools should be required.			

		• System be supplied with 200 Lit fully drainable Tank, should have an option to upgrade it with submersible UV to prevent bacterial contamination. • Type I system should give assurance of water quality with precise in-line resistivity cell, with a 0.01 cm-1 low cell constant and a 0.1° C sensitive thermistor. • Should have in built online TOC meter. It should have a detection range of 0.5-999.9 ppb • System should have mercury-free UV lamp to reduce organic contaminants. • Dispensing unit should allow the quality of the water to be determined at the point of use. This should allow water for several different applications to be accessed from the same system. • Dispensing unit should have touch screen which can provide dispense report that can be archived in system history, System history should include not only water quality and volumes, but also any events such as alerts, setting modifications, consumables replacement, and other service activities. • Dispenser handle should have volumetric dispensing option for ease of use for laboratory reagent preparation. • One set of cartridges for the pre-filter as well as for the ultrapure unit to be provided. • Warranty as per rules. **Type I Water Specifications** Resistivity : 18.2 MΩ.cm @ 25 degree C Conductivity : 0.054 µS/cm @ 25 degree C TOC : 5 ppb Bacteria : < 0.1 cfu/ml Flow Rate : > 2 ltr/min • Warranty as per rules.			

	Pipettes				
31B	Manual Single channel pipette (Volume ranges for pipette)	• Variable volume; Volume should be continuously adjustable. • Built-in shock absorber inside the tip ejector which reduces thumb impact. • Fully Autoclavable, robust and calibrated one handed • Corrosion free; easy to clean tip ejector. • Pipette should be colour coded for easy recognition and 4 digit display, have adjustable and specific to liquid nature. • Removal of lower parts of pipette for easy cleaning. • Spring loaded tip cones for smooth fittings to tips and compatible with tips of other companies • Warranty for 3 years and certification from CE, ISO and IVD must be provided • Pipette should attach to stand by handle for prevention of cross contamination. • A compatible rotating carousel type pipette stand made of high-density ABS plastic that can hold upto 6 pipette should be supplied along with pipette. • RFID tags for asset management for easy handling and calibration management. • Comfortable handle, light springs and "Magnetic Assist" technology ensure light and smooth operation. • Small sealing area and positive stop ensure tips load quickly, seal perfectly and easy to eject. • Liquid handling during library preparation protocol. • Ergonomic handle design with comfortable finger hook to rest hand between pipetting cycles. • Very light spring forces resulting in less Aspiration and dispensing force. • Ejaculator metallic type. • Warranty as per rules.			

		Volume ranges for pipette • 0.1-2.5 µl • 0.2-2 µl • 0.5-10 µl • 2-20 µl • 10-100 µl • 50-200 µl • 100-1000 µl • 500-5000 µl • 1000- 10,000 µl	2 2 2 2 2 2 2 2 2		
32B	Number of pipette stand		5		
33B	Manual Multichannel Pipette	• Fully autoclavable 8 channel and 12 channel pipette • Robust and calibration • One-handed and one button operation with low operating force even while wearing gloves. • Variable volume; Volume should be continuously adjustable. • Built-in shock absorber inside the tip ejector which reduces thumb impact. • Fully Autoclavable, robust and calibrated one handed • Corrosion free; easy to clean tip ejector. • Pipette should be colour coded for easy recognition and 4 digit display, have adjustable and specific to liquid nature. • Removal of lower parts of pipette for easy cleaning. • Spring loaded tip cones for smooth fittings to tips and compatible with tips of other companies. • Warranty for 3 years and certification from CE, ISO and IVD must be provided • Pipette should attach to stand by handle for prevention of cross contamination.			

		• A compatible rotating carousel type pipette stand made of high-density ABS plastic that can hold upto 6 pipette should be supplied along with pipette. • RFID tags for asset management for easy handling and calibration management. • Comfortable handle, light springs and "Magnetic Assist" technology ensure light and smooth operation. • Small sealing area and positive stop ensure tips load quickly, seal perfectly and easy to eject. • Liquid handling during library preparation protocol. • Ergonomic handle design with comfortable finger hook to rest hand between pipetting cycles. • Very light spring forces resulting in less Aspiration and dispensing force. • Ejaculator metallic type. • Warranty as per rules. **Volume ranges for pipette** • 0.1-2.5 µl • 0.5-10 µl • 2-20 µl • 10-100 µl • 50-200 µl • 100-1000 µl	4 4 4 4 4 4		
34B	Number of pipette stand		5		

35B	Automatic Multichannel different volume range pipettes	• Fully auto-clavable 8 and 12 channel pipette, robust and calibratable, one handed and one button operation with low operating force even while wearing gloves. • Fast loading, ergonomic handling and absolute precision. • The pipette should be very light, color-coded for easy recognition, with 4-digit display, have adjustable volume and to specific liquid nature. • Password-protect pipette settings, protocols and service alarms. • Non-corrosive and light piston with smooth movement. • Removal of lower part of pipette without any tools for easy cleaning. • Spring loaded tip cone for smooth fitting to tips, compatible with tips from different companies. • Provision for removing individual channel must be there. • Warranty for 3 years and certification for CE, ISO and IVD must be provided. • A compatible rotation carousel-type pipette stand made of high density ABS plastic that can hold up to 6 pipettes each should be supplied along with the pipettes. • The pipettes should attach to the stand by the handle for prevention of cross-contamination. • There should be cushioned joystick selector. • Extremely light operating forces and a silicone shock absorber built in to the tip ejector. • At the end of each pipetting cycle it should re-calibrates itself by resetting the zero point. • It should have long-life battery enough for a day with minimal charging and should last for thousands of recharges. • Warranty as per rules.			

		Volume ranges for pipettes Type: 8 Channel Volume Range: 1 – 10 µL *Accuracy: 0.04 µL: ± 4.0 %* *0.075 µL: ± 1.5 %* *0.1 µL: ± 1.0 %* Volume Increment: 0.01 Ml Type: 8 Channel Volume Range: 2 – 20 µL Accuracy: 0.15 µL: ± 7.5 % 0.15 µL: ± 1.5 % 0.2 µL: ± 1.0 % Volume Increment: 0.02 µL Type: 8-Channel Volume Range 5 – 50 µL Accuracy 0.18 µL: ± 3.5 % 0.3 µL: ± 1.2 % 0.4 µL: ± 0.8 % Volume Increment0.05 µL Type: 8-Channel Volume Range 20 – 200 µL Accuracy 0.5 µL: ± 2.5 % Volume Increment0.2 µL Type: 8-Channel Volume Range 20 – 300 µL Accuracy 0.75 µL: ± 2.5 % Volume Increment0.2 µL Type: 8-Channel Volume Range100 – 1200 µL Accuracy 3.6 µL: ± 3.6 % Volume Increment1.0 µL Type12-channel Volume Range1 – 10 µL Accuracy 0.04 µL: ± 4.0 % Volume Increment0.01 µL	2 2 2 2 2 2 2		

		Type12-Channel Volume Range2 – 20 µL Accuracy 0.15 µL: ± 7.5 % Volume Increment0.02 µL Type12-Channel Volume Range5 – 50 µL Accuracy 0.18 µL: ± 3.5 % Volume Increment0.05 µL Type12-Channel Volume Range20 – 200 µL Accuracy 0.5 µL: ± 2.5 % Volume Increment0.2 µL Type12-Channel Volume Range20 – 300 µL Accuracy 0.75 µL: ± 2.5 % Volume Increment0.2 µL Type12-Channel Volume Range100 – 1200 µL Accuracy 3.6 µL: ± 3.6 % Volume Increment1.0 µL	2 2 2 2 2		
36B	Number of pipette stand		4		
37B	Water Bath	• Water bath should be refrigerated high quality, durable and should be trouble-free and low-maintenance in everyday operations. • Working temperature range should be +18 °C to + 99.9 °C. • Should have dynamic temperature control systems • Heating capacity: 0.5kV • Power: 230 V, 50-60 Hz • Temperature stability : ±0.15 • Should be equipped with bath cover. • Filling volume maximum capacity: 4-4.5L. • Warranty as per rules.	2		
38B	Server	• 1TB RAM, 96 Core Processor, 450 TB HD	1		

		Storage Data analysis for WGS-4 TB RAM, 96 Core Processor, 450 TB Storage. Warranty as per rules.			
39B	Workstation for data analysis	• 8 Core, 2 TB RAM, 5 TB storage per workstation. Warranty as per rules.	5		
40B	Lab renovation, furniture, etc. Creation of Turnkey Facility	As per requirement.			
41B	Air-Conditioners (ACs)(4 Ton each)	Supply, Installation, Testing and Commissioning of 4TR (Not less than 48000BTU/hr), 3 phase cassette type split A.C. Units (EER shall not be less than 3.00) complete with all components like indoor unit cooling coil, Centrifugal type fan including pumping of water, Outdoor unit (Air cooled condenser) comprising of Condenser coil scroll type compressor, condensor motor etc Controls, interlocking, electrical accessories etc as required for proper functioning of cassette unit controlled by cordless remote complete suitable for operation on 415 volts +/-10%, 50 Hzs A.C. Supply etc. Capable of performing functions like cooling, dehumidifying, air circulating, filtering etc complete as read as per technical specifications attached. (Make: M/s Blue Star, Hitachi, Voltas, Carrier, LG, Daikin, Mitsubishi, O- General,) NOTE- Condenser coil tube and evaporator coil tube shall be made from copper of high-quality grade. Warranty as per rules.	4		
42B	Warranty:	3-year warranty on all the Equipments supplied and installed against the said tender.			
43B	Comprehensive Maintenance Contract	Two years after completion of Warranty period of three Years.			

Name & Signature of Tenderers/
Company with Seal