<div align="center">**ANNEXURE A:**</div>

# TECHNICAL SPECIFICATIONS FOR RT-PCR AND ACCESSORIES:-

| S.no | Equipment | Specification |
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| 1. | **RT-PCR system (01)** | 1. Real Time PCR System for measuring Real-time amplification of DNA/RNA from purified samples, application include Quantification assays, Qualitative assays, SNP, HRM, Gene Expression, any published protocol or chemistry should be reproduced.<br>2. Instrument should be with stand-alone operation independent of Computer work station.<br>3. System should have a prot for USB Drive for uploading and downloading data and programs.<br>4. Dedicated Peltier-based Real time Thermal cycling system, Electro formed silver mount 96-well block can accommodate both 96 well PCR plates as well as 8-Tube Strips with clear caps.<br>5. System should have a temperature accuracy of ±0.2 ºC and well to well Temperature Uniformity of ±0.1 ºC<br>6. System should have Gradient function for the temperature programmable of 20 ºC gradient range.<br>7. System should allow Optimum reaction volumes of 0.2 (10µl to 100µl) or more<br>8. System should have sample ramp rate more than 4ºC while heating and less than 2ºC while cooling.<br>9. System to provide on line Cycle by Cycle monitoring with continuous display of readings for Fluorescence, Temperature changes and progression of amplification and detection simultaneously on all 96 wells on the plate without any moving parts.<br>10. RT-PCR system should have fiber optics for high accuracy and easy multiplexing on probed assays. |

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| | | 11. System should have individual well to well excitation and emission for better sensitivity for capturing the signals without any edge effects.<br>12. System should have broad range high-intensity white LED as an excitation source<br>13. Working Programmable range 37 to 99 ºC, Sensitivity from 1 copy detection and dynamic range of 10 orders of magnitude.<br>14. System should be compatible with all kind of chemistry Syber green and Hydrolysis probe and compatible with all kind of kits in market. Should be open system for both reagents & disposable plastic consumables.<br>15. System should use cooled CCD camera for detection without any moving detectors or scanning detectors<br>16. Instrument filters should be divided based on the wavelength starting from 400 to 700 nm<br>17. System should have a minimum of Eight filters, Four Excitation filters (470/533/577 and 645 nm) and Four Emission filters (514/572/620 and 697 nm) to cover majority of the commercially available dyes<br>18. Multiplexing capacity: true 4 color multiplex analysis without any passive reference dye.<br>19. System should be Calibrated for Detection Dyes: SYBR, FAM, ResoLight dye, VIC, Hex, Yellow555, Red610, Texas Red, and Cy5. Any new dyes should be used with in the filter settings.<br>20. System should be free of passive reference dye.<br>21. System should be capable of Simultaneous data acquisition for all positions in 10-1000 ms (dynamic mode)<br>22. Fast run time, Runtime < 30 min for 3-step 40 cycles PCR<br>23. should have preferably 10-inch colored LCD touch Screen display for smooth operation while standalone usage and online fluorescence display.<br>24. The real time PCR software should allow the user to do the analysis of all type of application like.,<br>    a. Absolute quantitation<br>    b. Advanced Relative quantitation<br>    c. Multiplex-PCR allelic discrimination (SNP)<br>    d. Tm Calling (Meltcurve Anlysis-Sybr)<br>    e. Endpoint Genotyping<br>    f. Qualitative Gene detection<br>    g. High Resolution Melting curve analysis (HRM) for mutation studies<br>    h. Pathogen detection and plus/minus assay.<br>25. Necessary control/QC kits for installation should be supplied along with instruments |

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| | | 26. Software should be compatible with Windows 11 with future upgradation<br>27. RT-PCR software should be of multi user installation facility and allow the user to design the experiment or plate layout conveniently.<br>28. Software should allow to import / export formats like Txt export, Charts: Data and image.<br>29. System software should support remote access for trouble shooting.<br>30. Software should have the provision to use barcode scanner and import / export option for plating layout to reduce the time in plating layout.<br>31. A laptop/ desktop PC with good configuration should be supplied<br>32. Should provide warranty for 3 years<br>33. Should provide AMC terms and conditions<br>34. Should guarantee availability of spares and service for minimum 7 Years.<br><br>**Accessory: Refrigerated Microcentrifuge (01)**<br>1. To Centrifuge different kinds of biosamples (suitable for microvolume protocols such as DNA, RNA purification, PCR setup) in research Labs at room Temperature and cold (4°C)<br>2. Type of Motor: Brushless (without carbons).<br>3. Display Type: LCD<br>4. Parameters to be displayed by the digital display: RPM, RCF, set time, Run time, Rotor running indication, misbalancing if any.<br>5. Type: Benchtop Centrifuge<br>6. Rotor with biocontainment lid should be included with the microcentrifuge<br>7. Outstanding corrosion resistance with lightweight rotor, easy to clean and maintain and autoclavable<br><br>8. Rotor capacity: 24 x 1.5/2 mL<br>9. Rotor Type: Fixed angle standard rotor should be able to accommodate 24 microcentrifuge tubes in a single row, from 1.5 to 2.0 mL tubes to mini-preps and spin columns.<br>10. Rotor imbalance diagnostics and automatic stop if required: Yes<br>11. Max. Speed: 13,000 -14,000 rpm<br>12. RPM setting accuracy: ± 5% |

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| | | 13. Max. RCF: Should not be less than 17,000 x g with fast acceleration and deceleration. <br> 14. Noise Level: Should not more than 56 dB(A) <br> 15. Refrigerated: Yes <br> 16. Temperature Range: -9°C to +40°C <br> 17. Cooling arrangement: Compressor Cooling <br> 18. Temperature control accuracy: ± 2°C <br> 19. Cooling from room temperature to set temperature should not be more than 15 minutes and should be able to hold the set temperature for prolonged time. <br> 20. Electrical Requirements: 230 V 50/60 Hz <br> 21. Dimensions (HWD): maximum 13.2 x 11.8 x 17.9 in. (33.52 x 29.97 x 45.5 cm) <br> 22. Net Weight: 55.11-72.75 lb. (25-33 kg) <br> 23. Warranty on equipment and rotor: 2-5 Years <br> 24. The Equipment should be installed and demonstrated by the vendor or supplier <br> 25. Timer should be provided. <br> 26. Acceleration & Deceleration time to be less than 15 sec. <br> 27. Conformity to standards/ certificate: CSA, CE, IVD <br> 28. Copies of all certifications and reports to be provided to buyer on demand at time of supplies. |