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F-8() RMSC/EPM/M-2/2019-20/NIB-444/ 2644 Date:- 11/10/19

Clarification/Corrigendum/Addendum

Subject: -Revised Technical Specification and date extension for NIB No. F-8() RMSC/EPM/M-2/2019-20/NIB-444/2445 Dated 2.9.2019 for item 1. ICP Spectrophotometer with accessories, 2. HPLC-Mass spectrophotometer with accessories, 3. FTIR- Spectrophotometer, 4. Hot Air Oven & 5. Horizontal Laminar Flow

In reference to subject cited above and NIB-444, the various representations received from the firms and issues raised by the Bidders are examined by the competent Authorities and technical committee. The following Corrigendum/Addendum is issued for inclusion in bid document as below:-

1. Revised Technical Specifications

1) FOURIER TRANSFORM INFRA-RED SPECTROPHOTOMETER (FT-IR)

Fully Computer Controlled COMPACT BENCH-TOP FTIR system with universal sample compartment.	
1.	Sample module must be automatically identified.
2.	The system should have latest digital signal processor.
3.	The system should indicate whether the source and laser are operational.
4.	The System should have feature for humidity and vapour protection.
5.	Wave number range: 6000 to 500 cm ⁻¹
6.	Source: Long Life IR Source
7.	Detector: MID-IR /DLTGS/DLATGS/LiTaO3 detector with temperature control mechanism
8.	Resolution: 0.6 cm ⁻¹ or less
9.	Signal to Noise Ratio- 25000:1 Or better peak to peak for 1 min.
10.	Wave number precision: 0.05 cm ⁻¹ or better at 2000 cm ⁻¹
11.	Beam splitter: KBr coated with Ge/ZnSe/CaF2
12.	The software should also have: -Compare Software, Spectral Search; Quantitative Analysis software Spectral interpretation for unknowns; Quality checks programs and CFR-21 Part-11 Compliance should be available.
13.	The software should have real time data collection and should have the facility to continuously monitor the performance of source, detector, power supply and laser.
14.	Libraries: Built in Library with Minimum 1000 reference spectra for pharmaceutical products and drugs.
15.	ZnSe- Attenuated Total Reflection (ATR) -1 Nos.
16.	IR Grade KBr - 3x100 gm
17.	Fixed Volume Liquid Cell and fixed thickness (0.5 mm) -1 Nos.

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18.	Sodium Chloride pellets with Holder for liquid paraffin mulls-1 No.
19.	Hydraulic Press of suitable capacity
20.	Set of 13 mm KBr die, Pellet Holder and Nozzle oil should be supplied-2 Nos.
21.	Polystyrene film of 0.3 mm having NIST Traceable certificates with atleast five year validity - One
22.	Agate Mortar Pestle (Dia 2 inch) -2 Nos.
23.	<u>Computer Specifications: (Higher configuration are acceptable)</u> <u>Make :HP/Dell/IBM</u> Processor - Intel i5 (5 th generation) ; RAM - 4 GB ; Hard disk - 1 TB ; Graphic Card; DVD writer; 19" TFT screen ; LAN Port ; USB Ports ; Wi-Fi ; Multimedia Keyboard ; Optical Mouse Operating System – Preloaded Windows 10 Pro ; Antivirus Printer- Laser Printer Monochrome with duplex printing and LAN port. UPS-2 KVA, Single phase with 60 minutes backup.
24.	Documents /Training and other notes: (i) The equipment should be certified by European CE marking or UL marking. (ii)Should have safety certificate from a competent authority like CE/Equivalent or valid detail of electrical and functional safety test. Copy of the certificate/test report shall be produced along with the technical bid (iii)Comprehensive guarantee period with spare parts for at least three years from the date of installation. (iv)Instruction Manuals (Hard Copy or Soft copy as applicable) along with standard Operation Procedures (SOP) and appropriate Dust cover for the instrument. (v)Installation qualification (IQ), Operational Qualification (OQ) and Performance Qualification (PQ) documents should be provided at the time of supply of the instrument. (vi)Satisfactory technical and application training to the personals at the site after installation. (vii)CMC will be given @5% of net rate-inclusive of GST (as applicable) & yearly escalation of 5% on last year's CMC price. The CMC may be awarded for five years (on yearly basis) after completion guarantee period. (viii)Minimum of two routine maintenance services/inspections to be provided annually and any number of breakdown emergency calls should be attended during the guarantee period. (ix)Price quoted should be inclusive of their complete installation in all respects at site as per purchase order. (x)Final technical approval only after demonstration of the quoted product. (xi)Any other perquisite required (if any) with specifications should be included with the instrument to run and complete the installation.

2) Name of Instrument: Hot Air Oven with following specifications

1.	Inner chamber should be made of stainless steel of 304 grade and outer body of GI with epoxy coating.
2.	Gap between the walls should be filled with special grade glass wool for proper insulation and to avoid heat losses.
3.	Inner chamber should be fabricated with ribs to adjust shelves to any convenient height 2 or 3 removable shelves.
4.	Shelves are made of polished SS Sheet.
5.	It should have air circulating fan with settable speed of 0 to 100% as standard feature.
6.	Alarm facility for temperature overshoot/undershoot should be available.
7.	Heating Elements : - High grade imported wire.
8.	Temperature Controls: - Temperature 50°C to 250°C (Higher temperature range also acceptable)

9.	Control accuracy : $\pm 2^{\circ}\text{C}$ or lesser
10.	Control Panel : - Provided with a thermostat control
11.	LED/LCD Display Temp. Controller cum Indicator.
12.	Number of Shelves: 2-3
13.	Size of Inner Chamber: - W X H X D 600 X 600 X 600 mm (± 60 mm)
14.	Documents /Training and other notes: (i) The equipment should be certified by CE marking . (ii) Should have safety certificate from a competent authority like CE/Equivalent or valid detail of electrical and functional safety test. Copy of the certificate/test report shall be produced along with the technical bid (iii) Comprehensive guarantee period with spare parts for at least three years from the date of installation. (iv) Instruction Manuals (Hard Copy or Soft copy as applicable) along with standard Operation Procedures (SOP). (v) Satisfactory technical and application training to the personals at the site after installation. (vi) CMC will be given @5% of net rate-inclusive of GST (as applicable) & yearly escalation of 5% on last year's CMC price. The CMC may be awarded for five years (on yearly basis) after completion guarantee period. (vii) Price quoted should be inclusive of their complete installation in all respects at site as per purchase order. (viii) Final technical approval only after demonstration of the quoted product. (ix) Any other perquisite required (if any) with specifications should be included with the instrument to run and complete the installation.

3) Name of Instrument: HPLC-Mass spectrophotometer with accessories

	HPLC system consisting of Quaternary Gradient pump, Integrated Auto Injector, Online Degasser, Column Heater, PDA/DAD Detector along with software and Accessories.
1.	<p>QUATERNARY GRADIENT PUMP: Principle : Low Pressure Mixing - Serial Dual Piston Automatic Gradient Profile Facility with 9 or more gradient curves Quaternary Pressure Gradient pump Operating Flow Range: 0.001–10 mL/min Flow Accuracy: $\pm 1.0\%$ Flow Precision: $<0.1\%$ RSD Prop. Accuracy : $\pm 0.5\%$ Precision : $\leq 0.5\%$ SD Pressure Range : 350 bar or more Solvent Vacuum Degassing: Built-in , 4-channels Error detection, Leak detection feature should be available. Compressibility compensation should be automatic and continuous.</p>
2.	<p>Auto-sampler Sample Capacity : 90 vails or more Injection Volume : 0.1 μL –100 μL Injection Volume Accuracy : $\pm 1\mu\text{l}$ Injection Volume Precision: $<0.1\%$ of RSD Injection Volume Linearity : > 0.999 RSD $< 0.5\%$ at 5 – 90 μL Sample Carry Over: Not more than 0.05% from previous injection Temperature Accuracy Sampler : $\pm 2^{\circ}\text{C}$ Pressure Range : 350 bar or more</p>

3.	<p>Column Heater: Temperature Control Range : Ambient to 65° C Temperature accuracy : ± 0.5° C Colum heater should hold max 2 columns of 30 cm length. Colum switching valve should be supplied along with the instrument for automated method development. Forced air recirculation Peltier-based column heater/cooler module</p>
4.	<p>DETECTORS: Photo Diode Array/ Diode Array Detector Wave length Range 190-800 nm Diode Element minimum 512/1024 or more Wave length Accuracy ±1 nm Wave length Precision/repeatability ± 0.1 nm Noise Wide slit: < ±10 µAU at 254 nm Response Time = 2 s Slit width – 1 nm Drift < 1 mAU/h at 254 and 520 nm with dry cell/water at 1.0 mL/min Temperature Path length 10 mm (or suitable) Cell Volume Approx. 8-10µL Light source : Suitable for the system Lamp Hour >2000 hr lifetime Max. Data Collection Rate: 80 Hz or more including 3D data acquisition. Lamp optimization software for low noise performance.</p>
5.	<p>Single Quadrupole LCMS Detector Mass range (m/z) 30 – 1100 with unit mass resolution Detector : Photo multiplier with high energy conversion Dynode Ion source type: Heated Electrospray Ionization Source type: Atmospheric Pressure Ionization Electrospray Ionization flow rate : Min 1.0 mL/min or higher Supported modes: Full Scan, Single Ion Monitoring (SIM) & simultaneous Full Scan/SIM Scan rate : Min 10,000 (Da/s) or higher Scan Speed : Upto 8 Hz or better SIM sensitivity (positive) : 10 pg Polarity switching : max 25 ms or better Mass accuracy ≤ ± 0.2 Da Mass stability: better than 0.1 Da over 24 hours. Digital dynamic range: ≥ 10⁴ Vacuum interlock should be present. Software : Single software should be able to control LC and MS together Noise free Nitrogen generator along with built in compressor should be supplied.</p>

6.	<p>Software :</p> <p>Same software should be able to control all modules of HPLC system. To control, acquisition, online display, processing peak point integration and reporting HPLC data, Full 32/64 Bit Architecture software Software must be 21 CFR part 11 compliant fulfilling all effective regulatory requirements. Windows 10/8 environment or suitable Data reports, online help and wizards Data Integrity, Advanced Security, Audit Trails System suitability min 5 Parameter can be checked Template/Wizards saving & Auto run of templates along with simplified automatic common functions. Calibration curves facility Facility for data security, audit trails and electronic signatures etc., should be available for GLP and 21 CFR compliance.</p>
7.	<p>Columns (Pore Size 5 μ) :</p> <p>(i)C-18 Column : 4 Nos. (Two of 250x4.6 mm & Two of 150 x 4.6 mm). (ii)C-8 Columns : One of 250x4.6 mm Columns (Pore Size sub 2 μ) : (major use) (i)C-18 Column : 4 Nos. (One of 100x2.1 mm & One of 150 x 2.1 mm). (ii)C-8 Columns : One of 100x2.1 mm</p>
8.	<p>Accessories:</p> <p>1.(A) Vials : 1 ml pack of 100 vials & 2 ml pack of 100 vials (One Each) (B)Low insert vials (for low volumes) : A pack of 100 vials 2.Filtration Assembly consisting of (A) Sample Filtration Kit – One Nos. (B)Membranes [Type: Dual (Aqueous & Organic solvents)] Size 13 mm diameter with Poresize 0.45 μ – 10 Pkt of 100 membranes Size 47 mm of 0.45 μ Poresize ; Qty- 10 pkt of 100 membranes (C)Pre-filters – 10 pkt of 100 circles (D)Solvent filtration kit –One No (E)Imported Oil Free Vacuum pump – One No. (F)Nylon Syringe filters (13 mm ; 0.45 μ) – 2 Box of 100 filters. 3. MS Grade solvents of reputed brand (Merck/Fisher) (A) Methanol – 5 x2.5 Lit. (B) Acetonitrile- 5 x2.5 Lit (C) Water- 5 x2.5 Lit.</p>
9.	<p>Suitable PC & Printer with 10 KVA UPS of 60 minutes back up of reputed brands (PC-HP/Dell; Printer – Brother/Canon ; UPS- IPS/APS/GE) specification as under: Processor - Intel i7 Latest generation; RAM - 16 GB ; Hard disk - 2 TB ; Graphic Card; DVD writer; 21" TFT screen ; LAN Port ; USB 2.0 Ports (4 Nos.) ; Wi-Fi ; Multimedia Keyboard ; Optical Mouse</p>
10.	Operating System – Preloaded Windows 10/8
11.	Printer- Laser Colour Printer with duplex printing and LAN port.
12.	<p>Documents /Training and other notes:</p> <p>(i) The equipment should be certified by European CE marking or UL marking. (ii)Should have safety certificate from a competent authority like CE/Equivalent or valid detail of electrical and functional safety test. Copy of the certificate/test report shall be produced along with the technical bid (iii)Comprehensive guarantee period with spare parts for at least three years from the date of installation.</p>

<p>(iv) Instruction Manuals (Hard Copy or Soft copy as applicable) along with standard Operation Procedures (SOP) and appropriate Dust cover for the instrument.</p> <p>(v) Installation qualification (IQ), Operational Qualification (OQ) and Performance Qualification (PQ) documents should be provided at the time of supply of the instrument.</p> <p>(vi) Satisfactory technical and application training to the personals at the site after installation.</p> <p>(vii) CMC will be given @3% of net rate-inclusive of GST (as applicable) & yearly escalation of 5% on last year's CMC price. The CMC may be awarded for five years (on yearly basis) after completion guarantee period.</p> <p>(viii) Minimum of two routine maintenance services/inspections to be provided annually and any number of breakdown emergency calls should be attended during the guarantee period.</p> <p>(ix) Price quoted should be inclusive of their complete installation in all respects at site as per purchase order.</p> <p>(x) Final technical approval only after demonstration of the quoted product.</p> <p>(xi) Any other prerequisite required (if any) with specifications should be included with the instrument to run and complete the installation.</p>

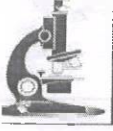
4) Technical Specifications for ICP-Spectrophotometer with accessories

Inductively Coupled Plasma Mass Spectrometer (ICP-MS) system consisting of Plasma Ion source, Vacuum system, quadrupole technology, mass analyzer, Ion detection system along with software and other accessories.	
1.	Sample Introduction : Computer controlled Four channel peristaltic pump, Peltier cooled spray Chamber, low mist nebulizer
2.	Sample Dilution: Software controlled Argon or aerosol dilution system or combination of argon and liquid dilution system should be included. The system should be able to analyse samples of TDS up to 20%. Productivity mode configuration should be offered
3.	Plasma RF Power Range : 650 W to 1500W or better
4.	RF Generator : 27 Mhz or Better as per system design If RF coil or equivalent coil is a consumable then additional coils should be quoted separately
5.	Alignment : Automatic and computer controlled
6.	Plasma view & Gases plasma view : Programmable computer controlled all gas flow system i.e nebuliser flow, auxiliary flow and plasma gas flow
7.	Auxiliary Gases : Built in option with programmable computer controlled system or equivalent facility.
8.	Ion Focusing, Cone interface setup & Gas cell modes a. Interface for best sensitivity for high matrix as well as low matrix samples b. Collision cell technology to remove polyatomic interference: The system should have collision and reaction cell technology for effective removal of polyatomic and isobaric interferences. The collision and reaction cell must operate effectively in collision mode using pure helium gas. The system should be operated in standards, Collision and reaction mode in a single run without changing any hardware parameter and this should be demonstrated post installation.
9.	Background noise and signal : Should be <1 cps
10.	Interference Removal System : Should be equipped with best in line technology, capable of operating in standard, collision and reaction modes.
11.	Controls & features : Gas controls should be inbuilt and software controlled. a. Argon gas humidifier must be quoted along with main instrument. b. Shield torch (if required) or suitable mechanism. (If shield torch is a consumable then it



	<p>should be clearly mentioned and additional shield torch should be quoted for five years of smooth operation)</p> <p>c. The system should be able to analyze high matrix samples and high sensitivity mode without changing any hardware in the interface</p> <p>d. Spray chamber provided along with the instrument should be of scott double pass or cyclonic and should have capability of peltier cooling from -10°C to 20°C or better</p>
12.	<p>Mass Analyzer :Hyperbolic or equivalent quad rods for required to achieve required sensitivity, detection limit, LDR etc. Dwell time 0.1 ms or better</p> <p>The system should be capable of analysing in both mass filter mode and mass shift mode.</p>
13.	<p>Range : 2 – 285 amu or better</p>
14.	<p>Scan Speed : 3700 amu sec or better</p>
15.	<p>Dynamic Range : Minimum 10 orders more</p>
16.	<p>RF Frequency : minimum 2Mhz to maximum 3 Mhz</p>
17.	<p>Mass calibration Stability : <0.05 amu over 8 hours of continuous operation</p>
18.	<p>Heat Exchanger :Suitable re-circulating Chiller changer for plasma component cooling.</p>
19.	<p>Setup and Detection Solutions : All setup and tuning solutions quoted should be available.</p>
20.	<p>System control and data acquisition</p> <p>The system should perform auto optimization of plasma parameters like plasma power, plasma gas flow etc. The instrument software shall allow auto - tuning to enable the instrument to be used with the consistent and reproducible day to day performance independent of the operator.</p> <p>Acquisition mode: Peak Jumping, scanning, Time resolved analysis, Isotope Ratio measurements using integral software.</p> <p>Analysis mode: Shall allow for semi quantitative analysis, external calibration and internal standard addition methods for fully quantitative analysis, allowing parts per trillion level analysis and isotope ratio measurements with precision better than 0.2 %.</p> <p>Report Generation: Output results formatted in mixed concentration units e.g. ppt, ppb, ppm etc.</p> <p>Quality control and software: Software for automated QA/QC during unattended operation. It must have all the features of CFR 21 Part 11 audit trails offered as standard.</p> <p>Offline data processing and exportability of data to other standard packages should be available.</p> <p>Matrix specific databases to provide preferred isotope selection should be available.</p>
21.	<p>Vacuum System :</p> <p>a. Suitable turbo molecular pump, corrosion resistant and protected</p> <p>b. Automatic chamber vacuum isolation when plasma extinguishes</p> <p>c. Automatic chamber vacuum isolation during system faults</p> <p>d. The instrument should be operational for quantification within 3 hours from cold start (Demonstration during performance qualification after installation)</p>
22.	<p>Certified standard required:-</p> <p>a. multielement EPA/water (02 Sets) ,1000 $\mu\text{g}/\text{mL}$ Fe, K, Ca, Na, Mg, 10 $\mu\text{g}/\text{mL}$ Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, Th etc.</p> <p>b. Tuning solution kits should be supplied.</p> <p>Multi-element NIST traceable standard</p>
23.	<p>Software: Original OEM Software's in Installable CD/Image Disks with licences for operation and complete data analysis.</p> <p>a. Should include all activation licenses/keys.</p> <p>b. All analysis parameters should be software controlled within a single method</p> <p>c. Should control all operating components</p> <p>d. Functionality like Internal standard stability, QC checks, error flag should be available.</p>

	e. Acquire and process data for quantitation in calibration curve fit modes
24.	<p>Accessories:-</p> <ol style="list-style-type: none"> 1. Dedicated Hydrofluoric Acid (HF) kit with separate inert torch, injector, Spray Chamber, tubing's, nebulizer etc. 2. High Purity Grade Gas cylinders with double stage regulators for ICPMS- (a) Argon (04 No.). (b) Helium, Hydrogen, Ammonia and Oxygen Gas cylinder (01 No each) 3. Gas purification panels with fittings for supplied gases, 4. Two stage manual manifold for Argon gas. 5. Suitable Fume hood/Exhaust system. 6. Suitable online UPS of 20 KVA of reputed brand only with one hour Backup for complete system.
25.	<p>Consumables for ICPMS :-</p> <ol style="list-style-type: none"> i. Standard Injector (03), ii. Oil Element /Mist Filter (02Set), iii. Standard Spray chamber (02 Set), iv. Standard Torch (04 Set), v. Peristaltic pump tubing for drain Pk/12 (04set), vi. Peristaltic pump tubing for sample Pk/12 (04 Set), vii. Vacuum Pump oil for 5 years of smooth operation. viii. Screw, Spacer & O-ring for cell (04) Set), ix. Tubing for drainage (04 set), x. RF coil (if consumable- only then) (02 Set), xi. Pt skimmer and Pt sampler cone (02 set) , xii. Ni slimmer and sampler cone (02 sets) , xiii. Electronic Multiplier Tube (EMT)-(01 Nos.) xiv. ICPMS Auto sampler 180 sample capacity or more vial with complete tubing set sample intake ,rinse& drain (02 set each), Auto sampler Injection Syringe/needle (02 set) with 1000 Vials.
26.	<p>Suitable/OEM recommended PC :- Suitable PC & Printer of reputed brand only specification as under:</p> <p>Processor - Intel i7 Latest generation; RAM - 16 GB ; Hard disk - 2 TB ; Graphic Card; DVD writer; 23" TFT screen ; LAN Port ; USB 2.0 Ports (4 Nos.) ; Wi-Fi ; Multimedia Keyboard ; Optical Mouse ; Operating System :- Windows 10/8 64 Bit architecture</p>
27.	Laser Colour Printer with duplex printing.
28.	<p>Documents and Training and other notes:</p> <ol style="list-style-type: none"> (i) The equipment should be certified by European CE marking or UL marking. (ii)Should have safety certificate from a competent authority like CE/Equivalent or valid detail of electrical and functional safety test. Copy of the certificate/test report shall be produced along with the technical bid (iii)Comprehensive guarantee period with spare parts for at least three years from the date of installation. (iv)Instruction Manuals (Hard Copy or Soft copy as applicable) along with standard Operation Procedures (SOP) and appropriate Dust cover for the instrument.



- (v) Installation qualification (IQ), Operational Qualification (OQ) and Performance Qualification (PQ) documents should be provided at the time of supply of the instrument.
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2. Date extension of Bid:-

Previous Last Date & time of receipt of Bid Form	New Last Date & time of receipt of Bid Form	Previous Date & time of opening of technical bid	New Date & time of opening of technical bid
21.10.2019 06:00 PM	31.10.2019 06:00 PM	22.10.2019 11:00 AM	1.11.2019 11:00 AM

Please note that all clarification/amendment/corrigendum in technical specifications/bid conditions is the integral part of the bid document. This corrigendum/ addendum should be signed and annexed with bid document.

All other terms & conditions remains the same.

Executive Director (EPM)
RMSCL, Jaipur

