

**Rajasthan Medical Services Corporation Limited, Jaipur**

Gandhi Block, Swasthya Bhawan, Tilak Marg, C-Scheme, Jaipur - 302005

Ph. No. 0141-2223887, Fax : 0141-2228065

E-mail : edepmrmisc-rj@nic.in

CIN:U24232RJ2011SGC035067

Website:www.rmssc.nic.in

No F-8(53) RMSC/EPM/M-5/17-18/NIB-260/ 5784

Dated: 12/12/17

**CLARIFICATION/CORRIGENDUM/ADDENDUM**

Subject: Amended technical Specifications of Bid document for Abbes / Butyro Refractometer, Muffle Furnace, Kjeldal Digestion Unit with Kjeldhal Distillation Unit, Automatic pipette washer, Laboratory Blender / Mixer, Electronic Weighing Balance (Electronic Type – Digital), Open Top balance (Electronic Type – Digital), Vaccum Oven with Vaccum Pump, Nephelometer / Turbidity meter, Pensky Marten Flash Point Test Apparatus, Conductivity Meter + pH Meter under NIB No. F8(53)RMSC/EPM/M-5/17-18/NIB-260/ 5063 Dated 11.10.2017

In Reference to above cited subject and NIB-260, the technical specification of items are here by amended as below:-

**Revised Specification of Food Lab items**

**Item No. 9/10: Abbes / Butyro Refractometer**

1. The Refractometer should be digital, compact in design & with reliable optics.
2. RI measurement range: 1.32 to 1.70
3. BRIX measurement range: 0 to 100%
4. Temperature control: Automatic with built in Peltier Thermo Module.
5. Temperature control range with Peltier : 10°C to 75°C.
6. **Resolution (RI): up to 5<sup>th</sup> decimal or more**
7. **Accuracy (RI): up to 4<sup>th</sup> decimal or more**
8. Light source: LED lamp with average lifetime of 100,000 h
9. Data Interfaces: RS 232 port for printer connection, USB port.
10. Recording of data on system's internal memory.
11. Compliance: 21 CFR part 11
12. Automatic temperature correction.
13. The provision for setting the limit (fail & pass) for the respective test sample should be inbuilt.
14. Should be supplied with standard solution for calibration of RI & BRIX.
15. Manufacturer of Equipment should be ISO 9001 certified.
16. Equipment should be US FDA / European CE certified.
17. **Guarantee: Three years** on equipment, accessories and all peripherals / sub systems from the date of installation, which Includes 2 visits and unlimited breakdown calls by service/application support engineer during the Guarantee period.
18. **CMC: CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years.**
19. Installation will be done by supplier free of cost including all parts like wires, tubes, joints & attachments, small fixtures etc.

**Item No. 24 : Specification of Muffle Furnace**

1. Internal Dimensions of the furnace (Depth × Width × Height) in mm : 300×300×300
2. Working Temperature : up to 550°C or better
3. Heating Element : Silicon Carbide (SiC)
4. Temperature Accuracy : ±1°C or better
5. Temperature Control : Through microprocessor based PID controller with minimum 30 steps
6. Furnace Insulation : Ceramic wool
7. Temperature settings & Display : Digital and double display
8. Power source : 220 V ,50Hz single phase
9. Out body and inner body : Stainless Steel
10. Equipment should be CE certified.

  
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11. **Guarantee: Three years** on equipment, accessories and all peripherals / sub systems from the date of installation, which Includes 2 visits and unlimited breakdown calls by service/application support engineer during the Guarantee period.
12. **CMC: CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years.**
13. Accessories required
  - a. Stainless Steel Tongs (15-20 Inch)- 02 No
  - b. Furnace gloves-02 Pairs

**Item No. 13/14: KJELDHAL DIGESTION UNIT with KJELDHAL DISTILLATION UNIT**

Should be **Automatic & Digital type.**

1. KJELDHAL DIGESTION UNIT should have estimation of Nitrogen contents by digestion of 300 ml capacity flasks provided with lead fume duct and pair of hangers for six tests.
2. Should be supplied with KJELDHAL DISTILLATION UNIT Useful for distillation purpose for 300 ml capacity flask provided with condenser rack, for six tests.
3. Should be supplied with 50 mL digital auto burette set with glass parts .
4. Should be CE Certified.
5. **Guarantee: Two years** on equipment from the date of installation on all Parts of equipment including metal fitting / tubes / Glass parts etc. against manufacturing defects.
6. **CMC: CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years.**

**Item No. 22 : Automatic pipette washer**

1. Complete Body and Holder should be Made Of Stainless Steel
2. Should Consists Of Stainless Steel Washing Cylinder Removable Pipette Holder To Accommodate Pipettes Up to 375 mm. In Length
3. Should Consists Of Stainless Steel Washing Cylinder and a Removable Pipette Holder for Easy Cleaning.
4. Should have selection of cool wash & heat wash facility.

**Item No. 15 : LABORATORY BLENDER / MIXER**

1. Container capacity: one ltr.
2. Switching setting 14000 – 18000 rpm
3. should have Motor : universal , 450 watts
4. Timer : selective timer cycle from 0. 1 to 5 minutes for automatic blending or manual control setting for continuous running.
5. Base : Epoxy Coated Motor Housing
6. Container: Stainless steel with handle and two piece vinyl and styrene lid 8010S. Heat resistant glass with handle and two piece vinyl and styrene lid 8010G.
7. power Cord should be 3 mtr length .
8. Equipment should be **CE Certified** .
9. **Guarantee: Two years** on equipment from the date of installation on all Parts of equipment ,including metal fitting / motor / Glass parts etc. against manufacturing defects
10. **CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of two years.**

**Item No. 20 : Electronic weighing balance (electronic type – Digital)**

1. Weigh accurately least count=0.1mg,EMFC technology, Operating temperature 10 to 45° C, RS 232 to USB converter.
2. Fully automatic time and temp. Controlled internal Calibration and balance should be capable to adjust itself.
3. Auto zero setting.
4. Weighing capacity up to 220 gram.
5. Balance should have- liquid crystal display (LCD) with multi parameter display illuminated by white back light, stainless steel weighing pan.

**Terms & Conditions:**

1. Equipment should be **ISI/ CE certified**.
2. Equipment model should be approved from department of legal metrology.
3. **Guarantee: Two years** on equipment from the date of installation.
4. **Comprehensive Maintenance Service: CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of two years.**
5. Installation & Training will be done by supplier free of cost.
6. The service engineer should be based in Rajasthan.
7. The company should mention the make & model name / number of the quoted equipment and submit the technical brochure of the quoted model in the Technical bid along with compliance sheet as per technical specifications.

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**Item No. 21 : Open Top balance (electronic type – Digital)**

1. Weigh accurately least count= 10mg, EMFC technology, Operating temperature 10 to 45° C, RS 232 to USB converter.
2. Fully automatic time and temp. Controlled internal Calibration and balance should be capable to adjust itself.
3. Auto zero setting.
4. Weighing capacity up to 3 KG.
5. Balance should have- liquid crystal display (LCD) with multi parameter display illuminated by white back light, stainless steel weighing pan.

**Terms & Conditions:**

1. Equipment should be ISI/CE certified.
2. Equipment model should be approved from department of legal metrology.
3. **Guarantee:** Two years on equipment from the date of installation.
4. **CMC:** CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of two years.
5. Installation & Training will be done by supplier free of cost.
6. The service engineer should be based in Rajasthan.
7. The company should mention the make & model name / number of the quoted equipment and submit the technical brochure of the quoted model in the Technical bid along with compliance sheet as per technical specifications.

**Item No. 19 : Vacuum Oven with Vacuum Pump**

1. Should be Double Walled (Size 12"x12"x16").
2. Outer Chamber made of M.S. Powder Coated
3. Inner chamber is made of STAINLESS STEEL (304 grade).
4. Thermal loss is prevented by filling mineral wool (Insulation) in space between the outer body & Inner chamber.
5. Provided with Door Gasket for proper sealing.
6. Fitted with heavy hinges & door closing device.
7. See through transparent window of toughened glass is provided at the front.
8. Adjustable two air controlling valves are fitted for creation of vacuum in the chamber & release.
9. Heating elements are made of high quality Nichrome/Kanthal wire are embedded around the chamber/self heating chamber.
10. Temperature is controlled by electronic digital temperature indicator cum controller from below 50°C to 130°C or more  $\pm 0.1$  °C. fitted on the front panel for easy operations.
11. Temperature is displayed by Digital LED with SV and PV display at front of the oven.
12. Front Panel is provided with ON/OFF switch, temperature controller and indicators
13. Supplied with cord and plug.
14. Special Specification :  
Temperature Controller : By Microprocessor Based PID Digital Temperature Indicator cum Controller  
Temperature Sensitivity : 0.1 °C  
Relay : Solid State Electronic relay with protective heat sink
15. should be supplied with Vacuum Pump of following specification :
  - a) It should be oil free diaphragm vacuum pump
  - b) Ultimate Vacuum should be 2 metric cube per hour with Digital display.
  - c) Suction/ Flow capacity should be 7mbar or below 7mbar.
  - d) It should be less power consumption below 200 Watt.
  - e) Standard warranty is 3 years or more as given by manufacturer.

**Other Terms & Conditions:**

1. Manufacturer of Equipment should be ISO 9001 certified.
2. Equipment should be CE certified.
3. **Guarantee:** Two years on equipment, accessories and all peripherals / sub systems from the date of installation, which Includes 2 visits and unlimited breakdown calls by service/application support engineer during the Guarantee period.
4. Installation will be done by supplier free of cost including all parts like wires, tubes, joints & attachments, small fixtures etc.
5. Firm should mention all the pre-installation requirements in technical bid.
6. **CMC:** CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of two years.

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**Item No. 16 : Nephelometer / Turbidity meter**

1. Should have 3½ Digit 7-Segment LED display.
2. Range 0 - 200 NTU (in 2 Ranges), 0 - 20, 200 NTU
3. Resolution 0.01 NTU
4. Accuracy  $\pm 2\%$  FS,  $\pm 1$  Digit
5. should have Photocell/Photodiode Detector
6. should have Sample System 30 mm Clear Glass Test Tubes
7. should have Light Source 6V Tungsten Lamp
8. Power 230V  $\pm 10\%$ , 50Hz AC
9. should be supplied with required accessories , Test tube Set, Operation Manual, Dust Cover.
10. Meter should comply to both **EPA and ISO 7027 methodologies**
11. Should be supplied with **Digital stop watch**.
12. Equipment should be **CE Certified**.
13. Guarantee: Two years on equipment from the date of installation on all Parts of equipment including metal fitting / tubes / Glass parts etc. against manufacturing defects.
14. **CMC: CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of two years.**

**Item No. 17 : CLOSED CUP METHOD PENSKY MARTEN FLASH POINT TEST APPARATUS**

1. Should have Temp. Range: 79 to 400° deg C.
2. Should comply Test Method Closed cup : ISO 2719 , ASTM D 93 , IP 34 , IS 1448 ( P-21).
3. Ignition Source: Gas Flame with two Pilot electric Coil.
4. Temperature Sensor : PT-100 in stainless steel sheath.
5. Flash/Fire Detector: Ionization principle based flash-detector sensor.
6. Controller: Microprocessor based process controller cum indicator with LED Display with Key Pad with audio visual alarm to check the machine. 3-wire RTD temperature sensor, free potential flame detector sensor as i/p. with automatic barometric reading correction.
7. It is with PC Interface for data storing.
8. Flame-Sampling Arrangement: 10 Rpm, D.C. 12 v or 24V DC, gear motor, vertical movement reciprocating to & fro motion.
9. Heater: 800 W, 230 v.
10. Electrical ignition for pilot flame-sampling. Ignition transformer having continuous o/p of 10.6 Kv. D.C. from 230 v A.C. i/p.
11. Guarantee: Two years on equipment from the date of installation on all Parts of equipment including metal fitting / tubes / Glass parts etc. against manufacturing defects.
12. **CMC: CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of two years.**

**Item No. 11/ 12: Conductivity Meter + pH Meter**

1. Large Backlit graphic display which shows pH and Conductivity together & also separately.
2. Informative display shows Electrode Status, time, date, sample ID, User ID and Calibration Points
3. 5 Point pH Calibration with automatic recognition of buffers (for US/NIST and DIN)
4. Calibration edit facility to fix calibration errors without full recalibration
5. Non volatile memory holds up to 2000 data points with time and date stamp.
6. Transfer of data with USB and RS232 ports and complimentary data analysis software
7. Power as well as battery operated
8. Manufacturer of Equipment should be ISO 9001 certified.
9. Equipment should be US FDA / European CE certified.
10. **Guarantee: Three years** on equipment, accessories and all peripherals / sub systems from the date of installation, which Includes 2 visits and unlimited breakdown calls by service/application support engineer during the Guarantee period.
11. **CMC: CMC shall be given @ 3 % of net rate excluding GST (as applicable). The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years.**
12. Installation will be done by supplier free of cost including all parts like wires, tubes, joints & attachments, small fixtures etc.

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**TECHNICAL SPECIFICATIONS:**

**pH**

Range : -2.00 to 20.000  
Resolution : 0.1, 0.01, 0.001  
Relative Accuracy:  $\pm 0.002$   
pH Calibration Points: Up to 5  
Calibration Editing: Yes

**mV**

Range-mV :  $\pm 2000.0$  mV  
Resolution : 0.1  
Relative Accuracy:  $\pm 0.2$  mV or  $\pm 0.05\%$  of reading whichever is greater

**Conductivity**

Ranges, : 0.001  $\mu$ S to 3000 mS  
Resolution, : 0.001  $\mu$ S minimum ; 4 significant figures minimum  
Relative Accuracy : 0.5 % reading  $\pm 1$  digit  
Reference Temperature : 5,10,15, 20,25°C (default)  
Temperature Compensation : Linear (0 to 10.0 %/°C), nLn, nLFu, EP  
Calibration Editing : Yes

**Resistivity**

Range : 2 ohm to 100 meg-ohm  
Resolution : 2 ohms-cm  
Relative Accuracy :  $0.5\% \pm 1$  digit

**Salinity**

Type : Practical salinity or natural sea water  
Range : 0.01 to 80.0 ppt NaCl equivalent; 0.01 to 42 ppt practical salinity  
Resolution : 0.01  
Relative Accuracy :  $\pm 0.1$

**TDS**

Ranges : 0 to 200 ppt  
Resolution : 4 significant digits  
Relative Accuracy :  $\pm 0.5\% \pm 1$  digit

**Temperature**

Range : -5 to 105°C, 23 to 221°F  
Resolution : 0.1

**Data logging**

Number of points : 2000 with time and date stamp  
Log Function : Manual, ready , timed  
Log Edit : Delete individual points, group of points or all

**Inputs**

pH Electrode : BNC, reference pin  
ATC Probe : 8-pin mini-DIN

**Output** : RS232, USB

**Power**

AC Adapter : Included-universal, 100-240 VAC  
Battery Power: Optional- 4 AAs  
Battery Life : 800 hrs

**Instrument should be supplied with following accessories :**

1. Epoxy body pH/ATC electrode, - 1 No.
2. Conductivity Electrode (Range 1mS/cm to 200mS/cm) - 1 No.
3. pH Buffers, 4, 7 & 10 - 475 ml - 1 No. each
4. Conductivity standard, 1413 mS - 1 No.
5. Built-in electrode stand - 1 No.

**Note: Please note that all above amendments/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 and conditions of bid shall remain the same.

This bears the approval of M.D., RMSCL, Jaipur

  
12.12.2017  
Executive Director (EPM)  
RMSCL, Jaipur