**TECHNICAL SPECIFICATIONS FOR LABORATORY EQUIPMENTS FOR TESTING DEPARTMENT**

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|  | LABORATORY | INORGANIC, FOOD AND AGRICULTURE-HEADQUARTERS | QTY | 4 |
| 1 | Automatic Titrator | Application/Scope Titrimetric analysis of various samples for different parameters |  |  |
|  |  | 1. Main Features |  | 5 max |
|  |  | A software driven automated titration unit pre-programmed with provision for input of user developed methods. |  |  |
|  |  | 2. Performance Specifications |  | 85 max |
|  |  | Application: Potentiometric |  | 10 |
|  |  | Automation: shall be fitted with an autosampler, automated titration stand and liquid handler |  | 10 |
|  |  | Titration control: shall be fitted with a touch pad homescreen for user control |  | 5 |
|  |  | Burette drives: Maximum number to dose and titrate (one internal+three external) |  | 10 |
|  |  | User methods: 150 maximum |  | 5 |
|  |  | Ion standard addition: shall be accomodated |  | 5 |
|  |  | Method functions per method: 15 minimum |  | 3 |
|  |  | Loops per method: 3 minimum |  | 3 |
|  |  | Run: shall be continuous |  | 3 |
|  |  | Series sequences: 10 minimum |  | 2 |
|  |  | Samples per series: minimum 300 |  | 5 |
|  |  | Predefined/preinstalled methods: 70 minimum |  | 4 |
|  |  | Sensor boards: shall be fitted with pH/mV(conductivity or coulometry), potentiometric and polarized sensor boards |  | 5 |
|  |  | Sensor inputs: shall be provided matching the installed boards |  | 5 |
|  |  | Homogenizer: shall be fitted |  | 5 |
|  |  | Status light and event sounds: shall be installed |  | 5 |
|  |  | 3. Other requirements |  | 10 max |
|  |  | PC: compatible PC with pre-installed software shall be supplied |  | 5 |
|  |  | Software: compatible software shall be installed and back up supplied |  | 3 |
|  |  | Data export/printing: RS-232, USB, Ethernet, PDF |  | 2 |
|  |  | MINIMUM SCORE |  | 95% |

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| NAME OF LABORATORY: CHEMISTRY LABORATORY | | | LOCATION: KISUMU | |
| S/No | EQUIPMENT | SPECIFICATION | QUANTITY | WEIGHTING (%) |
| 2 | Multirisk Safety Cabinets for Acids, bases and general laboratory reagents | Application/Scope Storage of acids, bases and other liquid laboratory reagents | 2 |  |
| 1. Main Features |  | 5 max |
| The cabinet shall comply with EN 14470-1 specification for Type 90 or 60 multirisk safety cabinets. |  | 5 |
| Shall be fitted with an inbuilt filtration system or equivalent external exhaust vent |  |  |
| 2. Performance Specifications |  | 85 max |
| FLAMMABLE COMPARTMENT |  |  |
| Double wall construction: outer housing made of sheet steel; inner body made of H.P.L (High pressure laminated) coated sheet |  | 4 |
| Thermal insulation panel between the walls avoiding thermal bridges shall be installed |  | 4 |
| White epoxy paint RAL 9010. |  | 0.5 |
| "Flammable" and "No open flame" large warning labels shall be placed. |  | 0.5 |
| Static ground connection shall be available |  | 1 |
| Opening vents with outlet Ø 100 mm for possible external connection shall be installed |  | 4 |
| In case of fire a thermo-fuse automatically seals off the ventilation system. |  | 4 |

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|  |  | Thermo-expanding seals off the door allow keeping the internal body fireproof shall be in place |  | 3 |
| Self-locking door with cylinder lock type |  | 1 |
| Key-locking system |  | 1 |
| Possibility to keep the door open. If the temperature rises to 50°C, a fuse link closes the door automatically. |  | 5 |
| 3 adjustable retention shelves shall be available |  | 3 |
| Removable retention tank on the bottom. |  | 1 |
| TOXIC COMPARTMENT |  |  |
| Built in white Cellular PVC. |  | 3 |
| "Toxic" large warning label shall be placed |  | 3 |
| High and low vent. |  | 3 |
| Handling glazed door with key-locking system. |  | 3 |
| 1 retention sliding drawer shall be fitted |  | 1 |
| BASES COMPARTMENT |  |  |
| Built in white Cellular PVC. |  | 4 |
| Bases" large warning label shall be clearly placed |  | 4 |
| High and low vent |  | 4 |
| Handling glazed door with key-locking system |  | 4 |
| 1 retention sliding drawer shall be fitted |  | 4 |
| ACID COMPARTMENT |  |  |
| Built in white Cellular PVC. |  | 4 |
| Bases" large warning label shall be clearly placed |  | 4 |
| High and low vent |  | 4 |
| Handling glazed door with key-locking system |  | 4 |
| 3 retention sliding drawer shall be fitted |  | 4 |
| 3. Other requirements |  | 10 max |
| Shall be accompanied with a certificate of compliance to EN 14470-1 and fire resistance test report |  | 4 |
| Warranty of aleast 2 years shall be provided |  | 6 |
|  |  | MINIMUM SCORE |  | 90 |

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| NAME OF LABORATORY: NDT LOCATION: NAIROBI | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 3 | Phased array Ultrasonic flaw detector | Application/Scope | Equipment for Ultrasonic Inspections-to locate discontinuities & other flaws in ferrous & nonferrous materials | 1 (ONE) |  |
|  |  | 1. Main Features | | | 5 Max |
| Standard accessories-probes/transducers, calibration blocks | | |  |
| Cables | | |  |
| Battery charger | | |  |
| Extra battery | | |  |
| Corrosion module software | | |  |
| Back Wall Echo Attenuator (BEA) | | |  |
| TOTAL SCORE | | | 5 |
|  | | |  |
| 1. Performance Specifications | | | 85 |
| Manufactured to meet minimum requirements of BS EN12668-1 | | |  |
| Automated calibration- Velocity, zero offset | | |  |
| Angle beam (sound path or depth) | | |  |
| Portable & of light weight ≤1.5 Kg | | |  |
| Test mode: Pulse Echo, Dual; Thro Transmission | | |  |
| Scanning range(mm) 10000-20000 | | |  |
| Gate alarming Positive and negative threshold/curve, minimum depth | | |  |
| Single lithium-ion rechargeable standard; 6 h life | | |  |
| Data storage 100,000 IDs onboard; removable Micro SD card(standard) | | |  |
| Transducer connections :BNC/LEMO 00 | | |  |
| Battery/accumulator operational time ≥6 hrs | | |  |
| Temperature range-20°c to 50°c | | |  |
| Engineered to IP65/67 and drop tested | | |  |
| Transmitting pulse shape-square wave; uni-directional or bi-directional | | |  |
| Sound velocity range in material (m/s): 635 to15240 approximately | | |  |
| Calibrated attenuator-cumulative error in (fine gain control) ±1 dB | | |  |
| Calibrated attenuator-cumulative error in (coarse gain control)±2dB | | |  |
| Dead time after transmitter pulse approximately 10µs | | |  |
| Standard dynamic DAC/TVG, onboard DGS/AVG | | |  |
| Temperature range-20°c to 50°c | | |  |
| TOTAL SCORE | | | 85 |
|  | | |  |
| 1. Other requirements | | | 10 |
| Power (AC- 220-240V, 50 Hz) | | |  |
| Supply voltage (accumulator)12V (DC)±10% | | |  |
| Installation and Commissioning ( To be done) | | |  |
| Operation and Service Manuals- (All Manuals in English) | | |  |
| Warranty and Nearest service center ( To be indicated) | | |  |
| Training - (onsite training during installation) | | |  |
| Warranty ( At least one year) | | |  |
| TOTAL SCORE | | | 10 |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
| MINIMUM SCORE REQUIRED % | | | 90 |
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|  | LABORATORY | NDT | |  |  |
|  | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 3 | DIGITAL RADIOGRAPHY X-RAY IMAGING SCANNER | Application/Scope | The scanner is used to acquire digital images using a phosphor imaging plate in place of the conventional films. It eliminates the use of a dark room. This gives advantages of immediate image preview and availability; elimination of costly film processing steps & ability to apply special image processing techniques that enhance overall display quality of the image. | 1 (ONE) |  |
|  |  | 1. Main Features | | | 5 Max |
| Standard accessories-probes/transducers, calibration blocks | | |  |
| Cables | | |  |
| Battery charger | | |  |
| Lithium ion battery capable of operating scanner for more than two (2) hours with electrical specifications 24V/3-8Ah/total capacity 95.76 WH and dimensions being 150×65×105mm and weight >1kg | | |  |
| Transport case | | |  |
| Four (4) sets of 10×24 cm foil sleeve | | |  |
| Four (4) sets of 10×48 cm foil sleeve | | |  |
| 1000 pieces per box of 10×24 cm Light Protection sleeves | | |  |
| 1000 pieces per box of 10×48 cm Light Protection sleeves | | |  |
| One (1) piece 10×24 cm imaging plate | | |  |
| One (1) piece 10×48 cm imaging plate | | |  |
| Built in Mini PC | | |  |
| 3.2GB Memory card | | |  |
| 3.2GB Memory card | | |  |
| Scanner& software | | |  |
| TOTAL SCORE | | | 5 |
|  | | |  |
| 1. Performance Specifications | | | 85 |
| Scanner& software | | |  |
| Laser focused technology | | |  |
| 12.5µm laser spot | | |  |
| Standard wireless interface | | |  |
| On-line and off-line operation | | |  |
| Intelligent and user friendly software for capturing, analyzing, reporting and archiving inspection data. This must include X-ray module software per port | | |  |
| Software for acquisition and storage of digital x-ray images for every port | | |  |
| Laser focused technology | | |  |
| TOTAL SCORE | | | 85 |
|  | | |  |
| 1. Other requirements | | | 10 |
| Installation and Commissioning ( To be done) | | |  |
| Operation and Service Manuals- (All Manuals in English) | | |  |
| Training - (onsite training during installation) | | |  |
| Warranty ( At least one year) | | |  |
| Back Wall Echo Attenuator (BEA) | | |  |
|  | | |  |
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| TOTAL SCORE | | | 10 |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
| MINIMUM SCORE REQUIRED % | | | 90 |

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|  | LABORATORY | NDT | |  |  |
|  | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 4 | ULTRASONIC THICKNESS GAUGE | Application/Scope | The gauge is used for all thickness measurements, Paints and coating measurements. | 2 (TWO) |  |
|  |  | Main Features | | | 5 Max |
| Measure non-destructive coatings (paints, plastics ...) on steel / iron and non-ferrous metals | | |  |
| Immediately ready to measure | | |  |
| Wear-resistant sensor | | |  |
| V-groove for measurement on pipes | | |  |
| One-handed operation | | |  |
| ISO calibration | | |  |
| Incl. transport case | | |  |
| TOTAL SCORE | | | 5 |
|  | | |  |
| 1. Performance Specifications | | | 85 |
| **Verifiable Materials**  Steel, Aluminium, Brass, Quartz, Polyethylene, Grey Cast Iron, Cast Iron, Copper, Zin and Glass PVC | | |  |
| **Accuracy**  ±0.1mm (0.0039inch) | | |  |
| **Power Supply**  (Replaceable) – Average 25,000 plus measurements per battery low charge indication (battery life approx. 50 hours) | | |  |
| **Display**   LCD Numeric Digital Display with a resolution of 0.1 | | |  |
| Operating Temperature   * -20°C to +70°C (68°F to 158°F) * Relative Humidity- 10% - 90% | | |  |
| Sensor  Measuring Range: 1.5mm – 99.9mm | | |  |
|  | | |  |
| TOTAL SCORE | | | 85 |
|  | | |  |
| 1. Other requirements | | | 10 |
| Operation and Service Manuals- (All Manuals in English) | | |  |
| Training - (onsite training during installation) | | |  |
| Warranty ( At least one year) | | |  |
|  | | |  |
| TOTAL SCORE | | | 10 |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
| MINIMUM SCORE REQUIRED % | | | 90 |

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|  | LABORATORY | ORGANIC | | HQ |  |
|  | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 5 | Automated Distillation Unit | APPLICATION | Capable of performing Distillation for liquid fuel which cover Group 0-4 | 1 |  |
|  |  | 1. Main Features | | | 5 |
| Easy to use mistake proof unit, Quick connection for flask, Self-positioning heater lift, Automatic heater base plate detection, One button straight forward operation, Superior precision from the first run, Measuring of the Charge Volume, Enhanced instrument features, Reduced VOC emission, Stand Alone Unit or networked with a PC, Compatible with HLIS or ALAN, Customized Printer Reports, Built in Printer, Flexible LIM communication, Small Foot Print | | | 2 |
| A compact self-contained instrument with factory filled CFC-free cooling system, delivered with all accessories to immediately begin testing. It includes 125ml flask, 100ml receiver, vapor probe with centering device, heater plates 38 and 50mm, flask connection silicone tube, receiver cap and condenser cleaner | | | 3 |
| Total | | | 5 |
| Performance Specifications | | | 85 |
| METHOD  ASTM D86 (group 0,1,2,3,4), D1078, D850, IP195, IP123, DIN51751, NFM07-002, EN ISO3405, JIS K2254, ISO918; ASTM D189, D524, D4350. EN ISO 10370\*  \*Can prepare the 10% bottom residue for EN ISO 10370 | | | 5 |
| Analytical Principle  Flask Heating System  Low mass and low voltage, self-positioning heating system  Unique Optimizer function for fully automatic initial heat settings, distillation rate regulation and final heating regulation; to start test select the group and push start button; automatic residue calculation.  Condenser System  Temperature range from 0 to 65°C (32 to 149°F); programmable constant temperature, temperature ramping or special temperature profile; instantaneously ready at switch on; automatic cooling liquid level detection  Receiving Chamber  Temperature range from 0 to 40°C (32 to 104°F); corrosion proof design; programmable temperature or automatic adjustment to sample charge temperature; compatible with 100ml and 200ml receiver cylinders  10% Distillation Residue.  Can create the 10% Distillation residue with 100 or 200ml sample which can be used for Carbon Residue Measurement according to the following methods: ASTM D189, D524, D4530, EN ISO 10370  Distillation Rate: Distillation Rate regulation 2 to 10 ml/min | | | 10 |
| Vapour Temperature: Range: 0 to 450°C (32 to 842°F), accuracy Pt 100 IEC 751 probe Class A | | | 5 |
| Sample Volume  Optical measuring system compatible with samples producing smoke in the receiver; range 0 to 103% charge volume; resolution: 0.03ml, accuracy: ± 0.1ml | | | 5 |
| Calibration  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate  Calibration: Single point against reference barometer | | | 5 |
| DISPLAY: Large graphic TFT-LCD color touch-screen with solvent-proof protection | | | 5 |
| Capable of giving perfect results from the first run, even for “unknown” samples! | | | 5 |
| SAFETY AND ERROR PREVENTION  Fire extinguisher - Built in fire extinguisher with 2 fire sensors  Reduction of VOC emission - Drastically reduced emission of VOC (Volatile Organic Compounds)  User Error Prevention - Detector for heater base plate type, detectors for vapor probe and centering device, detectors for “receiver cylinder in place” and “receiver chamber door open”, detector for “condenser cleaned” | | | 10 |
| POWER REQUIREMENTS  Multi Voltage 100 to 240V; 1400W  Frequency: 50/60Hz | | | 5 |
| Ambient Pressure: Built-in pressure sensor, range to 70 to 110 kPa A (500 to 800 mmHg) | | | 5 |
| Humidity: Relative humidity up to 80% at 35°C (95°F) | | | 5 |
| Operating Temperature: 10 to 35°C (50 to 95°F); | | | 5 |
| Installation and user training, hard copy manual | | | 5 |
| 1. CRM reference material, Distillation flask | | | 5 |
| Dimensions: 44cm W \* 57cm D \* 65cm H (17,3’’ \* 22,4’’ \* 25,6’’)  Weight: 68kg (150lb) | | | 5 |
| TOTAL SCORE | | | 85 |
| Other requirements | | | 10 |
| Installation and Commissioning -to be indicated | | | 2 |
| Operation and Service Manuals- All Manuals in English | | | 2 |
| Warranty and Local service Centre/Representative (with local –to be indicated | | | 2 |
| Brochures for the equipment to be provided during quotation | | | 2 |
| Training: On-site during installation and commissioning | | | 2 |
| TOTAL SCORE | | | 10 |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |

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| NAME OF LABORATORY: PETROLEUM LOCATION: HQ | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 6 | BOMB CALORIMETER | Application/Scope | Analysis of Caloric value in solid and liquid fuel | 1 |  |
|  |  | TECHNICAL DATA. | | |  |
| Measuring range max: 40,000j/ 9560 Cal | | | 10 |
| Temperature measurement resolution: 0.0001 k | | | 15 |
| Measuring mode: Isoperibol Dynamic Adiabatic | | | 15 |
| Reproducibility: 0,05 to 0,15 | | | 15 |
| Measuring per hour: Isoperibol 4Dynamic 6Adiabatic 5 | | | 15 |
| Start temperature: 22°C, 25 °C, 30 ° | | | 15 |
| Decomposition vessel identification: Automatic | | | 5 |
| Decomposition vessel C 6010 | | | 5 |
| Interfaces Possible: PC & Printer | | | 5 |
| Automatic water filling and draining Yes | | | 1 |
| Automatic Ignition  Automatic oxygen filling, venting, flush | | | 1 |
| Cooling with 2 basic chiller | | | 2 |
| Cooling medium temperature min.12 °C | | | 2 |
| Cooling medium temperature max.27 °C | | | 5 |
| Cooling medium permissible operating pressure1,5 ba | | | 5 |
| GENERAL DATA | | |  |
| Weight 29 Kgs | | | 2 |
| Dimensions(l\*w\*h) 500 × 450 × 450 m | | | 2 |
| Permissible ambient temperature 20-30 | | | 2 |
| Permissible relative humidity 80% | | | 2 |
| Voltage 220 – 240 | | | 2 |
| Pressure gauge, oxygen C 29 | | | 2 |
| Power input 1700W | | | 2 |
| TOTAL SCORE | | | 90 |
| Other requirements | | |  |
| 1. Installation and Commissioning -to be indicated | | | 2 |
| 1. Operation and Service Manuals- All Manuals in English | | | 2 |
| 1. Warranty and Nearest service Center –to be indicated | | | 2 |
| 1. Brochures for the equipment to be provided during quotation | | | 2 |
| 1. Training - onsite training during installation | | | 2 |
|  |  | TOTAL SCORE | | | 10 |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | 100 % |
|  | MINIMUM SCORE | | | | 95% |

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| S. No | EQUIPMENT | SPECIFICATION | | Quantity | Location | Weight (%) |
| 7 | Automated multi – range Viscometer | Application/Scope | Unattended, Continuous Viscosity Measurement; Simultaneous testing of two samples at two different temperatures with integrated auto samplers. | 1 | Organic |  |
| Performance Specifications | | | | |
| Standard test methods: ASTM D445,IP 71 section 1,ISO 3104, EN ISO 3104 | | | | 10 |
| Viscosity range:  Standard: 0.5-5000 cst (mm2/s) @40 °C (68°C), 0.5-2000 cst (mm2/s) @100 °C (212°F)  Fast Run: 0,5 – 600 mm2/s at 40/100°C (68/212°F) | | | | 10 |
| Bath Temperature Range: User programmable from 20 °C 150°C (68 - 302°F) | | | | 10 |
| Bath Temperature stability:  100°C better than ± 0.01°C (±0.02°F), > 100°C better than ± 0.03°C (±0.05°F) | | | | 10 |
| Bath Temperature Uniformity:  Proportional heat control resolution 0.001°C, high velocity bath media circulation | | | | 10 |
| Sample induction:  Via 26-position auto samplers (one sampler per bath), automatically draw sample directly from sample vial. Programming window automatically opens when samples are placed, allowing user to key in sample ID and start testing. | | | | 5 |
| Sample Volume:  Standard: 18 ml  Fast Run: 4 ml | | | | 5 |
| Detection:  Two multi range tubes. Thermal (TNC) meniscus detection/timing | | | | 6 |
| Documentation:  Results data base with powerful data handling features; Numeric display  VI, dynamic viscosity and M-value calculations; Automatic correction (gravity and energy) | | | | 5 |
| Auto cleaning:  Dual solvent system with programmable cycle parameters; Low solvent usage, no external vacuum pump required ; Built-in automatic detection of cleaning solvent availability; Seals compatible with aggressive solvents such as acetone. | | | | 5 |
| Accessories:  PC with Software for Data management and Interfaces  Printer for results  Cooling accessories: cooling control system  Slop accessories: sensor detects a full slop container and prevents overflow | | | | 8 |
| Safety device:  Over temperature protection; Low liquid level power cutoffs  Dual panes insulate bath media and contain heat; CE approved for safety | | | | 4 |
| Dimensions and weight:  49cm, 75cm, 127cm (W,D,H) 80kg without bath liquid | | | | 4 |
| Power Supply:  230 ±10% Volts, 50-60 Hz | | | | 4 |
| Warranty: At least two years | | | | 2 |
| Local service Centre/Representative (with local –to be indicated | | | | 2 |
| TOTAL SCORE | | | | 100 |
|  |  | MINIMUM SCORE REQUIRED | | | | 95 |

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| NAME OF LABORATORY: POLYMER | | | LOCATION: HEADQUARTERS | |
| S/No | EQUIPMENT | SPECIFICATION | QUANTITY | WEIGHT (%) |
| 8 | FLUE GAS ANALYZER | Application/Scope Portable flue gas oxygen, carbon monoxide, carbon dioxide & oxides of nitrogen, for checking combustion efficiency, air infiltration, NOx emissions, and burner & control performance of furnaces, heaters, and boilers. | 1 |  |
|  |  | 1. Main Features |  | 5 max |
|  |  | Size and weight approx.: 26 x 18 x 13 cm @ 3.4 kg (10″ x 7″ x 5″ @ 7.5lbs) |  |  |
|  |  | *Total* |  | 5 |
|  |  | 2. Performance Specifications |  | 85 max |
|  |  | Infrared and electrical chemical sensors |  | 20 |
|  |  | Ranges: 0-200 to 0-2000 PPM NOx (as NO); 0-1800°F (0-1000°C) net stack temperature (362T)  0-25.0% O2; 0-2000 PPM to 0-4.00% CO (switch selectable) |  | 25 |
|  |  | Resolution: 0.1% O2; 1 PPM on CO and NOx |  | 20 |
|  |  | Drift: ±2% of full scale per 8 hours of continuous operation |  | 20 |
|  |  | *Total* |  | 85 |
|  |  | 3. Other requirements |  | 10 max |
|  |  | Hazardous area rating option: General Purpose, Non-Hazardous |  | 10 |
|  |  | *Total* |  | 10 |
| 9 | Combined Oxygen gas rate transmission (OTR) and water vapor transmission (WVTR) tester | Application/ scope  Capable of measuring oxygen gas and water vapour rate transmission of packaging materials | QUANTITY | WEIGHT |
|  |  |  | 1 |  |
|  |  | 1. Main Features |  | 5 Max |
|  |  | Combined OTR and WVTR, application – barrier films, PET bottles, containers, canisters, flexible pouches, bags |  | 2 |
|  |  | 2 stations for films or packages, precise humidity control, can switch between wet or dry samples within minutes. Absolute moisture measurements |  | 1.5 |
|  |  | Shared nitrogen supply |  | 1.5 |
|  |  | TOTAL SCORE |  | 5 |
|  |  |  |  |  |
|  |  | 2. Performance Specifications |  | 85 |
|  |  | Measurement range; OTR Masked 0.002 to 70 g/m2/day  Unmasked 0.02 to 1000 g/m2/day  WVTR Films 0.008 - 432,000 cc/m2/day  Packages 0.00004 - 2,000 cc/pack/day |  | 70 |
|  |  | Test relative humidity (RH) range OTR 20 – 90% RH  WVTR dry (0% RH) or generated RH (20% to 90%) |  | 5 |
|  |  | Test temperature range 5°C to 50°C |  | 5 |
|  |  | Film sample size - 50cm2, adaptors for smaller samples |  | 5 |
|  |  |  |  |  |
|  |  | 3. Other requirements |  | 10 |
|  |  | Shared computer interface combined OTR and WVTR results |  | 5 |
|  |  | Shared nitrogen supply |  | 5 |
| 10 | Medical gas analyzer | Application/ scope  Medical Gas Analyzer including CO Measurement of Nitrous Oxide 100%, Oxygen 100%, Carbon Dioxide 2,000pm & Carbon Monoxide 500ppm | QUANTITY | WEIGHT |
|  |  |  | 1 |  |
|  |  | 1. Main features |  | 5 max |
|  |  | Portable medical analyzer with CO measurement |  | 5 |
|  |  |  |  |  |
|  |  | 2. Performance specifications |  | 85 max |
|  |  | 4 gases measured in one analyzer - N2O, O2, CO2, CO |  | 30 |
|  |  | Ranges: 0 - 100% N20, 0 - 100% O2, 0 - 2000 ppm, CO2 0 - 500 ppm CO |  | 50 |
|  |  | Data storage with site ID input |  | 2.5 |
|  |  | User alarms |  | 2.5 |
|  |  |  |  |  |
|  |  | 3. Other requirements |  | 10 max |
|  |  | Easy user calibration |  | 5 |
|  |  | Quick verification of gas quality |  | 2.5 |
|  |  | Enter specific site & IDS for monitoring points |  | 2.5 |
|  |  |  |  |  |
| 11 | Elcometer 5300 Drying time Recorder | Application/Scope Capable of performing Drying times in Gloss and Emulsion paints. | 1 |  |
|  |  | 1. Main Features |  | 5 max |
|  |  | Dimensions:860 mm x 420 mm x 170 mm |  |  |
|  |  | Weight: 18 kg |  |  |
|  |  | Total |  | 5 |
|  |  | 2. Performance Specifications |  | 85 max |
|  |  | The plate surface shall be constructed from chemically resistant material |  | 20 |
|  |  | Glass strips, set of 10 |  | 20 |
|  |  | Ball tool, set of 5 |  | 15 |
|  |  | Elcometer 3505 Cube Film Applicator |  | 20 |
|  |  | 3. Other requirements |  |  |
|  |  | Carriage speed 1.2 cm to 60 cm per hour |  | 2.5 |
|  |  | Power 240V, AC 50Hz |  | 5 |
|  |  | Shall be fitted with a power on /off indicator switch |  | 2.5 |
|  |  | Fuse rating – plug 4A |  | 5 |

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| NAME OF LABORATORY: SAMPLE CONTROL CENTRE LOCATION: SCC– NAIROBI | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 12 | Electric handcart | Application/Scope | Delivery of samples from SCC to the laboratory | 2 |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Working Load Capacity of at least 230kgs | | | 10 |
| 1. At least 12 cubic feet of capacity heavy duty steel hopper | | | 10 |
| 1. 500W electric drive motor with two 12V removable and rechargeable Non-Spillable Sealed Lead Acid Batteries | | | 10 |
| 1. At least 10 inch solid foam front wheels | | | 10 |
| 1. Forward/Reverse capability | | | 5 |
| 1. Speed: Approximately 0 – 5kph, Variable | | | 10 |
| 1. At least 6 hours operating time | | | 10 |
| 1. Charger compatible with Kenya supplied voltage 220 V (monophase) and 380 V (triphase + neutral) to be availed. Solar charging option | | | 10 |
| 1. The warranty should be at least 12 months | | | 10 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 3 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 2 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 90 |

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| NAME OF LABORATORY: SAMPLE CONTROL CENTRE – NAIROBI LOCATION: NAIROBI | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 13 | Laboratory Freezer | Application/Scope | Storage of samples | 1 |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Bench top freezer with security lock for both outer and inner doors and insulated inner doors; 2. Heavy duty gauge steel cabinet, temperature monitoring port and interior lighting and heated vacuum valve. | | | 10 |
| 1. Stainless steel interior with rounded corners | | |  |
| 1. Microprocessor temperature control system | | | 10 |
| 1. At least 4 adjustable shelves | | | 5 |
| 1. Rapid temperature recovery | | | 5 |
| 1. Capacity 400 litres | | | 5 |
| 1. Adjustable temperature control -(minus) 10oC to (minus) 30oC, Accuracy ± 2oC; | | | 10 |
| 1. Temperature recorder, digital display with 72 hour back up; | | | 10 |
| 1. Temperature set point security – audible and visual alarms; | | | 10 |
| 1. Battery back up for alarms. | | | 5 |
| 1. Accessories | | |  |
| * 1. Temperature chart recorder;   2. Power surge suppressor;   3. Low temperature protective gloves;   4. at least 4 stainless steel racks;   5. Replacement chart recorder;   6. At least 20 fibreboard boxes.   7. Batteries | | | 5 |
| 1. The warranty should be at least 12 months | | | 5 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 5 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 5 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 90 |

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| NAME OF LABORATORY: CHEMISTRY LABORATORY LOCATION: LAKE(KISUMU) | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 14 | FT-INR SPECTROMETER MULTIPURPOSE ANALYSER | Application | Sugar, cereal and cereal products, baked products, dairy, meat, feeds and edible oil/fat | 1 |  |
|  |  | Main Features | | | 5 max |
| 1. Housing: rugged, sealed and desiccated housing | | |
| 1. Interferometer: RockSolidTM, permanently aligned, shock insensitive, high stability with gold-coated cube corner mirrors and friction less bearing for long life, quartz substrate beam splitter with proprietary coating | | |
| 1. NIR source: air cooled NIR source (12V, 20W) | | |
| 1. UPGRADE: upgradable by additional sampling accessories like, fibre optic probes, integrating sphere, external transmission unit, automated sample wheel, and sample rotators. | | |
| 1. PC for control of the spectrometer optics and signal processing   Minimum PC-data requirements  Data system, convertible minitower (CMT)”Intel” 17processor, >3GHz, >4GB RAM,1000 GB HDU or better,8Xdvd LIGHT SCRIBE DRIVE, 21.5”TFT display  Ports: USB 2.0 (10x), PS/2 (2), RJ-45 Network (2), RS232, VGA Display port, Line in, line out, PCI (3), PCIe x16 (2), PCIe x1.  Operating system: windows | | |
| 1. Inbuilt diagnostic mechanism monitoring operation within factory settings and offer information on failure and possible remedies | | |
| 1. TOTAL SCORE | | | 5 |
| 1. Performance Specifications | | |  |
| 1. Resolution: 2cm -1 | | |
| 1. Wavenumber reproducibility: better than 0.04cm-1 | | |
| 1. Wavenumber accuracy: better than 0.01cm-1 | | |
| 1. Photometric accuracy: better than 0.1%T | | |
| 1. Photometric linearity: better than 1.00+-0.05(slope); 0.00+-0.05(offset) in A[obs] vs A[ref] plot (according to USP<1119> requirements) | | |
| 1. Measuring speed: up to 5scans/sec at 8cm-1 resolution | | |
| 1. Spectral resolution: variable to maximum optical retardation at least 0.3nm at 1250nm | | |
| TOTAL SCORE | | | 85 |
| Measurement mode: Reflection and transmission | | |  |
| Sample Compartment/ Fiber Optics Module   1. Detector: high sensitivity thermoelectrically cooled InGaAs detector 2. Spectral range: 12,800-4,000cm-1 | | |  |
| External transmission unit   1. Detector: high sensitivity InGaAs detector, optional with Si detector 2. Spectral range: 12,800-5,800cm-1, optional 15,500-9,000cm-1 | | |  |
| Integrating sphere   1. Detector: high sensitivity PbS detector, with non-linearity correction 2. Spectral range: 12,800-3,600cm-1 | | |  |
| Electronics   1. Data acquisition: integrated acquisition processor for PC-independent data acquisition    1. 42-bit A/D converter 2. Automation: microprocessor controlled optical bench, digital speed control, automatic gain selection, advanced system check (IVU internal validation unit) 3. Performance check: permanent on-line diagnostic of all optical components, automation unit and sampling accessories. 4. Connection to PC or LAN: Ethernet interface 10/100 Mbps | | |  |
| Dimensions   1. Spectrometer (wxdxh): 54.9cm x 58.9cm x 39.1cm 2. Weight: 30-40 kg | | |  |
| Operating environment   1. Operating temperature: 50C to 350C (410F to 950F) 2. Power requirenments: optical bench: 100-240V, 50/60Hz, 100W 3. PC data system : 110/2200V, 50/60Hz, 200W 4. Humidity: <80% non condensing 5. Laser class: class 1 | | |  |
|  |  | Software   1. Spectroscopic software OPUS: easy to use, fully GMP compliant, fully 21CFR part 11 compliant optional OPUS packages: OPUS/IDENTsoftware package for substance identification OR EQUIVALENT APPROPRIATE SOFTWARE 2. OPUS/QUANT (OR EQUIVALENT APPROPRIATE SOFTWARE ), software package for quantitative analysis OPUS/LAB (OR EQUIVALENT APPROPRIATE SOFTWARE), software for routine operation 3. The software must be a “all-in-one” software for data measurement,maipulation and evaluation. 4. The software must include packages fordedicated applications: quantification of substances using PLS algorithm. The quantification software package must hqve self-optimizing calibration models. | | |  |
|  |  | Validation   1. Instrument qualification: OPUS( OR EQUIVALENT APPROPRIATE SOFTWARE ) validation program (OVP) suppots Operrational Qualification (OQ) and Perfomance Qualification (PQ), optional qualification according to USP <1119>/PhEur 2.2.40 2. Internal Validation Unit: filter wheel with reference standards for automatic PQ tests 3. Validation manual :complete hardware and software validation documentation | | |  |
|  |  | 1. User interface: dedicated user interfaces to allow single routine measurements with predefined measurement parameters, qualitative and quantitative evaluatins, storage conditions and GMP Calibrations and accessories to be included | | |  |
|  |  | Calibrations and Accessories: the FT-NIR system must be equipped with the following NIR sampling accessories   * Intergarting sphere with rotating sample cu[ for reflection measurements of inhomogenous samples or samples with large particle size * “External Trasmission” device for measurements of highly scattering samples * Sample mill to be included to homogenise samples * Homogenizer for raw milk analysis * Peristaltic pump must be included to pump liquid milk products ( system should be a dual instrument to allow the user individual selection of homogenizer or standard pump). * High quality quartz cells for the analysis of liquid milk * Sample cups, petri dishes and rotators to analyse milk and related products   (Note: All calibrations and accessories to be included) | | |  |
|  |  | ii. Specifications for the “Classic Transmission” measurement channel   1. The sampling device (sample compartment) should consist of an Open slot with access from the top. 2. Reduction inserts must allow the use of various round shaped disposable vials (upto 27mm diameter) and rectangular cuvettes. 3. Optionally the sampling slot must be heatable from ambient temperature to 1200C. 4. The sample compartment must be equipped with mechanical lock mechanism for quick, secure and reproducible exchange of sampling accessories. 5. Sampling accessories which are inserted in place of the standard sample compartment must be automatilly identified and spectral test routines must automatically start to verify accessory performance 6. The standard detector must be a thermoelectrically cooled InGaAs detector. 7. The near infared detector must have an intergrated A/D converter 8. The minimum signal to noise for a 5 second 100%-line measurement should be better than 1\*10-5 AU noise RMS using the following conditions.  * 8cm-1spectral resolution * Blackman Harris 3-Term apodization * InGaAs detector (thermoelectrically cooled) * Quartz beam splitter and air-cooled tungsten source * Noise calculated from 6,100 to 5,600 cm-1 | | |  |
|  |  | Specifications for other measurement channels.  “Reflection” measurement channel (intergrating sphere)   1. The regular measurement spot must have a diameter at least of 15mm. 2. The intergrating sphere must have an internal background measurement position which can be accessed under software control. 3. A sample spinner for the enlargement of the effective measured sample surface must be optinally available 4. An automatic sample changer, sample changer wheels with 30 positions (for vials with 22 mm diameter or standard sample cups), or customized with up to 50 positions. 5. The standard spectral operating range should not be less than 780-2,780 nm (12,800-3,600 cm-1). 6. The standard detector must be a sensitive , large element PbS detector. 7. The NIR detector must have an intergrated A/D converter. 8. The minimum signal to noise for a 5 second 100%-line measurement using the internal gold reference standard should be typically 7\*10-5AU noise RMS using the following conditions.  * 8cm-1spectral resolution * Blackman Harris 3-Term apodization * PbS detector * Quartz beam splitter and air-cooled tungsten source * Noise calculated from 4,700 to 4,500 cm-1 | | |  |
|  |  | NIR calibrators predetermined to include all parameters as per the application scope as well as more specialized parameters. These shall include and not limited to: Moisture, POL, Color, Oil, Fibre, Ash, Starch, Sugars, Free Fatty Acids, Trans Fatty Acids, Iodine Value, Peroxide Value, Saponification Value, Anisidine Value, Lactose and Total Solids. | | |  |
|  |  | TOTAL SCORE | | | 85 |
|  |  | Other requirements | | | 10 |
|  |  | Service contracts: preventive maintainance and service contracts and validation services to be indicated. | | | 1 |
|  |  | Installation and comissioning –to be done by supplier | | | 1 |
|  |  | Operation and service manuals- All manuals in English | | | 1 |
|  |  | Warranty of noy less than 2 years and nearest service centre to be indicated | | | 2 |
|  |  | Brochures and list of parameters and matrices to be analysed by the equipment to be attached with the quotations (in English) | | | 3 |
|  |  | Training – onsite training during installation not less than 5 days | | | 2 |
|  |  | TOTAL SCORE | | | 10 |
|  |  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100% |
|  |  | MINIMUM SCORE REQUIRED | | | 95% |

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| NAME OF LABORATORY: CHEMISTRY LABORATORY LOCATION: LAKE REGION (Kisumu) | | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | | QUANTITY | WEIGHTING (%) |
| 15 | AUTOMATIC SACCHARIMETER | Application | | ANALYSIS OF POLARIZATION IN SUGAR | 1 |  |
|  |  | Main Features: Measures both conventionally prepared samples and samples prepared without lead. Conformity to ICUMSA manufactured after APRIL 2015 | | | | 5 max |
| 1. Power consumtion:70 to 100 VA | | | |
| 1. Dimensions:754(L)X392(W)X231(H)mm(29.7x15.5x9.1 inches) | | | |
| 1. Fitted with standard air pump | | | |
| 1. Display:TFT touch screens 6.5”,640x580 pixels | | | |
| 1. Interfaces:4 USB,RS232,Ethernet,VGA,CAN,bus Easyconnection of keyboard, mouse,printer,bar code reader and networks | | | |
| 1. Power supply:self-adapting to any mains voltage AC 100 to 240 VAC,50/60 Hz | | | |
| 1. TOTAL SCORE | | | | 5 |
| 1. Performance Specifications | | | |  |
| 1. Measuring scales:°Z international sugar scale,%glucose and % sucrose,(g/ml,g/100ml,g/L),% purity,°Optical rotation,mathematic fuctions and user-defined scales. Complete compliance with ICUMSA | | | |
| 1. Measuring range:± 259 °Z (± 89.9 °OR) | | | |
| 1. Resolution:0.001 °OR | | | |
| 1. Accuracy:± 0.01 °Z | | | |
| 1. Repeatability:± 0.01 °Z | | | |
| 1. Response time:15 seconds | | | |
| 1. Wavelengths:589 nm and optionally 880 nm | | | |
|  |
| h)Light source:tungsten halogen lamp,6V.20W,with an average lifetime of 2000 h | | | |  |
| i)Sensitivity: permit measurement of colored samples ,Optical Density (OD) data valid for raw sugar.VIS mode up to 4.0,NIR mode: equivalent to OD 7.0 at 589nm /880 nm | | | |  |
| j)Sensor: PT100 sensor input for sample temperature measurement resolution 0.1°C accuracy ±0.1 °C | | | |  |
| k)Filling check: Built-in camera for monitoring the filling process of the sample cell | | | |  |
| l)Temperature control:Peltier system for automatic temperature control between 15 °C and 45 °C | | | |  |
| m)Sample cell: Wireless automatic identification of sample cells from 2.5 mm to 200 mm.  Standard stainless steel cell with plastic jacket,filling funnel hose outlet,wired tool master.sample cell with luer connectors(0.5 to 2 ml volume).  large internal diameter. | | | |  |
| n)Accessories:to be supplied with manufacturers certificate of analysis .  .Quartz control plate(equiped with toomaster chip)for calibration.  .Data processing software(sugarlab analysis software,computer,RAM 16 GB,processor 17,hard disk 1TB,18”TFT monitor).  .Temperature validation needle for 200nm sample cel (cat No.99900).  .Milkelvin thermometer(cat No 26878).  .Temperator sensor(cat No 74557) 0 to 100,accuracy 1 Mk.  .Connection to abbemat refractometer. | | | |  |
|  |  | TOTAL SCORE | | | | 85 |
|  |  | Other requirements | | | | 10 |
|  |  | Service contracts: preventive maintainance and service contracts and validation services to be indicated. | | | | 1 |
|  |  | Installation and comissioning –to be done by supplier | | | | 1 |
|  |  | Operation and service manuals- All manuals in English | | | | 1 |
|  |  | Warranty of noy less than 2 years and nearest service centre to be indicated | | | | 2 |
|  |  | Brochures and list of parameters and matrices to be analysed by the equipment to be attached with the quotations (in English) | | | | 3 |
|  |  | Training – onsite training during installation not less than 5 days | | | | 2 |
|  |  | TOTAL SCORE | | | | 10 |
|  |  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | 100% |
|  |  | MINIMUM SCORE REQUIRED | | | | 95% |

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| NAME OF LABORATORY: INORGANIC , ORGANIC, FOOD&AGRICULTURE, TEXTILES, POLYMER  LOCATION: NAIROBI | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 16 | FUME HOOD  (A Dedicated-Fan Fume Hood) with Ducting and exhaust system | Application | Extraction of fumes from the laboratory | 4 |  |
|  |  | Main Features | | | 5 max |
| 1. A stainless steel double walled constant air volume by-pass laboratory fume hood, with a sealed fluorescent light bulb 400/500 lux & Spur Switch   Outer Shell Manufactured from highly Chemical resistant 6mm PVC sheet  Inner linings manufactured from 5mm chemical resistant phenolic resin. | | | 2 |
| 1. Sliding Sash should be manufactured from toughened glass 6mm thick and is fitted with an aerodynamic finger pull for ease of opening/closing. | | | 1 |
| 1. Overall dimensions   External: 2000 mm wide x 900 mm deep x 2375 mm high  Internal: 1680 mm wide x 700 mm deep x 1100 mm high. | | | 1 |
| 1. Airflow Monitor-Digital Airflow Controller module with audio/visual alarm for low airflow. The controller should control the automatic sash, energy save functions and fan | | | 1 |
| TOTAL SCORE | | |  |
| 1. Performance Specifications | | | 85 |
| 1. The fume hood shall have a face velocity of not less than 0.5m/s (100 fpm) | | | 5 |
| 1. Required air flow of not less than 1.8m3/s | | | 5 |
| 1. The working surface of the fume hood be made of solid cast epoxy resins, resistant to heat and chemicals | | | 10 |
| 1. Electrical requirements: 240 VAC and 50/60 Hz | | | 5 |
| 1. The internal linings shall be made of fibreglass-reinforced polyester resin panels that provide resistance to chemicals and heat | | | 10 |
| 1. Motor: minimum 3KW/4P | | | 5 |
| 1. Blower: PP modulated high efficiency medium pressure fans including suitable adapter, electro galvanised | | | 5 |
| 1. Electrical Sockets x 2(switched Neon Type, 1No. Each side) and Light switch (fixed spur Led type) are profiled to achieve top line aesthetics and aerodynamic effect, are fitted through removable service panels allowing for full flexibility   Electrical and mechanical services are prewired and plumbed for convenient termination by others | | | 15 |
| 1. Services of 1 x water & 1 x Gas & Drip Cup/Sink should be fitted through removable service panels allowing for full flexibility. | | | 15 |
| 1. Electro deposition to make the hood rust free. | | | 10 |
| TOTAL SCORE | | | 85 |
| Other requirements | | |  |
| 1. Installation and commissioning - Equipment shall be installed and commisioned at the user's facility by the Service Engineer followed on-site training for all the users. The stated scope of application for the equipment must be demonstrated during commissioning using installation standards and a real sample. | | | 1 |
| 1. Operation and Service Manuals – Hardware and operator's manual complete with methods shall be supplied and written in English | | | 1 |
| 1. Warranty and nearest Service Centre – Two year warranty | | | 1 |
| 1. Brochure (in English) - The equipment brochure to be attached with the quotations | | | 1 |
| 1. Training – Training shall be done for all users during installation and commissioning at the supplier's cost | | | 1 |

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| NAME OF LABORATORY: INORGANIC LOCATION: NAIROBI | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 17 | FUME HOOD  (A Dedicated-Fan Fume Hood) with Ducting and exhaust system | Application | Extraction of fumes from the laboratory | 1 |  |
|  |  | Main Features | | | 5 max |
| 1. A stainless steel double walled constant air volume by-pass laboratory fume hood, with a sealed fluorescent light bulb 400/500 lux & Spur Switch and fitted with a scrubber washing/shower unit suitable for handling perchloric acid fumes.   Outer Shell Manufactured from highly Chemical resistant 6mm PVC sheet  Inner linings manufactured from 5mm chemical resistant phenolic resin. | | | 2 |
| 1. Sliding Sash should be manufactured from toughened glass 6mm thick and is fitted with an aerodynamic finger pull for ease of opening/closing. | | | 1 |
| 1. Overall dimensions   External: 2000 mm wide x 900 mm deep x 2375 mm high  Internal: 1680 mm wide x 700 mm deep x 1100 mm high. | | | 1 |
| 1. Airflow Monitor-Digital Airflow Controller module with audio/visual alarm for low airflow. The controller should control the automatic sash, energy save functions and fan | | | 1 |
| TOTAL SCORE | | |  |
| 1. Performance Specifications | | | 85 |
| 1. The fume hood shall have a face velocity of not less than 0.5m/s (100 fpm) | | | 5 |
| 1. Required air flow of not less than 1.8m3/s | | | 5 |
| 1. The working surface of the fume hood be made of solid cast epoxy resins, resistant to heat and chemicals | | | 10 |
| 1. Scrubber unit: shall be fitted and made of perchloric acid resistant material. | | | 10 |
| 1. Electrical requirements: 240 VAC and 50/60 Hz | | | 5 |
| 1. The internal linings shall be made of fibreglass-reinforced polyester resin panels that provide resistance to chemicals and heat | | | 10 |
| 1. Motor: minimum 3KW/4P | | | 5 |
| 1. Blower: PP modulated high efficiency medium pressure fans including suitable adapter, electro galvanised | | | 5 |
| 1. Electrical Sockets x 2(switched Neon Type, 1No. Each side) and Light switch (fixed spur Led type) are profiled to achieve top line aesthetics and aerodynamic effect, are fitted through removable service panels allowing for full flexibility   Electrical and mechanical services are prewired and plumbed for convenient termination by others | | | 5 |
| 1. Services of 1 x water & 1 x Gas & Drip Cup/Sink should be fitted through removable service panels allowing for full flexibility. | | | 15 |
| 1. Electro deposition to make the hood rust free. | | | 10 |
| TOTAL SCORE | | | 85 |
| Other requirements | | |  |
| 1. Installation and commissioning - Equipment shall be installed and commisioned at the user's facility by the Service Engineer followed on-site training for all the users. The stated scope of application for the equipment must be demonstrated during commissioning using installation standards and a real sample. | | | 1 |
| 1. Operation and Service Manuals – Hardware and operator's manual complete with methods shall be supplied and written in English | | | 1 |
| 1. Warranty and nearest Service Centre – Two year warranty | | | 1 |
| 1. Brochure (in English) - The equipment brochure to be attached with the quotations | | | 1 |
| 1. Training – Training shall be done for all users during installation and commissioning at the supplier's cost | | | 1 |

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| NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY LOCATION: NAIROBI | | | | | | |  |  | |
| Sr. No. | EQUIPMENT | SPECIFICATIONS | | | QUANTITY | | WEIGHTING (%) | ACTUAL SCORE | |
| 18 | INTEGRATING SPHERE SPECTRORADIOMETER SYSTEM FOR LED | Application | Photometric, calorimetric and electrical parameters of LEDs | | | 1 |  |  |
|  |  | Main Features | | | | |  |  | |
| 1. Supply: 220 – 240V AC, 50/60 Hz | | | | | 2.5 |  | |
| 1. Auxiliary lamp and software provided | | | | | 2.5 |  | |
| TOTAL SCORE | | | | | 5 |  | |
| Performance Specifications | | | | |  |  | |
| 1. Spectral Range Wavelength: 380nm~800nm | | | | | 5 |  | |
| 1. Spectral Wavelength Accuracy: ±0.3nm, Wavelength Reproducibility: ±0.1nm | | | | | 6 |  | |
| 1. Sample Scanning Steps: ±0.1nm | | | | | 5 |  | |
| 1. Accuracy of Chromaticity Coordinate: ±0.3% | | | | | 6 |  | |
| 1. Correlated Color Temperature CCT: 1,000K~100,000K, CCT Accuracy: ±0.3% | | | | | 6 |  | |
| 1. Color Rendering Index Range: 0~100.0, Accuracy: ±(0.3%rd±0.3) | | | | | 6 |  | |
| 1. Photometric Linear: ±0.3% | | | | | 5 |  | |
| 1. Stray Light: <0.015%(600nm) and <0.003%(435nm) | | | | | 6 |  | |
| 1. High Precision CCD Spectroradiometer, Optical Fiber, Digital Power Meter, DC Power Source, AC Power Source, Integrating Sphere, Standard Light Source, Optical Path Converter and 19 Inch Cabinet | | | | | 15 |  | |
| 1. Capable of measuring: Chromaticity coordinates, CCT, Color Ratio, Peak Wavelength, Half Bandwidth, Dominant Wavelength, Color Purity, CRI, Spectrum Test, Luminous Flux, Luminous Efficiency, Radiant Power, Pupil Flux, Pupil Flux Efficiency, Pupil Factor, Cirtopic Flux, Voltage, Current, Power and Power Factor | | | | | 15 |  | |
| 1. Accessories: Auxiliary lamp, PC with WinXP, Win7 or Win8 software | | | | | 10 |  | |
| TOTAL SCORE | | | | | 85 |  | |
| 1. Other requirements | | | | |  |  | |
| 1. Installation and Commissioning - to be indicated | | | | | 2 |  | |
| 1. Operation and Service Manuals - All Manuals in English | | | | | 2 |  | |
| 1. Warranty and Nearest service centre - to be indicated | | | | | 2 |  | |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | | | 2 |  | |
| 1. Training - onsite training during installation | | | | | 2 |  | |
| TOTAL SCORE | | | | | 10 |  | |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | | | 100 % |  | |
|  | *Minimum Score 95%* | | | | | |  |  | |
| NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY LOCATION: NAIROBI | | | | | | | |  | |
| Sr. No. | EQUIPMENT | SPECIFICATIONS | | | QUANTITY | | WEIGHTING (%) | ACTUAL SCORE | |
| 19 | DUSTPROOF TEST EQUIPMENT | Application | Protection against dust/particles of Electrical Appliances | | 1 | |  |  | |
|  |  | Main Features | | | | |  |  | |
| 1. Digital Control Display | | | | | 2.5 |  | |
| 1. Chamber Transparent Window Display | | | | | 2.5 |  | |
| TOTAL SCORE | | | | | 5 |  | |
| Performance Specifications | | | | |  |  | |
| 1. Certification of Compliance to Operation as per IEC 60529 | | | | | 10 |  | |
| 1. Metal Net Standard Nominal Line Diameter: 50µm | | | | | 7 |  | |
| 1. Environmental Air Pressure: 80kPa ~ 106kPa | | | | | 8 |  | |
| 1. Airflow Velocity in the Chamber: 1.5m/s (Adjustable range 0~4.99m/s) | | | | | 7 |  | |
| 1. Test Dust: Dry Talcum Powder, Portland Cement, Smoke Ash e.t.c | | | | | 7 |  | |
| 1. Environmental Temperature Range: +5oC ~ 50oC (Adjustable) | | | | | 7 |  | |
| 1. Relative Humidity Range: 45% ~ 75% (Adjustable) | | | | | 7 |  | |
| 1. Power Supply: 240V or 415V a.c, 50/60Hz | | | | | 7 |  | |
| 1. Line Spacing Between the Standard: 32µm, 75µm and 250µm (Three metal nets) | | | | | 7 |  | |
| 1. Working room size: 1000\*1000\*1000 mm | | | | | 10 |  | |
| 1. Dust Concentration Control | | | | | 8 |  | |
| TOTAL SCORE | | | | | 85 |  | |
| Other requirements | | | | |  |  | |
| 1. Installation and Commissioning - to be indicated | | | | | 3 |  | |
| 1. Operation and Service Manuals - All Manuals in English | | | | | 3 |  | |
| 1. Warranty and Nearest service centre - to be indicated | | | | | 3 |  | |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | | | 3 |  | |
| 1. Training - onsite training during installation | | | | | 3 |  | |
|  |  | TOTAL SCORE | | | | | 15 |  | |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | | | 100 % |  | |
|  | *Minimum Score 95%* | | | | | |  |  | |
| NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY LOCATION: NAIROBI | | | | | | | |  | |
| Sr. No. | EQUIPMENT | SPECIFICATIONS | | | QUANTITY | | WEIGHTING (%) | ACTUAL SCORE | |
| 20 | WATERPROOF PROTECTION TEST EQUIPMENT | Application | Testing of IPX3 and IPX4 protection against water of electronic appliances and products | | 1 | |  |  | |
|  |  | Main Features | | | | |  |  | |
| 1. Certification of Compliance to Operation to IEC 60529 | | | | | 2 |  | |
| 1. PLC Intelligent Control, color touch screen operation | | | | | 2 |  | |
| 1. Power Supply: 220 - 240V a.c, 50/60Hz | | | | | 1 |  | |
| TOTAL SCORE | | | | | 5 |  | |
| Performance Specifications | | | | |  |  | |
| 1. Size of Oscillating Tube: R400. R200, R600, R800, R1000, R1200, R1400, R1600mm. | | | | | 9 |  | |
| 1. Stainless Steel Material of Oscillating Tube | | | | | 5 |  | |
| 1. Needle Hole Diameter: 0.4mm | | | | | 6 |  | |
| 1. Included angle of the two holes: IPX3: 120°; IPX4: 180° | | | | | 7 |  | |
| 1. Swing Angle: IPX3: 120°(±60°) ; IPX4: 350°(±175°) | | | | | 7 |  | |
| 1. Swing Speed: IPX3, 4 s/time (2×120°) ; IPX4, 12 s/time (2×350°) | | | | | 7 |  | |
| 1. Water Flow: 1-10L/min adjustable | | | | | 7 |  | |
| 1. Testing Time: 0.01secs. ~ 99hours 59min, Preset | | | | | 8 |  | |
| 1. Rotary Plate of Diameter: Φ600mm; Rotate speed: 1r/min. Can be paused at four aspects, Load bearing≤50kg | | | | | 8 |  | |
| 1. Pressure Gauge: 0~0.25MPa | | | | | 7 |  | |
| 1. Water flow rate: ＞10L/min±5% clean water without inclusion | | | | | 7 |  | |
| 1. Equipment equipped with clean water filtration unit | | | | | 7 |  | |
| TOTAL SCORE | | | | | 85 |  | |
| Other requirements | | | | |  |  | |
| 1. Installation and Commissioning - to be indicated | | | | | 2 |  | |
| 1. Operation and Service Manuals - All Manuals in English | | | | | 2 |  | |
| 1. Warranty and Nearest service centre -to be indicated | | | | | 2 |  | |
| 1. Brochures (in English) for the equipment to be attached with the quotations | | | | | 2 |  | |
| 1. Training - onsite training during installation | | | | | 2 |  | |
| TOTAL SCORE | | | | | 10 |  | |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | | | 100 % |  | |
|  | *Minimum Score 95%* | | | | | |  |  | |
| NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY LOCATION: NAIROBI | | | | | | | |  | |
| Sr. No. | EQUIPMENT | SPECIFICATIONS | | | QUANTITY | | WEIGHTING (%) | ACTUAL SCORE | |
| 21 | MODULE FOR RECHARGEABLE BATTERIES | Application | | Endurance Test on Rechargeable Batteries | 1 | |  |  | |
|  |  | Main Features | | | | |  |  | |
| Compatible with Maccor’s Battery Test Equipment Model. Series 3600 | | | | | 15 |  | |
| TOTAL SCORE | | | | | 15 |  | |
| Performance Specifications | | | | |  |  | |
| 1. Current Ranges of 1mA(Full scale±0.2µA) to 10000mA(Full scale±500µA) | | | | | 15 |  | |
| 1. Voltage measurement Range: 0 – 12Volts ±1mV | | | | | 15 |  | |
| 1. Modes of Operation: Fixed constant Current, Power, Resistance, Voltage with variable duty cycles | | | | | 15 |  | |
| 1. Time: Minimum step time of 500mS and Control, Measurement and adjustment every 50mS | | | | | 15 |  | |
| 1. Associated cabling and ten (10no.) 9V Kelvin Cell Holders | | | | | 15 |  | |
| TOTAL SCORE | | | | | 75 |  | |
| Other requirements | | | | |  |  | |
| 1. Installation and Commissioning -to be installed and commissioned | | | | | 2 |  | |
| 1. Operation and Service Manuals- All Manuals in English | | | | | 2 |  | |
| 1. Warranty and Nearest service centre -to be indicated | | | | | 2 |  | |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | | | 2 |  | |
| 1. Training - onsite training during installation | | | | | 2 |  | |
| TOTAL SCORE | | | | | 10 |  | |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | | | 100 % |  | |
|  | *Minimum Score 95%* | | | | | |  |  | |
| NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY LOCATION: NAIROBI | | | | | | | |  | |
| Sr. No. | EQUIPMENT | SPECIFICATIONS | | | QUANTITY | | WEIGHTING (%) | ACTUAL SCORE | |
| 22 | PHOTOVOLTAIC TEST EQUIPMENT KIT | Application | | Power Rating of Photovoltaic Panels | SET | |  |  | |
| 1. PYRANOMETER |  | |  | 1 | |  |  | |
|  |  | Main Features | | | | |  |  | |
| Sensor Housing: Weatherproof anodized aluminum case with acrylic diffuser and stainless steel hardware. | | | | | 5 |  | |
| TOTAL SCORE | | | | | 5 |  | |
| Performance Specifications | | | | |  |  | |
| 1. Calibration: Calibrated against an Eppley Precision Spectral Pyranometer (PSP) under natural daylight conditions. Typical error under these conditions is ± 5%. | | | | | 8 |  | |
| 1. Sensitivity: Maximum 90 µA per 1000 W m-2. | | | | | 8 |  | |
| 1. Linearity: Maximum deviation of 1% up to 3000 W m-2. | | | | | 7 |  | |
| 1. Stability: < ± 2% change over a 1 year period. | | | | | 8 |  | |
| 1. Response Time: Minimum 10 µs. | | | | | 8 |  | |
| 1. Temperature Dependence: 0.15% per °C maximum. | | | | | 8 |  | |
| 1. Cosine Correction: Cosine corrected up to 80° angle of incidence. | | | | | 7 |  | |
| 1. Azimuth: < ± 1% error over 360° at 45° elevation. | | | | | 7 |  | |
| 1. Tilt: No error induced from orientation. | | | | | 7 |  | |
| 1. Operating Temperature: 5 to 65°C. | | | | | 5 |  | |
| 1. Operating Relative Humidity: 0 to 100%. | | | | | 5 |  | |
| 1. Detector: Silicon photovoltaic detector (blue enhanced). | | | | | 7 |  | |
| TOTAL SCORE | | | | | 85 |  | |
| Other requirements | | | | |  |  | |
| 1. Installation and Commissioning -to be indicated | | | | | 2 |  | |
| 1. Operation and Service Manuals- All Manuals in English | | | | | 2 |  | |
| 1. Warranty and Nearest service centre -to be indicated | | | | | 2 |  | |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | | | 2 |  | |
| 1. Training - onsite training during installation | | | | | 2 |  | |
| TOTAL SCORE | | | | | 10 |  | |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | | | 100 % |  | |
|  | *Minimum Score 95%* | | | | | |  |  | |

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|  | EQUIPMENT | SPECIFICATIONS | | QUANTITY | WEIGHTING (%) | ACTUAL SCORE |
| 23 | INSULATION RESISTANCE TESTER | Application | Insulation Resistance Measurements | 1 |  |  |
|  |  | Main Features | | |  |  |
| 1. Rechargeable battery powered | | | 1 |  |
| 1. Battery ‘OK’ test capability | | | 2 |  |
| 1. Press to test button | | | 2 |  |
| TOTAL SCORE | | | 5 |  |
| Performance Specifications | | |  |  |
| 1. Measurement Ranges: 20kΩ to 100(2000)MΩ, 50kΩ to 250(5000)MΩ, 100kΩ to 500(10000)MΩ, 200kΩ to 1000(20000)MΩ. | | | 10 |  |
| 1. Tolerances: Class 1.5 for ranges {20kΩ to 100(2000)MΩ and 50kΩ to 250(5000)MΩ}   Class 2.5 for ranges {100kΩ to 500(10000)MΩ and 200kΩ to 1000(20000)MΩ}. | | | 8 |  |
| 1. Test Voltage: 100V, 250V, 500V, 1000V d.c | | | 10 |  |
| 1. Test Voltage Accuracy: +10%, -0% | | | 8 |  |
| 1. Short Circuit Current: Less or equal to 6mA | | | 6 |  |
| 1. Over-range capability: 110% of Range | | | 5 |  |
| 1. Internal power supply: Li-ion rechargeable or 6LR61 9V | | | 6 |  |
| 1. Maximum voltage applied to any terminal: 600V a.c rms or d.c | | | 5 |  |
| 1. Live circuit indicator:  Inhibit test if terminal voltage > 30 V prior to initialization of test | | | 5 |  |
| 1. Maximum Capacitive Load: Operable with up to 1 µF load | | | 5 |  |
| 1. Measurement Accuracy: 100V ±(3 % + 5); 250V ±(1.5 % + 5); 500V ±(1.5 % + 5); 1000V ±(1.5 % + 5) | | | 10 |  |
| 1. Test leads/probes and internal battery to be provided.  |  |  | | --- | --- | |  |  | | | | 5 |  |
| 1. Safety: Complies with ANSI/ISA 82.02.01 (61010-1) 2004, CAN/CSA-C22.2 NO. 61010-1-04, and IEC/EN 61010-1 2nd Edition for measurement category IV 600 V (CAT IV) | | | 2 |  |
| TOTAL SCORE | | | 90 |  |
| Other requirements | | |  |  |
| 1. Installation and Commissioning -to be indicated | | | 2 |  |
| 1. Operation and Service Manuals- All Manuals in English | | | 2 |  |
| 1. Warranty and Nearest service centre -to be indicated | | | 2 |  |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | 2 |  |
| 1. Training - onsite training during installation | | | 2 |  |
| TOTAL SCORE | | | 10 |  |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | 100 % |  |
|  | *Minimum Score 95%* | | | |  |  |

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|  | LABORATORY |  | CHEMISTRY-COR |  |
| 24 | UV-VIS SPECTROPHOTOMETER |  | Application/Scope: Preparation of standards and general spectrophotometric analysis |  |
| Main features |  |
| 1. Double beam unit with colour touch screen |  |
| 1. Personal computer |  |
| 1. Printer | 10 |
| Performance specifications |  |
| 1. Photometric system: Double beam | 6 |
| 1. Wavelength range: 190-1,100 nm | 10 |
| 1. Display: 0.1 nm | 2 |
| 1. Wavelength accuracy   ±0.05 (or better) nm at 656.1 nm  ±0.3 nm overall | 4 |
| 1. Wavelength repeatability: ± 0.1 nm | 4 |
| 1. Stray light 2. <0.02 % at 220 nm 3. <0.01 % at 340 nm 4. <0.5 % at 198 nm | 5 |
| 1. Photometric range 2. Absorbance: -4 to +4 absorbance units 3. Transmittance: 0 % to 400% | 5 |
| 1. Photometric accuracy   ≤0.006 absorbance units at 2.0 absorbance units reading. | 3 |
| 1. Photometric repeatability   ≤0.005 absorbance units at 2.0 absorbance units reading | 3 |
| 1. Internal sample compartment dimensions:   W110 x D250 x H115 mm | 4 |
| 1. Baseline stability   <±0.0003 absorbance units | 4 |
| 1. Baseline flatness   <±0.0006 absorbance units | 4 |
| 1. Noise level   ≤0.00003 absorbance units at 700 nm | 4 |
| 1. Measurement modes 2. Photometric 3. Spectrum 4. Quantitation 5. Kinetics 6. Time scan 7. Bio (for DNA and Protein) | 8 |
| 1. Cuvette size 2. 10 mm square 3. 20, 30, 50, 70, 100 mm rectangular ( with or without an accessory) | 5 |
| 1. Film analysis   Have ability to analyse film: Film holder fitted or accessory | 5 |
| Power supply: 220-240 V ac 50/60Hz | 4 |
| Other requirements |  |
| 1. Installation and Commissioning -to be done by supplier(to be indicated on quotations) | 2 |
| 1. Operation and Service Manuals- All Manuals in English(to be indicated on quotations) | 2 |
| 1. Warranty and Nearest service centre -(to be indicated on quotations) | 2 |
| 1. Brochures (in English)for the equipment to be attached with the quotations | 2 |
| 1. Training - onsite training during installation(to be indicated on quotations) | 2 |
| TOTAL SCORE | 100 |
| MINIMUM SCORE | 90 |

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|  | LABORATORY |  | ORGANIC CHEMISTRY (HQ) & CHEMISTRY-COR (MOMBASA) | 2PCS |
| 25 | Karl Fischer Titrator (Volumetric and coulometric) |  | Application/Scope  Quantifying water content in a variety of samples with low water content e.g. edible oils and motor oils |  |
| Main Features |  |
| 1. Unit with coloured touch screen | 5 |
| 1. Compatible oven | 20 |
| 1. At least one coulometric and one volumetric burettes (standard or modular) | 20 |
| 1. Personal computer | 5 |
| 1. Printer | 5 |
| Technical Specifications: |  |
| 1. Ability to perform both volumetric and coulometric karlfischer analysis | 10 |
| 1. Ability to analyse solid, liquid and gaseous samples | 10 |
| 1. Inbuilt methods | 5 |
| 1. Presence of solvent manager | 2 |
| 1. Ambient Temperature: +5...+40 °C | 2 |
| 1. Atmospheric Humidity: max. 80% | 2 |
| Power supply: 220-240 V ac 50/60Hz | 4 |
| Other requirements |  |
| 1. Installation and Commissioning -to be indicated | 2 |
| 1. Operation and Service Manuals- All Manuals in English | 2 |
| 1. Warranty and Nearest service centre -to be indicated | 2 |
| 1. Brochures for the equipment to be provided during quotation | 2 |
| 1. Training - onsite training during installation | 2 |
| TOTAL SCORE | 100 |
| Minimum score | 90 |

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| NAME OF LABORATORY: MICROBIOLOGY – NAIROBI, NRR, COR & LAR LOCATION: MICROBIOLOGY LABORATORIES – NAIROBI, KISUMU & MOMBASA | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 26 | Autoclave | Application/Scope | Sterilization of media and materials for microbiological analysis and decontamination of microbial wastes | 3 |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Automatic free steaming and media warming facility | | | 5 |
| 1. Microcomputer/microprocessor controlled | | | 5 |
| 1. Sterilization temperature 140ºC max | | | 5 |
| 1. Sterilization timer 0 – 250 minutes | | | 7 |
| 1. Pressure range 0.0-2.4 bar | | | 5 |
| 1. Capacity: at least 100 litres | | | 8 |
| 1. Sterilization temperature 140ºC max | | | 5 |
| 1. Accelerated cooling and Vacuum option | | | 7 |
| 1. Sterilization temperature stability/Accuracy of ± 0.5°C maximum | | | 5 |
| 1. Armored wondering/flexible temperature probes | | | 5 |
| 1. Automatic cycle control | | | 5 |
| 1. Top or front loading model | | | 5 |
| 1. Automatic demineralized water feed for steam generation | | | 2 |
| 1. Over temperature protection | | | 3 |
| 1. Audible and visual alarms in the event of Cycle fault, Cycle Interruptions, Sterilization failure, low water level and un-locked door | | | 2 |
| 1. RS 232 and/or USB data output | | | 3 |
| 1. Compliance to International standard certificate | | | 2 |
| 1. Full cycle range process printer | | | 3 |
| 1. The warranty should be at least 12 months | | | 3 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 4 |
| 1. Accessories, spare parts:   Maintenance toolkit  Printer paper rolls  Nearest service center to be indicated | | | 3 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 3 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 97 |

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| NAME OF LABORATORY: MICROBIOLOGY – NAIROBI, NRR, COR & LAR LOCATION: MICROBIOLOGY LABORATORIES – NAIROBI, KISUMU & MOMBASA | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 27 | Refrigerated incubators | Application/Scope | Application: incubation and growth of organisms | 3 |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Porcelain steel interior and epoxy powder coated exterior | | | 5 |
| 1. Programmable interface, temperature sensor, programmable digital timer | | | 5 |
| 1. Insulated interior glass doors for viewing without change in temperature | | | 5 |
| 1. High and low temperature protection, audible and visual alarms for over or under temperature | | | 5 |
| 1. Front panel calibration, programmable with temperature controller | | | 5 |
| 1. Access port, computer communication port; LED digital display | | | 5 |
| 1. Digital chart recorder | | | 5 |
| 1. Internal fluorescent lighting with castors | | | 5 |
| 1. Capacity 300 - 400 litre | | | 10 |
| 1. Temperature:    1. Range 0°C to 60°C;    2. Accuracy ± 0.1°C;    3. Resolution 0.1°C. | | | 10 |
| 1. Humidity 10% -90% | | | 5 |
| 1. Uniformity:    1. ± 0.5°C at 20°C;    2. ± 0.5°C at 30°C. | | | 7 |
| 1. Microprocessor control memory | | | 3 |
| 1. Upright design with at least four shelves | | | 5 |
| 1. The warranty should be at least 12 months | | | 5 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 5 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 5 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 97 |

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| NAME OF LABORATORY: MICROBIOLOGY LOCATION: MICROBIOLOGY LABORATORIES – NAIROBI, MOMBASA, ELDORET | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 28 | Laminar flow cabinet | Application/Scope | Provision of sterile environment for microbial analysis | 3 |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Bench top laminar cabinet, horizontal air stream laminar flow with gas and electrical power outlets | | | 5 |
| 1. Dimensions:    1. External (WxDxH) mm 650x500x600maximum    2. Internal (WxDxH) mm 600x400x500minimum | | | 5 |
| 1. Air velocity 0.3 -0.6 m/s (Adjustable air velocity) | | | 10 |
| 1. Double HEPA/ULPA filers 99.999% efficient (0.1-0.3 micron pores) | | | 10 |
| 1. UV Lighting in the working area | | | 5 |
| 1. Illumination > 300Lux, Noise level < 50dB(A) | | | 5 |
| 1. Front glass/screen – shatterproof, hardened and hinged to facilitate introduction of bulky materials | | | 10 |
| 1. Perforated stainless steel surface (smooth sterilizing working surface) | | | 10 |
| 1. External structure made of carbon steel varnished with epoxy powder | | | 5 |
| 1. At least one extra double HEPA/ULPA Filter for each cabinet | | | 10 |
| 1. At least two extra UV Lambs for each cabinet | | | 5 |
| 1. The warranty should be at least 12 months | | | 5 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 5 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 5 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 97 |

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| NAME OF LABORATORY: MECHANICAL LABORATORY LOCATION: TESTING HEAD-QUARTERS BLOCK Q | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 29 | PLUNGER AND BEAD UNSEATING TESTER | Application/Scope | * Plunger and bead unseating machine * Control panel with display * PC-based evaluation software with extensive statistics function and database-based measured value memory * Loading aid with electric chain hoist * Plunger tools * Foot printing device | 1 (ONE) |  |
|  |  | 1. Main Features | | | 5 Max |
| Machine weight (900-1200 kg) | | | ½ |
| Power supply (415 V AC – 50 hz) | | | ½ |
| Motor drives and PLC (Siemens/Allen Brady) | | | ½ |
| Operating system (Windows) | | | ½ |
| Load cell (Sensor Data / Soemer (100 Kn)) | | | ½ |
| Pneumatics (Festo/SMC) | | | ½ |
| Electrical cabinet weight (520 kg) | | | ½ |
| Electrical cabinet control panel | | | ½ |
| Loading device – Servo-motor, Ball screw drive & Linear guide | | | ½ |
| Noise emission < 78 dBA | | | ½ |
| TOTAL SCORE | | | 5 |
|  | | |  |
| 1. Performance Specifications | | | 85 |
| Plunger tester | | |  |
| Outer diameter range (350 – 1100) | | | 10 |
| Bead diameter range (12’’ – 28’’) | | | 10 |
| Section width (≤ 450) | | | 5 |
| Plunger tools (HS 811 797) { , , } | | | 5 |
| Plunger tools (ISO 811 735) {Block 2B (rim codes 19 to 24), Block 2C (rim codes 25 to 30)} | | | 5 |
| Foot printing device DIN A 3 (420\*297 mm) | | | 5 |
| Bead unseating tester | | |  |
| Outer diameter range (350 – 1100) | | | 10 |
| Bead diameter range (12’’ – 28’’) | | | 10 |
| Section width (≤ 450) | | | 5 |
| Rim width (3’’ – 14’’) | | | 5 |
| Rim offset (-30 – 150 mm) | | | 5 |
| Loading aid, load capacity (electric chain hoist, 250 Kg) | | | 10 |
| TOTAL SCORE | | | 85 |
| 1. Other requirements | | | 10 |
| Unit (switchable) [N, KN, Kgf, lbf, bar, Mpa, psi, etc.] | | | 1 |
| Max load (4 – 60 KN) | | | 2 |
| Load accuracy within ± 0.5% of full scale | | | 1 |
| Stroke accuracy within ± 0.5% of full scale | | | 1 |
| Max. Ram travel ≤ 500 mm/min | | | 1 |
| Test speed (10 – 100 mm/min adjustable) | | | 1 |
| Idle speed (≤ 500 mm/min) | | | 1 |
| Test speed accuracy within ± 0.5% of full scale | | | 1 |
| Bead unseating tools (ISO 10191) – Bead unseating block Types A & B | | | 1 |
|  | | |  |
| TOTAL SCORE | | | 10 |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
| MINIMUM SCORE REQUIRED % | | | 90 |
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| NAME OF LABORATORY: LOCATION: | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 30 | ENDURANCE AND HIGH-SPEED TESTING MACHINE | Application/Scope | Single station tyre Endurance & Load speed performance testing machine as per details specifications and subassemblies mentioned below | 1 (ONE) |  |
|  |  | **Main Parameters** | | | 15 Max |
| No of test stations -2  No of Road wheel drum- 1  Max speed as specified below  Inflated tyre diameter 250mm-1600mm  Road wheel diameter 1707mm+ or – 1%  Road width wheel 500mm+ or – 1%  Max. test duration over 40 hours  Max tire width 350mm  TABLE 1-Tyre Diameter vs max test speed   |  |  | | --- | --- | | TABLE 1-Tyre Diameter vs max test speed | | | Tyre Diameter | Max speed | | 250mm | 200km/hr | | 300mm | 200km/hr | | 350mm | 230km/hr | | 400mm | 260km/hr | | 550-1600 | 350km/hr |   Machine design: Rugged steel structure with 1 drum and 2 station type with automatically and manually controlled wheel stopping Appxo, 30-35mins from full speed  Rim diameter Range 10’’- 24’’ | | | 3  1  1  1  1  1  1  7  1 |
| **MEASUREMENT AND ACCURACY**  Load Cells ±:0.2% 0.01KN  Displacement Sensors ±0.2% 0.1mm  Road Wheel Speed 1 kmph±0.1kmph  Automatic Load cell Capacity Detection  High Speed Data Acquisition System  Measurement system- (1 Set)  Acquisition Rate: 5000 Hz Max  Resolution: 16 bits | | | 5  5  5  5  5  5 |
| **C) CONTROL SYSTEM**  Machine Control through ARX410 Control System. Closed loop Hydraulic Servo Control to achieve specific load control accuracy. Each Station to have independent New hydraulic power pack and Actuators.  Two Floor Standing Control Desk with integrated Computers. Electronic Systems. Control buttons. indicators and panel Meters.  Control Desk Specifications:  Width 1200mm  Height :1200mm  **C) CONTROL SYSTEM**  Machine Control through ARX410 Control System. Closed loop Hydraulic Servo Control to achieve specific load control accuracy. Each Station to have independent New hydraulic power pack and Actuators.  Two Floor Standing Control Desk with integrated Computers. Electronic Systems. Control buttons. indicators and panel Meters.  Control Desk Specifications:  Width 1200mm  Height :1200mm Instruments mounted  • Control Computer  • Data Acquisition System Indicators & Buttons  • Machine start  • Machine Stop  • Tire Movement Control  Road Wheel Drum Speed Manual Control  • Emergency Stop Button (Additional)  High Accuracy Variable Frequency Drive AC Motor -1 No. | | | 4  4 |
| **D)SOFTWARE & COMPUTERIZATION-1 SET**  Host computer system - Test Computer. 24" TFT Monitor with LED Back Light.  • 10th Gen Intel Core 5-10400F processor  • 8GB.1x8GB. DDR4. 2666MHz  256GB Solid State Drive+ 1TB 7200 rpm 3.5" SATA Hard Drive, USB optical mouse, USB Keyboard, software Microsoft windows 10 operating environment pre-loaded, all cabling provided for with supply & 1 KVA online UPS  Make: HP/DELL/LENOVO OR ANY OTHER COMPATIBLE PC  HP LaserJet pro m1136 multifunction monochrome laser printer OR ANY OTHER COMPATIBLE PRINTER-1no  Display on Computer Screen:  ► Actual Wheel Load (kN or kgf)  ► Tyre Road Speed in kmph  ► Drum Speed in rpm, Load vs speed Graph  ► Elapsed time from test starting  ► Current Test step number  ► Graph in real time of test load vs time during ‘Endurance test’ and test speed vs time in ‘Load/Speed Performance test’, test status, Radius of tyre, Elapsed time.  Additional information  Radius of tyre, tyre temperature, inflation pressure  Application software supplied in DVD 2 copies  • Test should take place without any operator intervention after starting  • Automated test sequence movement of tyre and measurement of tyre Radius  • Real time display of Road wheel speed in km/hr  • User programmable ramp and test duration in minutes  • Creation, editing and selection of set up files for different tyre types  • Facility to print any logo on the test report in ant size and at any location or the page  • Test reports to 5 user predetermined report | | | 4 |
| **E) ELECTRICAL CONTROL PANEL CABINETS**  • Variable frequency Drive  • Protection circuits  • Power distribution centre  • High current devices | | | 5 |
| **F) SAFETY FEATURES:**  Automatic Drum Stop and slide retract upon tyre burst.  ► Automatic Drum Stop and slide retract if wheel load increase above set level.  ► Automatic Drum Stop and slide retract if Hydraulic Level in oil tank reduces below a set level or if oil temperature rises above a set level.  ► Motor overload Tripping  ► Door closure interlock  ► Slide over travel protection  Additional information  • Over voltage surge protector,  • protective mesh enclosure around the machine, air and pressure unit height 1500mm  • Automatic tyre burst detection and return to home position,  • 2pcs of 4kgs fire Extinguishers   * appropriate signage and warnings,   • Illuminations inside the machine shed.  • Automatic pressure detection loss  • Additional Emergency stop switch Shall be mounted at a specified Meter height | | | 10 |
| **G (INSTALLATION AND TESTING (20 DAYS)**  • Installation 10 days on site  • Training 5days on site  • On site machine handling, shifting, unloading 2 days  • Supplier to ensure machine ground bolting is done  • Mandatory predispatch inspection by KEBS or KEBS appointed agent  • 12 tyre sets sample tyres with rims to be provided without any cost for testing  • All tyre testing required weights to be provided for  **H) DOCUMENTATION**  **•** wiring Diagram 2copies  • Circuit diagram for PCBs  • quick test procedures 2 copies printed on laminated cards  • Instruction manual: 2copies  **•** Warranty  **I) MACHINE FINISH:**  Power Coating with primer. Anti-corrosion coating on non-painted parts.  (Supplier to state standards used  Preferred: RAL 7001 or 7004)  Machine Colour N/A | | | 5  5  2 |
| **J) TOOL KIT WITH FIRST AID KIT.**  All necessary tools re quired for  machine operation and maintenance  Industrial grade First AID kit  ANSI Class A and OSHA compliant | | | 5 |
| **K) WARRANTY**  At least 24 Months from the date of completion of installation or 13 months from the date of material reception at KEBS Labs.  Any manufacturing defects including motors, sensors, systems SHALL be covered. | | | 5 |
| **L) THE FOLLOWING ITEMS SHALL BE SUPPLIED WITH THE TEST MACHINE:**  **•** Operator’s Manual  • Maintenance Manual  • Calibration Certificates for Load Cell and Speed sensor  • Application Software CD or DVD.  • Tool box  • First Aid Kits  • Documentation (wiring & Circuit diagram) quick test procedures  • One set- Inline Tyre Air Filling System (Automatic tyre air pressure monitoring and control system, Air flow control pneumatic values (FESTO/SMC), Independent Air Supply units with control valves, control electronics, high speed and high pressure 1400 KPA per station  • Test Rims along with sample tyres from 10’’- 24’’ (10,12,13,14,15, 16,17,17.5,18, 20,22.5 and 24) to be supplied with the machines with a sample rim of 22.5’’ -2 nos | | | 2 |
| **Reference Standards:**  **IS15633‐2005, IS15636‐2005, IS15627‐2005 OR ISO/ANSI/EN EQUIVALENT** | | | 1 |
| **Language:** Shall be English for all the machine information | | | 1 |
| TOTAL SCORE | | | 85% |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
| **MINIMUM SCORE REQUIRED %** | | | **95%** |
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| NAME OF LABORATORY: Food & Agriculture LOCATION: NAIROBI | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 31 | Fiber Equipment | Application/Scope | Tests: Crude fiber, ADF, NDF and dietary fiber | 1 |  |
|  |  | Main Features | | | 70 |
| Automatic boiling and filtration | | | 8 |
| 24-place automatic complete with 24xglass spacers | | | 3 |
| 100 bags, small mesh size for the determination of crude fibre  100 bags, small mesh size for the dertermination of ADF/NDF | | | 6 |
| Dosing unit for adding amylase  External dosing pump with housing, complete with data cable, inlet tubes  and mains cable | | | 5 |
| Universal level sensors for chemical tanks | | | 6 |
| Cooling water consumption about 5l/min | | | 3.5 |
| Compressed air pressure 4-5 bars | | | 3.5 |
| Capacity boiling vessel 1.8l | | | 3 |
| Programmes at least 9 | | | 5 |
| Compressor 4-5 bars | | | 3 |
| Ceramic hotplate | | | 5 |
| Pneumatic lift | | | 3 |
| Acid, caustic and rinsing water, sunction programmed | | | 5 |
| Cooling water control | | | 3.5 |
| Optical and acoustical error message display | | | 2 |
| Extensive error control | | | 2 |
| Drip tray | | | 3.5 |
| 1. Performance Specifications | | | 15 |
| 1. Ups for power backup | | | 5 |
| 1. Electrical power 240v/50hz | | | 5 |
| 1. Traceable calibration Certificate | | | 5 |
| TOTAL SCORE | | | 15 |
| Other requirements | | | 15 |
| 1. Installation and Commissioning -to be indicated | | | 3 |
| 1. Operation and Service Manuals- All Manuals in English | | | 3 |
| 1. Warranty of atleast 2 years and Nearest service centre -to be indicated | | | 3 |
| 1. Brochures for the equipment to be provided during quotation | | | 3 |
| 1. Training - onsite training during installation | | | 3 |
|  |  | TOTAL SCORE | | | 15 |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | 100 % |
|  | MINIMUM SCORE REQUIRED | | | | 90% |

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| NAME OF LABORATORY: Food & Agriculture LOCATION: Headquarters | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 32 | Soxtec with a recirculating cooler | Application/Scope | Fat extraction in food and feeds | 1 |  |
|  |  | Main Features | | | 75Max |
| 6 extraction stations  3l/min cooling water consumption  cooling water pressure minimum of 0.3 bars  Maximum temperature 300oC  Extraction beakers of 100 and 150ml 1 set of 6 each  Weight 28kg  Dimension 250x410x580mm  2x RS 485 interface  Compatible Multistat control unit of nominal wattage of 6W, 2.5kg  Compressor of max 8 bars of nominal wattage of130W, 14kg  Recirculating cooler of up to two equipments of 6 extraction stations | | | 60 |
| Associated accessories and consumables | | | 15 |
| TOTAL SCORE | | | 75 |
|  | | |  |
| 1. Performance Specifications | | | 10 |
| Electrical power 240v/50hz | | | 5 |
| Traceable calibration Certificate | | | 5 |
| Nominal wattage 400W | | |  |
|  | | |  |
| TOTAL SCORE | | |  |
|  | | |  |
| 1. Other requirements | | | 15 |
| 1. Installation and Commissioning -to be indicated | | | 5 |
| 1. Operation and Service Manuals- All Manuals in English | | | 2.5 |
| 1. Brochures for the equipment to be provided during quotation and training and installation | | | 2.5 |
| 1. Warrant of atleast 2 years and local agent | | | 5 |
| TOTAL SCORE | | |  |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
| MINIMUM SCORE REQUIRED % | | | 90 |

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| NAME OF LABORATORY: CHEMISTRY LAB LOCATION: ELDORET | | | | | |
| 33 | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
|  | TOP LOADING BALANCE | Application/Scope | Weighing of samples | 1 (ONE) |  |
|  |  | 1. Main Features | | | 5 Max |
| 1. Simple menu navigation with icon-driven menus | | | 2 |
| 1. Dimensions ( L,W,H): (360 x 216 x 95)mm. Weighing pan size diameter: 180 mm(stainless steel weighing plate) | | | 1 |
| 1. Chemically resistant finish of the housing | | | 2 |
| TOTAL SCORE | | | 5 |
| 1. Performance Specifications | | | 85 |
| 1. Capacity: 3100 g, Readability:0.01g | | | 10 |
| 1. Repeatability: 0.01g, Linearity: 0.02g | | | 10 |
| 1. Stabilization Time: 1.5(seconds) | | | 10 |
| 1. Level control: Glass level indicator with air bubble for centering. Availability of a stability indicator | | | 15 |
| 1. Weighing Units: grams(g), Language: English | | | 10 |
| 1. Calibration Type: Internal, fully automatic, temperature- and time-controlled internal adjustment, allows for external calibration | | | 10 |
| 1. Power:100 to 240V ( Universal), Wattage: 2Watts | | | 10 |
| 1. Automatic shutoff | | | 10 |
| Other requirements | | | 10 |
| 1. Installation and Commissioning -to be indicated | | | 2 |
| 1. Operation and Service Manuals- All Manuals in English | | | 2 |
| 1. Warranty and Nearest service centre -to be indicated | | | 2 |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | 2 |
| 1. Training -onsite training during installation | | | 2 |
|  |  | TOTAL SCORE | | |  |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | 100 % |
|  | MINIMUM SCORE REQUIRED | | | | 85 % |
|  |  | | | |  |
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| NAME OF LABORATORY: MICROBIOLOGY – ELDORET LOCATION: MICROBIOLOGY LABORATORY– ELDORET | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 34 | ANAEROBIC WORKSTATION/ HOOD | Application/Scope | Handling and Incubation of Anaerobic Microorganisms | 1 (ONE) |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Capacity to handle at least 200 - 90mm petridishes. | | | 10 |
| 1. Anaerobic conditions monitoring capability | | | 10 |
| 1. Temp range 5°C above ambient to 45°C | | | 10 |
| 1. Temperature variation: ±1.0°C; | | | 10 |
| 1. Automatic dehumidifier; | | | 5 |
| 1. Data Logging for temperature, humidity and anaerobic conditions | | | 5 |
| 1. Gas supplies – Anaerobic gas mixture and Nitrogen gas , the contractor shall provide regulators for the gases and gas cylinders with the gases required for the operation of the equipment | | | 5 |
| 1. Vacuum take off function enabled. | | | 5 |
| 1. At least two Instant access ports available | | | 5 |
| 1. Storage trays for at least 200pcs of 90mm petri-dishes to be provided with the equipment | | | 5 |
| 1. Internal sockets to be available in the chamber | | | 5 |
| 1. Air lock system available for at least 20pcs of 90mm petridishes | | | 5 |
| 1. The warranty should be at least 12 months | | | 5 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 5 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 5 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 97 |

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| NAME OF LABORATORY: MICROBIOLOGY – ELDORET LOCATION: MICROBIOLOGY LABORATORY – ELDORET | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 35 | HOT AIR OVEN | Application/Scope | Sterilization of Glassware for Microbial Analysis | 1(one) |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Over heat protector. | | | 10 |
| 1. Microprocessor controlled memory; | | | 5 |
| 1. Stainless steel interior chamber; | | | 5 |
| 1. At least 3 Stainless steel shelves with multi-position settings; | | | 5 |
| 1. Keypad input for temperature; | | | 5 |
| 1. LED digital display; | | | 5 |
| 1. Visual alarm indicator; | | | 5 |
| 1. Thermocouple temperature sensor; | | | 5 |
| 1. Temperature settings up to 300oC | | | 5 |
| 1. Internal volume 150 -250 L | | | 10 |
| 1. Temperature stability ± 0.1oC | | | 10 |
| 1. Temperature timer > 99 hours | | | 5 |
| 1. Temperature control = PID | | | 5 |
| 1. RS 232 /484 communication channel; | | | 5 |
| 1. The warranty should be at least 12 months | | | 5 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 3 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 2 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 95 |

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| NAME OF LABORATORY: MICROBIOLOGY – (HEADQUARTERS, ELDORET , KISUMU, MOMBASA), INORGANIC& FOOD-HQ | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 36 | WATER DISTILLATION UNIT | Application/Scope | Distillation of Water For use in Media and Reagent Preparation | 6 |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Quartz distiller demountable boiler | | | 10 |
| 1. Panel box and stand to accommodate regulator and electrical supply, clamps | | | 5 |
| 1. Quality of distillate-pyrogen free, pH 6.9 7 high purity low conductivity | | | 10 |
| 1. Distilled water must be free of heavy metals, salts, pyrogen and iron | | | 10 |
| 1. Specific conductivity at 25°C less that 0,4x10.6 S/cm glass material or chemical inert material | | | 10 |
| 1. Equipment should thermal shock proof | | | 5 |
| 1. Should feature gas vent to remove volatile impurities leaving condensate free from gaseous impurities | | | 5 |
| 1. Automatic low water cut-off | | | 10 |
| 1. Tubing should be made of excellent quality heat resistant rubber | | | 5 |
| 1. Wiring equipment should be enclosed in case | | | 5 |
| 1. Should have deconcentrator a bleeder device on evaporation that constantly removes a part of boiling water from it so that cumulative concentration of non volatiles in the water is prevented | | | 5 |
| 1. The warranty should be at least 12 months | | | 5 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 5 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 5 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 95 |

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| NAME OF LABORATORY: MICROBIOLOGY – ELDORET LOCATION: MICROBIOLOGY LABORATORY-ELDORET | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 37 | ANALYTICAL BALANCE | Application/Scope | Weighing of samples for analysis | 1 |  |
|  |  | 1. General features | | |  |
|  |  | The equipment must be provided complete with the necessary accessories and/or parts such as to ensure that the equipment is capable of operating to the required technical and quality specifications in line with the scope of analysis. Accessories (if it is not named in the specific technical specification) that may enhance or improve the efficiency of operation of any equipment or item of equipment or additional features offered should be clearly identified in the Supplier’s offer and justified | | | 3 |
|  |  | The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphase + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more than 10%. All hardware shall operate on 220 V ± 20 V, 50 Hz ± 0.5 Hz, or 380 V ± 40 V, power supply and be suitable for direct connection to the standard power outlets in Kenya. All plugs of all the supplied equipment will have to fit exactly | | | 2 |
|  |  | 1. Technical Specifications   The following minimum requirements are mandatory. If the offer does not fulfil these minimum technical requirements, it will be disregarded. Details/evidence of compliance with the minimum technical requirements to be included in offer documents | | |  |
| 1. Maximum capacity (weight measurement) of 3100g. | | | 20 |
| 1. Readability of 0.01g | | | 20 |
| 1. Repeatability: (sd) 0.01 | | | 10 |
| 1. Linearity: 0.02g | | | 10 |
| 1. Setting time: 2 seconds | | | 5 |
| 1. Serial port and supplied with RS232 cable for LIMS interfacing | | | 5 |
| 1. In-build calibration mechanism. | | | 5 |
| 1. Upfront level indicator | | | 5 |
| 1. The warranty should be at least 12 months | | | 5 |
| 1. The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language | | | 5 |
| 1. Installation Testing and acceptance: The supplier shall carry out the installation. The installation shall start immediately after the delivery and should be finished without delay. After the installation the instrument and instruments accessories has to be ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment | | | 5 |
|  |  | TOTAL SCORE | | | 100 |
|  |  | MINIMUM SCORE | | | 95 |

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| NAME OF LABORATORY: MICROBIOLOGY – HQ & ELDORET | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 38 | HOMOGENIZER | Application/Scope | Homogenizing of samples before analysis | 1 |  |
|  |  | Main Features | | | 5 |
| Stomacher 400 circulator | | | 3 |
| Digital control panel | | | 2 |
| 1. Performance Specifications | | | 80 |
| Compatible with stomacher bag sizes 177 x 305mm | | | 10 |
| No risk of cross contamination | | | 10 |
| Adjustable paddle speeds and timer (digitally controlled) | | | 15 |
| Made from food grade material | | | 10 |
| Pack of 500 stomacher bags circulator 400 for sample size 80-400ml included | | | 15 |
| 220-240V | | | 10 |
| Removable door for easy cleaning of paddle chamber | | | 10 |
| TOTAL SCORE | | | 80 |
| Other requirements | | | 15 |
| 1. Installation and Commissioning -to be indicated | | | 3 |
| 1. Operation and Service Manuals- All Manuals in English | | | 3 |
| 1. Warranty and Nearest service centre –to be indicated | | | 3 |
| 1. Brochures for the equipment to be provided during quotation | | | 3 |
| 1. Training - onsite training during installation | | | 3 |
|  |  | TOTAL SCORE | | | 15 |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT  MINIMUM SCORE | | | | 100 %  95 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| LAB | CIVIL LAB | | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | Quantity | Location | Weighting (%) | Score  (%) |
| 39 | Automatic vicat apparatus | Application/Scope | Determination of setting time | 1 | Nairobi |  |  |
|  |  | Performance Specifications | | | |  |  |
| 1. Computer-controlledVicat needle apparatus with 6 measuring points fully automatic | | | | 10 |  |
| 1. Tests can be performed in air or in water bath with constant temperature 2. (heat exchanger and cooler for constant water temperature), 3. with programmed test sequences | | | | 10 |  |
| 1. The unit automatic records initial set time and final set time, as well as of setting plots | | | | 10 |  |
| 1. Weight of plunger and the Vicat needle are an adds to 300 g ± 1 g. | | | | 5 |  |
| 1. After each penetration the Vicat needle is automatically cleaned | | | | 3 |  |
| 1. Base unit as a table model with the control unit and standard software for programmable test sequences and for data recording | | | | 5 |  |
| 1. 6 Vicat moulds (conical hard plastic/rubber ring) 75±10 mm dia. x 40±0.2 mm | | | | 5 |  |
| 1. 6 glass base plates, 120 mm diameter | | | | 3 |  |
| 1. 6 centerings for Vicat moulds (conical hard plastic/rubber ring) 75±10 mm dia. 40±0.2 mm | | | | 5 |  |
| Accessories | | | |  |  |
| 1. 4 pair of cleaning brushes · 1 tee wrench, 1.25 mm | | | | 3 |  |
| 1. 4 tee wrench, 2 mm | | | | 3 |  |
| 1. Serial cable | | | | 3 |  |
| 1. USB/RS232-Adapter | | | | 3 |  |
| 1. Weight: 52 kg, power 220-250 V / 50-60 Hz | | | | 3 |  |
| 1. 12 spare glass plates, 120 mm dia. | | | | 3 |  |
| 1. 5 spare initial-set needles, 1.13 mm dia. | | | | 10 |  |
| 1. Filter sponge coarse | | | | 2 |  |
| 1. Filter sponge fine | | | | 2 |  |
|  | | | |  |  |
| Other Requirements | | | |  |  |
| 1. Installation and Commissioning ( To be done) | | | | 3 |  |
| 1. Operation and Service Manuals-(All Manuals in English) | | | | 3 |  |
| 1. Warranty and Nearest service centre ( To be indicated) | | | | 2 |  |
| 1. Training - (onsite training during installation) | | | | 2 |  |
| 1. Warranty ( At least one year) | | | | 2 |  |
| TOTAL SCORE | | | | 100 |  |
|  |  | MINIMUM SCORE REQUIRED | | | | 98 |  |

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| LAB |  | Civil lab | | | |  |  |
| 40 | Drying Oven | Application/Scope | For general drying and conditioning of specimen | 1 | Nairobi |  |  |
| Performance Specifications | | | | |  |
| I. Temperature Range ambient + 5oC to 200oC | | | | 10 |  |
| II. **Temperature Fluctuation** ± 0.5oC | | | | 10 |  |
| III. **Exterior Dimension (WxDxH)**: 86x74x90 cm ±0.3 cm | | | | 10 |  |
| IV. Observation window 12.7mm thickness tempered glass and 3mm thickness polycarbonate | | | | 10 |  |
| V. Silicone door gasket material | | | | 5 |  |
| VI Temperature display unit in oC | | | | 4 |  |
| 1. Timer range 1 – 10000 minutes | | | | 5 |  |
| 1. KF 25 connection **Vacuum Take-off Port** | | | | 5 |  |
| 1. **Interior Dimension (W x D x H)** 57x54x64 cm ±0.3 cm | | | | 5 |  |
| 1. **Interior Volume 210 Litres** | | | | 5 |  |
| 1. **Stainless steel Interior Chamber Material** | | | | 5 |  |
| 1. **5,adjustable Stainless steel mesh to fix into the interior size** | | | | 5 |  |
| 1. Traceable calibration certificates | | | | 2 |  |
| **Other requirements** | | | |  |  |
| 1. **Nominal Voltage** 50-60Hz, 1-phase 230V | | | | 5 |  |
| 1. **Nominal Power 3.5KW** | | | | 2 |  |
| 1. Operation and Service Manuals- (All Manuals in English) | | | | 4 |  |
| 1. Warranty and Nearest service Centre ( To be indicated) | | | | 3 |  |
| 1. Training - (onsite training during installation) | | | | 3 |  |
| 1. Warranty ( At least one year) | | | | 2 |  |
| TOTAL SCORE | | | | 100 |  |
| MINIMUM SCORE REQUIRED | | | | 98 |  |

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|  | | | | | | | | |
| LAB | Civil lab | | | | | | | |
| 41 | Electric core cutter | Application/Scope | | General extraction of Cores | 1 | Nairobi |  |  |
| Main Features | | | | |  |  |
| 1. Power: 6.5HP | | | | | 6 |  |
| 1. Control panel | | | | | 5 |  |
| 1. Carriage frame | | | | | 5 |  |
| 1. Drill motor | | | | | 5 |  |
| 1. Friction clutch | | | | | 5 |  |
| 1. motor mount plate | | | | | 5 |  |
| 1. rack | | | | | 5 |  |
| 1. gear-box | | | | | 5 |  |
| 1. out setting water swivel seal | | | | | 5 |  |
| 1. hydraulic system | | | | | 5 |  |
| 1. angle adjustable steel stand | | | | | 5 |  |
| 1. Drilling bit diameter range:75-150mm | | | | | 5 |  |
| 1. Drilling bit depth range:200-400mm | | | | | 5 |  |
| 1. Rotated speed: 200 - 1000r/min | | | | | 5 |  |
| 1. Rated Voltage: 220V/240V | | | | | 5 |  |
| 1. No-Load Speed: 0-700r/min | | | | | 5 |  |
| 1. Rated Input Power: 3200W | | | | | 5 |  |
| 1. Rated Torque: 18N.M | | | | | 5 |  |
| Other requirements | | | | |  |  |
| Operation and Service Manuals- (All Manuals in English) | | | | | 3 |  |
| Warranty and Nearest service Centre ( To be indicated) | | | | | 3 |  |
| Training - (onsite training during installation) | | | | | 3 |  |
|  | | | | |  |  |
| TOTAL SCORE | | | | | 100 |  |
| MINIMUM SCORE REQUIRED | | | | | 98 |  |
|  |  |  | | | | |  |  |
|  | | | | | | | | |
|  |  | MINIMUM SCORE REQUIRED | | | | | 98 |  |
| 42 | Le Chartelier mould | Application/Scope | | Used for testing Cement/lime Soundness | 1 set | Civil lab |  |  |
| Main Features | | | | |  |  |
| 1. Made from brass | | | | | 20 |  |
| 1. Internal diameter 30mm | | | | | 15 |  |
| 1. Height 30mm | | | | | 15 |  |
| 1. Two pointers 150mm long | | | | | 15 |  |
| Accessories | | | | |  |  |
| 1. 24 pieces Glass plate 50x50mm | | | | | 6 |  |
| 1. 100g non corrosion weight | | | | | 5 |  |
| 1. Extensibility mould apparatus with 300g weight | | | | | 5 |  |
| 1. Tamping rod 17mm diameter and 70g | | | | | 6 |  |
|  | | | | |  |  |
| Other Requirements | | | | |  |  |
| 1. Operation and Service Manuals- (All Manuals in English) | | | | | 4 |  |
| 1. Warranty and Nearest service center ( To be indicated) | | | | | 3 |  |
| 1. Training - (onsite training during installation) | | | | | 3 |  |
| 1. Warranty ( At least one year) | | | | | 3 |  |
| TOTAL SCORE | | | | | 100 |  |
| MINIMUM SCORE REQUIRED | | | | | 98 |  |
|  | | | | |  |  |
| 43 | Humidity chamber | Application/Scope | | Used for Curing/boiling cement specimens | 2 | Civil lab |  |  |
| Main Features | | | | |  |  |
| 1. Capacity:550litres | | | | | 15 |  |
| 1. Temperature range 0-100OC | | | | | 5 |  |
| 1. Inside Dimensions: 1100x710x690mm | | | | | 10 |  |
| 1. Weight: 55kg | | | | | 10 |  |
| 1. Overall Dimensions: 1220x800x850mm | | | | | 15 |  |
| 1. Double walled stainless steel made with wool insulation and water circulation electric stirrer and the bath ensure a uniform and constant temperature | | | | | 15 |  |
| 1. Electric Power 230v 1ph 50/60hz 1000W | | | | | 15 |  |
| 1. Fitted with dual safety thermostat | | | | | 5 |  |
|  | | | | |  |  |
| Accessories | | | | |  |  |
| 1. Cooling device | | | | | 10 |  |
| 1. Shelves for holding samples | | | | |  |
| 1. Cabinet lid | | | | |  |
| TOTAL SCORE | | | | | 100 |  |
| MINIMUM SCORE REQUIRED | | | | | 98 |  |
| 44 | Steam tank | Application/Scope | Conditioning samples to specified temperature (wood products, ceramic tiles ) | | 1 | Civil lab |  |  |
| Main Features | | | | |  |  |
| 1. Capacity: 200litres | | | | | 50 |  |
| 1. Lid with heat insulated material | | | | |  |  |
| 1. Fitted with two 2000W heating element | | | | | 25 |  |
| 1. Stainless steel for all components | | | | | 25 |  |
| TOTAL SCORE | | | | | 100 |  |
| MINIMUM SCORE REQUIRED | | | | | 100 |  |
| TOTAL SCORE | | | | | 100 |  |
| MINIMUM SCORE REQUIRED | | | | | 100 |  |

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| 45 | Cleveland open cap flash and fire point tester | Application/scope | Equipment used for testing flash and fire point for bitumen products | 1 | Civil lab |  |  |
|  |  | Main Features | | | |  |  |
|  |  | 1. Temperature range: -6 to 400oc | | | | 10 |  |
|  |  | 1. Electric heater with thermo regulator | | | | 20 |  |
|  |  | 1. Double line fuse | | | | 15 |  |
|  |  | 1. Complete with brass cup | | | | 15 |  |
|  |  | Other Requirements | | | |  |  |
|  |  | 1. Operation and Service Manuals- (All Manuals in English) | | | | 5 |  |
|  |  | 1. Nearest service center ( To be indicated) | | | | 3 |  |
|  |  | 1. Training - (onsite training during installation) | | | | 10 |  |
|  |  | 1. Warranty ( At least one year) | | | | 2 |  |
|  |  | Accessories | | | |  |  |
|  |  | 1. Flame gas device complete with gas top valve controlled by flame sensor | | | | 10 |  |
|  |  | 1. Maximum thermostart with reset button | | | | 5 |  |
|  |  | 1. Thermometer IP 28C , Range -6 to 300oc | | | | 5 |  |
|  |  |  | | | |  |  |
|  |  | TOTAL SCORE | | | | 100 |  |
|  |  | MINIMUM SCORE | | | | 98 |  |
|  | | | | | | | |

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|  | | | | | | |  |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY |  | WEIGHTING (%) |  |
| 46 | vacuum chamber and system | Application/Scope | For testing water absorption in Ceramic tiles | 1 | Civil lab |  |  |
|  |  | Main Features | | | |  |  |
| 1. Stainless steel tank and sample basket. | | | | 10 |  |
|  |  | 1. Control board with keyboard and LCD display for test cycle setting and checking. | | | | 10 |  |
|  |  | 1. Programmable vacuum range from -1 up to -90 KPa (-900 mbar / -9180 mm/H2O). | | | | 10 |  |
|  |  | 1. 4 board-selected, water levels for adapting the level to the size of the tiles being tested | | | | 7 |  |
|  |  | 1. Aluminium cover with handles, and fly wheels for locking. | | | | 7 |  |
|  |  | 1. Automated electro-valve operated water inlet system. | | | | 7 |  |
|  |  | 1. 3 measuring units: KPa - mbar - mm/H2O | | | | 6 |  |
|  |  | 1. Automatic water dump | | | | 5 |  |
|  |  | 1. Power input 240 V, single-phase, 50 Hz. | | | | 5 |  |
|  |  | 1. Overall dimensions: 185 x 60 x114 cm. | | | | 5 |  |
|  |  | 1. Basement and cabinet for switchboard made of dry painted sheet metal. | | | | 5 |  |
|  |  | 1. Automatic cycle test | | | | 5 |  |
|  |  | 1. Programmable temperature range from -1-100oC | | | | 5 |  |
|  |  |  | | | |  |  |
|  |  | Other Requirements | | | |  |  |
|  |  | 1. Operation and Service Manuals- (All Manuals in English) | | | | 4 |  |
|  |  | 1. Nearest service center ( To be indicated) | | | | 3 |  |
|  |  | 1. Training - (onsite training during installation) | | | | 3 |  |
|  |  | 1. Warranty ( At least one year) | | | | 3 |  |
|  |  | TOTAL SCORE | | | | 100 |  |
|  | MINIMUM SCORE REQUIRED | | | | | 98 |  |

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| 47 | CROSS HATCH CUTTER | Application/Scope | Determination of adhesion of paint on sheets | | | 1 | Nairobi | |  |  |
| Main Features | | | | | | |  |  |
| 1. hardened steel cylinder with eleven cutting edges | | | | | | | 10 |  |
| 1. hard wooden handle | | | | | | | 5 |  |
| 1. 3 x Cross Hatch Testers (1, 2 & 3mm) | | | | | | | 20 |  |
| 1. Carrier pouch/case | | | | | | | 5 |  |
| 1. Blade Spacing: 1mm | | | | | | | 10 |  |
|  | | | | | | |  |  |
| Other requirements | | | | | | | | |
| 1. Two extra 3 x Cross Hatch Testers (1, 2 & 3mm) | | | | | | | 15 |  |
| 1. Kit containing 5 Brush , 5 Magnifier, 3 pieces of Reel Pressure Sensitive Adhesive Tape (25mm wide) | | | | | | | 15 |  |
| 1. Cutter angle adjustment tool | | | | | | | 5 |  |
| 1. Hard plastic carry case for the kit | | | | | | | 5 |  |
| 1. hexagonal wrench | | | | | | | 4 |  |
| 1. Operation and Service Manuals- (All Manuals in English) | | | | | | | 3 |  |
| 1. Training onsite | | | | | | | 3 |  |
| Total score | | | | | | | | | 100 |  |
| Minimum required score | | | | | | | | | 98 |  |
| Lab | Civil | | | | | | | | | |
| 48 | Motorised Pencil Hardness Tester | Application/Scope | | Determination of paint film hardness | Quantity | | | Location |  |  |
| Main Features | | | 1 | | | Nairobi |  |  |
|  | | | | | | |  |  |
| 1. Overall dimensions: 280 mm x 140 mm x 240 mm | | | | | | | 5 |  |
| 1. Non corrosive material | | | | | | | 10 |  |
| 1. Force applied by pencil: 0 N to 100 N | | | | | | | 9 |  |
| 1. Operating voltage: 240 V AC 50 Hz | | | | | | | 5 |  |
| 1. Lead type: 2 mm diameter graphite lead | | | | | | | 5 |  |
| 1. Metal lead holder | | | | | | | 5 |  |
|  | | | | | | |  |  |
| Other requirements | | | | | | |  |  |
| 1. Abrasive paper of No. 400 | | | | | | | 5 |  |
| 1. Case of 12 leads, H | | | | | | | 5 |  |
| 1. Case of 12 leads, F | | | | | | | 5 |  |
| 1. Case of 12 leads, 2H | | | | | | | 5 |  |
| 1. Case of 12 leads, B | | | | | | | 5 |  |
| 1. Case of 10 leads, 3H | | | | | | | 5 |  |
| 1. Case of 10 leads, 4H | | | | | | | 5 |  |
| 1. Spare metal lead holder | | | | | | | 5 |  |
| 1. Valid calibration certificate | | | | | | | 5 |  |
| 1. Operation and Service Manuals- (All Manuals in English) | | | | | | | 5 |  |
| 1. Nearest service center ( To be indicated) | | | | | | | 3 |  |
| 1. Training - (onsite training during installation) | | | | | | | 5 |  |
| XII. Warranty ( At least one year) | | | | | | | 3 |  |
| TOTAL SCORE | | | | | | | 100 |  |
| MINIMUM SCORE REQUIRED | | | | | | | 98 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| 49 | Salt spray equipment | Application/Scope | Endurance test for paint coatings | Quantity | Location |  |  |
| Main Features | | 1 | Nairobi | WEIGHT |  |
| 1. Capacity; 600 L Minimum | | | | 5 |  |
| 1. Inner test chamber dimensions W/D/H1/H2; 910 x 710 x 660 / 1000 mm minimum | | | | 5 |  |
| 1. Outer dimensions of the casing (overall) W/D/H; 1485 x 788 x 1213 mm Maximum | | | | 5 |  |
| 1. Required power supply 230V, 50/60Hz, 2000W | | | | 5 |  |
| 1. Materials used; The walls of the chamber shall be made of Polypropylene while the bottom is made of stainless steel and coated with ECTFE. The walls shall have milled openings for supporting rods | | | | 5 |  |
| 1. Heating; Shall be fitted with Flat micanite heaters under the bottom of the chamber for fast and uniform heat transfer | | | | 5 |  |
| 1. Sensors; Shall be fitted with a corrosion resistant and highly sensitive temperature sensor | | | | 5 |  |
| 1. Temperature stability; ±0.2 C° | | | | 3 |  |
| 1. Test programming; shall be incorporated into the unit. | | | | 5 |  |
| 1. Weight; 230 kg Maximum | | | | 3 |  |
| 1. Communication; Shall be fitted with an RS 232 interface or an equivalent for data transfer | | | | 5 |  |
| 1. Purity demineralized water / fitting; < 20μS/cm / ¾“ outer diameter   Option: Automatic water refill | | | | 5 |  |
| 1. Tap water (connection type) Always via Ion-exchanging cartridge (¾“ outer diameter) | | | | 5 |  |
| 1. Shall be supplied capable delivering 6-8 bar with connection nipple size 5 | | | | 5 |  |
| 1. Waste water drain; Shall be supplied with Pipe fittings (spiral hose ID 30mm) for drain | | | | 5 |  |
| 1. Exhaust pipe; The Pipe fitting outer diameter shall be 50 mm external diameter or equivalent compatible with the unit delivered | | | | 5 |  |
| 1. Number of supporting rods / max load 5 stainless steel rods coated with plastic / 30 kg each | | | | 5 |  |
| 1. Source of radiation;   Option 1. Fluorescent UV lamp apparatus, with type 1A lamps, spectral distribution ? UV irradiance of Euv = 45±5 W.m-2  in the spectral range 290nm to 400nm or Eλ = 0.76±0.08 W.nm-1 at 340nm.  Option 2. Xenon-arc lamp apparatus, fitted with daylight filters, spectral distribution ? UV irradiance of Euv = 60±5 W.m-2 in the spectral range 300nm to 400nm | | | | 7 |  |
|  | | | |  |  |
| Other requirements | | | |  |  |
| 1. Manual; Shall be supplied during delivery and written in English | | | | 3 |  |
| 1. Training Shall be conducted on site during installation and commissioning by the supplier | | | | 3 |  |
| 1. Warrant; 2 years | | | | 3 |  |
| 1. Calibration certificate; Valid for not less than six months | | | | 3 |  |
|  | | | |  |  |
|  | | | | 100 |  |
|  | | | | 98 |  |

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| LAB | CIVIL | | | | | | |
|  | | | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | LOCATION | WEIGHT (%) | ACTUAL SCORE |
| 50 | Digital concrete hammer with microprocessor | Application/Scope |  | 1 |  |  |  |
|  | Main Features | | | |  |  |
| 1. Impact energy: 2.207 Joule (Nm | | | | 10 |  |
| 1. Measuring range: 10 - 120 N/mm2 (MPa) | | | | 10 |  |
| 1. Interface: USB | | | | 10 |  |
| 1. Power source: 6 rechargeable batteries AA NiMh 2400mA/hour | | | | 5 |  |
| 1. Battery life: 60 hours with automatic shut down | | | | 10 |  |
| 1. Operating temperature: -10OC- 600C | | | | 5 |  |
| 1. High contrast OLED display | | | | 10 |  |
| 1. Automatic calculating compressive strength | | | | 15 |  |
| 1. Automatic correction of impact direction | | | | 15 |  |
|  | | | |  |  |
| Other requirements | | | |  |  |
| 1. Operation and service manuals (all manuals in English) | | | | 5 |  |
|  |  | 1. Warranty (At least 1 year) | | | | 5 |  |
|  | 1. Training - (onsite training) | | | | 10 |  |
|  | Total score | | | | 100 |  |
|  | Minimum score required | | | | 95 |  |

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| --- | --- | --- | --- | --- | --- | --- |
|  | LAB | MECHANICAL ENGINEERING-HEADQUARTERS (NAIROBI) | |  |  |  |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) | ACTUAL SCORE |
| 51 | HYDROSTATIC PRESSURE TESTING MACHINE | Application/Scope | FOR TESTING HDPE, PP, CPVC& PVC PIPES | 1 |  |  |
|  | CABINET | Main Features   * Meets ISO 1167,ASTM D 1598 * Clear visualisation via PC operating software * Operator and service access to all   components from the front of the unit   * For servicing purposes, each station can be individually   isolated from the supply pressure via integrated needle  valves   * Microprocessor-controlled * pressure regulation with automatic failure detection * Precision pressure transducer with pressure gauges   for checking the actual pressure before or during the test   * Calibration of the test pressure during the test * Maximum flexibility with respect to   configuration and retrofitting   * Frequency-controlled pumps for infinite adjustment of the   Pump capacity to demand.   * Selective system pressure controller for each Module. * All components that come into   contact with the medium to be of stainless steel   * Interface to Ipt Data Logging * Connection to Data Manager Software | | | 20 MAX |  |
|  |  | 1. Performance Specifications, All to be included  * Pressure range up to 200 bar * Integrated, frequency-controlled high-pressure pump * Pump capacity 6 l/min * Increased capacity via second pump (with booster) 16 l/min * Stainless steel pressure reservoir * Booster pump * Maximum Number of racks - 3 * Number of modules per rack - 3 * Maximum Number of modules in cabinet-9 * Maximum Number of stations in cabinet -45 * Each station to have completely individually controlled lines * Precision pressure gauge. * External control unit * Operation via Ipt Data Logging * Compatible with Ipt Data Logging From version 5.x * Data interface to internal programs-Fast Ethernet (10/100 Mbit) * WLAN control unit (tablet) * Calibration certificate. * Voltage data- 230/400 V, 50/60 Hz   The modules should have the following performance specifications   * Pressure range up to 200 bar * Number of stations - 8 * Pressure regulation via microprocessor * A Controller * Sens Line connection * Selective system pressure controller * Stainless steel design * 10-bar pressure transducer * 16-bar pressure transducer * 25-bar pressure transducer * 40-bar pressure transducer * 60-bar pressure transducer * 100-bar pressure transducer * 160-bar pressure transducer * Accuracy of the pressure transducer 0.25% of full scale. | | | 20 MAX |  |
|  | TEST TANK (WATER BATH) | 1. Main features  * Motor-operated lidl test results * Constant test temperatures -efficient water   circulation and precise temperature control in the inner tank   * High-quality stainless steel test tank. * Fitted with manifolds. * Double insulation of the basic tank and insulated lid for   minimum energy loss   * Option to connect a chiller and plate heat exchanger to   provide efficient and environmentally-friendly water cooling  for low test temperatures   * Integrated monitoring of tank level, temperature and   circulation   * Interface to Ipt Data Logging * Connection to Data Manager Software | | | 1. 10 MAX |  |
|  |  | 1. Performance Specifications  * Water depth1800 mm * Width (internal)1500 mm * Length (internal)2000 mm * Width (external)1980 mm * Length (external)2720 mm * Height closed (external) 2230 mm * Height open (external)3340 mm * Manifold slots * Suspension rails * Heating power 18kW * Inner tank material 1.4571/AISI 316 Ti/UNS S 31635 * All parts coming into contact with water stainless l * All parts coming into contact with water should be free of Cu ions ¡ * Water temperature ambient temperature + 10°C upto max. 95 * The water bath to operate at different temperatures of (20 °C and 60°C for PVC pipes and 20°C and 80°C for PE pipes. * Water temperature (for fresh-water cooling) °C -Min. 20 or fresh-water temperature/max. 95 * Water temperature (with chiller) °C Min. 20/max. 95 * Water temperature adjustable in increments of °C, 0.1 * Spatial and temporal temperature constancy ,°C -±0.3 * Temperature control with regulating accuracy, °C ±0.025 * Circulation system with monitoring. * Connection and interface for chiller and heat exchanger. * Overtemperature shutdown. * Monitoring of water level. * Automatic top-up. * Calibration certificate. * Voltage data 230 V, 50 Hz | | | 1. 10 MAX |  |
|  | End Closures | End caps according to ISO 1167  For Metric Sizes  *Key: D stands for diameter*   * Endclosures D 12 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 16 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 20 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 25 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 32 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 40 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 50 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 63 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 75 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 90mm. 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 110 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 125 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 140 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 160 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 180 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 200 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 225 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 250 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * End closures D 280 mm 2 sets required for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 315 mm for PVC / PE pipe up to max. 100 bar endcap made out of stainless steel; 2 piece claw in stainless steel * Endclosures D 355 mm for PVC / PE pipe up to max. 70 bar endcap made out of stainless steel; 3 piece claw in stainless steel * Endclosures D 400 mm for PVC / PE pipe up to max. 70 bar endcap made out of stainless steel; 3 piece claw in stainless steel * Endclosures D 450 mm for PVC / PE pipe up to max. 70 bar endcap made out of stainless steel; 3 piece claw in stainless steel * Endclosures D 500 mm for PVC / PE pipe up to max. 70 bar endcap made out of stainless steel; 4 piece claw in stainless steel * Endclosures D 560 mm for PVC / PE pipe up to max. 45 bar endcap made out of stainless steel; 4 piece claw in stainless steel * Endclosures D 630 mm for PVC / PE pipe up to max. 45 bar endcap made out of stainless steel; 4 piece claw in stainless steel * Endclosures D 710 mm for PVC / PE pipe up to max. 45 bar endcap made out of stainless steel; 4 piece claw in stainless steel * End closures D 800 mm for PVC / PE pipe up to max. 45 bar endcap made out of stainless steel; 2 piece claw in stainless steel   For Empirical Sizes   * End closures D ½ Inches for PVC / CPVC pipe * End closures D ¾ Inches for PVC / CPVC pipe * End closures D 1 Inches for PVC / CPVC pipe * End closures D 1¼ Inches for PVC / CPVC pipe * End closures D 1½ Inches for PVC / CPVC pipe * End closures D 2 Inches for PVC / CPVC pipe * End closures D 2½ Inches for PVC / CPVC pipe * End closures D 3 Inches for PVC / CPVC pipe * End closures D 4 Inches for PVC / CPVC pipe * End closures D 6 Inches for PVC / CPVC pipe * End closure material should be Stainless steel 1.4301/AISI 305/UNS S30300 * Suitable for PE pipes,PP pipes & PVC pipes * Vent screw should be included * Ring nut for suspension should be included * Pressure connection Quick-release plugs * Mounting and de-mounting device for the enclosures .The unit is designed to dowel at ground floor including hold-down clamps and ratchet tightened system to relieved mounting of bigger samples end caps.   *Installation, commissioning and user training of the whole hydrostatic pressure system shall be included.*  The mounting device consists of;   * Installation cross piece * Extension bolts * Centering ring * Tension belts * Grip bars * Nuts   PC to enter parameters and test results.  Control module with TFT-monitor,key pad and compatible software system  Installation, user training and commissioning of the test equipment. | | | 20 MAX |  |

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| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 52 | Universal Tensile tester 50kN | Application/Scope | Universal tensile tests | 1 |  |
|  |  | Main Features | | |  |
|  |  | * Double column | | | 2 |
|  |  | * In-built calibration check facility | | | 1 |
|  |  | * High speed data collection systems, 4 synchronous channels | | | 1 |
|  |  | * Overload, over-travel and impact protection | | | 1 |
|  |  | TOTAL SCORE | | | 5 |
|  |  | Performance Specifications | | |  |
|  |  | * 50kN capacity | | | 4 |
|  |  | * Cross head travel at least 1000mm | | | 4 |
|  |  | * Speed range 0-1000mm/min | | | 4 |
|  |  | * High resolution load cells with accuracies better than +/-0.5% down to 1/1000th of the load cell capacity | | | 3 |
|  |  | * Automatic recognition of load cells and extensometers | | | 4 |
|  |  | * High speed data collection systems, 4 synchronous channels | | | 3 |
|  |  | * At least 3 I/O channels for additional devices | | | 3 |
|  |  | * Universally calibrated, better than Grade 0.5 EN 7500-1, DIN 51221 ASTM E-4. AFNOR A03-501 | | | 3 |
|  |  | * Load measurement accuracy ±0.5% of reading down to 1/1000 of load cell capacity | | | 3 |
|  |  | * Compatible air compressor for Pneumatic clamps | | | 5 |
|  |  | * 2 pairs Pneumatic clamps for textile strip test | | | 3 |
|  |  | * 1 pair Pneumatic clamps for textile grab test | | | 3 |
|  |  | * Capstan grips pair | | | 3 |
|  |  | * Non-contact long travel extensometer | | | 4 |
|  |  | * Wide width tensile camps pair | | | 4 |
|  |  | * Puncture test grips and fixtures for textile | | | 4 |
|  |  | * Puncture test grips and fixtures for geotextile | | | 3 |
|  |  | * Ball burst grips and fixtures | | | 3 |
|  |  | * Webbing grips set | | | 2 |
|  |  | * Zip fastener grips and fixtures | | | 2 |
|  |  | * Fibre test grips and fixtures | | | 2 |
|  |  | * 50 kN load cell | | | 3 |
|  |  | * 30kN load cell | | | 3 |
|  |  | * 10kN load cell | | | 3 |
|  |  | * 5kN load cell | | | 3 |
|  |  | * 1kN load cell | | | 2 |
|  |  | * Windows compatible test software | | | 2 |
|  |  | TOTAL SCORE | | | 85 |
|  |  | Other requirements | | |  |
|  |  | * Installation and Commissioning -to be indicated | | | 2 |
|  |  | * Operation and Service Manuals- All Manuals in English | | | 2 |
|  |  | * Warranty and Nearest service centre - to be indicated | | | 2 |
|  |  | * Brochures (in English)for the equipment to be attached with the quotations | | | 2 |
|  |  | * Training - onsite training during installation | | | 2 |
|  |  | TOTAL SCORE | | | 10 |
|  |  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
|  |  | MINIMUM SCORE REQUIRED % | | | 90 |

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| 53 | Weathering tester | Application/Scope | Measurement of weather durability testing and light fastness, with temperature, humidity and light exposure uniformity.  Applications: Textiles, Plastics, Paints and coatings, Additives & Colorants, Automotive, Packaging, | 1 |  |
|  |  | Main Features | | |  |
|  |  | * Chamber viewing window in door | | | 1 |
|  |  | * User interface touchscreen display of all test parameters, in English language | | | 2 |
|  |  | * 6500 W water-cooled xenon arc lamp system | | | 2 |
|  |  | TOTAL SCORE | | | 5 |
|  |  | Performance Specifications | | |  |
|  |  | * Total exposure area of at least 7,000 square cm | | | 3 |
|  |  | * Rotating specimen rack with removable sections | | | 2 |
|  |  | * Direct setting and control of irradiance: 340nm, 420nm, and 300-400nm | | | 3 |
|  |  | * Direct setting and control of relative humidity and chamber (10% RH to 75% RH in light cycles; Up to 100% in dark cycles) | | | 3 |
|  |  | * Direct setting and control of chamber air temperature | | | 3 |
|  |  | * Specimen rack (front) spray to simulate rain and Rack (back) spray in dark phase to simulate condensation | | | 4 |
|  |  | * Display of diagnostic messages | | | 3 |
|  |  | * Direct setting and control of Black panel temperature BPT/BST | | | 3 |
|  |  | * Pre-programmed test methods including ISO 105-B02 ,105-B04, AATCC TM 16E TM 16.3, TM 169 | | | 3 |
|  |  | * Capability for custom programs; sub-cycle capability | | | 4 |
|  |  | * Streaming data output via Ethernet or USB port. USB thumb drive | | | 3 |
|  |  | * Filter combinations to meet all common test methods | | | 3 |
|  |  | * Air intake filter | | | 2 |
|  |  | * Automatic test countdown based on time or radiant exposure | | | 2 |
|  |  | * Calibrated xenon reference lamp for calibration | | | 3 |
|  |  | * Compatible All-In-One Sensor to measures irradiance, rack panel temperature, chamber temperature, and relative humidity | | | 4 |
|  |  | * Recirculating DI air cooling system | | | 3 |
|  |  | * Irradiance Calibration Device for independent irradiance calibration and measurement at the sample plane: 340 nm; 300-400 nm; and 420 nm | | | 5 |
|  |  | * Filter Lantern for meeting special test requirements of ISO 105-B02, FLTM BO 116-01, GMW 3414TM | | | 5 |
|  |  | * Analytical software and compatible laptop PC | | | 5 |
|  |  | * Single exposure window with spring clip back | | | 3 |
|  |  | * Single exposure window with two spring clip backs to accommodate both thin and thick specimens | | | 3 |
|  |  | * Drop-In Tensile Bar Holder | | | 3 |
|  |  | * Three exposure windows with spring clip back | | | 3 |
|  |  | * Two spare Xenon arc lamps | | | 4 |
|  |  | * 2 year consumables | | | 3 |
|  |  | TOTAL SCORE | | | 85 |
|  |  | Other requirements | | |  |
|  |  | * Installation and Commissioning -to be indicated | | | 2 |
|  |  | * Operation and Service Manuals- All Manuals in English | | | 1 |
|  |  | * Warranty and Nearest service centre - to be indicated | | | 2 |
|  |  | * Brochures (in English)for the equipment to be attached with the quotations | | | 1 |
|  |  | * Training - training at manufacturer plant and onsite during installation | | | 4 |
|  |  | TOTAL SCORE | | | 10 |
|  |  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
|  |  | MINIMUM SCORE REQUIRED % | | | 90 |

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| 54 | Wrap reel | Application/Scope | to measure skeins of [yarn](https://www.testextextile.com/sale/by-application/yarn/)of a pre-determined length and number of turns for count and strength testing | 1 |  |
|  |  | Main Features | | |  |
|  |  | * Motor driven | | | 3 |
|  |  | * 1 Metre circumference collapsible swift | | | 1 |
|  |  | * Complete with yarn package stand and pre-tension device fitted with pre-determined counter | | | 1 |
|  |  | TOTAL SCORE | | | 5 |
|  |  | Performance Specifications | | |  |
|  |  | * Circumference of winch: 1000 ±1 mm | | | 15 |
|  |  | * Number of wraps: 1 - 9,999 adjustable, set autostop | | | 10 |
|  |  | * Pre-tension: 2 - 100cN | | | 15 |
|  |  | * Traveling reciprocating distance: minimum 30mm | | | 15 |
|  |  | * Spacing of spindles: minimum 60 mm | | | 15 |
|  |  | * Reel speed: 20 - 280rpm (variable | | | 15 |
|  |  | TOTAL SCORE | | | 85 |
|  |  | Other requirements | | |  |
|  |  | * Installation and Commissioning -to be indicated | | | 2 |
|  |  | * Operation and Service Manuals- All Manuals in English | | | 2 |
|  |  | * Warranty and Nearest service centre - to be indicated | | | 2 |
|  |  | * Brochures (in English)for the equipment to be attached with the quotations | | | 2 |
|  |  | * Training - onsite training during installation | | | 2 |
|  |  | TOTAL SCORE | | | 10 |
|  |  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
|  |  | MINIMUM SCORE REQUIRED % | | | 90 |

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| 55 | UV degradation tester | Application/Scope | Testing degradation on exposure to UV light | 1 |  |
|  |  | Main Features | | |  |
|  |  | * Black Panel Temperature (BPT) Control | | | 3 |
|  |  | * Touch screen display | | | 2 |
|  |  | * Door safety and over-temperature shutoff | | | 1 |
|  |  | TOTAL SCORE | | | 5 |
|  |  | Performance Specifications | | |  |
|  |  | * Fluorescent UV lamps (8) - 40 W (UVA-340, UVB-313, UVA-351) | | | 15 |
|  |  | * Specimen Holders provided, with specimen retainers | | | 10 |
|  |  | * Irradiance calibration safety access ports | | | 9 |
|  |  | * Recirculating spray water | | | 8 |
|  |  | * irradiance calibrator | | | 8 |
|  |  | * (12) specimen spray nozzles | | | 10 |
|  |  | * Irradiance control (340 nm, 313 nm, 351 nm) | | | 9 |
|  |  | * Data Acquisition Package | | | 8 |
|  |  | * Backer boxes for 3-dimensional and odd shaped specimens | | | 8 |
|  |  | TOTAL SCORE | | | 85 |
|  |  | Other requirements | | |  |
|  |  | * Installation and Commissioning -to be indicated | | | 2 |
|  |  | * Operation and Service Manuals- All Manuals in English | | | 1 |
|  |  | * Warranty and Nearest service centre - to be indicated | | | 2 |
|  |  | * Brochures (in English)for the equipment to be attached with the quotations | | | 1 |
|  |  | * Training - training at manufacturer plant and onsite during installation | | | 4 |
|  |  | TOTAL SCORE | | | 10 |
|  |  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
|  |  | MINIMUM SCORE REQUIRED % | | | 90 |

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| LAB | MECHANICAL-NDT LABORATORY | | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | Quantity | Cost  Approx | Weighting (%) | Score  (%) |
| 56 | DIGITAL RADIOGRAPHY X-RAY IMAGING SCANNER | Application/Scope | The scanner is used to acquire digital images using a phosphor imaging plate in place of the conventional films. It eliminates the use of a dark room. This gives advantages of immediate image preview and availability; elimination of costly film processing steps & ability to apply special image processing techniques that enhance overall display quality of the image. | 1 |  |  |  |
|  |  | Scanner& software  Laser focused technology  12.5µm laser spot  3.2GB Memory card  Standard wireless interface  On-line and off-line operation  Built in Mini PC  Intelligent and user friendly software for capturing, analyzing, reporting and archiving inspection data. This must include X-ray module software per port  Software for acquisition and storage of digital x-ray images for every port  Others  Lithium ion battery capable of operating scanner for more than two (2) hours with electrical specifications 24V/3-8Ah/total capacity 95.76 WH and dimensions being 150×65×105mm and weight >1kg  Battery charger  Transport case | | | | 50 |  |
| Accessories  Four (4) sets of 10×24 cm foil sleeve  Four (4) sets of 10×48 cm foil sleeve  1000 pieces per box of 10×24 cm Light Protection sleeves  1000 pieces per box of 10×48 cm Light Protection sleeves  One (1) piece 10×24 cm imaging plate  One (1) piece 10×48 cm imaging plate | | | | 20 |  |
| Other Requirements  Installation and Commissioning ( To be done)  Operation and Service Manuals- (All Manuals in English)  Training - (onsite training during installation)  Warranty ( At least one year)  Back Wall Echo Attenuator (BEA) | | | | 30 |  |
| TOTAL SCORE | | | | 100 |  |
|  |  | MINIMUM SCORE REQUIRED | | | | 95% |  |

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| NAME OF LABORATORY: MICROBIOLOGY - NAIROBI LOCATION: BIOCHEM LABORATORIES - NAIROBI | | | | | | | | | | |
| S/No | EQUIPMENT | | | SPECIFICATION | | | | QUANTITY | WEIGHTING (%) | |
| 57 | Automated microbiology quality indicator testing system for pathogens in food | | | Application/Scope | | Automated food safety testing for total viable counts, coliform counts, generic E. coli, and Enterobacteriaceae, lactic acid bacteria, Staphylococcus aureus, bacillus cereus and yeasts/molds. | | 1 |  | |
|  |  | | | 1. Main Features | | | | | 10 Max | |
| 1. MPN based enumeration with 16 tubes in a single card | | | | | 2 | |
| 1. Fast, accurate and Reliable | | | | | 2 | |
| 1. Automatic transfer of sample-media to 16 tube MPN card | | | | | 2 | |
| 1. Automatic reading of results, interpretation of results | | | | | 2 | |
| 1. Compatible with LIMS system | | | | | 2 | |
| TOTAL SCORE | | | | | 10 | |
|  | | | | |  | |
| 1. Performance Specifications | | | | | 75 | |
| 1. Parameters analyzed:   Enumeration of aerobic mesophilic flora in 22-28 hours in food and environmental samples  Enumeration of *Escherichia coli* in 22-27 hours in food products  Enumeration of *Enterobacteriaceae* in 22-27 hours in food products, with no need for confirmation  Enumeration of *Staphylococcus aureus* in 24-27 hours in food products, with no need for confirmation  Enumeration of the *Bacillus cereus* group in 22-27 hours in food and environmental samples  Enumeration of lactic acid bacteria in 40-48 hours in food products  Enumeration of yeasts and molds in 72-76 hours for food products | | | | | 15 | |
| 1. AFNOR, AOAC and ISO 16140 validated | | | | | 5 | |
| 1. No confirmation needed for all results | | | | | 5 | |
| 1. Card offering precision of 16-tube MPN method | | | | | 5 | |
| 1. Each well in the MPN card corresponds to a dilution tube and the size of the well corresponds to 1 to 3 levels of dilution | | | | | 5 | |
| 1. Application Areas: Analysis of food/feed and environmental samples | | | | | 5 | |
| 1. Computer to be provided together with all required software and provision for Software updates | | | | | 5 | |
| 1. Capable of being connected to KEBS LIMS system | | | | | 5 | |
| 1. Automated sample-media transfer unit into the MPN card | | | | | 5 | |
| 1. Automated card reader based on fluorescence/no flourescence with capability of interpretation and reporting of results as CFU/g | | | | | 5 | |
| 1. AC Power supply voltage – 220 – 240V, 50Hz | | | | | 5 | |
| 1. Data traceability based on barcoded cards | | | | | 5 | |
| TOTAL SCORE | | | | | 75 | |
|  | | | | |  | |
| 1. Other requirements | | | | | 15 | |
| 1. Provision of All standard Accessories-to enable analysis of at least:   1000 - aerobic mesophilic flora food and environmental samples  1000 - Enumeration of *Escherichia coli* food products  100 - Enumeration of *Enterobacteriaceae*  food products  1000 - Enumeration of *Staphylococcus aureus*  food products  100 - Enumeration of the *Bacillus cereus*  food and environmental samples  100 - Enumeration of lactic acid bacteria food products  1000 - Enumeration of yeasts and molds food products | | | | | 7 | |
| 1. One year FULL warranty – to be indicated | | | | | 2 | |
| 1. Nearest service centre -to be indicated | | | | | 1 | |
| 1. Evidence of supply of Similar equipment – to be indicated | | | | | 1 | |
| 1. Delivery period – to be indicated | | | | | 1 | |
| 1. On-site training before commissioning – to be indicated | | | | | 1 | |
| 1. Brochure in English to be attached with the quotation | | | | | 1 | |
| 1. Operation and Service manual – to be provided | | | | | 1 | |
| TOTAL SCORE | | | | | 15 | |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | | 100 % | |
| MINIMUM SCORE REQUIRED % | | | | | 90 | |
| NAME OF LABORATORY: MICROBIOLOGY - NAIROBI LOCATION: MICROBIOLOGY | | | | | | | | | | |
| S/No | | EQUIPMENT | SPECIFICATION | | | | QUANTITY | | | WEIGHTING (%) |
| 58 | | LABORATORY REFRIGERATOR | Application/Scope | | Sample storage before and after analysis  Media and reagents storage | | 1 | | |  |
|  | |  | Main Features | | | | | | | 5 Max |
| 1. Digital control with digital readout | | | | | | | 1 |
| 1. Fan assisted air circulation via premixing chamber | | | | | | | 1 |
| 1. Self-evaporating condensate tray | | | | | | | 1 |
| 1. Upright/Free standing | | | | | | | 1 |
| 1. CFC FREE | | | | | | | 1 |
| TOTAL SCORE | | | | | | | 5 |
| 1. Performance Specifications | | | | | | | 85 |
| 1. Porcelain steel interior and epoxy powder coated exterior | | | | | | | 5 |
| 1. Programmable interface, temperature sensor, programmable digital timer; | | | | | | | 5 |
| 1. Insulated interior glass doors for viewing without change in temperature; | | | | | | | 5 |
| 1. Internal fluorescent lighting with castors; | | | | | | | 5 |
| 1. High and low temperature protection, audible and visual alarms for over or under temperature; | | | | | | | 5 |
| 1. Front panel calibration, programmable with temperature controller; | | | | | | | 5 |
| 1. Digital chart recorder; | | | | | | | 5 |
| 1. Access port, computer communication port; | | | | | | | 5 |
| 1. LED digital display. | | | | | | | 5 |
| 1. Capacity >600 litres | | | | | | | 10 |
| 1. Temperature:   Range (-)2°C to (+)10°C; | | | | | | | 5 |
| 1. Humidity 10% -90% | | | | | | | 5 |
| 1. Uniformity:   ± 1.5°C at -10°C; | | | | | | | 5 |
| 1. Microprocessor control memory | | | | | | | 5 |
| 1. At least 4 shelves | | | | | | | 5 |
| 1. Lockable door/Security lock | | | | | | | 5 |
| TOTAL SCORE | | | | | | | 85 |
| Other requirements | | | | | | | 10 |
| 1. Installation and Commissioning -to be indicated | | | | | | | 2 |
| 1. Operation and Service Manuals- All Manuals in English | | | | | | | 2 |
| 1. Warranty and Nearest service centre -to be indicated | | | | | | | 2 |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | | | | | 2 |
| 1. Training - onsite training during installation | | | | | | | 2 |
| TOTAL SCORE | | | | | | | 10 |
| GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | | | | 100 % |
| MINIMUM SCORE REQUIRED % | | | | | | | 85 |

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| NAME OF LABORATORY: MICROBIOLOGY - NAIROBI LOCATION: MICROBIOLOGY | | | | | |
| S/No | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 59 | LAMINAR FLOW CABINET/  (Clean Benches) | Application/Scope | Provision of sterile working environment through filtered airflow across the work area that protects the sample from airborne contamination. | 3 |  |
|  |  | Main Features | | | 5 Max |
| 1. The user-friendly practical keyboard and the rear-lit LCD displaying laminar airflow velocity, inside and outside temperature, residual lifetime & saturation level of HEPA/ULPA filter and display of total number of hours of operation | | | 2 |
| 1. Ergonomically designed | | | 1 |
| 1. Anti-Bacterial Coating surfaces, Easy handling and maintenance | | | 1 |
| 1. High Level Lighting | | | 1 |
| TOTAL SCORE | | | 5 |
| 1. Performance Specifications | | | 85 |
| 1. **External structure in epoxy powder coated cold-rolled steel** or **AISI 304L stainless steel** for excellent corrosion resistance to the attack by aggressive common chemicals and for superior cleanability | | | 5 |
| 1. **Rear wall in stainless steel AISI 304 L**, designed to conform to requirements and pass the “cleanability test”. | | | 5 |
| 1. **Perforated Work surface in stainless steel AISI 304L** | | | 10 |
| 1. **Front window**: Stratified hinged safety glass to give easy access to large items, provided with gas springs to keep it open during maintenance or sanitization operations | | | 5 |
| 1. Filtration: H14 HEPA/ULPA filter with an efficiency better than 99,995 % MPPS, and conforming to EN-1822. | | | 5 |
| 1. Operation Condition: Air cleanliness in Class ISO 3 as per ISO: EN 14644-1. | | | 5 |
| 1. Motor blower: direct-coupled motor, electronic speed controlled to maintain a constant laminar airflow of 0.3 – 0.6 m/sec | | | 5 |
| 1. Servicing side glass with ports for service taps installation. | | | 5 |
| 1. Audio-visual alarms for:   • out of range or incorrect laminar airflow velocity  • front window opened  • clogging of HEPA/ULPA filter  • end of life-cycle of UV lamp  • fan-motor malfunction  • power failure | | | 5 |
| 1. Lighting: fluorescent tubes in built-in housing, placed outside the sterile area providing illumination of >300Lux. | | | 5 |
| 1. D.O.P.-DEHS inlet port for testing the HEPA/ULPA filters | | | 5 |
| 1. Installed UV sterilizing lamp | | | 5 |
| 1. Noise level <50dB(A) | | | 5 |
| 1. Compliance to an international standard EN 14644-1, EN 12469 or ISO 14644 | | | 5 |
| 1. Internal dimension, mm: (WxDxH) 732x380x580, *approximate* 2. External dimension, mm: (WxDxH) 830x652x925, *approximate* | | | 10 |
| TOTAL SCORE | | | 85 |
| Other requirements | | | 10 |
| 1. Installation and Commissioning -to be indicated | | | 2 |
| 1. Operation and Service Manuals- All Manuals in English | | | 2 |
| 1. Warranty and Nearest service centre -to be indicated | | | 2 |
| 1. Brochures (in English)for the equipment to be attached with the quotations | | | 2 |
| 1. Training - onsite training during installation | | | 2 |
| TOTAL SCORE | | | 10 |
|  |  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | 100 % |
|  |  | MINIMUM SCORE REQUIRED % | | | 85 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **NAME OF LABORATORY:** CHEMISTRY LAB **LOCATION:** LAKE REGION (KISUMU) & COAST REGION(MOMBASA) | | | | | |  |
| **SN** | **EQUIPMENT** | **SPECIFICATION** | | **QUANTITY** | **WEIGHTING (%)** | **ACTUAL SCORE** |
| 60 | Multiparameter ISE benchtop meter | **Application** | Measurement of selected ions (pH, ISE, ORP, conductivity, dissolved oxygen and turbidity) | **1** |  |  |
|  |  | **Main Features** | | |  |  |
| a) Modern high-performance multi-parameter meter with three isolated measuring channels pH/mV, ISE (including incremental methods), conductivity and oxygen measurement. With a large color graphic display under glass shield | | | 1 |  |
| b) 3 Universal measuring channels/ Tripple channel input (for simultaneous measurement) | | | 1 |  |
| c) LCD color graphic display | | | 0.5 |  |
| d) Accessories:   * + Fluoride ion selective electrode, compatible with meter supplied (Quantity= 1)   + Universal USB power supply   + Initial calibration set   + Adapter cable 1.5m   + Adapter DIN   + Adapter BNC   + Tripod | | | 1.5 |  |
| e) Documentation:   * Data transfer via USB interface * Data printable directly from the instrument via optional integrated printer | | | 1 |  |
| **SUB SCORE** | | | **5** |  |
| 1. **Performance Specifications - ISE Meter** | | |  |  |
| 1. Measuring range dependant on IDS sensor used | | | 10 |  |
| 1. ISE Accuracy (minimum) @ 25 °C/77 °F: ±0.5% (monovalent ions); ±1% (divalent ions) | | | 10 |  |
| 1. Resolution:   ISE 0.0001 minimum, 1 to 3 significant digits (user selectable) | | | 15 |  |
| 1. Calibration Point:   pH 1-7  ISE 2-7 | | | 10 |  |
| 1. Power requirement: Universal power supply 110-240V, 50/60Hz | | | 5 |  |
| 1. USB A/Mini USB-B interface | | | 5 |  |
| 1. Advanced ISE options: Segmented (point-to point) slope, non-linear selectable auto-blank, low concentration range stability, incremental techniques including single known addition, single known subtraction, double known addition and double known subtraction , PH with calibration editing option | | | 10 |  |
| **SUB SCORE** | | | **65** |  |
|  | | | | |
| **Performance Specifications - Fluoride ion selective probe** | | |  |  |
| 1. Shall be compatible with the meter supplied | | | 2 |  |
| 1. Electrode type: Wireless Fluoride electrode probe | | | 3 |  |
| 1. Membrane: solid state electrode | | | 3 |  |
| 1. Determinable ions: fluorides, | | | 2 |  |
| 1. Measuring range:0.02mg/L - Saturation | | | 2 |  |
| 1. pH Range: 5-8 | | | 2 |  |
| 1. Reproducibility ±2% | | | 2 |  |
| 1. Fluoride ISE type: F 800 series (built in reference electrode) | | | 4 |  |
| **SUB SCORE** | | | **20** |  |
|  | | | | | | |
|  |  | **Other requirements** | | |  |  |
|  | | |  |  |
| 1. **Installation and Commissioning –**shall be done by the supplier at the designated laboratory | | | 1 |  |
| 1. **Operation and Service Manuals-** All Manuals in English shall be provided | | | 2 |  |
| 1. **Warranty and nearest service centre –**Minimum warranty period shall be 24 months from the date of commissioning. The nearest service centre shall be indicated | | | 2 |  |
| 1. **Brochure** for the specific equipment to be attached with the quotation | | | 1 |  |
| 1. **Training - onsite** training during installation shall be offered. | | | 1 |  |
| 1. Tool kit for basic maintenance | | | 1 |  |
| 1. **POWER SUPPLY:** cables be supplied with the unit | | | 2 |  |
| **SUB SCORE** | | | **10** |  |
|  | | |  |  |
| **GRAND TOTAL SCORE FOR THE EQUIPMENT** | | | | **100** |  |
| **MINIMUM SCORE: 95%** | | | |  |  |
|  | | | |  |  |

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| NAME OF LABORATORY: Food & Agriculture , Inorganic, Organic, Textile, Polymer LOCATION: NAIROBI | | | | | |
| SN | EQUIPMENT | SPECIFICATION | | QUANTITY | WEIGHTING (%) |
| 61 | Analytical balance | Application/Scope | Mass measurement of samples | 5 |  |
|  |  | Technical Specifications | | |  |
| Weighing capacity-520grams Maximum | | | 10 |
| Precision -0.1mg | | | 5 |
| Readability-0.005/0.1mg or less | | | 10 |
| Stability-within less than 10 seconds | | | 10 |
| Operation-Either Touchless, Handsfree or touch sensitive | | | 5 |
| Draft control- Shall be fitted with a draft shield (Flip top and side sliding doors). | | | 5 |
| Display- Shall have LCD display with multiple modes | | | 5 |
| Static charges- Shall have Automatic electrostatic detection, compact ionizer or better | | | 5 |
| Communication & Data transfer- Shall be Fitted with an RS 232 cable or a better alternative | | | 5 |
| Internal calibration- Shall have a Monolithic weigh cell or a more advanced cell | | | 10 |
| Level- Shall be fitted with a level indicator | | | 5 |
| Power-220-250V AC | | | 3 |
| Housing –Shall be chemical resistant | | | 4 |
| Operation - Internal adjustment(user selectable auto cal) and external calibration | | | 3 |
| In use protective cover-Shall be fitted | | | 2 |
| Overload protection- Shall be in inbuilt | | | 4 |
| Installation, Training and warranty- Shall be conducted by the supplier on site after delivery.  The warranty shall be a minimum of one year post installation | | | 5 |
| 1. Manual and Traceable certificate of calibration showing linearity and uncertainty-Shall be availed on delivery | | | 2 |
| TOTAL SCORE | | | 100 |
|  | GRAND TOTAL SCORE FOR THE EQUIPMENT | | | | 100 % |
|  | MINIMUM SCORE REQUIRED | | | | 90% |

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|  | **LABORATORY** | **CIVIL-HEADQUARTERS** | 1 |  |
| 62 | **MUFFLE FURNACE** | **Application/Scope** Capable of heating and or ashing samples at variable temperature for thermogravimetric analysis | 1 |  |
|  |  | **1. Main Features** |  | 5 max |
|  |  | Dimensions: |  |  |
|  |  | External H x W x D (mm) 655 x 435 x 610 ± 10% tolerance, max |  | 2.5 |
|  |  | Internal H x W x D (mm) 195 x 210 x 325 ± 10% tolerance max |  | 2.5 |
|  |  | **2. Performance Specifications** |  | 85 max |
|  |  | Maximum operating temperature 1200°C |  | 15 |
|  |  | Chamber volumes 13L |  | 15 |
|  |  | Max continuous operating temp 1100°C |  | 15 |
|  |  | Heat-up time 13min |  | 15 |
|  |  | Temperature setting, shall be variable and programmable for set temperature and heating times |  | 10 |
|  |  | Heating element, shall be fitted on side walls and chemical resistant |  | 15 |
|  |  | 1. Other requirements |  |  |
|  |  | Power requirements: Standard 240 V |  | 10 |
|  |  |  |  |  |
|  | **MINIMUM SCORE** | | | 95% |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Lab** | **Civil** | | | | | | |
| **SN** | **EQUIPMENT** | **SPECIFICATION** | | **QTY** | **LOCATION** | **WEIGHT (%)** | **SCORE (%)** |
| **63** | **Digital Micrometer Screw gauge** | **Application/Scope** | **Used for accurate and precise measurements of smaller Dimensions e.g. base metal thickness of roofing sheets** | **2** | **Nairobi** |
| **Main features** | | | |
| 1. Measuring range: 0-25mm | | | | **8** |  |
| 1. Outside Electronic Micrometer screw gauge with LCD display | | | | **5** |  |
| 1. Display Type: Digital and manual | | | | **5** |  |
| 1. Measuring surface: ø - 3.2mm | | | | **8** |  |
| 1. Resolution: 0.001mm/0.00005" (Switchable) | | | | **8** |  |
| 1. Material/ Measuring surfaces: Chrome Finish, Carbide Faces/tipped, precision round | | | | **8** |  |
| 1. Instrumental error(200c): ±0.5µm | | | | **8** |  |
| 1. Accuracy: 0.002mm/0.0001"(Switchable); High accuracy \* Data hold and wipe out \* Data output | | | | **8** |  |
| 1. Measuring force: 5-10 N | | | | **8** |  |
| 1. Mass: 270g, 400g(440g with heat shield attached) | | | | **8** |  |
| 1. Flatness: 0.3μm/.000012" | | | | **8** |  |
| **Accessories** | | | |  |  |
| 1. Power supply: Lithium battery(CR2032)x1 | | | | **4** |  |
| 1. Wrench x 2 | | | | **4** |  |
| 1. Storage case x 2 | | | | **4** |  |
| **Other requirements** | | | |  |  |
| 1. Operation and service manuals (all manuals in English) | | | | **3** |  |
| 1. Warranty (At least 1 year) | | | | **3** |  |
| **Total score** | | | | **100** |  |
| **Minimum score required** | | | | **98** |  |