

TECHNICAL SPECIFICATIONS FOR LABORATORY EQUIPMENTS FOR TESTING DEPARTMENT

	LABORATORY	INORGANIC, FOOD AND AGRICULTURE-HEADQUARTERS	QTY	
1	Automatic Titrator	Application/Scope Titrimetric analysis of various samples for different parameters		4
		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 accommodated		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%

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

	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 atleast 2 years shall be provided		6
	MINIMUM SCORE		90

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
		2. 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 to 15240 approximately	
	Calibrated attenuator-cumulative error in (fine gain control) ± 1 dB	
	Calibrated attenuator-cumulative error in (coarse gain control) ± 2 dB	
	Dead time after transmitter pulse approximately 10 μ s	
	Standard dynamic DAC/TVG, onboard DGS/AVG	
	Temperature range -20°C to 50°C	
	TOTAL SCORE	85
	3. Other requirements	10
	Power (AC- 220-240V, 50 Hz)	
	Supply voltage (accumulator) 12V (DC) $\pm 10\%$	
	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

	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
	2. 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
	3. 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)	

		TOTAL SCORE	10
		GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %
		MINIMUM SCORE REQUIRED %	90

	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, Zinc and Glass PVC				
	Accuracy $\pm 0.1\text{mm (0.0039inch)}$				
	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 $-20^\circ\text{C to } +70^\circ\text{C (68°F to 158°F)}$				
	Relative Humidity- 10% - 90%				
	Sensor Measuring Range: 1.5mm – 99.9mm				

		TOTAL SCORE	85
	2. 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	

	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	

	<p>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*</p> <p>*Can prepare the 10% bottom residue for EN ISO 10370</p>	5
	<p>Analytical Principle</p> <p>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.</p> <p>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</p> <p>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</p> <p>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</p> <p>Distillation Rate: Distillation Rate regulation 2 to 10 ml/min</p>	10
	<p>Vapour Temperature: Range: 0 to 450°C (32 to 842°F), accuracy Pt 100 IEC 751 probe Class A</p>	5
	<p>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</p>	5
	<p>Calibration Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate</p> <p>Calibration: Single point against reference barometer</p>	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); Installation and user training, hard copy manual	5
	2. 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 %

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			
		Temperature measurement resolution: 0.0001 k			
		Measuring mode: Isoperibol Dynamic Adiabatic			
		Reproducibility: 0,05 to 0,15			
		Measuring per hour: Isoperibol 4Dynamic 6Adiabatic 5			
		Start temperature: 22°C, 25 °C, 30 °			
		Decomposition vessel identification: Automatic			
		Decomposition vessel C 6010			
		Interfaces Possible: PC & Printer			
		Automatic water filling and draining Yes			
		Automatic Ignition			
		Automatic oxygen filling, venting, flush			
		Cooling with 2 basic chiller			

	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	
	i. Installation and Commissioning -to be indicated	2
	ii. Operation and Service Manuals- All Manuals in English	2
	iii. Warranty and Nearest service Center –to be indicated	2
	iv. Brochures for the equipment to be provided during quotation	2
	v. Training - onsite training during installation	2
	TOTAL SCORE	10
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %
	MINIMUM SCORE	95%

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 (mm ² /s) @40 °C (68°C), 0.5-2000 cst (mm ² /s) @100 °C (212°F) Fast Run: 0.5 – 600 mm ² /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

NAME OF LABORATORY: POLYMER			LOCATION: HEADQUARTERS	
S/No	EQUIPMENT	SPECIFICATION	QUANTITY	WEIGHT (%)
8	FLUE GAS ANALYZER	<p>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.</p>	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)		
		<i>Total</i>		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
		<i>Total</i>		85
		3. Other requirements		10 max
		Hazardous area rating option: General Purpose, Non-Hazardous		10
		<i>Total</i>		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/m ² /day Unmasked 0.02 to 1000 g/m ² /day WVTR Films 0.008 - 432,000 cc/m ² /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 - 50cm ² , 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 - N ₂ O, O ₂ , CO ₂ , CO		30
		Ranges: 0 - 100% N ₂ O, 0 - 100% O ₂ , 0 - 2000 ppm, CO ₂ 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

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			
		The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphasic + 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. 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			
		a) Working Load Capacity of at least 230kgs			
		b) At least 12 cubic feet of capacity heavy duty steel hopper			
		c) 500W electric drive motor with two 12V removable and rechargeable Non-Spillable Sealed Lead Acid Batteries			

	d) At least 10 inch solid foam front wheels	10
	e) Forward/Reverse capability	5
	f) Speed: Approximately 0 – 5kph, Variable	10
	g) At least 6 hours operating time	10
	h) Charger compatible with Kenya supplied voltage 220 V (monophase) and 380 V (triphasic + neutral) to be availed. Solar charging option	10
	a) The warranty should be at least 12 months	10
	b) The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	3
	c) 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

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 (triphasic + 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	
		2. 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			
		a) Bench top freezer with security lock for both outer and inner doors and insulated inner doors; b) Heavy duty gauge steel cabinet, temperature monitoring port and interior lighting and heated vacuum valve.		10	

	c) Stainless steel interior with rounded corners	
	d) Microprocessor temperature control system	10
	e) At least 4 adjustable shelves	5
	f) Rapid temperature recovery	5
	g) Capacity 400 litres	5
	h) Adjustable temperature control -(minus) 10°C to (minus) 30°C, Accuracy ± 2°C;	10
	i) Temperature recorder, digital display with 72 hour back up;	10
	j) Temperature set point security – audible and visual alarms;	10
	k) Battery back up for alarms.	5
	l) Accessories	
	a. Temperature chart recorder;	5
	b. Power surge suppressor;	
	c. Low temperature protective gloves;	
	d. at least 4 stainless steel racks;	
	e. Replacement chart recorder;	
	f. At least 20 fibreboard boxes.	
	g. Batteries	
	d) The warranty should be at least 12 months	5
	e) The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	5
	f) 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	5

		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	
		TOTAL SCORE	100
		MINIMUM SCORE	90

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
		a) Housing: rugged, sealed and desiccated housing b) Interferometer: RockSolid™, 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 c) NIR source: air cooled NIR source (12V, 20W) d) UPGRADE: upgradable by additional sampling accessories like, fibre optic probes, integrating sphere, external transmission unit, automated sample wheel, and sample rotators. e) PC for control of the spectrometer optics and signal processing Minimum PC-data requirements Data system, convertible minitower (CMT) "Intel" i7 processor, >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			
		f) Inbuilt diagnostic mechanism monitoring operation within factory settings and offer information on failure and possible remedies			

	TOTAL SCORE	5
	Performance Specifications	
	a) Resolution: 2cm -1	
	b) Wavenumber reproducibility: better than 0.04cm-1	
	c) Wavenumber accuracy: better than 0.01cm-1	
	d) Photometric accuracy: better than 0.1%T	
	e) 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)	
	f) Measuring speed: up to 5scans/sec at 8cm-1 resolution	
	g) 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	
	a. Detector: high sensitivity thermoelectrically cooled InGaAs detector	
	b. Spectral range: 12,800-4,000cm-1	
	External transmission unit	
	a. Detector: high sensitivity InGaAs detector, optional with Si detector	
	b. Spectral range: 12,800-5,800cm-1, optional 15,500-9,000cm-1	
	Integrating sphere	
	a. Detector: high sensitivity PbS detector, with non-linearity correction	
	b. Spectral range: 12,800-3,600cm-1	
	Electronics	
	a. Data acquisition: integrated acquisition processor for PC-independent data acquisition	
	a. 42-bit A/D converter	
	b. Automation: microprocessor controlled optical bench, digital speed control, automatic gain selection, advanced system check (IVU internal validation unit)	
	c. Performance check: permanent on-line diagnostic of all optical components, automation unit and sampling accessories.	

	<p>d. Connection to PC or LAN: Ethernet interface 10/100 Mbps</p> <p>Dimensions</p> <ul style="list-style-type: none"> a. Spectrometer (wdxh): 54.9cm x 58.9cm x 39.1cm b. Weight: 30-40 kg <p>Operating environment</p> <ul style="list-style-type: none"> a. Operating temperature: 5°C to 35°C (41°F to 95°F) b. Power requirements: optical bench: 100-240V, 50/60Hz, 100W c. PC data system : 110/220V, 50/60Hz, 200W d. Humidity: <80% non condensing e. Laser class: class 1 	
	<p>Software</p> <ul style="list-style-type: none"> a. 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 b. OPUS/QUANT (OR EQUIVALENT APPROPRIATE SOFTWARE), software package for quantitative analysis OPUS/LAB (OR EQUIVALENT APPROPRIATE SOFTWARE), software for routine operation c. The software must be a “all-in-one” software for data measurement,maipulation and evaluation. d. The software must include packages for dedicated applications: quantification of substances using PLS algorithm. The quantification software package must have self-optimizing calibration models. 	
	<p>Validation</p> <ul style="list-style-type: none"> a. Instrument qualification: OPUS(OR EQUIVALENT APPROPRIATE SOFTWARE) validation program (OVP) supports Operational Qualification (OQ) and Performance Qualification (PQ), optional qualification according to USP <1119>/PhEur 2.2.40 b. Internal Validation Unit: filter wheel with reference standards for automatic PQ tests c. Validation manual :complete hardware and software validation documentation 	

		<p>i. User interface: dedicated user interfaces to allow single routine measurements with predefined measurement parameters, qualitative and quantitative evaluations, storage conditions and GMP Calibrations and accessories to be included</p>	
		<p>Calibrations and Accessories: the FT-NIR system must be equipped with the following NIR sampling accessories</p> <ul style="list-style-type: none"> • Integarting 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 <p>(Note: All calibrations and accessories to be included)</p>	
		<p>ii. <u>Specifications for the “Classic Transmission” measurement channel</u></p> <ol style="list-style-type: none"> 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 120°C. 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 automatically 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 infrared detector must have an <u>intergrated A/D converter</u> 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. <ul style="list-style-type: none"> • 8cm^{-1}spectral resolution 	

		<ul style="list-style-type: none"> • 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 	
		<p><u>Specifications for other measurement channels.</u></p> <p><u>“Reflection” measurement channel (intergrating sphere)</u></p> <ol style="list-style-type: none"> 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 optimally 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 <u>intergrated A/D converter</u>. 8. The minimum signal to noise for a 5 second 100%-line measurement using the internal gold reference standard should be typically 7×10^{-5}AU noise RMS using the following conditions. <ul style="list-style-type: none"> • 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 commissioning –to be done by supplier	1
	Operation and service manuals- All manuals in English	1
	Warranty of no 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
	EQUIPMENT	GRAND TOTAL SCORE FOR THE
	REQUIRED	MINIMUM SCORE
		100%
		95%

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
		g) Power consumption:70 to 100 VA			
		h) Dimensions:754(L)X392(W)X231(H)mm(29.7x15.5x9.1 inches)			
		i) Fitted with standard air pump			
		j) Display:TFT touch screens 6.5”,640x580 pixels			
		k) Interfaces:4 USB,RS232,Ethernet,VGA,CAN,bus Easyconnection of keyboard, mouse,printer,bar code reader and networks			
		l) Power supply:self-adapting to any mains voltage AC 100 to 240 VAC,50/60 Hz			
		TOTAL SCORE		5	
		Performance Specifications			

	<p>h) 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</p> <p>i) Measuring range: $\pm 259^{\circ}\text{Z}$ ($\pm 89.9^{\circ}\text{OR}$)</p> <p>j) Resolution: 0.001 °OR</p> <p>k) Accuracy: $\pm 0.01^{\circ}\text{Z}$</p> <p>l) Repeatability: $\pm 0.01^{\circ}\text{Z}$</p> <p>m) Response time: 15 seconds</p> <p>n) Wavelengths: 589 nm and optionally 880 nm</p>	
	<p>h) Light source: tungsten halogen lamp, 6V.20W, with an average lifetime of 2000 h</p> <p>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</p>	
	<p>j) Sensor: PT100 sensor input for sample temperature measurement resolution 0.1°C accuracy $\pm 0.1^{\circ}\text{C}$</p>	
	<p>k) Filling check: Built-in camera for monitoring the filling process of the sample cell</p>	
	<p>l) Temperature control: Peltier system for automatic temperature control between 15 °C and 45 °C</p> <p>m) Sample cell: Wireless automatic identification of sample cells from 2.5 mm to 200 mm.</p> <p>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).</p> <p>large internal diameter.</p>	
	<p>n) Accessories: to be supplied with manufacturers certificate of analysis .</p> <p>.Quartz control plate(equiped with toomaster chip)for calibration.</p>	

	.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
	EQUIPMENT	GRAND TOTAL SCORE FOR THE EQUIPMENT
	REQUIRED	MINIMUM SCORE
		95%

NAME OF LABORATORY: INORGANIC , ORGANIC, FOOD&AGRICULTURE, TEXTILES, POLYMER					
LOCATION: NAIROBI					
SN	EQUIPMENT	SPECIFICATION		QUANTITY	WEIGHTIN G (%)
16	FUME HOOD (A Dedicated-Fan Fume Hood) with Ducting and exhaust system	Application	Extraction of fumes from the laboratory	4	
		Main Features			
		m) 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.			
		n) Sliding Sash should be manufactured from toughened glass 6mm thick and is fitted with an aerodynamic finger pull for ease of opening/closing.			
		o) 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.			
		p) 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			
		TOTAL SCORE			
		Performance Specifications			
		i. The fume hood shall have a face velocity of not less than 0.5m/s (100 fpm)			
		ii. Required air flow of not less than 1.8m ³ /s			
		iii. The working surface of the fume hood be made of solid cast epoxy resins, resistant to heat and chemicals			
		iv. Electrical requirements: 240 VAC and 50/60 Hz			

	v. The internal linings shall be made of fibreglass-reinforced polyester resin panels that provide resistance to chemicals and heat	10
	vi. Motor: minimum 3KW/4P	5
	vii. Blower: PP modulated high efficiency medium pressure fans including suitable adapter, electro galvanised	5
	viii. Electrical Sockets x 2(switted 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
	ix. Services of 1 x water & 1 x Gas & Drip Cup/Sink should be fitted through removable service panels allowing for full flexibility.	15
	x. Electro deposition to make the hood rust free.	10
	TOTAL SCORE	85
	Other requirements	
	i. Installation and commissioning - Equipment shall be installed and commissioned 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
	ii. Operation and Service Manuals – Hardware and operator's manual complete with methods shall be supplied and written in English	1
	iii. Warranty and nearest Service Centre – Two year warranty	1
	iv. Brochure (in English) - The equipment brochure to be attached with the quotations	1
	v. Training – Training shall be done for all users during installation and commissioning at the supplier's cost	1

NAME OF LABORATORY: INORGANIC			LOCATION: NAIROBI		
SN	EQUIPMENT	SPECIFICATION	QUANTITY	WEIGHTIN G (%)	
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
	q) 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
	r) Sliding Sash should be manufactured from toughened glass 6mm thick and is fitted with an aerodynamic finger pull for ease of opening/closing.				1
	s) 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
	t) 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
	Performance Specifications				85
	xi. The fume hood shall have a face velocity of not less than 0.5m/s (100 fpm)				5
	xii. Required air flow of not less than 1.8m ³ /s				5
	xiii. The working surface of the fume hood be made of solid cast epoxy resins, resistant to heat and chemicals				10
	xiv. Scrubber unit: shall be fitted and made of perchloric acid resistant material.				10
	xv. Electrical requirements: 240 VAC and 50/60 Hz				5

xvi.	The internal linings shall be made of fibreglass-reinforced polyester resin panels that provide resistance to chemicals and heat	10
xvii.	Motor: minimum 3KW/4P	5
xviii.	Blower: PP modulated high efficiency medium pressure fans including suitable adapter, electro galvanised	5
xix.	Electrical Sockets x 2(switted 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
xx.	Services of 1 x water & 1 x Gas & Drip Cup/Sink should be fitted through removable service panels allowing for full flexibility.	15
xxi.	Electro deposition to make the hood rust free.	10
TOTAL SCORE		85
Other requirements		
vi.	Installation and commissioning - Equipment shall be installed and commissioned 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
vii.	Operation and Service Manuals – Hardware and operator's manual complete with methods shall be supplied and written in English	1
viii.	Warranty and nearest Service Centre – Two year warranty	1
ix.	Brochure (in English) - The equipment brochure to be attached with the quotations	1
x.	Training – Training shall be done for all users during installation and commissioning at the supplier's cost	1

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				
		a) Supply: 220 – 240V AC, 50/60 Hz			2.5	
		b) Auxiliary lamp and software provided			2.5	
		TOTAL SCORE			5	
		Performance Specifications				
		i. Spectral Range Wavelength: 380nm~800nm			5	
		ii. Spectral Wavelength Accuracy: $\pm 0.3\text{nm}$, Wavelength Reproducibility: $\pm 0.1\text{nm}$			6	
		iii. Sample Scanning Steps: $\pm 0.1\text{nm}$			5	
		iv. Accuracy of Chromaticity Coordinate: $\pm 0.3\%$			6	
		v. Correlated Color Temperature CCT: 1,000K~100,000K, CCT Accuracy: $\pm 0.3\%$			6	
		vi. Color Rendering Index Range: 0~100.0, Accuracy: $\pm(0.3\% \text{rd} \pm 0.3)$			6	
		vii. Photometric Linear: $\pm 0.3\%$			5	
		viii. Stray Light: <0.015%(600nm) and <0.003%(435nm)			6	
		ix. 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	
		x. 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	
		xi. Accessories: Auxiliary lamp, PC with WinXP, Win7 or Win8 software			10	

				TOTAL SCORE	85	
		1. Other requirements				
		i. Installation and Commissioning - to be indicated		2		
		ii. Operation and Service Manuals - All Manuals in English		2		
		iii. Warranty and Nearest service centre - to be indicated		2		
		iv. Brochures (in English)for the equipment to be attached with the quotations		2		
		v. Training - onsite training during installation		2		
		TOTAL SCORE		10		
		GRAND TOTAL SCORE FOR THE EQUIPMENT		100 %		
				<i>Minimum Score 95%</i>		
	NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY		LOCATION: NAIROBI			
Sr. No.	EQUIPMENT	SPECIFICATIONS		QUANTITY	WEIGHTING (%)	ACTUAL SCORE
19	DUSTPROOF TEST EQUIPMENT	Applicati on	Protection against dust/particles of Electrical Appliances	1		
		Main Features				
		a) Digital Control Display		2.5		
		b) Chamber Transparent Window Display		2.5		
		TOTAL SCORE		5		
		Performance Specifications				
		i. Certification of Compliance to Operation as per IEC 60529		10		
		ii. Metal Net Standard Nominal Line Diameter: 50µm		7		
		iii. Environmental Air Pressure: 80kPa ~ 106kPa		8		
		iv. Airflow Velocity in the Chamber: 1.5m/s (Adjustable range 0~4.99m/s)		7		
		v. Test Dust: Dry Talcum Powder, Portland Cement, Smoke Ash e.t.c		7		
		vi. Environmental Temperature Range: +5°C ~ 50°C (Adjustable)		7		
		vii. Relative Humidity Range: 45% ~ 75% (Adjustable)		7		
		viii. Power Supply: 240V or 415V a.c, 50/60Hz		7		

		ix. Line Spacing Between the Standard: 32µm, 75µm and 250µm (Three metal nets)	7			
		x. Working room size: 1000*1000*1000 mm	10			
		xi. Dust Concentration Control	8			
		TOTAL SCORE				
		85				
		Other requirements				
		i. Installation and Commissioning - to be indicated	3			
		ii. Operation and Service Manuals - All Manuals in English	3			
		iii. Warranty and Nearest service centre - to be indicated	3			
		iv. Brochures (in English)for the equipment to be attached with the quotations	3			
		v. Training - onsite training during installation	3			
		TOTAL SCORE				
		15				
		GRAND TOTAL SCORE FOR THE EQUIPMENT				
		100 %				
		<i>Minimum Score 95%</i>				
	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				
		a) Certification of Compliance to Operation to IEC 60529			2	
		b) PLC Intelligent Control, color touch screen operation			2	
		c) Power Supply: 220 - 240V a.c, 50/60Hz			1	
		TOTAL SCORE			5	
		Performance Specifications				
		i. Size of Oscillating Tube: R400, R200, R600, R800, R1000, R1200, R1400, R1600mm.			9	
		ii. Stainless Steel Material of Oscillating Tube			5	
		iii. Needle Hole Diameter: 0.4mm			6	

		iv. Included angle of the two holes: IPX3: 120°; IPX4: 180°	7			
		v. Swing Angle: IPX3: 120°($\pm 60^\circ$) ; IPX4: 350°($\pm 175^\circ$)	7			
		vi. Swing Speed: IPX3, 4 s/time (2×120°) ; IPX4, 12 s/time (2×350°)	7			
		vii. Water Flow: 1-10L/min adjustable	7			
		viii. Testing Time: 0.01secs. ~ 99hours 59min, Preset	8			
		ix. Rotary Plate of Diameter: Ø600mm; Rotate speed: 1r/min. Can be paused at four aspects, Load bearing≤50kg	8			
		x. Pressure Gauge: 0~0.25MPa	7			
		xi. Water flow rate: > 10L/min±5% clean water without inclusion	7			
		xii. Equipment equipped with clean water filtration unit	7			
		TOTAL SCORE	85			
		Other requirements				
		i. Installation and Commissioning - to be indicated	2			
		ii. Operation and Service Manuals - All Manuals in English	2			
		iii. Warranty and Nearest service centre -to be indicated	2			
		iv. Brochures (in English) for the equipment to be attached with the quotations	2			
		v. Training - onsite training during installation	2			
		TOTAL SCORE	10			
		GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %			
		<i>Minimum Score 95%</i>				
	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			15	
		SCORE				

		Performance Specifications			
		i. Current Ranges of 1mA(Full scale $\pm 0.2\mu A$) to 10000mA(Full scale $\pm 500\mu A$)		15	
		ii. Voltage measurement Range: 0 – 12Volts $\pm 1mV$		15	
		iii. Modes of Operation: Fixed constant Current, Power, Resistance, Voltage with variable duty cycles		15	
		iv. Time: Minimum step time of 500mS and Control, Measurement and adjustment every 50mS		15	
		v. Associated cabling and ten (10no.) 9V Kelvin Cell Holders		15	
		TOTAL SCORE		75	
		Other requirements			
		i. Installation and Commissioning -to be installed and commissioned		2	
		ii. Operation and Service Manuals- All Manuals in English		2	
		iii. Warranty and Nearest service centre -to be indicated		2	
		iv. Brochures (in English)for the equipment to be attached with the quotations		2	
		v. Training - onsite training during installation		2	
		TOTAL SCORE		10	
		GRAND TOTAL SCORE FOR THE EQUIPMENT		100 %	
		<i>Minimum Score 95%</i>			
	NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY		LOCATION: NAIROBI		
Sr. No.	EQUIPMENT	SPECIFICATIONS		QUANTITY	WEIGHTING (%)
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		
i.	Calibration: Calibrated against an Eppley Precision Spectral Pyranometer (PSP) under natural daylight conditions. Typical error under these conditions is $\pm 5\%$.	8	
ii.	Sensitivity: Maximum 90 μA per 1000 W m^{-2} .	8	
iii.	Linearity: Maximum deviation of 1% up to 3000 W m^{-2} .	7	
iv.	Stability: $< \pm 2\%$ change over a 1 year period.	8	
v.	Response Time: Minimum 10 μs .	8	
vi.	Temperature Dependence: 0.15% per $^{\circ}\text{C}$ maximum.	8	
vii.	Cosine Correction: Cosine corrected up to 80° angle of incidence.	7	
viii.	Azimuth: $< \pm 1\%$ error over 360° at 45° elevation.	7	
ix.	Tilt: No error induced from orientation.	7	
x.	Operating Temperature: 5 to 65°C.	5	
xi.	Operating Relative Humidity: 0 to 100%.	5	
xii.	Detector: Silicon photovoltaic detector (blue enhanced).	7	
TOTAL SCORE		85	
Other requirements			
i.	Installation and Commissioning -to be indicated	2	
ii.	Operation and Service Manuals- All Manuals in English	2	
iii.	Warranty and Nearest service centre -to be indicated	2	
iv.	Brochures (in English)for the equipment to be attached with the quotations	2	
v.	Training - onsite training during installation	2	
TOTAL SCORE		10	
GRAND TOTAL SCORE FOR THE EQUIPMENT			100 %
<i>Minimum Score 95%</i>			

	EQUIPMENT	SPECIFICATIONS		QUANTITY	WEIGHTING (%)	ACTUAL SCORE
23	INSULATION RESISTANCE TESTER	Application	Insulation Resistance Measurements	1		
		Main Features				
		i. Rechargeable battery powered		1		
		ii. Battery 'OK' test capability		2		
		iii. Press to test button		2		
		TOTAL SCORE		5		
		Performance Specifications				
		i. Measurement Ranges: 20kΩ to 100(2000)MΩ, 50kΩ to 250(5000)MΩ, 100kΩ to 500(10000)MΩ, 200kΩ to 1000(20000)MΩ.		10		
		ii. 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		
		iii. Test Voltage: 100V, 250V, 500V, 1000V d.c		10		
		iv. Test Voltage Accuracy: +10%, -0%		8		
		v. Short Circuit Current: Less or equal to 6mA		6		
		vii. Over-range capability: 110% of Range		5		
		viii. Internal power supply: Li-ion rechargeable or 6LR61 9V		6		
		ix. Maximum voltage applied to any terminal: 600V a.c rms or d.c		5		
		x. Live circuit indicator: Inhibit test if terminal voltage > 30 V prior to initialization of test		5		
		xi. Maximum Capacitive Load: Operable with up to 1 μF load		5		
		xii. Measurement Accuracy: 100V ±(3 % + 5); 250V ±(1.5 % + 5); 500V ±(1.5 % + 5); 1000V ±(1.5 % + 5)		10		
		xiii. Test leads/probes and internal battery to be provided.		5		

	xiv. 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		
	i. Installation and Commissioning -to be indicated	2	
	ii. Operation and Service Manuals- All Manuals in English	2	
	iii. Warranty and Nearest service centre -to be indicated	2	
	iv. Brochures (in English)for the equipment to be attached with the quotations	2	
	v. Training - onsite training during installation	2	
	TOTAL SCORE	10	
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %	
	<i>Minimum Score 95%</i>		

	LABORATORY	CHEMISTRY-COR	
24	UV-VIS SPECTROPHOT OMETER	Application/Scope: Preparation of standards and general spectrophotometric analysis	
		Main features	
		a) Double beam unit with colour touch screen	
		b) Personal computer	
		c) Printer	10
		Performance specifications	
		a) Photometric system: Double beam	6
		b) Wavelength range: 190-1,100 nm	10
		c) Display: 0.1 nm	2
		d) Wavelength accuracy ±0.05 (or better) nm at 656.1 nm ±0.3 nm overall	4
		e) Wavelength repeatability: ± 0.1 nm	4
		f) Stray light i. <0.02 % at 220 nm ii. <0.01 % at 340 nm iii. <0.5 % at 198 nm	5
		g) Photometric range i. Absorbance: -4 to +4 absorbance units ii. Transmittance: 0 % to 400%	5
		h) Photometric accuracy ≤0.006 absorbance units at 2.0 absorbance units reading.	3
		i) Photometric repeatability ≤0.005 absorbance units at 2.0 absorbance units reading	3
		j) Internal sample compartment dimensions: W110 x D250 x H115 mm	4
		k) Baseline stability ≤±0.0003 absorbance units	4

		<p>l) Baseline flatness $\leq \pm 0.0006$ absorbance units</p>	4
		<p>m) Noise level ≤ 0.00003 absorbance units at 700 nm</p>	4
		<p>n) Measurement modes</p> <ul style="list-style-type: none"> i. Photometric ii. Spectrum iii. Quantitation iv. Kinetics v. Time scan vi. Bio (for DNA and Protein) 	8
		<p>o) Cuvette size</p> <ul style="list-style-type: none"> i. 10 mm square ii. 20, 30, 50, 70, 100 mm rectangular (with or without an accessory) 	5
		<p>p) Film analysis</p> <p>Have ability to analyse film: Film holder fitted or accessory</p>	5
		<p>Power supply: 220-240 V ac 50/60Hz</p>	4
		<p>Other requirements</p>	
		<p>(i) Installation and Commissioning -to be done by supplier(to be indicated on quotations)</p>	2
		<p>(ii) Operation and Service Manuals- All Manuals in English(to be indicated on quotations)</p>	2
		<p>(iii) Warranty and Nearest service centre -(to be indicated on quotations)</p>	2
		<p>(iv) Brochures (in English)for the equipment to be attached with the quotations</p>	2
		<p>(v) Training - onsite training during installation(to be indicated on quotations)</p>	2
		<p>TOTAL SCORE</p>	100
		<p>MINIMUM SCORE</p>	90

	LABORATORY	ORGANIC CHEMISTRY (HQ) & CHEMISTRY-COR (MOMBASA)	2PCS
25	Karl Fischer Titration (Volumetric and coulometric)	<p>Application/Scope Quantifying water content in a variety of samples with low water content e.g. edible oils and motor oils</p> <p>Main Features</p> <ul style="list-style-type: none"> i. Unit with coloured touch screen ii. Compatible oven iii. At least one coulometric and one volumetric burettes (standard or modular) iv. Personal computer v. Printer <p>Technical Specifications:</p> <ul style="list-style-type: none"> i. Ability to perform both volumetric and coulometric karlfischer analysis ii. Ability to analyse solid, liquid and gaseous samples iii. Inbuilt methods iv. Presence of solvent manager v. Ambient Temperature: +5...+40 °C vi. Atmospheric Humidity: max. 80% <p>Power supply: 220-240 V ac 50/60Hz</p> <p>Other requirements</p> <ul style="list-style-type: none"> i. Installation and Commissioning -to be indicated ii. Operation and Service Manuals- All Manuals in English iii. Warranty and Nearest service centre -to be indicated iv. Brochures for the equipment to be provided during quotation v. Training - onsite training during installation 	

			TOTAL SCORE	100
			Minimum score	90

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		
		4. 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 (triphasic + 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		
		5. 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 a) Automatic free steaming and media warming facility	5		

	b) Microcomputer/microprocessor controlled	5
	c) Sterilization temperature 140°C max	5
	d) Sterilization timer 0 – 250 minutes	7
	e) Pressure range 0.0-2.4 bar	5
	f) Capacity: at least 100 litres	8
	g) Sterilization temperature 140°C max	5
	h) Accelerated cooling and Vacuum option	7
	i) Sterilization temperature stability/Accuracy of ± 0.5°C maximum	5
	j) Armored wondering/flexible temperature probes	5
	k) Automatic cycle control	5
	l) Top or front loading model	5
	m) Automatic demineralized water feed for steam generation	2
	n) Over temperature protection	3
	o) Audible and visual alarms in the event of Cycle fault, Cycle Interruptions, Sterilization failure, low water level and un-locked door	2
	p) RS 232 and/or USB data output	3
	q) Compliance to International standard certificate	2
	r) Full cycle range process printer	3
	s) The warranty should be at least 12 months	3
	t) The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	4
	u) Accessories, spare parts: Maintenance toolkit Printer paper rolls Nearest service center to be indicated	3
	v) 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

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 (triphasic + 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	
		2. 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	
	a) Porcelain steel interior and epoxy powder coated exterior	5
	b) Programmable interface, temperature sensor, programmable digital timer	5
	c) Insulated interior glass doors for viewing without change in temperature	5
	d) High and low temperature protection, audible and visual alarms for over or under temperature	5
	e) Front panel calibration, programmable with temperature controller	5
	f) Access port, computer communication port; LED digital display	5
	g) Digital chart recorder	5
	h) Internal fluorescent lighting with castors	5
	i) Capacity 300 - 400 litre	10
	j) Temperature: a. Range 0°C to 60°C; b. Accuracy ± 0.1°C; c. Resolution 0.1°C.	10
	k) Humidity 10% -90%	5
	l) Uniformity: a. ± 0.5°C at 20°C; b. ± 0.5°C at 30°C.	7
	m) Microprocessor control memory	3
	n) Upright design with at least four shelves	5
	o) The warranty should be at least 12 months	5

	p) The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	5
	i. 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

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

	<p>The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphasic + 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</p>	2
	<p>2. 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</p>	
	<p>a) Bench top laminar cabinet, horizontal air stream laminar flow with gas and electrical power outlets</p>	5
	<p>b) Dimensions:</p> <ul style="list-style-type: none"> a. External (WxDxH) mm 650x500x600maximum b. Internal (WxDxH) mm 600x400x500minimum 	5
	<p>c) Air velocity 0.3 -0.6 m/s (Adjustable air velocity)</p>	10
	<p>d) Double HEPA/ULPA filters 99.999% efficient (0.1-0.3 micron pores)</p>	10
	<p>e) UV Lighting in the working area</p>	5
	<p>f) Illumination > 300Lux, Noise level < 50dB(A)</p>	5
	<p>g) Front glass/screen – shatterproof, hardened and hinged to facilitate introduction of bulky materials</p>	10
	<p>h) Perforated stainless steel surface (smooth sterilizing working surface)</p>	10

	i) External structure made of carbon steel varnished with epoxy powder	5
	j) At least one extra double HEPA/ULPA Filter for each cabinet	10
	k) At least two extra UV Lambs for each cabinet	5
	l) The warranty should be at least 12 months	5
	m) The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	5
	n) 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	<ul style="list-style-type: none"> • 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)	
		6. Main Features		5 Max	
		Machine weight (900-1200 kg)		$\frac{1}{2}$	
		Power supply (415 V AC – 50 hz)		$\frac{1}{2}$	
		Motor drives and PLC (Siemens/Allen Brady)		$\frac{1}{2}$	
		Operating system (Windows)		$\frac{1}{2}$	

	Load cell (Sensor Data / Soemer (100 Kn))	$\frac{1}{2}$
	Pneumatics (Festo/SMC)	$\frac{1}{2}$
	Electrical cabinet weight (520 kg)	$\frac{1}{2}$
	Electrical cabinet control panel	$\frac{1}{2}$
	Loading device – Servo-motor, Ball screw drive & Linear guide	$\frac{1}{2}$
	Noise emission < 78 dBA	$\frac{1}{2}$
	TOTAL SCORE	5
	7. 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) { $\frac{5}{16}$ ", $1\frac{1}{4}$ ", $1\frac{1}{2}$ "}	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 (\leq 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
	8. Other requirements	10
	Unit (switchable) [N, KN, Kgf, lbf, bar, Mpa, psi, etc.]	1
	Max load (4 – 60 KN)	2
	Load accuracy within \pm 0.5% of full scale	1
	Stroke accuracy within \pm 0.5% of full scale	1
	Max. Ram travel \leq 500 mm/min	1
	Test speed (10 – 100 mm/min adjustable)	1
	Idle speed (\leq 500 mm/min)	1
	Test speed accuracy within \pm 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

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				

	<p>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</p> <p>Rim diameter Range 10"- 24"</p> <p>MEASUREMENT AND ACCURACY</p> <p>Load Cells ±0.2% 0.01KN</p> <p>Displacement Sensors ±0.2% 0.1mm</p> <p>Road Wheel Speed 1 kmph±0.1kmph</p> <p>Automatic Load cell Capacity Detection</p> <p>High Speed Data Acquisition System</p> <p>Measurement system- (1 Set)</p> <p>Acquisition Rate: 5000 Hz Max</p> <p>Resolution: 16 bits</p> <p>C) CONTROL SYSTEM</p> <p>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.</p> <p>Two Floor Standing Control Desk with integrated Computers. Electronic Systems. Control buttons. indicators and panel Meters.</p> <p>Control Desk Specifications:</p> <p>Width 1200mm</p> <p>Height :1200mm</p>	1
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	<p>C) CONTROL SYSTEM</p> <p>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.</p> <p>Two Floor Standing Control Desk with integrated Computers. Electronic Systems. Control buttons. indicators and panel Meters.</p> <p>Control Desk Specifications:</p> <p>Width 1200mm</p> <p>Height :1200mm Instruments mounted</p> <ul style="list-style-type: none"> • Control Computer • Data Acquisition System Indicators & Buttons • Machine start • Machine Stop • Tire Movement Control <p>Road Wheel Drum Speed Manual Control</p> <ul style="list-style-type: none"> • Emergency Stop Button (Additional) <p>High Accuracy Variable Frequency Drive AC Motor -1 No.</p>	4
	<p>D) SOFTWARE & COMPUTERIZATION-1 SET</p> <p>Host computer system - Test Computer. 24" TFT Monitor with LED Back Light.</p> <ul style="list-style-type: none"> • 10th Gen Intel Core i5-10400F processor • 8GB.1x8GB. DDR4. 2666MHz 	4

	<p>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</p> <p>Make: HP/DELL/LENOVO OR ANY OTHER COMPATIBLE PC</p> <p>HP LaserJet pro m1136 multifunction monochrome laser printer OR ANY OTHER COMPATIBLE PRINTER-1no</p> <p>Display on Computer Screen:</p> <ul style="list-style-type: none"> ▶ 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. <p>Additional information</p> <p>Radius of tyre, tyre temperature, inflation pressure</p> <p>Application software supplied in DVD 2 copies</p> <ul style="list-style-type: none"> • 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 	
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	<ul style="list-style-type: none"> • Facility to print any logo on the test report in any size and at any location on the page • Test reports to 5 user predetermined report 	
	<p>E) ELECTRICAL CONTROL PANEL CABINETS</p> <ul style="list-style-type: none"> • Variable frequency Drive • Protection circuits • Power distribution centre • High current devices 	5
	<p>F) SAFETY FEATURES:</p> <p>Automatic Drum Stop and slide retract upon tyre burst.</p> <p>► Automatic Drum Stop and slide retract if wheel load increase above set level.</p> <p>► 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.</p> <p>► Motor overload Tripping</p> <p>► Door closure interlock</p> <p>► Slide over travel protection</p> <p>Additional information</p> <ul style="list-style-type: none"> • 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, 	10

	<ul style="list-style-type: none"> • 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 	
	<p>G (INSTALLATION AND TESTING (20 DAYS))</p> <ul style="list-style-type: none"> • 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 	5
	<p>H) DOCUMENTATION</p> <ul style="list-style-type: none"> • wiring Diagram 2copies • Circuit diagram for PCBs • quick test procedures 2 copies printed on laminated cards • Instruction manual: 2copies • Warranty 	5

	<p>I) MACHINE FINISH:</p> <p>Power Coating with primer. Anti-corrosion coating on non-painted parts.</p> <p>(Supplier to state standards used</p> <p>Preferred: RAL 7001 or 7004)</p> <p>Machine Colour N/A</p>	2
	<p>J) TOOL KIT WITH FIRST AID KIT.</p> <p>All necessary tools required for machine operation and maintenance</p> <p>Industrial grade First AID kit</p> <p>ANSI Class A and OSHA compliant</p>	5
	<p>K) WARRANTY</p> <p>At least 24 Months from the date of completion of installation or 13 months from the date of material reception at KEBS Labs.</p> <p>Any manufacturing defects including motors, sensors, systems SHALL be covered.</p>	5
	<p>L) THE FOLLOWING ITEMS SHALL BE SUPPLIED WITH THE TEST MACHINE:</p> <ul style="list-style-type: none"> • Operator's Manual • Maintenance Manual • Calibration Certificates for Load Cell and Speed sensor • Application Software CD or DVD. • Tool box • First Aid Kits 	2

	<ul style="list-style-type: none"> • 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 	
	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%

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
31		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	6	
		100 bags, small mesh size for the dertermination of ADF/NDF		
		Dosing unit for adding amylase	5	
		External dosing pump with housing, complete with data cable, inlet tubes and mains cable		
		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
	Performance Specifications	15
	i. Ups for power backup	5
	ii. Electrical power 240v/50hz	5
	iii. Traceable calibration Certificate	5
	TOTAL	15
	SCORE	
	Other requirements	15
	vi. Installation and Commissioning -to be indicated	3
	vii. Operation and Service Manuals- All Manuals in English	3
	viii. Warranty of atleast 2 years and Nearest service centre -to be indicated	3
	ix. Brochures for the equipment to be provided during quotation	3
	x. Training - onsite training during installation	3
	TOTAL SCORE	15
	EQUIPMENT	GRAND TOTAL SCORE FOR THE
		100 %
		MINIMUM SCORE REQUIRED
		90%

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 300°C 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
	9. Performance Specifications	10
	Electrical power 240v/50hz	5
	Traceable calibration Certificate	5
	Nominal wattage 400W	
	TOTAL SCORE	
	10. Other requirements	15
	xi. Installation and Commissioning -to be indicated	5

xii.	Operation and Service Manuals- All Manuals in English	2.5
xiii.	Brochures for the equipment to be provided during quotation and training and installation	2.5
xiv.	Warrant of atleast 2 years and local agent	5
TOTAL SCORE		
GRAND TOTAL SCORE FOR THE EQUIPMENT		100 %
MINIMUM SCORE REQUIRED %		90

NAME OF LABORATORY: CHEMISTRY LAB				LOCATION: ELDORET
33	EQUIPMENT	SPECIFICATION	QUANTITY	WEIGHTING (%)
	TOP LOADING BALANCE	Applicatio n/Scope	Weighing of samples	1 (ONE)
1. Main Features				5 Max
a) Simple menu navigation with icon-driven menus				2
b) Dimensions (L,W,H): (360 x 216 x 95)mm. Weighing pan size diameter: 180 mm(stainless steel weighing plate)				1
c) Chemically resistant finish of the housing				2
				TOTAL SCORE
				5
Performance Specifications				85
i. Capacity: 3100 g, Readability:0.01g				10
ii. Repeatability: 0.01g, Linearity: 0.02g				10
iii. Stabilization Time: 1.5(seconds)				10
iv. Level control: Glass level indicator with air bubble for centering. Availability of a stability indicator				15
v. Weighing Units: grams(g), Language: English				10
vi. Calibration Type: Internal, fully automatic, temperature- and time-controlled internal adjustment, allows for external calibration				10
vii. Power:100 to 240V (Universal), Wattage: 2Watts				10
viii. Automatic shutoff				10
Other requirements				10
i. Installation and Commissioning -to be indicated				2
ii. Operation and Service Manuals- All Manuals in English				2
iii. Warranty and Nearest service centre -to be indicated				2

	iv. Brochures (in English)for the equipment to be attached with the quotations	2
	v. Training -onsite training during installation	2
	TOTAL SCORE	
	GRAND TOTAL SCORE FOR THE EQUIPMENT	
	MINIMUM SCORE REQUIRED	

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		
		The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphasic + neutral). The quality and stability of the supplied current may undergo fluctuations (+ and -) of more		

		than 10%. All hardware shall operate on $220\text{ V} \pm 20\text{ V}$, $50\text{ Hz} \pm 0.5\text{ Hz}$, or $380\text{ V} \pm 40\text{ V}$, 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	
		<p>2. Technical Specifications</p> <p>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</p>	
	a)	Capacity to handle at least 200 - 90mm petridishes.	10
	b)	Anaerobic conditions monitoring capability	10
	c)	Temp range 5°C above ambient to 45°C	10
	d)	Temperature variation: $\pm 1.0^\circ\text{C}$;	10
	e)	Automatic dehumidifier;	5
	f)	Data Logging for temperature, humidity and anaerobic conditions	5
	g)	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
	h)	Vacuum take off function enabled.	5
	i)	At least two Instant access ports available	5
	j)	Storage trays for at least 200pcs of 90mm petri-dishes to be provided with the equipment	5
	k)	Internal sockets to be available in the chamber	5
	l)	Air lock system available for at least 20pcs of 90mm petridishes	5

	m) The warranty should be at least 12 months	5
	n) The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	5
	o) 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

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)
	3. 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			
	The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphasic + 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			
	4. 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	
i)	Over heat protector.	10
j)	Microprocessor controlled memory;	5
k)	Stainless steel interior chamber;	5
l)	At least 3 Stainless steel shelves with multi-position settings;	5
m)	Keypad input for temperature;	5
n)	LED digital display;	5
o)	Visual alarm indicator;	5
p)	Thermocouple temperature sensor;	5
q)	Temperature settings up to 300°C	5
r)	Internal volume 150 -250 L	10
s)	Temperature stability $\pm 0.1^\circ\text{C}$	10
t)	Temperature timer > 99 hours	5
u)	Temperature control = PID	5
v)	RS 232 /484 communication channel;	5
g)	The warranty should be at least 12 months	5
h)	The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	3

		i) 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

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			
		The type of supplied voltage in Kenya is 220 V (monophase) and 380 V (triphasic + 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. 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	
a)	Quartz distiller demountable boiler	10
b)	Panel box and stand to accommodate regulator and electrical supply, clamps	5
c)	Quality of distillate-pyrogen free, pH 6.9 7 high purity low conductivity	10
d)	Distilled water must be free of heavy metals, salts, pyrogen and iron	10
e)	Specific conductivity at 25°C less than 0,4x10.6 S/cm glass material or chemical inert material	10
f)	Equipment should be thermal shock proof	5
g)	Should feature gas vent to remove volatile impurities leaving condensate free from gaseous impurities	5
h)	Automatic low water cut-off	10
i)	Tubing should be made of excellent quality heat resistant rubber	5
j)	Wiring equipment should be enclosed in case	5
k)	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
l)	The warranty should be at least 12 months	5
m)	The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	5
a)	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	5

		ready for run the test analysis and the foreseen analysis. On-site training to be carried out before commissioning of the equipment	
		TOTAL SCORE	100
		MINIMUM SCORE	95

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 (triphasic + 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	
		2. 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		
		a) Maximum capacity (weight measurement) of 3100g.		20

	b) Readability of 0.01g	20
	c) Repeatability: (sd) 0.01	10
	d) Linearity: 0.02g	10
	e) Setting time: 2 seconds	5
	f) Serial port and supplied with RS232 cable for LIMS interfacing	5
	g) In-build calibration mechanism.	5
	h) Upfront level indicator	5
	i) The warranty should be at least 12 months	5
	j) The Contractor shall provide complete sets of operation and servicing manuals and technical drawings in English language	5
	k) 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

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	
		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	
		SCORE	TOTAL	80	
		Other requirements		15	
	xv.	Installation and Commissioning -to be indicated		3	
	xvi.	Operation and Service Manuals- All Manuals in English		3	
	xvii.	Warranty and Nearest service centre –to be indicated		3	
	xviii.	Brochures for the equipment to be provided during quotation		3	
	xix.	Training - onsite training during installation		3	
		TOTAL SCORE		15	
		GRAND TOTAL SCORE FOR THE EQUIPMENT		100 %	
		MINIMUM SCORE		95	

LAB	CIVIL LAB
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SN	EQUIPMENT	SPECIFICATION		Quantity	Location	Weighting (%)	Score (%)
39	Automatic vicat apparatus	Application/Scope	Determination of setting time	1	Nairobi		
		Performance Specifications					
		i.	Computer-controlled Vicat needle apparatus with 6 measuring points fully automatic			10	
		ii.	Tests can be performed in air or in water bath with constant temperature			10	
		iii.	(heat exchanger and cooler for constant water temperature),				
		iv.	with programmed test sequences				
		v.	The unit automatic records initial set time and final set time, as well as of setting plots			10	
		vi.	Weight of plunger and the Vicat needle are an adds to $300\text{ g} \pm 1\text{ g}$.			5	
		vii.	After each penetration the Vicat needle is automatically cleaned			3	
		viii.	Base unit as a table model with the control unit and standard software for programmable test sequences and for data recording			5	
		ix.	6 Vicat moulds (conical hard plastic/rubber ring) $75 \pm 10\text{ mm dia.} \times 40 \pm 0.2\text{ mm}$			5	
		x.	6 glass base plates, 120 mm diameter			3	
		xi.	6 centerings for Vicat moulds (conical hard plastic/rubber ring) $75 \pm 10\text{ mm dia. } 40 \pm 0.2\text{ mm}$			5	
		Accessories					
		i.	4 pair of cleaning brushes · 1 tee wrench, 1.25 mm			3	
		ii.	4 tee wrench, 2 mm			3	
		iii.	Serial cable			3	
		iv.	USB/RS232-Adapter			3	
		v.	Weight: 52 kg, power 220-250 V / 50-60 Hz			3	
		vi.	12 spare glass plates, 120 mm dia.			3	
		vii.	5 spare initial-set needles, 1.13 mm dia.			10	
		viii.	Filter sponge coarse			2	
		ix.	Filter sponge fine			2	
		Other Requirements					

	xx. Installation and Commissioning (To be done)	3	
	xxi. Operation and Service Manuals-(All Manuals in English)	3	
	xxii. Warranty and Nearest service centre (To be indicated)	2	
	xxiii. Training - (onsite training during installation)	2	
	xxiv. Warranty (At least one year)	2	
	TOTAL SCORE	100	
	MINIMUM SCORE REQUIRED	98	

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

Civil lab						
LAB						
41	Electric core cutter	Application/Scope	General extraction of Cores	1	Nairobi	
		Main Features				
		I. Power:	6.5HP		6	
		II. Control panel			5	
		III. Carriage frame			5	
		IV. Drill motor			5	
		V. Friction clutch			5	
		VI. motor mount plate			5	
		VII. rack			5	
		VIII. gear-box			5	
		IX. out setting water swivel seal			5	
		X. hydraulic system			5	
		XI. angle adjustable steel stand			5	
		XII. Drilling bit diameter range:75-150mm			5	
		XIII. Drilling bit depth range:200-400mm			5	
		XIV. Rotated speed: 200 - 1000r/min			5	
		XV. Rated Voltage: 220V/240V			5	
		XVI. No-Load Speed: 0-700r/min			5	
		XVII. Rated Input Power: 3200W			5	
		XVIII. Rated Torque: 18N.M			5	
		Other requirements				
		Operation and Service Manuals- (All Manuals in English)				
		Warranty and Nearest service Centre (To be indicated)				
		Training - (onsite training during installation)				
		TOTAL SCORE				
		MINIMUM SCORE REQUIRED				

		MINIMUM SCORE REQUIRED			
42	Le Chartelier mould	Application/Scope	Used for testing Cement/lime Soundness	1 set	Civil lab
		Main Features			
		I.	Made from brass		20
		II.	Internal diameter 30mm		15
		III.	Height 30mm		15
		IV.	Two pointers 150mm long		15
		Accessories			
		I.	24 pieces Glass plate 50x50mm		6
		II.	100g non corrosion weight		5
		III.	Extensibility mould apparatus with 300g weight		5
		IV.	Tamping rod 17mm diameter and 70g		6
		Other Requirements			
		I.	Operation and Service Manuals- (All Manuals in English)		4
		II.	Warranty and Nearest service center (To be indicated)		3
		III.	Training - (onsite training during installation)		3
		IV.	Warranty (At least one year)		3
		TOTAL SCORE			
		MINIMUM SCORE REQUIRED			
43	Humidity chamber	Application/Scope	Used for Curing/boiling cement specimens	2	Civil lab
		Main Features			
		I.	Capacity:550litres		15
		II.	Temperature range 0-100°C		5

			III. Inside Dimensions: 1100x710x690mm	10	
			IV. Weight: 55kg	10	
			V. Overall Dimensions: 1220x800x850mm	15	
			VI. Double walled stainless steel made with wool insulation and water circulation electric stirrer and the bath ensure a uniform and constant temperature	15	
			VII. Electric Power 230v 1ph 50/60hz 1000W	15	
			VIII. Fitted with dual safety thermostat	5	
			Accessories		
			I. Cooling device	10	
			II. Shelves for holding samples		
			III. 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			
		I. Capacity: 200litres		50	
		II. Lid with heat insulated material			
		III. Fitted with two 2000W heating element		25	
		IV. Stainless steel for all components		25	
				TOTAL SCORE	100
		MINIMUM SCORE REQUIRED			100
				TOTAL SCORE	100
		MINIMUM SCORE REQUIRED			100

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

SN	EQUIPMENT	SPECIFICATION	QUANTITY	WEIGHTING (%)	
46	vacuum chamber and system	Application/Scope For testing water absorption in Ceramic tiles	1	Civil lab	
		Main Features			
		I. Stainless steel tank and sample basket.		10	
		II. Control board with keyboard and LCD display for test cycle setting and checking.		10	
		III. Programmable vacuum range from -1 up to -90 KPa (-900 mbar / -9180 mm/H2O).		10	
		IV. 4 board-selected, water levels for adapting the level to the size of the tiles being tested		7	
		V. Aluminium cover with handles, and fly wheels for locking.		7	
		VI. Automated electro-valve operated water inlet system.		7	
		VII. 3 measuring units: KPa - mbar - mm/H2O		6	
		VIII. Automatic water dump		5	
		IX. Power input 240 V, single-phase, 50 Hz.		5	
		X. Overall dimensions: 185 x 60 x114 cm.		5	
		XI. Basement and cabinet for switchboard made of dry painted sheet metal.		5	
		XII. Automatic cycle test		5	
		XIII. Programmable temperature range from -1-100°C		5	
		Other Requirements			
		i. Operation and Service Manuals- (All Manuals in English)		4	
		ii. Nearest service center (To be indicated)		3	
		iii. Training - (onsite training during installation)		3	
		iv. 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					
		i. hardened steel cylinder with eleven cutting edges		10			
		ii. hard wooden handle		5			
		iii. 3 x Cross Hatch Testers (1, 2 & 3mm)		20			
		iv. Carrier pouch/case		5			
		v. Blade Spacing: 1mm		10			
		Other requirements					
		i. Two extra 3 x Cross Hatch Testers (1, 2 & 3mm)		15			

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
		I. Overall dimensions: 280 mm x 140 mm x 240 mm	5
		II. Non corrosive material	10
		III. Force applied by pencil: 0 N to 100 N	9
		IV. Operating voltage: 240 V AC 50 Hz	5
		V. Lead type: 2 mm diameter graphite lead	5
		VI. Metal lead holder	5
		Other requirements	
		I. Abrasive paper of No. 400	5
		II. Case of 12 leads, H	5
		III. Case of 12 leads, F	5
		IV. Case of 12 leads, 2H	5
		V. Case of 12 leads, B	5

	VI. Case of 10 leads, 3H	5	
	VII. Case of 10 leads, 4H	5	
	VIII. Spare metal lead holder	5	
	IX. Valid calibration certificate	5	
	X. Operation and Service Manuals- (All Manuals in English)	5	
	XI. Nearest service center (To be indicated)	3	
	XII. Training - (onsite training during installation)	5	
	XII. Warranty (At least one year)	3	
	TOTAL SCORE	100	
	MINIMUM SCORE REQUIRED	98	

49	Salt spray equipment	Application/Scope	Endurance test for paint coatings	Quantity	Location	
		Main Features		1	Nairobi	WEIGHT
		I. Capacity; 600 L Minimum			5	
		II. Inner test chamber dimensions W/D/H1/H2; 910 x 710 x 660 / 1000 mm minimum			5	
		III. Outer dimensions of the casing (overall) W/D/H; 1485 x 788 x 1213 mm Maximum			5	
		IV. Required power supply 230V, 50/60Hz, 2000W			5	
		V. Materials used; The walls of the chamber shall be made of Polypropylene while the bottom is made of stainless steel and			5	

	coated with ECTFE. The walls shall have milled openings for supporting rods		
VI.	Heating; Shall be fitted with Flat micanite heaters under the bottom of the chamber for fast and uniform heat transfer	5	
VII.	Sensors; Shall be fitted with a corrosion resistant and highly sensitive temperature sensor	5	
VIII.	Temperature stability; $\pm 0.2 \text{ C}^\circ$	3	
IX.	Test programming; shall be incorporated into the unit.	5	
X.	Weight; 230 kg Maximum	3	
XI.	Communication; Shall be fitted with an RS 232 interface or an equivalent for data transfer	5	
XII.	Purity demineralized water / fitting; $< 20\mu\text{S}/\text{cm}$ / $\frac{3}{4}''$ outer diameter Option: Automatic water refill	5	
XIII.	Tap water (connection type) Always via Ion-exchanging cartridge ($\frac{3}{4}''$ outer diameter)	5	
XIV.	Shall be supplied capable delivering 6-8 bar with connection nipple size 5	5	
XV.	Waste water drain; Shall be supplied with Pipe fittings (spiral hose ID 30mm) for drain	5	
XVI.	Exhaust pipe; The Pipe fitting outer diameter shall be 50 mm external diameter or equivalent compatible with the unit delivered	5	
XVII.	Number of supporting rods / max load 5 stainless steel rods coated with plastic / 30 kg each	5	
XVIII.	Source of radiation; Option 1. Fluorescent UV lamp apparatus, with type 1A lamps, spectral distribution ? UV irradiance of $E_{uv} = 45\pm5 \text{ W.m}^{-2}$ in the	7	

	<p>spectral range 290nm to 400nm or $E_\lambda = 0.76 \pm 0.08 \text{ W} \cdot \text{nm}^{-1}$ at 340nm.</p> <p>Option 2. Xenon-arc lamp apparatus, fitted with daylight filters, spectral distribution ? UV irradiance of $E_{uv} = 60 \pm 5 \text{ W} \cdot \text{m}^{-2}$ in the spectral range 300nm to 400nm</p>		
	Other requirements		
i.	Manual; Shall be supplied during delivery and written in English	3	
ii.	Training Shall be conducted on site during installation and commissioning by the supplier	3	
iii.	Warrant; 2 years	3	
iv.	Calibration certificate; Valid for not less than six months	3	
		100	
		98	

LAB	CIVIL						
SN	EQUIPMENT	SPECIFICATION		QUANTIT Y	LOCATION	WEIGHT (%)	ACTUAL SCORE
50	Digital concrete hammer with microprocessor	Application/S cope		1			
	Main Features						
	I. Impact energy: 2.207 Joule (Nm)						10
	II. Measuring range: 10 - 120 N/mm ² (MPa)						10
	III. Interface: USB						10
	IV. Power source: 6 rechargeable batteries AA NiMh 2400mA/hour						5
	V. Battery life: 60 hours with automatic shut down						10
	VI. Operating temperature: -10 ⁰ C- 60 ⁰ C						5
	VII. High contrast OLED display						10
	VIII. Automatic calculating compressive strength						15
	IX. Automatic correction of impact direction						15
	Other requirements						

	I. Operation and service manuals (all manuals in English)	5	
	II. Warranty (At least 1 year)	5	
	III. Training - (onsite training)	10	
	Total score	100	
	Minimum score required	95	

	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 <ul style="list-style-type: none"> • 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 		20 MAX		

	<ul style="list-style-type: none"> • Connection to Data Manager Software <p>Performance Specifications, All to be included</p> <ul style="list-style-type: none"> • 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 <p>The modules should have the following performance specifications</p> <ul style="list-style-type: none"> • Pressure range up to 200 bar • Number of stations - 8 • Pressure regulation via microprocessor • A Controller 	20 MAX	
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		<ul style="list-style-type: none"> • 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. 		
	TEST TANK (WATER BATH)	<p>Main features</p> <ul style="list-style-type: none"> • 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 	10 MAX	

	<p>Performance Specifications</p> <ul style="list-style-type: none"> • Water depth 1800 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 1 • 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. 	10 MAX	
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	<ul style="list-style-type: none"> • Calibration certificate. • Voltage data 230 V, 50 Hz 		
End Closures	<p>End caps according to ISO 1167 <u>For Metric Sizes</u></p> <p><i>Key: D stands for diameter</i></p> <ul style="list-style-type: none"> • 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 	20 MAX	

- 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
- End closures 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

	<ul style="list-style-type: none">• 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	
	<p><u>For Empirical Sizes</u></p> <ul style="list-style-type: none">• 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	

	<ul style="list-style-type: none"> • 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. <p><i>Installation, commissioning and user training of the whole hydrostatic pressure system shall be included.</i></p> <p>The mounting device consists of;</p> <ul style="list-style-type: none"> • Installation cross piece • Extension bolts • Centering ring • Tension belts • Grip bars • Nuts <p>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.</p>	
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S/No	EQUIPMENT	SPECIFICATION		QUANTITY	WEIGHTING (%)
52	Universal Tensile tester 50kN	Application/Scope	Universal tensile tests	1	
		Main Features			
		<ul style="list-style-type: none"> • Double column 			
		<ul style="list-style-type: none"> • In-built calibration check facility 			
		<ul style="list-style-type: none"> • High speed data collection systems, 4 synchronous channels 			
		<ul style="list-style-type: none"> • Overload, over-travel and impact protection 			
		TOTAL SCORE			
		Performance Specifications			
		<ul style="list-style-type: none"> • 50kN capacity 			
		<ul style="list-style-type: none"> • Cross head travel at least 1000mm 			
		<ul style="list-style-type: none"> • Speed range 0-1000mm/min 			
		<ul style="list-style-type: none"> • High resolution load cells with accuracies better than +/-0.5% down to 1/1000th of the load cell capacity 			
		<ul style="list-style-type: none"> • Automatic recognition of load cells and extensometers 			
		<ul style="list-style-type: none"> • High speed data collection systems, 4 synchronous channels 			
		<ul style="list-style-type: none"> • At least 3 I/O channels for additional devices 			
		<ul style="list-style-type: none"> • Universally calibrated, better than Grade 0.5 EN 7500-1, DIN 51221 ASTM E-4. AFNOR A03-501 			
		<ul style="list-style-type: none"> • Load measurement accuracy +/-0.5% of reading down to 1/1000 of load cell capacity 			

	<ul style="list-style-type: none"> • Compatible air compressor for Pneumatic clamps 	5
	<ul style="list-style-type: none"> • 2 pairs Pneumatic clamps for textile strip test 	3
	<ul style="list-style-type: none"> • 1 pair Pneumatic clamps for textile grab test 	3
	<ul style="list-style-type: none"> • Capstan grips pair 	3
	<ul style="list-style-type: none"> • Non-contact long travel extensometer 	4
	<ul style="list-style-type: none"> • Wide width tensile camps pair 	4
	<ul style="list-style-type: none"> • Puncture test grips and fixtures for textile 	4
	<ul style="list-style-type: none"> • Puncture test grips and fixtures for geotextile 	3
	<ul style="list-style-type: none"> • Ball burst grips and fixtures 	3
	<ul style="list-style-type: none"> • Webbing grips set 	2
	<ul style="list-style-type: none"> • Zip fastener grips and fixtures 	2
	<ul style="list-style-type: none"> • Fibre test grips and fixtures 	2
	<ul style="list-style-type: none"> • 50 kN load cell 	3
	<ul style="list-style-type: none"> • 30kN load cell 	3
	<ul style="list-style-type: none"> • 10kN load cell 	3
	<ul style="list-style-type: none"> • 5kN load cell 	3
	<ul style="list-style-type: none"> • 1kN load cell 	2
	<ul style="list-style-type: none"> • Windows compatible test software 	2
	TOTAL SCORE	85
	Other requirements	
	<ul style="list-style-type: none"> • Installation and Commissioning -to be indicated 	2

	<ul style="list-style-type: none"> • Operation and Service Manuals- All Manuals in English 	2
	<ul style="list-style-type: none"> • Warranty and Nearest service centre - to be indicated 	2
	<ul style="list-style-type: none"> • Brochures (in English)for the equipment to be attached with the quotations 	2
	<ul style="list-style-type: none"> • Training - onsite training during installation 	2
	TOTAL SCORE	10
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %
	MINIMUM SCORE REQUIRED %	90

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	

	<ul style="list-style-type: none"> • Capability for custom programs; sub-cycle capability 	4
	<ul style="list-style-type: none"> • Streaming data output via Ethernet or USB port. USB thumb drive 	3
	<ul style="list-style-type: none"> • Filter combinations to meet all common test methods 	3
	<ul style="list-style-type: none"> • Air intake filter 	2
	<ul style="list-style-type: none"> • Automatic test countdown based on time or radiant exposure 	2
	<ul style="list-style-type: none"> • Calibrated xenon reference lamp for calibration 	3
	<ul style="list-style-type: none"> • Compatible All-In-One Sensor to measures irradiance, rack panel temperature, chamber temperature, and relative humidity 	4
	<ul style="list-style-type: none"> • Recirculating DI air cooling system 	3
	<ul style="list-style-type: none"> • Irradiance Calibration Device for independent irradiance calibration and measurement at the sample plane: 340 nm; 300-400 nm; and 420 nm 	5
	<ul style="list-style-type: none"> • Filter Lantern for meeting special test requirements of ISO 105-B02, FLTM BO 116-01, GMW 3414TM 	5
	<ul style="list-style-type: none"> • Analytical software and compatible laptop PC 	5
	<ul style="list-style-type: none"> • Single exposure window with spring clip back 	3
	<ul style="list-style-type: none"> • Single exposure window with two spring clip backs to accommodate both thin and thick specimens 	3
	<ul style="list-style-type: none"> • Drop-In Tensile Bar Holder 	3
	<ul style="list-style-type: none"> • Three exposure windows with spring clip back 	3
	<ul style="list-style-type: none"> • Two spare Xenon arc lamps 	4
	<ul style="list-style-type: none"> • 2 year consumables 	3
	TOTAL SCORE	85
	Other requirements	

	<ul style="list-style-type: none"> • Installation and Commissioning -to be indicated 	2
	<ul style="list-style-type: none"> • Operation and Service Manuals- All Manuals in English 	1
	<ul style="list-style-type: none"> • Warranty and Nearest service centre - to be indicated 	2
	<ul style="list-style-type: none"> • Brochures (in English)for the equipment to be attached with the quotations 	1
	<ul style="list-style-type: none"> • Training - training at manufacturer plant and onsite during installation 	4
	TOTAL SCORE	10
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %
	MINIMUM SCORE REQUIRED %	90

54	Wrap reel	Application/Scope	to measure skeins of <u>yarn</u> of a pre-determined length and number of turns for count and strength testing	1	
		Main Features			
		<ul style="list-style-type: none"> • Motor driven 		3	
		<ul style="list-style-type: none"> • 1 Metre circumference collapsible swift 		1	
		<ul style="list-style-type: none"> • Complete with yarn package stand and pre-tension device fitted with pre-determined counter 		1	
			TOTAL SCORE	5	
		Performance Specifications			
		<ul style="list-style-type: none"> • Circumference of winch: 1000 ± 1 mm 		15	
		<ul style="list-style-type: none"> • Number of wraps: 1 - 9,999 adjustable, set autostop 		10	
		<ul style="list-style-type: none"> • Pre-tension: 2 - 100cN 		15	
		<ul style="list-style-type: none"> • Traveling reciprocating distance: minimum 30mm 		15	

	<ul style="list-style-type: none"> • Spacing of spindles: minimum 60 mm • Reel speed: 20 - 280rpm (variable) 	15
		TOTAL SCORE
	Other requirements	85
	<ul style="list-style-type: none"> • Installation and Commissioning -to be indicated • Operation and Service Manuals- All Manuals in English • Warranty and Nearest service centre - to be indicated • Brochures (in English)for the equipment to be attached with the quotations • Training - onsite training during installation 	2
		TOTAL SCORE
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %
		MINIMUM SCORE REQUIRED %
		90

55	UV degradation tester	Application/Scope	Testing degradation on exposure to UV light	1	
		Main Features			
		<ul style="list-style-type: none"> • Black Panel Temperature (BPT) Control 			
		<ul style="list-style-type: none"> • Touch screen display 			
		<ul style="list-style-type: none"> • Door safety and over-temperature shutoff 			
		TOTAL SCORE			
		Performance Specifications			
		<ul style="list-style-type: none"> • Fluorescent UV lamps (8) - 40 W (UVA-340, UVB-313, UVA-351) 			
		<ul style="list-style-type: none"> • Specimen Holders provided, with specimen retainers 			
		<ul style="list-style-type: none"> • Irradiance calibration safety access ports 			
		<ul style="list-style-type: none"> • Recirculating spray water 			
		<ul style="list-style-type: none"> • irradiance calibrator 			
		<ul style="list-style-type: none"> • (12) specimen spray nozzles 			
		<ul style="list-style-type: none"> • Irradiance control (340 nm, 313 nm, 351 nm) 			
		<ul style="list-style-type: none"> • Data Acquisition Package 			
		<ul style="list-style-type: none"> • Backer boxes for 3-dimensional and odd shaped specimens 			
		TOTAL SCORE			
		Other requirements			
		<ul style="list-style-type: none"> • Installation and Commissioning -to be indicated 			
		<ul style="list-style-type: none"> • Operation and Service Manuals- All Manuals in English 			
		<ul style="list-style-type: none"> • Warranty and Nearest service centre - to be indicated 			
		<ul style="list-style-type: none"> • Brochures (in English)for the equipment to be attached with the quotations 			

		• Training - training at manufacturer plant and onsite during installation	4
		TOTAL SCORE	10
		GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %
		MINIMUM SCORE REQUIRED %	90

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				

	<p>Accessories</p> <p>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</p>	20	
	<p>Other Requirements</p> <p>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)</p>	30	
		TOTAL SCORE	100
		MINIMUM SCORE REQUIRED	95%

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, <i>Staphylococcus aureus</i> , <i>bacillus cereus</i> and yeasts/molds.	1	
		11. Main Features		10 Max	
		w) MPN based enumeration with 16 tubes in a single card		2	
		x) Fast, accurate and Reliable		2	
		y) Automatic transfer of sample-media to 16 tube MPN card		2	
		z) Automatic reading of results, interpretation of results		2	
		aa) Compatible with LIMS system		2	
		TOTAL SCORE		10	
		12. Performance Specifications		75	
		i. Parameters analyzed: Enumeration of aerobic mesophilic flora in 22-28 hours in food and environmental samples Enumeration of <i>Escherichia coli</i> in 22-27 hours in food products Enumeration of <i>Enterobacteriaceae</i> in 22-27 hours in food products, with no need for confirmation Enumeration of <i>Staphylococcus aureus</i> in 24-27 hours in food products, with no need for confirmation Enumeration of the <i>Bacillus cereus</i> 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	
		ii. AFNOR, AOAC and ISO 16140 validated		5	

	<ul style="list-style-type: none"> iii. No confirmation needed for all results iv. Card offering precision of 16-tube MPN method v. 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 vi. Application Areas: Analysis of food/feed and environmental samples vii. Computer to be provided together with all required software and provision for Software updates viii. Capable of being connected to KEBS LIMS system ix. Automated sample-media transfer unit into the MPN card x. Automated card reader based on fluorescence/no fluorescence with capability of interpretation and reporting of results as CFU/g xi. AC Power supply voltage – 220 – 240V, 50Hz xii. Data traceability based on barcoded cards 	5
		TOTAL SCORE
		75
	13. Other requirements	15
	<ul style="list-style-type: none"> ii. Provision of All standard Accessories-to enable analysis of at least: <ul style="list-style-type: none"> 1000 - aerobic mesophilic flora food and environmental samples 1000 - Enumeration of <i>Escherichia coli</i> food products 100 - Enumeration of <i>Enterobacteriaceae</i> food products 1000 - Enumeration of <i>Staphylococcus aureus</i> food products 100 - Enumeration of the <i>Bacillus cereus</i> food and environmental samples 100 - Enumeration of lactic acid bacteria food products 1000 - Enumeration of yeasts and molds food products 	7
	<ul style="list-style-type: none"> iii. One year FULL warranty – to be indicated 	2
	<ul style="list-style-type: none"> iv. Nearest service centre -to be indicated 	1
	<ul style="list-style-type: none"> v. Evidence of supply of Similar equipment – to be indicated 	1
	<ul style="list-style-type: none"> vi. Delivery period – to be indicated 	1
	<ul style="list-style-type: none"> vii. On-site training before commissioning – to be indicated 	1
	<ul style="list-style-type: none"> viii. Brochure in English to be attached with the quotation 	1

		ix. 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
58	LABORATORY REFRIGERATOR	Application/Scope Sample storage before and after analysis Media and reagents storage	1
		Main Features	5 Max
		bb) Digital control with digital readout	1
		cc) Fan assisted air circulation via premixing chamber	1
		dd) Self-evaporating condensate tray	1
		ee) Upright/Free standing	1
		ff) CFC FREE	1
		TOTAL SCORE	5
		11. Performance Specifications	85
		xiii. Porcelain steel interior and epoxy powder coated exterior	5
		xiv. Programmable interface, temperature sensor, programmable digital timer;	5
		xv. Insulated interior glass doors for viewing without change in temperature;	5
		xvi. Internal fluorescent lighting with castors;	5
		xvii. High and low temperature protection, audible and visual alarms for over or under temperature;	5
		xviii. Front panel calibration, programmable with temperature controller;	5
		xix. Digital chart recorder;	5
		xx. Access port, computer communication port;	5
		xxi. LED digital display.	5
		xxii. Capacity >600 litres	10

	xxiii. Temperature: Range (-)2°C to (+)10°C;	5
	xxiv. Humidity 10% -90%	5
	xxv. Uniformity: ± 1.5°C at -10°C;	5
	xxvi. Microprocessor control memory	5
	xxvii. At least 4 shelves	5
	xxviii. Lockable door/Security lock	5
	TOTAL SCORE	85
	Other requirements	10
	x. Installation and Commissioning -to be indicated	2
	xi. Operation and Service Manuals- All Manuals in English	2
	xii. Warranty and Nearest service centre -to be indicated	2
	xiii. Brochures (in English)for the equipment to be attached with the quotations	2
	xiv. Training - onsite training during installation	2
	TOTAL SCORE	10
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %
	MINIMUM SCORE REQUIRED %	85

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
		a) 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
		b) Ergonomically designed			1
		c) Anti-Bacterial Coating surfaces, Easy handling and maintenance			1
		d) High Level Lighting			1
		TOTAL SCORE			5
		12. Performance Specifications			85
		i. 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
		ii. Rear wall in stainless steel AISI 304 L, designed to conform to requirements and pass the "cleanability test".			5
		iii. Perforated Work surface in stainless steel AISI 304L			10
		iv. 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
		v. Filtration: H14 HEPA/ULPA filter with an efficiency better than 99,995 % MPPS, and conforming to EN-1822.			5

	<p>vi. Operation Condition: Air cleanliness in Class ISO 3 as per ISO: EN 14644-1.</p> <p>vii. Motor blower: direct-coupled motor, electronic speed controlled to maintain a constant laminar airflow of 0.3 – 0.6 m/sec</p> <p>viii. Servicing side glass with ports for service taps installation.</p> <p>ix. Audio-visual alarms for:</p> <ul style="list-style-type: none"> • 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 <p>x. Lighting: fluorescent tubes in built-in housing, placed outside the sterile area providing illumination of >300Lux.</p> <p>xi. D.O.P.-DEHS inlet port for testing the HEPA/ULPA filters</p> <p>xii. Installed UV sterilizing lamp</p> <p>xiii. Noise level <50dB(A)</p> <p>xiv. Compliance to an international standard EN 14644-1, EN 12469 or ISO 14644</p> <p>xv. Internal dimension, mm: (WxDxH) 732x380x580, <i>approximate</i></p> <p>xvi. External dimension, mm: (WxDxH) 830x652x925, <i>approximate</i></p>	5
	TOTAL SCORE	85
	Other requirements	10
	i. Installation and Commissioning -to be indicated	2
	ii. Operation and Service Manuals- All Manuals in English	2
	iii. Warranty and Nearest service centre -to be indicated	2
	iv. Brochures (in English)for the equipment to be attached with the quotations	2
	v. Training - onsite training during installation	2
	TOTAL SCORE	10
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100 %

			MINIMUM SCORE REQUIRED %	85
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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/ Triple channel input (for simultaneous measurement)		1		
		c) LCD color graphic display		0.5		
		d) Accessories:		1.5		
		✓ 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				
		e) Documentation:		1		
		✓ Data transfer via USB interface				
		✓ Data printable directly from the instrument via optional integrated printer				
		SUB SCORE		5		
		Performance Specifications - ISE Meter				
		i. Measuring range dependant on IDS sensor used		10		
		ii. ISE Accuracy (minimum) @ 25 °C/77 °F: ±0.5% (monovalent ions); ±1% (divalent ions)		10		
		iii. Resolution: ISE 0.0001 minimum, 1 to 3 significant digits (user selectable)		15		
		iv. Calibration Point: pH 1-7 ISE 2-7		10		
		v. Power requirement: Universal power supply 110-240V, 50/60Hz		5		
		vi. USB A/Mini USB-B interface		5		
		vii. 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		
i.	Shall be compatible with the meter supplied		2	
ii.	Electrode type: Wireless Fluoride electrode probe		3	
iii.	Membrane: solid state electrode		3	
iv.	Determinable ions: fluorides,		2	
v.	Measuring range:0.02mg/L - Saturation		2	
vi.	pH Range: 5-8		2	
vii.	Reproducibility ±2%		2	
viii.	Fluoride ISE type: F 800 series (built in reference electrode)		4	
SUB SCORE	20			
		Other requirements		
i.	Installation and Commissioning –shall be done by the supplier at the designated laboratory		1	
ii.	Operation and Service Manuals - All Manuals in English shall be provided		2	
iii.	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	
iv.	Brochure for the specific equipment to be attached with the quotation		1	
v.	Training - onsite training during installation shall be offered.		1	
vi.	Tool kit for basic maintenance		1	
vii.	POWER SUPPLY: cables be supplied with the unit		2	
SUB SCORE	10			
GRAND TOTAL SCORE FOR THE EQUIPMENT	100			
MINIMUM SCORE: 95%				

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			
		Precision -0.1mg			
		Readability-0.005/0.1mg or less			
		Stability-within less than 10 seconds			
		Operation-Either Touchless, Handsfree or touch sensitive			
		Draft control- Shall be fitted with a draft shield (Flip top and side sliding doors).			
		Display- Shall have LCD display with multiple modes			
		Static charges- Shall have Automatic electrostatic detection, compact ionizer or better			
		Communication & Data transfer- Shall be Fitted with an RS 232 cable or a better alternative			
		Internal calibration- Shall have a Monolithic weigh cell or a more advanced cell			
		Level- Shall be fitted with a level indicator			
		Power-220-250V AC			
		Housing –Shall be chemical resistant			
		Operation - Internal adjustment(user selectable auto cal) and external calibration			
		In use protective cover-Shall be fitted			

	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
	Manual and Traceable certificate of calibration showing linearity and uncertainty-Shall be availed on delivery	2
	TOTAL SCORE	100
	EQUIPMENT	GRAND TOTAL SCORE FOR THE
		MINIMUM SCORE REQUIRED 90%

	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							
		i.	Measuring range: 0-25mm	8					
		ii.	Outside Electronic Micrometer screw gauge with LCD display	5					
		iii.	Display Type: Digital and manual	5					
		iv.	Measuring surface: ø - 3.2mm	8					
		v.	Resolution: 0.001mm/0.00005" (Switchable)	8					
		vi.	Material/ Measuring surfaces: Chrome Finish, Carbide Faces/tipped, precision round	8					
		vii.	Instrumental error(20°c): ±0.5µm	8					

	viii. Accuracy: 0.002mm/0.0001"(Switchable); High accuracy * Data hold and wipe out * Data output	8	
	ix. Measuring force: 5-10 N	8	
	x. Mass: 270g, 400g(440g with heat shield attached)	8	
	xi. Flatness: 0.3µm/.000012"	8	
	Accessories		
	i. Power supply: Lithium battery(CR2032)x1	4	
	ii. Wrench x 2	4	
	iii. Storage case x 2	4	
	Other requirements		
	i. Operation and service manuals (all manuals in English)	3	
	ii. Warranty (At least 1 year)	3	
	Total score	100	
	Minimum score required	98	