



**SPECIFICATIONS FOR STRUCTURED CABLING MATERIALS FOR MBARAKI DEPOT**

No.	Description	Type	Qty	UNIT	Unit cost Ksh	Total cost Ksh
1	Router	Integrated services router compatible with existing network	1	PCS		
2	Switch 48 port	48 PoE ports, 2 SFP and 2 10/100/100 uplinks compatible with existing network	1	PCS		
3	Switch 24 port	28-Port Gigabit PoE Managed Switch compatible with existing network	4	PCS		
4	Wireless LAN controller	Compatible with existing routers	1	PCS		
5	Wireless Access points	Compatible with the Controller	4	pcs		
6	UPS	1.5kVA Smart UPS	1	PCS		
7	Desktop computers	Core i7-6500, 8GB RAM, - >=500 HDD, >=3.2GHz , 24" Monitor - Black	6	PCS		
8	Configuration Laptop	Core i7- 12 <sup>th</sup> Gen, 4GHz, 16GB RAM, ->=500 HDD, >15" screen	1	PCS		
9	Keystone Network Modules	CAT6A metallic RJ45 10G keystone jack, tool-less die cast	96	PCS		
10	Face plates (White)	2way (2) single gang 2 Port CAT 6A keystone single gang	48	PCS		
11	Fiber Patch cords	Multi-Mode Fiber Patch Cord   SC-LC 3M	8	PCS		
12	SFP Modules	Gigabit SFP transceiver module 40km range	8	PCS		
13	Media Converters	RJ45 to Fiber, SC connector - 120km range	8	PCS		
		RJ45 to Fiber, SC connector - 80km range	8	PCS		
14	CAT 6 UTP Ethernet Cable 305m	305m	3	ROLL		
15	CAT 6A 4 pair F/UTP cable 305m	305m	3	ROLL		
16	CAT 6 RJ45 Connectors	Complete with rubber boots	500	PCS		
17	Toolkit	Networking repair toolkit 145 pc set	2	PCS		
	<b>TOTAL</b>					



## SPECIFICATIONS

### 1.0 Router

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Configurations		
Embedded hardware-based cryptography acceleration (IPSec + Secure Sockets Layer [SSL])	Yes	
Unified Communications Manager Express Sessions	450	
Unified SRST sessions	1500	
Routing policies	Static routes, RIP, OSPF, IS1s BGP and EIGRP	
Total onboard WAN or LAN 10/100/1000 ports	4	
RJ-45-based ports	4	
SFP based ports	2	
Service-module slots	4	
Doublewide service-module slots	1	
EHWIC slots	3	
Doublewide EHWIC slots	1	
digital signal processor (DSP) slots	3	
Memory DDR2 ECC DRAM: Default	1GB	
Memory DDR2 ECC DRAM: Maximum	2GB	
External USB 2.0 slots (Type A)	2	
USB console port (Type B) (up to 115.2 kbps)	1	
Serial console port (up to 115.2 kbps)	1	
Serial auxiliary port (up to 115.2 kbps)	1	
Power-supply options	Internal: AC, PoE, and DC	
Redundant power supply	Internal: AC, PoE, and DC	
AC input voltage	100 to 240 VAC autoranging	
AC input frequency	47 to 63 Hz	
DC Operating Input Voltage	24Vdc - 60Vdc	
Rack height	3 rack units (3RU)	
Temperature	-40 to 158°F (-40 to 70°C)	

Safety	UL 60950-1 CAN/CSA C22.2 No. 60950-1 EN 60950-1 AS/NZS 60950-1 IEC 60950-1	
Telecom	TIA/EIA/IS-968 CS-03 ANSI T1.101 ITU-T G.823, G.824 IEEE 802.3 RTTE Directive	
<b>Accessories</b>		
Mounting brackets/Tray for 19" rack	Yes	
<b>Warranty and Support</b>		
Warranty period	1 years limited warranty	

## 2.0 ETHERNET SWITCH 48 port

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
<b>Configurations</b>		
Ports	48x10/100/1000 Ethernet PoE+ ports, 4x1G SFP uplinks	
10/100/1000 Ethernet ports	48	
Uplink interfaces	4 SFP	
Available PoE power	370W	
Dimensions (WxHxD)	17.5" x 1.7" x 11.5"	
<b>Console ports</b>		
RJ45 Ethernet	1	
USB mini-B	1	
USB-A port for storage and Bluetooth console	1	
<b>Memory and Processor</b>		
CPU	ARMv7 800 MHz	
DRAM	512 MB	
Flash memory	256 MB	
<b>Performance</b>		
Forwarding bandwidth	52 Gbps	
Switching bandwidth	104 Gbps	
Forwarding rate (64-byte L3 packets)	77.38 Mpps	
Unicast MAC addresses	8K	
Maximum active VLANs	64	
VLAN IDs available	4094	
Maximum STP instances	64	
Maximum SPAN sessions	1	
MTU-L3 packet	9198 bytes	

Jumbo Ethernet frame	10,240 bytes	
Voltage (autoranging)	110 to 220V AC in	
Frequency	50 to 60 Hz	
Current	0.37A to 0.64A	
Power rating (max)	0.48 kVA	
<b>Safety and Compliance</b>		
Safety	UL 60950-1 Second Edition, CAN/CSA-C22.2 No. 60950-1 Second Edition, EN 60950-1 Second Edition, IEC 60950-1 Second Edition, AS/NZS 60950-1	
EMC: emissions	47CFR Part 15 (CFR 47) Class A, AS/NZS CISPR22 Class A, CISPR22 Class A, EN55022 Class A, ICES003 Class A, VCCI Class A, EN61000-3-2, EN61000-3-3, KN22 Class A, CNS13438 Class A	
Environmental	Reduction of Hazardous Substances (RoHS) including Directive 2011/65/EU	
<b>Connectors and Interfaces</b>		
Ethernet interfaces	10BASE-T ports: RJ-45 connectors, 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling 100BASE-TX ports: RJ-45 connectors, 2-pair Category 5 UTP cabling 1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling 1000BASE-T SFP-based ports: RJ-45 connectors, 4-pair Category 5 UTP cabling	
Indicator LEDs	Per-port status: link integrity, disabled, activity, speed, and full duplex System status: system, PoE, and link speed	
	CAB-CONSOLE-RJ45 Console cable 6 ft. with RJ-45 CAB-CONSOLE-USB Console cable 6 ft. with USB Type A and mini-B connectors	
<b>Accessories</b>		
Mounting brackets/Tray for 19" rack	Yes	
<b>Warranty and Support</b>		
Warranty period	1 years limited warranty	

### 3.0 ETHERNET SWITCH 28port

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Total Ports	28 Gigabit Ethernet - 24 10/100/1000 ports (24 PoE ports with 195W power budget), 2 Gigabit copper/SFP combo + 2 SFP ports	
RJ-45 Ports	24 Gigabit Ethernet	

Combo Ports (RJ-45 + SFP)	2 SFP slots, 2 Gigabit Ethernet combo	
Power Dedicated to PoE	195 W	
Forwarding rate in millions of packets per second (mpps; 64-byte packets)	41.67	
Switching capacity in Gigabits per second	56.0	
Packet Buffer	12Mb	
Spanning Tree Protocol (STP)	<ul style="list-style-type: none"> <li>• Standard 802.1d Spanning Tree support</li> <li>• Fast convergence using 802.1w or Rapid Spanning Tree (RSTP), enabled by default</li> <li>• 8 instances are supported</li> <li>• Multiple Spanning Tree instances using 802.1s (MSTP)</li> </ul>	
Port Grouping	<p>Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP)</p> <ul style="list-style-type: none"> <li>• Up to 8 groups</li> <li>• Up to 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad link aggregation</li> </ul>	
Virtual Local Area Network (VLAN)	<ul style="list-style-type: none"> <li>• Support for up to 4096 VLANs simultaneously</li> <li>• Port-based and 802.1Q tag-based VLANs</li> <li>• Media Access Control (MAC)-based VLAN</li> <li>• Management VLAN</li> <li>• Private VLAN Edge (PVE), also known as protected ports, with multiple uplinks</li> <li>• Guest VLAN</li> <li>• Unauthenticated VLAN</li> <li>• Dynamic VLAN assignment via RADIUS server along with 802.1x client authentication</li> <li>• Customer Premises Equipment (CPE) VLAN</li> </ul>	
Voice VLAN	<ul style="list-style-type: none"> <li>• Voice traffic is automatically assigned to a voice-specific VLAN and treated with appropriate levels of QoS.</li> <li>• Auto voice capabilities deliver network wide zero-touch deployment of voice endpoints and call control devices.</li> </ul>	
Multicast TV VLAN	Multicast TV VLAN allows the single multicast VLAN to be shared in the network while subscribers remain in separate VLANs, also known as Multicast VLAN Registration (MVR)	
Q-in-Q VLAN	VLANs transparently cross a service provider network while isolating traffic among customers	
Generic VLAN Registration Protocol (GVRP) and Generic Attribute Registration Protocol (GARP)	Protocols for automatically propagating and configuring VLANs in a bridged domain	
Unidirectional Link Detection (UDLD)	UDLD monitors physical connection to detect unidirectional links caused by incorrect wiring or cable/port	

	faults to prevent forwarding loops and blackholing of traffic in switched networks	
Dynamic Host Configuration Protocol Relay at Layer 2	Relay of DHCP traffic to DHCP server in different VLAN; works with DHCP Option 82	
Internet Group Management Protocol (IGMP) versions 1, 2, and 3 snooping	IGMP limits bandwidth-intensive multicast traffic to only the requesters; supports 1 K multicast groups (source-specific multicasting is also supported)	
IGMP Querier	IGMP querier is used to support a Layer 2 multicast domain of snooping switches in the absence of a multicast router	
Head-of-Line (HOL) Blocking	HOL blocking prevention	
Jumbo Frame	Up to 9K (9216) bytes	
IPv4 routing	Wirespeed routing of IPv4 packets Up to 512 static routes and up to 128 IP interfaces	
Classless Inter domain Routing (CIDR)	Support for CIDR	
Layer 3 Interface	Configuration of Layer 3 interface on physical port, LAG, VLAN interface, or loopback interface	
DHCP relay at Layer 3	Relay of DHCP traffic across IP domains	
User Datagram Protocol (UDP) relay	Relay of broadcast information across Layer 3 domains for application discovery or relaying of bootP/DHCP packets	
DHCP Server	Switch functions as an IPv4 DHCP server serving IP addresses for multiple DHCP pools/scopes Support for DHCP options	
Dimensions (W x H x D)	17.3 x 1.45 x 10.1 in. (440 x 44.45 x 202 mm)	
Power	100-240V 50-60 Hz	
Certification	UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A	
Operating Temperature	32° to 104°F (0° to 40°C)	
Operating Humidity	10% to 90%, relative, noncondensing	
<b>Accessories</b>		
Mounting brackets/Tray for 19" rack	Yes	
<b>Warranty and Support</b>		
Warranty period	1 years limited warranty	

#### 4.0 Wireless LAN Controller

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Access points	25 licenses include	
ports	4*10/100/1000 ports	
Console port	10/100/100 RJ-45	
Wireless standard	802.11a/b/g/d/e/h/k/n/r/u/w/ac	
Security algorithms	3DES, DES, MD5,SSL/TLS,WPA,WPA2	
Security policy	Centralized security policies	

Accessories		
Mounting brackets	Yes	
Warranty and Support		
Warranty period	1 years limited warranty	

#### 5.0 Wireless Access points

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Wireless standards	802.11g/n	
Antenna	integrated	
Frequency band	2.4GHz, 5GHz	
Data link protocol	IEEE 802.11b/g/n	
Power over Ethernet	PoE	
Device type	Radio Access point	
RAM	128MB	
Accessories		
Mounting brackets	Yes	
Warranty and Support		
Warranty period	1 years limited warranty	

#### 6.0 UPS

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Output		
Output Power Capacity	900 Watts / 1500 VA	
Max Configurable Power	900 Watts / 1500 VA	
Nominal Output Voltage	230V	
Output Voltage Distortion	Less than 5% at full load	
Output Frequency (sync to mains)	47 - 53 Hz for 50 Hz nominal Line Interactive	
Waveform Type	Sine wave	
Input		
Nominal Input Voltage	230V	
Input Frequency	50/60 Hz +/- 3 Hz (auto sensing)	
Input Connections	IEC-320 C14	
Input voltage range for main operations	180 - 287 V	
Input voltage adjustable range for mains operation	170 - 300V	
Other Input Voltages	220	
Batteries and runtime		
Battery Type	Maintenance-free sealed Lead-Acid battery with suspended	



	electrolyte : leakproof	
Typical recharge time	3 hour(s)	
<b>Communication &amp; Management</b>		
Interface Port(s)	USB	
Control panel	Multi-function LCD status and control console	
Audible Alarm	Alarm when on battery : distinctive low battery alarm : configurable delays	
Emergency Power Off (EPO)		
<b>Surge protection and filtering</b>		
Surge Protection	Yes	
Filtering	Full time multi-pole noise filtering : 0.3% IEEE surge let-through : zero clamping response time	
<b>Physical</b>		
Color	Black	
Form factor	Tower or Rackmount 19"	
<b>Environmental</b>		
Operating Environment	0 - 40 °C	
Operating Relative Humidity	0 - 95 %	

## 7.0 DESKTOP COMPUTERS

Specification	Requirement	Offer
<b>Desktop PC</b>		
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Color	Black	
Form factor	Tower	
Processor	Intel Core i7-6700 3.4 2133 4C CPU	
Processor speed	3.4 GHz 8MB Cache	
Graphics	Nvidia Quadro K620	
Hard Disk	>=500 GB SATA 7200 rpm 6Gb/s 3.5-in HDD	
RAM	>=8 GB DDR4 RAM 2133 MHz	
Operating system	Windows 10 Pro X64	
System type	64 Bit	
Keyboard	USB Slim Keyboard Europe	
Mouse	USB Optical mouse	
Rated Voltage	100 -240 VAC	
Rated Frequency	50 - 60 Hz	
Warranty	1 years	
<b>Display Monitor</b>		
Make:	To be specified	

Model:	To be specified	
Manufacturers data Sheet	To be submitted	
Color	Black	
Display type	24 inch IPS Gen 2, LED backlit	
Viewable image area	60.96 cm (24 in) wide screen	
Panel active area (W x H)	51.84 x 32.4 cm (20.4 x 12.75 in)	
Aspect Ratio	16:10	
Native Resolution	1920 x 1200	
View angle	178° horizontal, 178° vertical	
Screen coating	Anti-Glare	
Rated Voltage	100 -240 VAC	
Rated Frequency	50 - 60 Hz	
Warranty	1 years	

#### 8.0 LAPTOP

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
<b>Processor</b>		
Processor manufacture	Intel	
Processor family	Intel® Core™ i7	
Processor generation	12th gen Intel® Core™ i7	
Processor cache	24MB	
Processor cache type	L3	
<b>Memory</b>		
Internal memory	16GB	
Internal memory type	DDR5-SDRAM	
Memory clock speed	4800 MHz	
Memory layout (slots x size)	2 x 8 GB	
Memory slots	2x SO-DIMM	
Number of free internal memory expansion slots	2	
<b>Storage</b>		
Total storage capacity	500GB to 1TB	
Storage media	SSD	
Total SSDs capacity	1TB	
SSD memory type	TLC	
SSD interface	PCI Express, NVMe	
Compatible memory cards	MicroSD (TransFlash)	
<b>Display</b>		
Display diagonal	>=15" multitouch	

Display resolutio	2560 x 1600 pixels	
Native aspect ratio	16:10	
Display glass type	Edge to Edge Glass	
Display bezel technology	Micro-Edge	
<b>Ports</b>		
USB 3.2 Gen 2 (3.1 Gen 2) Type-A ports quantity	2	
USB 3.2 Gen 2 (3.1 Gen 2) Type-C ports quantity	2	
HDMI ports quantity	1 (ver 2.1)	
Serial port	Provide USB to serial adapter	
RJ45 network port	Provide multiport USB to Ethernet adapter	
<b>Keyboard</b>		
Pointing device	Touchpad	
Keyboard backlit	Yes	
Full-size keyboard	Yes	
Wireless/BT mouse	To be provided	
<b>Network</b>		
Wi-Fi standards	Wi-Fi 6E (802.11ax)	
WLAN controller	Intel Wi-Fi 6E AX211	
Bluetooth	Yes, (ver 5.1)	
<b>Power</b>		
AC adapter power	150 W	
Rated Voltage	100 -240 VAC	
Rated Frequency	50 - 60 Hz	
Warranty	1 years	
Laptop bag	Yes	

#### 9.0 KEYSTONE NETWORK MODULES

Specification	Requirement	Offer
Keystone module	CAT6A metallic RJ45 10G keystone jack, tool-less die cast	

#### 10.0 FACE PLATES

Specification	Requirement	Offer
Type	2 way (2) single gang 2 Port CAT 6A keystone single gang	
No. of Ports:	Two	
Compatibility:	Angled or flat MAX modules	
Module mounting:	Allows MAX, Z-MAX, CT, and TERA modules to be mounted	
Labelling:	Pressure release designation label covers for quick, tool-less removal	
Color	White	

#### 11.0 FIBER PATCHCORDS

Specification	Requirement	Offer
---------------	-------------	-------

Fiber Patch cords	Singlemode fiber patchcords SC – LC 3m	
-------------------	--	--

#### 12.0 SFP MODULES

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Type	SFP transceiver module	
Rate	1.25g/2.5/4.25g/10g	
Distance	40km @ 4 pairs	
	Hot pluggable SFP	

#### 13.0 MEDIA CONVERTERS

Specification	Requirement	Offer
Product make	To be specified	
Product model	To be specified	
Manufacturer datasheet	To be submitted	
Type	Fiber media convertor	
Interface	RJ45 to fiber	
Wavelength	1330, 1550 nm	
Fiber connector	SC connector	
Data rate	10/100mbps	
Distance	40 km @ 4 pairs	
Fiber type	Single mode	

#### 14.0 CAT 6 UTP ETHERNET CABLE 305M

Specification	Requirement	Offer
Cable Type:	Cat 6 (Category 6) 4-pair UTP cable	
Cable Length:	305 meters ( 1000 feet)	
Construction:	Unshielded Twisted pair	
Conductor Gauge:	23 AWG (American Wire Gauge) solid bare copper	
Conductor Material:	High-quality bare copper for excellent conductivity and signal integrity	
Insulation Material	Polyethylene (PE) insulation	
Jacket Material:	Fire Retardant PVC Jacket	
Performance:	bandwidth up to 1 Gbps	
Color:	Grey	
Wiring:	4-pair twisted pair wiring with color-coded conductors for easy termination and installation	
Certification:	IEC 61156-5 Ed 2.0 certifications	
Application:	1000BASE-T Gigabit and 100BASE-T 10BASE-T- Fast Ethernet Speeds Suitable for LAN networks, CCTV Installation and Voice	

15.0 CAT 6A 4 PAIR F/UTP ETHERNET CABLE 305M

Specification	Requirement	Offer
Cable Type:	Cat6A (Category 6A) 4-pair F/UTP cable	
Cable Length:	305 meters ( 1000feet)	
Construction:	Foil shielding around each individual pair to minimize crosstalk and electromagnetic interference (EMI)	
Conductor Gauge:	23 AWG (American Wire Gauge) solid copper conductors for optimal signal transmission	
Conductor Material:	High-quality bare copper for excellent conductivity and signal integrity	
Insulation Material	High-density polyethylene (HOPE) insulation for protection and durability	
Shielding:	Aluminum foil shielding around each individual pair for enhanced electromagnetic shielding.	
Jacket Material:	PVC jacket for mechanical strength and protection against environmental factors	
Performance:	Supports high-speed data transmission up to 10 Gigabit Ethernet ( 1 OGBASE-T) with reduced signal degradation and improved noise immunity	
Color:	Purple for Easier identification	
Wiring:	4-pair twisted pair wiring with color-coded conductors for easy termination and installation	
Certification:	Meets or exceeds Cat6A performance standards and TIA/EIA-568-C.2 specifications	
Application:	Suitable for high-speed data applications, including structured cabling systems and Ethernet networks	

16.0 CAT 6 RJ45 CONNECTORS

Specification	Requirement	Offer
Cable Termination	Cat6A	
Color	Transparent	
Gender	Jack Plug	
Housing Material	Quality Polycarbonate	
Termination Wiring	Supports both T568A and T568B	
Rubber Boots	Yes	

17.0 TOOLKIT 145 PIECE COMPUTER REPAIR TOOLKIT

Specification	Requirement	Offer
145 piece computer/ network repair toolkit	5" Wire Cutter/Stripper	
	8" Crimping Tool	
	Brush	
	Soldering Iron, Wick and Reel	
	Mini Hammer	

	9pcs Allen Wrenches	
	Vacuum Cleaner Set with Attachments	
	Cable Ties	
	Magnetic Telescoping Pick Up Tool	
	Electronic Voltage Tester	
	9 pcs Hollow Star :T8H, T10H, T15H, T20H, T25H, T27H, T30H, T35H, T40H	
	6 pcs Hex Key : 5/64", 3/32", 7/64", 1/8", 9/64", 5/32"	
	6 pcs Hex:2, 2.5, 3, 4, 5, 6mm ; 4 pcs Tri-ang:1, 2, 3, 4	
	4 pcs Spanner:4, 6, 8, 10 mm ; 3 pcs Torq:6, 8, 10mm	
	1 pc 60mm Magnetic Bit Holder	
	7-Bits: 4 pcs Star : T10, T15, T20, T25 ;	
	2 pcs Slotted:4, 6 mm	
	1 pc Philips:PH1	
	7-Bits:1 pc Star:T8 , 4 pcs Square:S0, S1, S2, S3	
	1 pc Pozi:PZ1 , 1 pc Adaptor Bit for Socket	
	5pcs Sockets: 3/16"-1/4"-5/16"-11/32"-3/8"	
	5pcs Sockets:6-7-8-9-10mm	
	Reversible Ratchet Handle	
	42 PCS Terminals	
	Pen Knife	
	Tweezers Serrated Inside Point	
	5" Long Nose Pliers	
	4 1/2" Side Cutter	
	6pcs Precision Screwdriver Set	
	IC Extractor	
	3-Claw Parts Retriever	
	Mini Flashlight	
	Insulated Tape	