Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Notebook - General	
Item Code	**NB01L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Processor	Intel Core2 Duo 2.4GHz , 1066MHz FSB	
3	Cache	3MB cahche or higher	
4	Chipset	Intel GM45 Express or higher Intel Chipset	
5	Graphics	Intel® GMA 4500 integrated graphics	
6	Memory	2 x 1 GB 667 MHz DDR2 SDRAM expandable to 4 GB	
7	HDD	160 GB SATA	
8	Optical Drive	Integrated 8x DVD-RW or higher	
9	Design	2 Spindle only	
10	Screen	14.1" XGA or higher color TFT display	
11	Keys	Full size keys	
12	TouchPad	TouchPad	
13	Mouse	USB based External 2/3 button Optical Mouse	
14	Audio	Integrated High Definition audio with integrated speakers and volume control	
15	Modem	Integrated 56K with RJ 11 port	
16	Ethernet	Integrated 10/100/1000 Mbps port	
17	Wireless	Integrated 802.11a/g/N Wireless LAN	

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Notebook - General**	
Item Code	**NB01L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
18	Ports	Minimum 2 USB (Ver 2.0), VGA, S-Video, Blue Tooth enabled, Speaker, Microphone	
19	PCMCIA Slots	Minimum 1 No. of Type II / Type III PCMCIA / Express Card Slot	
20	Battery	Minimum 3.5 hours or more backup in standard business environment, ACPI Compliant.	
21	Preloaded Management Software	Have preloaded client of management software having following features: 1. Remote software deployment 2. Remote patch deployment/management 3. Asset Tracking, Inventory Management (Software & Hardware) 4. Data and settings Migration tool	
22	Software	Windows Vista® Business with latest service pack (with rollback option to Windows XP), Restore / Recovery CD & with OS media CD with each PC (in absence of OS Media CD OEM pack of OS to be supplied), a sofware to provide data recovery to restore user data, settings, applications and Operating System in the event of a software crash or virus infection. The latest system drivers should be available on OEM's website for the entire lease period.	
23	Carry Bag	Carry Bag From OEM	
24	Weight	2.5Kg or less	
25	Certification	OS Certification from Microsoft Site (WLP 2.0)	
		ERTL / FCC / EMC class B	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		ACPI 2.0 & RoHS compliant	
26	Add On Features	Spill Proof Keyboard	
		Hard disk Protection System	

Place (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Notebook - General	
Item Code	NB01L	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
27	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Notebook - Lightweight Type-I	
Item Code	**NB02L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Processor	Intel Core2Duo 1.4GHz or higher with 800MHz FSB	
3	Cache	3 MB or higher	
4	Chipset	Intel GS45 Express or higher Intel Chipset	
5	Graphics	Intel® GMA 4500 integrated graphics	
6	Memory	2 x 1 GB 667 MHz DDR2 SDRAM expandable to 4 GB	
7	HDD	120 GB SATA or higher	
8	Optical Drive	8x external USB based or internal DVD-RW	
9	Screen	12"/12.1" XGA or higher color TFT display	
10	Keys	Full size keys	
11	Pointer Device	Trackpoint / Touchpad	
12	Mouse	USB based External 2/3 button Optical Mouse	
13	Audio	Integrated High definition audio with integrated speakers and volume control	
14	Modem	Integrated 56K with RJ 11 port	
15	Ethernet	Integrated 10/100/1000 Mbps port	
16	Wireless	Integrated 802.11a/g/N Wireless LAN	
17	Ports	Minimum 2 USB (Ver 2.0), VGA, Blue Tooth enabled, Speaker, Microphone	

Place

(Signature of Bidder)

Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Notebook - Lightweight Type-I	
Item Code	NB02L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
18	PCMCIA Slots	Minimum 1 No. of Type II / Type III PCMCIA / Express Card Slot	
19	Battery	Minimum 3.5 hours or more backup in standard business environment, ACPI Compliant.	
20	Preloaded Management Software	Have preloaded client of management software having following features: 1. Remote software deployment 2. Remote patch deployment/management 3. Asset Tracking, Inventory Management (Software & Hardware) 4. Data and settings Migration tool	
21	Software	Windows Vista® Business with latest service pack (with rollback option to Windows XP), Restore / Recovery CD & with OS media CD with each PC (in absence of OS Media CD OEM pack of OS to be supplied), a sofware to provide data recovery to restore user data, settings, applications and Operating System in the event of a software crash or virus infection. The latest system drivers should be available on OEM's website for the entire lease period.	
22	Carry Bag	Carry Bag From OEM	
23	Weight	1.5 KG or less (inclusive of battery & exclusive of Optical Drive)	
24	Certification	OS Certification from Microsoft Site (WLP 2.0)	
		ERTL / FCC / EMC class B	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		ACPI 2.0 & RoHS compliant	
25	Add On Features	Spill Proof Keyboard	
		Hard disk Protection System	
26	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Netbook - Lightweight Type-II (Netbook)	
Item Code	**NB03L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Processor	Intel Atom Processor at 1.6GHz , 533MHz FSB	
3	Cache	512KB or higher	
4	Chipset	Intel 945GS Express or higher Intel Chipset	
5	Graphics	Intel® GMA 950 integrated graphics	
6	Memory	2GB DDR2 SDRAM	
7	HDD	60 GB SATA	
8	Optical Drive	USB based 24x DVD-CDRW Combo	
9	Screen	Max. 9" XGA color TFT display	
10	Keyboard	Fully functional keyboard	
11	Pointer Device	Trackpoint / touchpad	
12	Mouse	USB based External 2/3 button Optical Mouse	
13	Audio	Integrated AC97 audio with integrated speakers and volume control	
14	Ethernet	Integrated 10/100 Mbps port	
15	Wireless	Integrated 802.11 b/g Wireless LAN	
16	Ports	Minimum 2 USB (Ver 2.0), VGA, Blue Tooth enabled, Speaker, Microphone	
17	PCMCIA Slots	Minimum 1 No. of Type II / Type III PCMCIA / Express Card Slot	

Place

(Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Netbook - Lightweight Type-II (Netbook)

Item Code	NB03L

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
18	Battery	Minimum 3.5 hours or more backup in standard business environment, ACPI Compliant.	
19	Preloaded Management Software	Have preloaded client of management software having following features: 1. Remote software deployment 2. Remote patch deployment/management 3. Asset Tracking, Inventory Management (Software & Hardware) 4. Data and settings Migration tool	
20	Software	Windows Vista® Basic or Windows XP Home edition with latest service pack, Restore / Recovery CD & with OS media CD with each PC (in absence of OS Media CD OEM pack of OS to be supplied), a sofware to provide data recovery to restore user data, settings, applications and Operations	
21	Carry Bag	Carry Bag From OEM	
22	Weight	1.3 KG or less (inclusive of battery & exclusive of Optical Drive)	
23	Certification	OS Certification from Microsoft Site (WLP 2.0)	
		ERTL / FCC / EMC class B	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		ACPI 2.0 & RoHS compliant	
24	Add On Features	Spill Proof Keyboard	
		Hard disk Protection System	
25	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	PC	
Item Code	PC01L	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Processor	Intel Core 2Duo 2.53GHz, 3MB L2 cache, 1066 MHZ FSB	
3	Motherboard	OEM's own motherboard or Intel Original (Management agent should show the revision level)	
4	Chipset	Intel 3 Series Express or higher Intel Chipset	
5	RAM	2 x 2 GB dual channel DDR2 SDRAM @ 667 MHz or above expandable to 8 GB	
6	HDD	160 GB SATA 7200 rpm with **Pre Failure Alert**	
7	Optical Drive	48x CDRW/DVD ROM (Combo, OEM make)	
8	Monitor (Asset Controlled)	17" TFT Monitor (OEM make)	
9	Graphics	Integrated Intel Graphics Media Accelerator 3100 or higher	
10	Keyboard	Minimum 104 keys (Same make as PC)	
11	Mouse	2/3 Button Optical Scroll Mouse	
12	Audio	Integrated Intel® High Definition Audio, AC'97/20-bit audio with internal speakers	
13	Ethernet	Integrated (on-board)10/100/1000Mbps RJ45 port with WOL, PXE & ASF (Alert Standard Format) 2.0 OS independent software to monitor & analyse network connection	
14	PCI Slots	Minimum 2 (PCI & PCI-E) slots	
15	Ports	Minimum 1 Serial, 6 USB (Ver 2.0), VGA, Speaker, Microphone, Headphone	

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	PC	
Item Code	PC01L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
16	Software	Windows Vista® Business with latest service pack (with rollback option to Windows XP), Restore / Recovery CD & with OS media CD with each PC (in absence of OS Media CD OEM pack of OS to be supplied), a sofware to provide data recovery to restore user data, settings, applications and Operating System in the event of a software crash or virus infection. The latest system drivers should be available on OEM's website for the entire lease period.	
17	Form Factor	Mini Micro ATX	
18	Diagnostic Tool / Software	OEM's Diagnostic tool for hardware diagnostics	
19	Preloaded Management Software	Have preloaded client of management software having following features: 1. Remote software deployment 2. Remote patch deployment/management 3. Asset Tracking, Inventory Management (Software & Hardware) 4. Data and settings Migration tool	
20	Security	Removable media boot control, Serial, Parallel & USB Interface Control, Power-On Password, Setup Password, should give alert on management console and desktop on tampering the system. **Should come with integrated Trusted Platform Module (TPM)1.2 Security Chip.**	
21	Certifications	For OEM : ISO 9001:2000	
		ERTL / FCC / EMC class B	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		CERTIFIED FOR MS Windows Vista & XP	
		ACPI 2.0 & RoHS compliant	
22	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	PC - Thinclient	
Item Code	**PC02L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Processor	x86 Procesosr at 1 GHz or higher	
3	Firmware Features	MS Internet Explorer 6.0, HTML, JAVA JSP support , Javascirpt, XML, Active X, Sun JRE, Media Player, Citrix Web client	
4	Browser	MS IE 6.0	
5	RAM	1 GB DDR	
6	HDD	4GB Flash	
7	Monitor (Asset Controlled)	17" TFT Monitor	
8	Keyboard	Minimum 104 keys	
9	Mouse	2/3 Button Optical Scroll Mouse	
10	Audio	Output 1/8 inch mini, full 16 –bit stereo	
11	Ethernet	Integrated (on-board)10/100 Mbps RJ45 port	
12	PCI Slots	Minimum 1 PCI slot	
13	Ports	Minimum 1 Serial, 1 Parallel, 4 USB (Ver 2.0), VGA	
14	Software	Windows XP / Windows CE	
15	Preloaded Management Software	Remote Management Agent	
16	Protocols	RDP, ICA, Wyse Wy-60, WY-50, WY-50+, IBM TN3270e, TN5250, TN3151, DEC VT 420, ADS A2; Hazeltine 1500; Tandem 6530 ; and SCO Console resident ,Terminal Emulations	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	PC - Thinclient	
Item Code	PC02L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	Additional	Citrix metaframe Compatible	
18	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Graphics Workstation - P4**		
Item Code	**WS01L**		
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Processor	Intel Core2 Duo Processor 2.66 GHz, 6 MB L2 Cache, 1333 MHz FSB.	
3	Chipset	Intel X38 or higher Chipset	
4	RAM	8 GB dual channel DDR2 ECC @667 MHz expandable to 16 GB	
5	HDD	160 GB (unformatted), 7200 rpm SATA drive with Integrated SATA Controller	
6	Optical Drive	24x or higher DVD-CDRW Combo Drive	
7	Graphics Card	nVidia Quadro FX570 with 256 MB RAM or higher	
8	Monitor	21" TFT (OEM make) with min. resolution of 1280*1024	
9	Keyboard	Minimum 104 keys with additional shortcut keys	
10	Mouse	2/3 Button Optical Scroll Mouse	
11	Audio	Integrated Audio with Internal speakers	
12	Ethernet	Integrated 10/100/1000 Mbps RJ45 port with WOL	
13	PCI Slots	Min. 4 (PCI, PCI Express / PCI Express x16) Slots	
14	Ports	Minimum 1 Parallel, 1 Serial, 4 USB (Ver 2.0), VGA, Speaker, Microphone, Headphone	
15	Software	Pre installed MS Windows Vista 64 bit (with rollback support for Windows XP) with Restore / Recovery CD/disk & with OS media CD. Should be able to support Red Hat Linux WS4.0 also.	
16	Diagnostic Tool / Software	OEM's Diagnostic tool for hardware diagnostics	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Graphics Workstation - P4	
Item Code	WS01L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	Preloaded Management Software	Have preloaded client of management software having following features: 1. Remote software deployment 2. Remote patch deployment/management 3. Asset Tracking, Inventory Management (Software & Hardware) 4. Data and settings Migration tool	
18	Security	Removable media boot control, Serial, Parallel & USB Interface Control, Power-On Password, Setup Password, should give alert on management console and desktop on tampering the system.	
19	Certifications	For OEM : ISO 9001:2000	
		ERTL / FCC / EMC class B	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		Certified for MS Windows Vista & XP	
		Certified for UGS products	
		Certified for autodesk products	
		ACPI 2.0 & RoHS compliant	
20	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Note: In case only the Graphics Card is certified for ISV Softwares like UGS, Autodesk, etc, and the entire Workstation is not certified for these Softwares, the OEM of the system shall submit an undertaking confirming explicitly that on the quoted models of the Workstations all the required softwares as per tender specification will work normally, without any additional requirements.

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
Item Name		**Graphics Workstation** - **Xeon**	
Item Code		**WS02L**	
1	Make & Model		
2	Processor	Quad Core Intel Xeon 2.83 GHz with 12 MB L2 Cache, 1333 MHz FSB	
3	Chipset	Intel 5400 or higher Intel Chipset	
4	RAM	8 GB dual channel DDR2 FBDIMMs @667 MHz , expandable upto 32GB	
5	HDD	2 x 146 GB SAS HDD 15K rpm with SAS RAID Controller	
6	Optical Drive	24x or higher DVD-CDRW Combo Drive	
7	Graphics Card	Nvidia Quadro FX 3700 with min. 512 MB RAM	
8	Monitor	21" TFT (OEM make) with min. resolution of 1280*1024	
9	Keyboard	Minimum 104 keys with additional shortcut keys	
10	Mouse	2/3 Button Optical Scroll Mouse	
11	Audio	Integrated Audio with Internal speakers	
12	Ethernet	Integrated 10/100/1000 Mbps RJ45 port with WOL	
13	Bays/Slots	Minimum 4 bays, 3 (PCI / PCI Express / PCI Express x16) Slots	
14	Ports	Minimum 1 Parallel, 1 Serial, 4 USB (Ver 2.0), VGA, Speaker, Microphone, Headphone	
15	Software	Pre installed MS Windows Vista 64 bit (with rollback support for Windows XP) with Restore / Recovery CD/disk & with OS media CD. Should be able to support Red Hat Linux WS4.0 also.	
16	Compilers	FORTRAN 77, C & C++ Compilers with manuals.	
17	Diagnostic Tool / Software	OEM's Diagnostic tool for hardware diagnostics	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name		**Graphics Workstation - Xeon**	
Item Code		**WS02L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
18	Preloaded Management Software	Have preloaded client of management software having following features: 1. Remote software deployment 2. Remote patch deployment/management 3. Asset Tracking, Inventory Management (Software & Hardware) 4. Data and settings Migration tool	
19	Security	Removable media boot control, Serial, Parallel & USB Interface Control, Power-On Password, Setup Password, should give alert on management console and desktop on tampering the system.	
20	Certifications	For OEM : ISO 9001:2000	
		ERTL / FCC / EMC class B	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		Certified for MS Windows Vista & XP	
		Certified for UGS products	
		Certified for autodesk products	
21	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Note: In case only the Graphics Card is certified for ISV Softwares like UGS, Autodesk, etc, and the entire Workstation is not certified for these Softwares, the OEM of the system shall submit an undertaking confirming explicitly that on the quoted models of the Workstations all the required softwares as per tender specification will work normally, without any additional requirements.

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Laserjet Printer - A4 Mono Personal**	
Item Code	**LJ01L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Print Speed	15 ppm(A4, normal)	
3	Connectivity	USB 2.0	
4	Print Resolution	600 x 600 dpi or higher	
5	Media Size	A4, A5, letter, executive, legal	
6	Paper Trays	One (1) or more	
7	RAM	8 MB or higher	
8	Duty Cycle	5000 Pages per month	
9	OS Compatibility	Windows XP/Vista/2003	
10	Compliance	Energy Star	
11	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Laserjet Printer - A4 Mono Low End**	
Item Code	**LJ02L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Print Speed	25 ppm(A4, normal)	
3	Duplex Printing	Required	
4	Connectivity	Ethernet LAN	
5	Print Resolution	600 x 600 dpi or higher	
6	Media Size	A4, A5, letter, executive, legal	
7	Paper Trays	One (1) or more	
8	RAM	32MB or higher	
9	Duty Cycle	15000 Pages per month	
10	Print Language Support	PCL 5e, PCL 6, PostScript 3 / PostScript 3 Emulation	
11	OS Compatibility	Windows XP/Vista/2003	
12	Management	The printer should be remotely manageabe through a standard web browser.	
13	Compliance	Energy Star	
14	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Laserjet Printer - A4 Mono General**	
Item Code	**LJ03L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print Speed	30 ppm(A4, normal)	
3	Duplex Printing	Required	
4	Connectivity	Ethernet LAN	
5	Print Resolution	600 x 600 dpi or higher	
6	Media Size	A4, A5, letter, executive, legal	
7	Paper Trays	Two (2)	
8	RAM	64MB or higher	
9	Duty Cycle	50,000 Pages per month	
10	Print Language Support	PCL 5e, PCL 6, PostScript 3 / PostScript 3 Emulation	
11	OS Compatibility	Windows XP/Vista/2003	
12	Management	The printer should be remotely manageabe through a standard web browser.	
13	Compliance	Energy Star	
14	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Laserjet Printer - A3 Mono**	
Item Code	**LJ04L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print Speed	40 ppm (A4, normal), 20 ppm (A3, normal)	
3	Duplex Printing	Required	
4	Connectivity	Ethernet LAN	
5	Print Resolution	600 x 600 dpi or higher	
6	Media Size	A3, A4, A5, letter, executive, legal	
7	Media Type	Paper (plain, preprinted, letterhead, prepunched, bond, color, card stock, rough, recycled), envelopes, transparencies, labels	
8	Paper Trays	Two (2)	
9	RAM	128MB or higher	
10	Duty Cycle	2,50,000 Pages per month	
11	Print Language Support	PCL 5e, PCL 6, PostScript 3 / PostScript 3 Emulation	
12	OS Compatibility	Windows XP/Vista/2003	
13	Management	The printer should be remotely manageabe through a standard web browser.	
14	Compliance	Energy Star	
15	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Laserjet Printer - A4 Color Low End**	
Item Code	**LJ05L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Print Speed (Color)	20 ppm(A4, normal)	
3	Duplex Printing	Required	
4	Connectivity	Ethernet LAN	
5	Print Resolution	600 x 600 dpi or higher	
6	Media Size	A4, A5, letter, executive, legal	
7	Paper Trays	One (1) or more	
8	RAM	128 MB or higher	
9	Duty Cycle	25,000 Pages per month	
10	Print Language Support	PCL 5e, PCL 6, PostScript 3 / PostScript 3 Emulation	
11	OS Compatibility	Windows XP/Vista/2003	
12	Management	The printer should be remotely manageabe through a standard web browser.	
13	Compliance	Energy Star	
14	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Laserjet Printer - A4 Color General	
Item Code	**LJ06L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print Speed (Color)	30 ppm(A4, normal)	
3	Duplex Printing	Required	
4	Connectivity	Ethernet LAN	
5	Print Resolution	600 x 600 dpi or higher	
6	Media Size	A4, A5, letter, executive, legal	
7	Paper Trays	Two (2)	
8	RAM	256MB or higher	
9	Duty Cycle	50,000 Pages per month	
10	Print Language Support	PCL 5e, PCL 6, PostScript 3 / PostScript 3 Emulation	
11	OS Compatibility	Windows XP/Vista/2003	
12	Management	The printer should be remotely manageabe through a standard web browser.	
13	Compliance	Energy Star	
14	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Laserjet Printer - A3 Color**	
Item Code	**LJ07L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print Speed(Color)	25 ppm (A4, normal) & 12 ppm (A3, normal) or higher	
3	Duplex Printing	Required	
4	Connectivity	Ethernet LAN	
5	Print Resolution	600 x 600 dpi or higher	
6	Media Size	A3, A4, A5, letter, executive, legal	
7	Media Type	Paper (plain, preprinted, letterhead, prepunched, bond, color, card stock, rough, recycled), envelopes, transparencies, labels	
8	Paper Trays	Two (2)	
9	RAM	128MB or higher	
10	Duty Cycle	1,00,000 Pages per month	
11	Print Language Support	PCL 5e, PCL 6, PostScript 3 / PostScript 3 Emulation	
12	OS Compatibility	Windows XP/Vista/2003	
13	Management	The printer should be remotely manageabe through a standard web browser.	
14	Compliance	Energy Star	
15	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Deskjet Color Printer**	
Item Code	**DJ01L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print Speed (color)	30 ppm(draft)	
3	Duplex Printing	Required	
4	Connectivity	USB 2.0	
5	Print Resolution	1200 x 1200 dpi or higher	
6	Media Size	A4, A5, letter, executive, legal	
7	Media Type	Paper (plain, inkjet, photo), envelopes, transparencies, labels, greeting cards	
8	Paper Trays	One (1) or more	
9	RAM	32MB or higher	
10	Duty Cycle	7000 Pages per month	
11	Print Language Support	PCL 3 or equvalent	
12	OS Compatibility	Windows XP/Vista/2003	
13	Management	The printer should be remotely manageabe through a standard web browser.	
14	Compliance	Energy Star	
15	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Dot Matrix Printer**	
Item Code	**DM01L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Print Speed at 10 cpi	Minimum 400CPS(High-speed draft) and Minimun 100CPS (LQ)	
3	Printing Method	24 Pin impact dot matrix	
4	Print Direction	Bidirectional	
5	Character size	Minimum at 10cpi 136 maximum printed characters	
6	Character set	PC 437, Italics	
7	Paper width and length	Single sheet min 182 to 364 mm; continuous sheet 101 to 406mm	
8	Input Buffer	Minimum 64 KB	
9	Connectivity	Should be connectable to parallel/USB ports of devices	
10	OS Compatibility	Windows XP/Vista/2003, Redhat Linux	
11	Power and Data cables	Each Printer is to be provided with Power cable and data cable	
12	Indian Language printing support	Should support Unicode and should be able to print in English & Hindi.	
13	Ribbon life	3 million characters or more	
14	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

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Item Name	Dot Matrix Printer - Heavy Duty	
Item Code	**DM02L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print Speed at 10 cpi	Minimum 550CPS(High-speed draft) and Minimun 100CPS (LQ)	
3	Printing Method	24 Pin impact dot matrix	
4	Print Direction	Bidirectional with logic	
5	Workload	Min 2000 pages per day	
6	Throughput (Draft Letter)	Min 600 pages per hour	
7	Character size	Minimum at 10cpi 136 maximum printed characters	
8	Character set	PC 437, Italics	
9	Paper width and length	Single sheet min 182 to 364 mm; continuous sheet 101 to 406mm	
10	Input Buffer	Minimum 64 KB	
11	Connectivity	Should be connectable to parallel/USB ports of devices	
12	OS Compatibility	Windows XP/Vista/2003, Redhat Linux	
13	Power and Data cables	Each Printer is to be provided with Power cable and data cable	
14	Indian Language printing support	Should support Unicode and should be able to print in English & Devnagari Hindi.	
15	Ribbon life	20 million characters or more	
16	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

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Annexure - I

Bharat Heavy Electricals Limited
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Item Name	Line Matrix Printer	
Item Code	**LM01L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print speed (Draft)	Minimum 1500 lines per minute	
3	Print speed (DP, Uppercase)	1100 lines per minute or higher	
4	Printing method	Line Impact	
5	Connectivity (Interface) Required	Serial, Parallel , Ethernet	
6	OS Compatibility	Windows XP/Vista/2003, Redhat Linux	
7	Paper handling	Paper motion detection , paper out detection.	
8	Form Loop Control	Form loop control mechanism to be provided for pre-printed stationery.	
9	Ribbon Life	Minimum 75 million characters	
10	Noise Level	55dB(A) or less	
11	Network Interface	10/100Mbps Ethernet Interface	
12	Remote Management Software	Should come with a web based management software to manage the printer remotely.	
13	Cabinet	Should come with a quietised cabinet	
14	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

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Bharat Heavy Electricals Limited
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Item Name	MFS - A4 Mono	
Item Code	MFS01L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Functionality	**Print, Copy and Scan**	
3	Print and Copy Speed	20 ppm (A4)	
4	Connectivity	Ethernet LAN	
5	Print Resolution	600 x 600 dpi	
6	Media Size	A4, A5, letter, executive, legal	
7	Paper Trays	One (1) or more	
8	Scan Technology	Color, flatbed, ADF	
9	RAM	64 MB	
10	Duty Cycle	5000 pages per month	
11	Print Language Support	PCL 5e, PCL 6, PostScript level 3 emulation	
12	OS Compatibility	Windows XP/Vista/2003	
13	Management	The printer should be remotely manageabe through a standard web browser.	
14	Compliance	Energy Star	
15	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

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Bharat Heavy Electricals Limited
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Rate Contract 2009

Item Name	**MFS - A4 Color**	
Item Code	**MFS02L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Functionality	**Print, Copy and Scan**	
3	Print and Copy Speed	20 ppm Mono & Color	
4	Connectivity	Ethernet LAN, USB	
5	Print Resolution	600 x 600 dpi	
6	Media Size	A4, A5, letter, executive, legal	
7	Paper Trays	One (1) or more	
8	Scan Technology	CCD Scanner, 1200 x 1200 dpi optical resolution	
9	RAM	256 MB	
10	Duty Cycle	40000 pages per month	
11	Print Language Support	PCL 5e, PCL 6, PostScript level 3 emulation	
12	OS Compatibility	Windows XP/Vista/2003	
13	Management	The printer should be remotely manageabe through a standard web browser.	
14	Compliance	Energy Star	
15	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Plotter - A0 Low End	
Item Code	PL01L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Print Speed	85 sq. ft. per hour (image fast mode) or higher	
3	Media Size	42 inch wide sheet or roll	
4	Print Resolution, Black & color	600 x 600 dpi or higher	
5	Print lenghth	150 ft	
6	Print language support	HP PCL 3-GUI, Adobe PostScript 5 via s/w Rip, HPGL/2 RTL	
7	Memory	32 MB (OEM) or higher	
8	Connectivity	IEEE 1284-compliant bidirectoinal parallel / USB 2.0, Fast Ethernet 10/100Base-TX	
9	Media handling / document finishing	Single sheet feed, roll feed, automatic cutter	
10	Operating System Support	Microsoft Windows XP/Vista/2003/2008	
11	Media for Drivers	All necessary drivers required should be given in CD media.	
12	AutoCAD Support	Drivers to print from AutoCAD 2002 or Higher version to be provided.	
13	Certifications	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
14	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

(Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Plotter - MFS	
Item Code	**PL02L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Compliance	Energy Star	
	PRINTER		
3	Print Speed	Min 4 A0 per minute or 10 A1 per minute	
4	Resolution	400 DPI or higher	
5	Electronic Collation	Required	
6	Auto Roll Switching	Required	
7	Job Accounting	Required	
8	Paper Handling	3 rolls or more	
9	Media Cutter	Automatic Cutter	
10	Print output Size	914mm X 15m	
	CONTROLLER		
11	Connectivity Required	IEEE 1284 compliant bi-directional parallel / USB 2.0 , 10/100 Base-T Fast Ethernet	
12	RAM	512 MB or higher (OEM original)	
13	HDD	Min 18 GB or Higher	
14	Remote Management Software (Plotter and Scanner)	Should come with a remote management software to monitor & manage the system.	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Plotter - MFS	
Item Code	PL02L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
15	OS Compatibility	Windows XP/Vista/2003, Redhat Linux	
16	Drivers	Windows 95, 98, Me, NT, 2000, XP; Embedded webserver file submitter. AutoCAD: R 14, 2000, 2002, 2004, 2005 for Windows ; ADOBE Acrobat 6.0	
17	Print Language	TIFF 6.0, CALS/G4, HP-GL/2, HP RTL	
18	Adobe Postscript5 with PDF	Required	
19	Scanning Speed	4 A0 per minute	
20	Scanning Resolution	400 DPI or higher	
21	Max Scan Length	36" x 15m	
22	Scan Media thickness	1mm or upto 13mm	
23	Con-currency (Printing, Scans)	Required	
24	Scan preview station	Using External monitor (17") OR Using Client Machine (PC to be provided as integral part of the solution)	
25	Centering and Deskewing	Required	
26	Tray to Hold Originals	Required	
27	Zoom Options	25% TILL 400% ADJUSTABLE IN 1% AND 0.1% STEPS	
28	Set Collation / Job Program	Copying and Printing	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Plotter - MFS	
Item Code	PL02L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
	Software		
29	Scanned Image Editing	Required	
30	Raster to Vector Conversion (Semi & Fully Automatic)	Required	
31	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Plotter - A0 Low End (Inkjet)	
Item Code	PL03L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Technology	Ink Jet	
3	Print Speed, Normal Mode	140 Sq ft/hr	
4	Resolution (black, color)	600 x 600 dpi or higher	
5	Paper Handling	Single sheet feed, roll feed	
6	Media Cutter	Automatic cutter	
7	Media Type	Plain Paper, Polyester Film, Tracing & Vellum	
8	Print Output Size	A0,A1,A2, 914mm x 15m	
9	RAM	64 MB or higher (OEM original)	
10	Connectivity Required	IEEE 1284-compliant bidirectoinal parallel / USB 2.0, 10/100 Base-T Fast Ethernet	
11	OS Compatibility	Microsoft Windows XP/Vista/2003/2008	
12	Drivers	Win NT/2000, XP Autocad: R14, 2000,2002,2004,2005, ADOBE Acrobat 6.0	
13	File Format	TIFF 6.0, CAL/G4, HPGL, HP-GL/2, HP RTL, AutoCad, Postscript, pdf	
14	Adobe Postscript with PDF	Required	
15	Compliance	Energystar	
16	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
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Rate Contract 2009

Item Name	Scanner - A4 Color	
Item Code	SC01L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Type	A4 Color Flatbed Scanner	
3	ADF speed	25 ppm / 50 ipm	
4	Hardware Resolution	600 x 600 dpi	
5	Software	Scanning Software, OCR software to be provided.	
6	OS Compatibility	Windows XP/Vista/2003	
7	Interface	SCSI / USB 2.0 with requisite cables. In case of SCSI interface, SCSI card must also be provided.	
8	Scan to PDF	Scan to searchable PDF facility should be available.	
9	Compliance	Energy Star	
10	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period.	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Scanner - A3 Color	
Item Code	SC02L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Type	A3 Color Flatbed Scanner	
3	Hardware Resolution	800 x 1600 dpi	
4	Speed	10 ms/line or more	
5	Transparency Adapter	Should come with transparency adapter to scan transparencies, slides, positive and negative films	
6	Software	Scanning Software, OCR software to be provided.	
7	Scan Modes	Color Mode: 42 bits/pixel, Grayscale Mode:14 bits/pixel, Linear Mode: 1 bit/pixel	
8	OS Compatibility	Windows XP/Vista/2003	
9	Interface	Necessary SCSI card & cable to be provided for connecting scanner to work station/PC	
10	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period.	

Place

(Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Scanner - A4 Color High End	
Item Code	SC03L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Scanner Type	A4 Flatbed Color Scanner	
3	Image Sensor Type	CCD(Charge Coupled Device)	
4	Feed	Manual & ADF Ready with paper tray/stacker/chute	
5	ADF Capacity	100 pages or higher	
6	Duplex	Should be duplex ready.	
7	Optical Resolution	600dpi or higher	
8	Output Resolution	600dpi or higher	
9	Scanning Speed at 200DPI(COLOR, PORTRAIT)	15 ppm (30 ipm in duplex mode) or higher	
10	Scanning Speed at 200DPI(B & W , PORTRAIT)	40 ppm (80 ipm in duplex mode) or higher	
11	Document Size	A4, Legal, Letter	
12	Interface	SCSI-II /USB with requisite cables. In case of SCSI interface, SCSI card to be provided.	
13	OCR Software	Integrated OCR Abbyy Finereader 7.0 or higher to be provided	
14	OS Compatibility	Windows XP/Vista/2003	
15	Daily Duty Cycle	4000 documents per day	
16	Scan to PDF	Scan to PDF required.	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Scanner - A4 Color High End	
Item Code	SC03L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	Compliance	EnergyStar	
18	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period.	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited

Corporate Information Technology

Rate Contract 2009

Item Name	Scanner - A3 Color High End	
Item Code	**SC04L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Scanner Type	A3 Flatbed Color Scanner	
3	Image Sensor Type	CCD(Charge Coupled Device)	
4	Feed	Manual & ADF Ready with paper tray/chute/stacker	
5	ADF Capacity	200 pages or higher	
6	Duplex	Should be duplex ready.	
7	Optical Resolution	600dpi or higher	
8	Output Resolution	600dpi or higher (color, grayscale, binary)	
9	Scanning Speed at 200DPI(COLOR, PORTRAIT)	40 ppm (80 ipm in duplex)or higher	
10	Scanning Speed at 200DPI(B & W , PORTRAIT)	50 ppm (100 ipm in duplex) or higher	
11	Document Size	A8 to A3	
12	Interface	Ultra SCSI-(50M)SCSI-I/High Speed USB 2.0 with requisite cables. In case of SCSI interface, SCSI card to be provided	
13	OCR Software	Integrated OCR Abbyy Finereader 7.0 or higher to be provided	
14	OS Compatibility	Windows XP/Vista/2003	
15	Daily Duty Cycle	8000 documents per day	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Scanner - A3 Color High End	
Item Code	SC04L	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
16	Scan to PDF	Scan to PDF required.	
17	Compliance	EnergyStar	
18	Warranty	OEM warranty (labour/parts/on-site) for the entire contract period.	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Small UPS	
Item Code	**UP01H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Rating	800 VA or above	
3	Technology	Line-Interactive	
4	Nominal Input Voltage	230V single phase	
5	Input Voltage Range	160V AC to 275V AC	
6	Input Frequency	50 Hz +/- 3 Hz	
7	Nominal Output Voltage	230V AC +/- 5%	
8	Output Frequency	50 Hz +/-1 Hz	
9	Output power capacity	Min. 560 watts	
10	Automatic Voltage Regulation	Automatic Voltage Regulation to be provided	
11	Transfer time	< 6ms	
12	Overload capability	110% for 60 minutes, 150% for 5 minutes	
13	Protection	Surge, brownout, sag, short circuit, etc protection required.	
14	Battery Type	Sealed maintenance-free	
15	Battery make	Panasonic / Rocket /CSB	
16	Communication Port	RS232C or USB Port & necessary commmunication cables to be provided	
17	Backup	Min. 20 minutes on single PC load	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Small UPS		
Item Code	UP01H		
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
18	Power Management Software	The UPS should have Power Management Software to view & monitor UPS status, backup time & shutdown scheduling for Windows XP/Vista systems	
19	Compliance	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
20	Warranty	OEM onsite/labour/parts warranty for the entire lease period.	

Place

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Date

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Bharat Heavy Electricals Limited
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Rate Contract 2009

Item Name	**2KVA UPS**	
Item Code	**UP02H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Rating	2KVA	
3	Technology	Line Interactive	
4	Nominal Input Voltage	230V single phase	
5	Input Voltage Tolerance	170V to 275V	
6	Input Frequency	50 Hz +/- 3 Hz	
7	Nominal Output Voltage	230 V AC +/- 5%	
8	Output Frequency	50 Hz +/- 1 Hz	
9	Output power factor	0.7 or higher	
10	Automatic Voltage Regulation	Required	
11	EMI/RFI Protection	Required	
12	Overall Efficiency	>90%	
13	Overload capability	110% for 5 minutes;150% for 1 min	
14	LED indicators	Required (on mains, on battery, replace battery, overload, etc)	
15	Cold start	Required	
16	Battery Type	Sealed, Maintenance-free	
17	Battery Make	Panasonic / Rocket /CSB	

Place

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Bharat Heavy Electricals Limited
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Item Name	2KVA UPS	
Item Code	UP02H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
18	Backup	Min. 30 minutes on full load	
19	Communication Port	RS232C port & necessary communication cables to be provided	
20	Power Management Software	The UPS has Power Management Software to view & monitor UPS status, backup time, battery status, temperature & shutdown scheduling for Windows XP / Vista & Red Hat Linux systems.	
21	Certifications	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
22	Warranty	OEM onsite/labour/parts warranty for the entire lease period.	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
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Rate Contract 2009

Item Name	5KVA UPS	
Item Code	UP03H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Rating	5KVA	
3	Technology	True Online, Double Conversion with PWM Technology & IGBT based Inverter	
4	Nominal Input Voltage	230V single phase	
5	Input Voltage Range	160V AC to 275V AC	
6	Input Frequency	50 Hz +/- 3 Hz	
7	Input Power Factor	> 0.90	
8	Nominal Output Voltage	230 Vac +/- 5%	
9	Output Frequency	50 Hz +/- 1 Hz	
10	Output power factor	0.7 or higher	
11	Overall efficiency	> 85%	
12	Overload capability	110% for 60 minutes, 150% for 5 minutes	
13	THD	<5%	
14	Battery Type	Sealed, maintenance-free	
15	Battery Make	Panasonic / Rocket / CSB	
16	Desired Backup	Min. 60 minutes backup on full load	
17	Cold Start	Cold start on 100% load	

Place

(Signature of Bidder)

Date

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Bharat Heavy Electricals Limited
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Item Name	5KVA UPS	
Item Code	UP03H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
18	Communication Port	RS232 or USB port & necessary communication cables to be provided	
19	SNMP Card	Should come with an SNMP Card for connecting UPS to Ethernet LAN to monitor and manage the UPS with a standard Web browser, while simultaneously providing shutdown & restart for multiple windows, Linux & Unix computer systems over LAN	
20	Power Management Software	The UPS muat have Power Management Software to view & monitor UPS status, backup time & shutdown scheduling for Windows XP/Vista/2003 & Red Hat Linux systems	
21	Battery Refresh	The bidder shall replace all the batteries after every 2.5 years and whenever the batteries get faulty.	
22	Compliance	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
23	Warranty	OEM onsite/labour/parts warranty for the entire lease period.	

Place (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	10KVA Online UPS	
Item Code	UP04H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	System Configuration	10 KVA	
3	Technology	True Online, Double Conversion with PWM Technology & IGBT based Inverter	
4	Input Source	Mains/Local DG Set Compatibility	
5	Input Voltage	415V AC 3 phase, 4 wires	
6	Input Voltage Tolerance	± 15%	
7	Input Frequency	50 Hz	
8	Input Frequency Tolerance	45 HZ TO 55 HZ	
9	Input Power factor at nominal voltage and full load	>0.9	
10	Total Harmonic Distortion at 100% NonLinear Load	< 5%	
11	Output Voltage	230 Volts Single Phase	
12	Output Voltage Regulation	± 1% - For 100% static load. THDU <3% between phase to neutral for 100% non-linear load	
13	Output Power Factor	0.8 or higher	
14	Over Load Rating	110% for 60 minutes, 125% for 10 minutes, 150% for 60 seconds	
15	Inverter Efficiency	> 89%	
16	Overall efficiency	> 85%	

Place (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	10KVA Online UPS	
Item Code	UP04H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	Static Bypass switch	A Built-in static transfer switch shall be provided as an integral part of the UPS. The Static switch shall be a bi-directional naturally committed high-speed static (SCR type) device rated to carry full load current continuously.	
18	Manual Bypass switch	The UPS should have a Built-in Maintenance Bypass Isolator to directly connect the load to the input AC power source, bypassing the rectifier, inverter and static transfer switch.	
19	Battery type	Sealed Maintenance Free with a separate Battery Cabinet/Rack	
20	Battery make	Panasonic / Rocket / CSB	
21	Backup	Min. 60 minutes backup on full load	
22	Battery management	The UPS should havce Battery Management feature for: Periodic Battery Test Controlling Charging Time and Current Increase in Battery Life Protection : Battery low Cut-off without draining current	
23	LCD Panel	The UPS should have LCD panel for measuring Output voltages, Output currents and Frequency, Battery Voltage and charging / discharging current, display status of the battery capacity and backup time left and event logging.	
24	RS232 interface	RS232 or USB port & necessary communication cables to be provided	
25	Power Management Software	The UPS should have Power management software and interface cable, providing complete power monitoring and control capabilities to system administrators. It should Safely shutdown & restart multiple Windows & Linux clients over LAN, analyze power conditions with voltage logging, Should support Linux & Windows (XP/2003/Vista) operating systems.	
26	SNMP Card	Should come with an SNMP Card for connecting UPS to Ethernet LAN to monitor and manage the UPS with a standard Web browser, while simultaneously providing shutdown & restart for multiple windows, Linux & Unix computer systems over LAN.	

Place (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	10KVA Online UPS	
Item Code	UP04H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
27	Synchronization	The UPS should come with hardware / software required for Synchronization between the outputs of two or more such independent UPS systems.	
28	Battery Refresh	The bidder shall replace all the batteries after every 2.5 years and whenever the batteries get faulty.	
29	Compliance	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
30	Warranty	OEM onsite/labour/parts warranty for the entire lease period.	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**2 x 10 KVA Online UPS**	
Item Code	**UP05H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	System Configuration	2x10 KVA Online UPS in parallel redundant equal load sharing Mode. One UPS should be capable of taking 100% load instantaneously in case other UPS fails. The parallel redundancy equal load sharing feature should be an inbuilt feature of the UPS, and should not be provided through some external parallel redundancy kit.	
3	Technology	True Online, Double Conversion with PWM Technology & IGBT based Inverter	
4	Input Source	Mains/Local DG Set Compatibility	
5	Input Voltage	415V AC 3 phase, 4 wires	
6	Input Voltage Tolerance	± 15%	
7	Input Frequency	50 Hz	
8	Input Frequency Tolerance	45 HZ TO 55 HZ	
9	Input Power factor at nominal voltage and full load	>0.9	
10	Total Harmonic Distortion at 100% NonLinear Load	< %5	
11	Output Voltage	230 Volts Single Phase	
12	Output Voltage Regulation	± 1% - For 100% static load. THDU <3% between phase to neutral for 100% non-linear load	
13	Output Power Factor	0.8 or higher	
14	Over Load Rating	110% for 10 minutes, 125% for 01 minutes, 150% for 30 seconds	
15	Inverter Efficiency	> 89%	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	2 x 10 KVA Online UPS	
Item Code	UP05H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
16	Overall efficiency	> 85%	
17	Static Bypass switch	A Built-in static transfer switch shall be provided as an integral part of the UPS. The Static switch shall be a bi-directional naturally committed high-speed static (SCR type) device rated to carry full load current continuously.	
18	Manual Bypass switch	The UPS should have a Built-in Maintenance Bypass Isolator to directly connect the load to the input AC power source, bypassing the rectifier, inverter and static transfer switch.	
19	Battery type	Two independent Sealed Maintenance Free battery banks with a separate Battery Cabinet/Rack	
20	Battery make	Panasonic / Rocket / CSB	
21	Backup	Min. 60 minutes backup on full load on each battery bank	
22	Battery management	The UPS should havce Battery Management feature for: Periodic Battery Test Controlling Charging Time and Current Increase in Battery Life Protection : Battery low Cut-off without draining current	
23	LCD Panel	The UPS should have LCD panel for measuring Output voltages, Output currents and Frequency, Battery Voltage and charging / discharging current, display status of the battery capacity and backup time left and event logging.	
24	RS232 interface	RS232 interface to be provided	
25	Power Management Software	The UPS should have Power management software and interface cable, providing complete power monitoring and control capabilities to system administrators. It should Safely shutdown & restart multiple Windows & Linux clients over LAN, analyze power conditions with voltage logging, Should support Linux & Windows (XP/2003/Vista) operating systems.	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	2 x 10 KVA Online UPS	
Item Code	UP05H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
26	SNMP Card	Should come with an SNMP Card for connecting UPS to Ethernet LAN to monitor and manage the UPS with a standard Web browser, while simultaneously providing shutdown & restart for multiple windows, Linux & Unix computer systems over LAN.	
27	Synchronization	The UPS should come with hardware/software required to provide Synchronization capability between the outputs of two or more independent UPS systems.	
28	Battery Refresh	The bidder shall replace all batteries after every 2.5 years and whenever the batteries get faulty	
29	Compliance	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
30	Warranty	OEM onsite/labour/parts warranty for the entire lease period.	

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	40 KVA Online UPS	
Item Code	UP06H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	System Configuration	40 KVA Online UPS	
3	Technology	True On-line, double conversion type	
4	Input Source	Mains/Local DG Set Compatibility	
5	Input Voltage	415 VAC 3 phase, 4 wires	
6	Input Voltage Tolerance	± 15%	
7	Input Frequency	50 Hz	
8	Input Frequency Tolerance	45 HZ TO 55 HZ	
9	Input Power Factor at nominal voltage and full load	>0.9	
10	Total Harmonic Distortion at 100% NonLinear Load	< %5	
11	Output Voltage	415 VAC 3 phase, 4 wires	
12	Output Voltage Regulation	± 1% for 100% static load , ± 1% for 100% balanced load, ± 1% for 100% un-balanced load. THDU < 3% between Phase to Neutral for 100% non-linear load	
13	Output Power Factor	0.8 or higher	
14	Over Load Rating	110% for 10 minutes, 125% for 01 minutes 150% for 30 seconds	
15	Inverter Efficiency	> 89%	
16	Overall efficiency	> 85%	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	40 KVA Online UPS	
Item Code	UP06H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	Static Bypass switch	A Built-in static transfer switch shall be provided as an integral part of the UPS. The Static switch shall be a bi-directional naturally committed high-speed static (SCR type) device rated to carry full load current continuously.	
18	Manual Bypass switch	The UPS should have a Built-in Maintenance Bypass Isolator to directly connect the load to the input AC power source, bypassing the rectifier, inverter and static transfer switch.	
19	Battery type	Two independent Sealed Maintenance Free battery banks with a separate Battery Cabinet	
20	Battery make	Panasonic / Rocket / CSB	
21	Backup	Min. 60 minutes backup on full load on each battery bank	
22	Battery management	The UPS should havce Battery Management feature for: Periodic Battery Test Controlling Charging Time and Current Increase in Battery Life Protection : Battery low Cut-off without draining current	
23	LCD Panel	The UPS should have LCD panel for measuring Output voltages, Output currents and Frequency, Battery Voltage and charging / discharging current, display status of the battery capacity and backup time left and event logging.	
24	RS232 interface	RS232 interface to be provided	
25	Power Management Software	The UPS should have Power management software and interface cable, providing complete power monitoring and control capabilities to system administrators. It should Safely shutdown & restart multiple Windows & Linux clients over LAN, analyze power conditions with voltage logging, Should support Linux & Windows (XP/2003/Vista) operating systems.	
26	SNMP Card	Should come with an SNMP Card for connecting UPS to Ethernet LAN to monitor and manage the UPS with a standard Web browser, while simultaneously providing shutdown & restart for multiple windows, Linux & Unix computer systems over LAN.	

Place

(Signature of Bidder)

Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	40 KVA Online UPS	
Item Code	UP06H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
27	Synchronization	The UPS should come with hardware/software required to provide Synchronization capability between the outputs of two or more independent UPS systems.	
28	Battery Refresh	The bidder shall replace all batteries after every 2.5 years and whenever the batteries get faulty	
29	Compliance	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
30	Warranty	OEM onsite/labour/parts warranty for the entire lease period.	

Place

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Bharat Heavy Electricals Limited
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Rate Contract 2009

Item Name	**2x40 KVA Online UPS**	
Item Code	**UP07H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	System Configuration	2x40 KVA Online UPS in parallel redundant equal load sharing Mode. One UPS should be capable of taking 100% load instataneously in case other UPS fails. The parallel redundancy equal load sharing feature should be an inbuilt feature of the UPS, and should not be provided through some external parallel redundancy kit.	
3	Technology	True On-line, double conversion type	
4	Input Source	Mains/Local DG Set Compatibility	
5	Input Voltage	415 VAC 3 phase, 4 wires	
6	Input Voltage Tolerance	± 15%	
7	Input Frequency	50 Hz	
8	Input Frequency Tolerance	45 HZ TO 55 HZ	
9	Input Power Factor at nominal voltage and full load	>0.9	
10	Total Harmonic Distortion at 100% NonLinear Load	< %5	
11	Output Voltage	415 VAC 3 phase, 4 wires	
12	Output Voltage Regulation	± 1% for 100% static load , ± 1% for 100% balanced load, ± 1% for 100% un-balanced load. THDU < 3% between Phase to Neutral for 100% non-linear load	
13	Output Power Factor	0.8 or higher	
14	Over Load Rating	110% for 10 minutes, 125% for 01 minutes 150% for 30 seconds	
15	Inverter Efficiency	> 89%	

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	2x40 KVA Online UPS	
Item Code	**UP07H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
16	Overall efficiency	> 85%	
17	Static Bypass Switch	A Built-in static transfer switch shall be provided as an integral part of the UPS. The Static switch shall be a bi-directional naturally committed high-speed static (SCR type) device rated to carry full load current continuously.	
18	Manual Bypass Switch	The UPS should have a Built-in Maintenance Bypass Isolator to directly connect the load to the input AC power source, bypassing the rectifier, inverter and static transfer switch.	
19	Battery type	Two independent Sealed Maintenance Free battery banks with a separate Battery Cabinet	
20	Battery make	Panasonic / Rocket / CSB	
21	Backup	Min. 60 minutes backup on full load on each battery bank	
22	Battery management	The UPS should havce Battery Management feature for: Periodic Battery Test Controlling Charging Time and Current Increase in Battery Life Protection : Battery low Cut-off without draining current	
23	LCD Panel	The UPS should have LCD panel for measuring Output voltages, Output currents and Frequency, Battery Voltage and charging / discharging current, display status of the battery capacity and backup time left and event logging.	
24	RS232 interface	RS232 interface to be provided	
25	Power Management Software	The UPS should have Power management software and interface cable, providing complete power monitoring and control capabilities to system administrators. It should Safely shutdown & restart multiple Windows & Linux clients over LAN, analyze power conditions with voltage logging, Should support Linux & Windows (XP/2003/Vista) operating systems.	
26	SNMP Card	Should come with an SNMP Card for connecting UPS to Ethernet LAN to monitor and manage the UPS with a standard Web browser, while simultaneously providing shutdown & restart for multiple windows, Linux & Unix computer systems over LAN.	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	2x40 KVA Online UPS	
Item Code	**UP07H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
27	Synchronization	The UPS should come with hardware/software required to provide Synchronization capability between the outputs of two or more independent UPS systems.	
28	Battery Refresh	The bidder shall replace all batteries after every 2.5 years and whenever the batteries get faulty	
29	Compliance	IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
30	Warranty	OEM onsite/labour/parts warranty for the entire lease period.	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	SAN Storage	
Item Code	ST01H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Storage	The offered storage system should be compatible with multi-vendor heterogeneous servers and operating systems	
3	Storage Capacity Required	48 Nos. of 146GB, 15K FC HDDs to be provided. Additional 2 HDDs to be provided as hot spare.	
4	Storage Scalability	Should be scalable to 15 TB with 146GB HDDs	
5	RAID support	RAID 1, 5	
6	Controller	Dual controllers (fully redundant with support for automatic failover)	
7	Cache per Controller	2 GB or higher Cache per controller	
8	Fibre Channel HBA's	12 Nos. of 4 Gbps FC HBAs to be provided (Windows/Linux compatible)	
9	Fibre Channel Cable	12 Nos. of 10m LC-LC Multi-Mode Fibre Channel Cables to be provided	
10	Muti-pathing software	Required	
11	Power Supply	Redundant Hot Pluggable Power Supplies.	
12	Front End / Back End Ports	2 nos. of 4 Gbps Front End ports per Controller. ALL backend ports should be 4 Gbps.	
13	OS Support	Support for Windows 2003, 2008, RHEL 3 & ABOVE	
14	Fiber switch	2 No.s of 8 - port 4Gbps or higher fiber SAN Switches compatible with the storage solution	
15	Mounting	Rack mountable with necessary rack mounting kit and accessories	
16	Management Software	Software for storage management, RAID configuration, LUN creations, Storage Health monitoring, Alerting, partitioning etc. to be provided.	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	SAN Storage	
Item Code	ST01H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	IOPS	Storage should offer min. 1,00,000 IOPs.	
18	Throughput	Min. 650MB/s throughput	
19	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Place (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	NAS Storage	
Item Code	ST02H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Rack mount	Should be rack mount	
3	Processor	Two Dual Core Intel Xeon procesors 2.0 GHz or higher	
4	FSB	1333 MHz or higher	
5	RAM	4 GB DDR SDRAM expandable to 8 GB	
6	Cache Memory	1MB level 2 cache per CPU	
7	Hard Drives	Minimum 16x146GB 15K rpm hot pluggable internal Ultra 320 SCSI HDDs. The NAS box should also support SATA drives for aplications like snapshots.	
8	HDD Bays (Internal & External)	At least 16 bays (OEM Make) to be provided from day 1	
9	DVD Drive	8x24x DVD Drive or higher	
10	Scalability	Minimum 4TB with 146GB HDD	
11	Network Connectivity	2 10/100/1000 auto sensing NICs	
12	RAID Controller	2 Nos. of RAID Controllors supporting RAID 0, RAID 1 & RAID 5 each with 256MB battery backed cache	
13	Network support	TCP/IP, FTP, CIFS, HTTP 1.1, NFS	
14	Power Suply & Fans	Redundant & hot pluggable	
15	Fault Recovery	Quick restore CD for disaster recovery	
16	Network Client Types Support	Should support Windows XP, Windows Vista, UNIX & Redhat Linux	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	NAS Storage	
Item Code	**ST02H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	Manageability	Should come with management software to manage the storage allocation, etc.	
18	Backup device	Should come with LTO 4 Ultrium drive with 5 nos. of 800GB capacity tapes and necessary backup software with SCSI Adaptor & Cable to be provided to connect LTO to NAS box. 2 Cleaning Cartridges to be provided also.	
19	Operating System	Microsoft Windows 2003 Storage Server (NAS optimized) including powered OS drivers	
20	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Place (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Server 2-Way (Type-I)	
Item Code	**SR01H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Mounting	Rack Models	
3	Height	Max 2U	
4	Processor	Dual Core Intel Xeon 3.0 GHz or higher	
5	No. of Processors	Two (2)	
6	Chip Set	Intel 5000 family chipset	
7	CPU Cache	6MB L2 Cache	
8	FSB	1333 MHz or higher	
9	RAM	8 GB ECC DDR2 667 MHz SDRAM expandable to 16GB.	
10	Extension slots	3 or more PCI-X / PCI-Express slots	
11	HDD	6 x 146 GB or higher SFF hot Pluggable SAS 10K rpm	
12	Internal HDD bays	6 or more hot plug drive bays	
13	DVDROM	8x or higher DVD-CDRW Combo Drive	
14	Raid Controller	2 Nos. of 3G SAS RAID Controller, each with 256 MB battery backed cache	
15	LAN Card	2 Nos. of separate 10/100/1000 Ethernet Cards, each with dual ports	
16	Power Supply	Should come with Hot Pluggable & Redundant Power Supply	
17	Fans	Hot pluggable redundant fans	

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Server 2-Way (Type-I)	
Item Code	SR01H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
18	Management Software	Management software having following features provided with each server: 1)OS independent remote management capabilities. 2)Provide proactive notification of actual or impending component failure alerts. 3)Inventory management (H/W & S/W) 4)Remote software deployment 5)Remote patch deployment	
19	Certifications	Red Hat Linux Advanced Server 5.0 or higher and MS Windows 2003 /2008 Enterprise Edition Server or higher.	
		For OEM : ISO 9001:2000 (CERTIFICATE TO BE ENCLOSED)	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		ACPI 2.0 & RoHS Compliant	
20	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Place

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Bharat Heavy Electricals Limited

Corporate Information Technology

Rate Contract 2009

Item Name	Server 2-Way (Type-II)	
Item Code	**SR02H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Mounting	Rack Models	
3	Height	Max 2U	
4	Processor	Quad Core Intel Xeon 3.0 GHz or higher	
5	No. of Processors	Two (2)	
6	Chip Set	Intel 5000 family chipset	
7	CPU Cache	6MB L2 Cache	
8	FSB	1333 MHz or higher	
9	RAM	16 GB ECC DDR2 667 MHz SDRAM expandable to 32GB.	
10	Extension slots	3 or more PCI-X / PCI-Express slots	
11	HDD	6 x 146 GB or higher SFF hot Pluggable SAS 10K rpm	
12	Internal HDD bays	6 or more hot plug drive bays	
13	DVDROM	8x or higher DVD-CDRW Combo Drive	
14	Raid Controller	2 Nos. of 3G SAS RAID Controller, each with 256 MB battery backed cache	
15	LAN Card	2 Nos. of separate 10/100/1000 Ethernet Cards, each with dual ports	
16	Power Supply	Should come with Hot Pluggable & Redundant Power Supply	
17	Fans	Hot pluggable redundant fans	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Server 2-Way (Type-II)		
Item Code	**SR02H**		
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
18	Management Software	Management software having following features provided with each server: 1)OS independent remote management capabilities. 2)Provide proactive notification of actual or impending component failure alerts. 3)Inventory management (H/W & S/W) 4)Remote software deployment 5)Remote patch deployment	
19	Certifications	Red Hat Linux Advanced Server 5.0 or higher and MS Windows 2003 / 2008 Enterprise Edition Server or higher.	
		For OEM : ISO 9001:2000 (CERTIFICATE TO BE ENCLOSED)	
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		ACPI 2.0 & RoHS Compliant	
20	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Blade Server	
Item Code	SR03H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Mounting	Blade Mount (Blade Optimized)	
3	Processor	Dual Core Intel Xeon 3.0 GHz processor	
4	No. of Processors	Two (2)	
5	Chipset	Intel 5000 family chipset	
6	CPU Cache	6MB L2 Cache	
7	FSB	1333 MHz or higher	
8	Memory	8 GB DDR2-667 Fully Buffered DIMMs with memory interleaving expandable to 32 GB	
9	PCI Expansion slots	2 or more PCI/PCI-X slots	
10	HDD	2 x 146GB SAS 10K RPM	
11	Internal HDD bays	2 drive bays or higher	
12	Raid Controller	Integrated hardware SAS RAID controller supporting RAID 1	
13	NIC	Embedded 2 No.s Multifunction Gigabit Network Adapters with TCP/IP Offload Engine + 1 dedicated port for remote management	
14	Management	Server OEM Browser based Management Software for Monitoring, Managing and Configuring Servers. The management support Query based monitoring of the server components. Support for heterogeneous operating environments - Microsoft Windows , Linux.	
15	Certifications	For OEM : ISO 9001:2000	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Blade Server	
Item Code	SR03H	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories) Certificate to be enclosed	
		ACPI 2.0 & RoHS Compliant	
16	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	RISC / EPIC Server	
Item Code	SR04H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Mounting	Rack Mount	
3	Processor	8 Nos. of 64 bit Dual Core 1.5 GHz RISC/EPIC Processors.	
4	Cache	Minimum 20 MB (L1+L2+L3)	
5	RAM	32 GB DDR2 SDRAM expandable to 128 GB	
6	Extension slots	10 or more PCI-X / PCI-Express slots	
7	HDD	4 x 146 GB or higher SFF hot Pluggable SAS or SCSI 15K rpm	
8	DVDROM	8x or higher DVD-CDRW Combo Drive	
9	Raid Controller	2 Nos. of 3G SAS RAID Controller, each with 256 MB battery backed cache	
10	Network Interface Cards	4 Nos. of separate 10/100/1000 Ethernet Cards, each having dual ports. 4 Nos. of separate 4Gbps Fibre Cards, each having dual ports.	
11	Power Supply	Should come with Hot Pluggable & Redundant Power Supply	
12	Fans	Hot pluggable redundant fans	
13	Operating System	Redhat Enterprise Linux 5 or latest	
14	Management Software	Management software having following features should be provided with each server: 1)Partitioning. 2)Switching of processors between partitions. 3)Switching of RAM between partitions. 4)Realtime performance monitoring.	
15	Certifications	For OEM : ISO 9001:2000 (CERTIFICATE TO BE ENCLOSED)	

Place

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	RISC / EPIC Server	
Item Code	SR04H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
		IEC-60950-1: 2001 / IS 13252:1992 / UL (Underwriters Laboratories)	
		ACPI 2.0 & RoHS compliant	
16	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Layer 2 Switch - 24 Port (Type -I)**	
Item Code	**NS01H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Ports	The offered switch should have following ports:	
		24 Nos. of 10/100Mbps Ethernet ports	
		2 Nos. of fixed 10/100/1000BASE-T uplink ports	
3	Forwarding Bandwidth	10 Gbps or more	
4	Throughput	5Mpps or More for 64 Bytes Packets	
5	Standards & Protocol Support	The switch should support following standards & ptotocols: 1) 802.1Q VLAN 2) 802.1p Priority & DSCP 3) 802.1D Spanning Tree Protocol 4)802.1w (Rapid Spanning Tree Protocol) 5) 802.1s (Multiple Spanning Tree protocol) 6) 802.3x Flow Control 7) 802.1x Authentication 8) VLAN Trunking Protocol 9) Dynamic Trunking Protocol (DTP) 10) RADIUS 11) Link Aggregation Control Protocol (LACP) 12) DHCP Server & DHCP Relay 13) Network Time Protocol (NTP) 14)SPAN & RSPAN 15) SSH 16)SNMP v1, SNMP v2c & SNMP v3 17) Telnet & TFTP 18)IPv6	
6	Security & Performance Features Required	Port Security, Portfast, BPDU Guard, Root Guard	

Place   (Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Layer 2 Switch - 24 Port (Type -I)	
Item Code	**NS01H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
7	Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.	
8	Manageability	Should be managable through a standard web browser & Coomand Line Interface.	
9	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Date

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Bharat Heavy Electricals Limited

Corporate Information Technology

Rate Contract 2009

Item Name	Layer 2 Switch - 24 Port (Type -II)	
Item Code	**NS02H**	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Ports	The offered switch should have following ports:	
		24 Nos. of 10/100Mbps Ethernet ports	
		2 Nos. of SFP based 1000Base SX Ports	
3	Forwarding Bandwidth	10 Gbps or more	
4	Throughput	5Mpps or More for 64 Bytes Packets	
5	Standards & Protocol Support	The switch should support following standards & ptotocols: 1) 802.1Q VLAN 2) 802.1p Priority & DSCP 3) 802.1D Spanning Tree Protocol 4)802.1w (Rapid Spanning Tree Protocol) 5) 802.1s (Multiple Spanning Tree protocol) 6) 802.3x Flow Control 7) 802.1x Authentication 8) VLAN Trunking Protocol 9) Dynamic Trunking Protocol (DTP) 10) RADIUS 11) Link Aggregation Control Protocol (LACP) 12) DHCP Server & DHCP Relay 13) Network Time Protocol (NTP) 14)SPAN & RSPAN 15) SSH 16)SNMP v1, SNMP v2c & SNMP v3 17) Telnet & TFTP 18)IPv6	
6	Security & Performance Features Required	Port Security, Portfast, BPDU Guard, Root Guard	

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Layer 2 Switch - 24 Port (Type -II)**	
Item Code	**NS02H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
7	Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.	
8	Manageability	Should be managable through a standard web browser & Command Line Interface.	
9	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Bharat Heavy Electricals Limited

Corporate Information Technology

Rate Contract 2009

Item Name	Layer 2 Switch - 24 Port POE (Type -III)	
Item Code	NS03H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Ports	The offered switch should have following ports:	
		24 Nos. of 10/100Mbps Ethernet ports	
		2 Nos. of SFP based 1000Base SX Ports	
3	Forwarding Bandwidth	10 Gbps or more	
4	Throughput	5Mpps or More for 64 Bytes Packets	
5	Standards & Protocol Support	The switch should support following standards & ptotocols: 1) 802.1Q VLAN 2) 802.1p Priority & DSCP 3) 802.1D Spanning Tree Protocol 4)802.1w (Rapid Spanning Tree Protocol) 5) 802.1s (Multiple Spanning Tree protocol) 6) 802.3x Flow Control 7) 802.1x Authentication 8) VLAN Trunking Protocol 9) Dynamic Trunking Protocol (DTP) 10) RADIUS 11) Link Aggregation Control Protocol (LACP) as per IEEE 802.3ad 12) DHCP Server & DHCP Relay 13) Network Time Protocol (NTP) 14)SPAN & RSPAN 15) SSH 16)SNMP v1, SNMP v2c & SNMP v3 17) Telnet & TFTP 18)IPv6	
6	Power over Ethernet	**The switch should have Power over Ethernet feature as per IEEE 802.3af on all its ports**	

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Corporate Information Technology
Rate Contract 2009

Item Name	Layer 2 Switch - 24 Port POE (Type -III)	
Item Code	NS03H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
7	Security & Performance Features Required	Port Security, Portfast, BPDU Guard, Root Guard	
8	Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.	
9	Manageability	Should be managable through a standard web browser & command line interface.	
10	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Corporate Information Technology

Rate Contract 2009

Item Name	Layer 3 Switch (Type -I)	
Item Code	NS04H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Ports	The offered switch should have following ports:	
		24 Nos. of 10/100/1000Mbps Ethernet ports	
		4 Nos. of SFP based 1000Base SX Ports	
3	LC-to-LC Patch Cords	Have min. 5 meter long Fiber Multimode SX LC-to-LC Patch Cords -- 4 Nos.	
4	Forwarding Bandwidth	30 Gbps or More	
5	Throughput	35 Mpps or More for 64 Bytes Packets	
6	Standards & Protocol Support	The switch should support following standards & ptotocols: 1) 802.1Q VLAN 2) 802.1p Priority & DSCP 3) 802.1D Spanning Tree Protocol 4)802.1w (Rapid Spanning Tree Protocol) 5) 802.1s (Multiple Spanning Tree protocol) 6) 802.3x Flow Control 7) 802.1x Authentication 8) VLAN Trunking Protocol 9) Dynamic Trunking Protocol (DTP) 10) RADIUS 11) Link Aggregation Control Protocol (LACP) as per IEEE 802.3ad 12) DHCP Server & DHCP Relay 13) Network Time Protocol (NTP) 14)SPAN & RSPAN 15) SSH 16)SNMP v1, SNMP v2c & SNMP v3 17) Telnet & TFTP	

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Corporate Information Technology

Rate Contract 2009

Item Name	Layer 3 Switch (Type -I)	
Item Code	NS04H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
7	IP Routing Support	Should support RIPv1, RIPv2, OSPF, BGP4, Policy Based Routing (PBR), Inter-VLAN routing, VRRP or equivalent, IPv6, etc.	
8	Security & Performance Features Required	Port Security, Portfast, BPDU Guard, Root Guard	
9	Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.	
10	Manageability	Should be managable through a standard web browser & command line interface.	
11	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Rate Contract 2009

Item Name	**Layer 3 Switch (Type -II)**	
Item Code	**NS05H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Ports	The offered switch should have following ports:	
		12 Nos. of 10/100/1000 Base SX ports	
3	Forwarding Bandwidth	30 Gbps or More	
4	Throughput	15 Mpps or More for 64 Bytes Packets	
5	Standards & Protocol Support	The switch should support following standards & ptotocols: 1) 802.1Q VLAN 2) 802.1p Priority & DSCP 3) 802.1D Spanning Tree Protocol 4)802.1w (Rapid Spanning Tree Protocol) 5) 802.1s (Multiple Spanning Tree protocol) 6) 802.3x Flow Control 7) 802.1x Authentication 8) VLAN Trunking Protocol 9) Dynamic Trunking Protocol (DTP) 10) RADIUS 11) Link Aggregation Control Protocol (LACP) as per IEEE 802.3ad 12) DHCP Server & DHCP Relay 13) Network Time Protocol (NTP) 14)SPAN & RSPAN 15) SSH 16)SNMP v1, SNMP v2c & SNMP v3 17) Telnet & TFTP	
6	IP Routing Support	Should support RIPv1, RIPv2, OSPF, BGP4, Policy Based Routing (PBR), Inter-VLAN routing, VRRP or equivalent, IPv6, etc.	
7	Security & Performance Features Required	Port Security, Portfast, BPDU Guard, Root Guard	

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Item Name	Layer 3 Switch (Type -II)	
Item Code	NS05H	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
8	Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.	
9	Manageability	Should be managable through a standard web browser & command line interface.	
10	Warranty	OEM onsite / labour / parts warranty for the entire lease period.	

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Rate Contract 2009

Item Name	Wireless Access Point	
Item Code	**NS06H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Wireless Standard	Should be IEEE 802.11a/b/g/n compliant.	
3	Data Transfer Rate	Should provide minimum 100 Mbps date transfer rate.	
4	No. of Channels Supported	Should support minimum 20 non-overlapping channels	
5	Uplink	Autosensing 10/100Base-T Ethernet	
6	Mode of Operation	Should have the capability of operating in autonomous mode and in centralized controller based environment.	
7	Software	Should come with the latest operating system.	
8	Management	Should support BootP, Secure Shell (SSH) Protocol, Secure HTTP (HTTPS), Trivial File Transfer Protocol (TFTP), FTP, Telnet, console port, SNMP MIB I and MIB II,	
9	Authentication	Should support the following standards for 802.1x authentication: Protected EAP/EAP-MSCHAPv2, EAP-FAST, EAP-TLS	
10	RF Management	Should provide RF management to automatically adjust Access Point power and channel settings to overcome interference and signal coverage problems.	
11	Encryption	Should support 128-bit WEP, 40-bit WEP, TLS, WPA , WPA2 encryption algorithms.	
12	Power	Should have PoE feature and should also have a provision of external power supply.	
13	WiFi Certification	Wi-Fi Protected Access (WPA) and WPA 2, 802.1x authentication.	
14	Antenna	Should come with minimum 4 antenna for different frequency bands to provide extended range.	
15	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Corporate Information Technology
Rate Contract 2009

Item Name	Network Security Device	
Item Code	NS07H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	System	Should provide firewall, VPN & intrusion prevention features in a single device.	
3	Ports	The device should have following integrated ports:	
		Min. 4 Nos. of 100/1000 BASE-T Ethernet ports	
4	VLAN Interfaces (802.1q)	100 or higher	
5	RAM	512 MB DDR or higher	
6	Flash Memory	64 MB or higher	
7	Routing	RIPv1/v2, OSPF, Static Routes, Multicast	
8	Throughput	400Mbps or higher	
9	High availability Support	Should have support for Active/Active and Active/passive stateful failover	
10	Maximum Connections	1,00,000 or higher	
11	Application inspection & protection	Should provide application inspection services for applications like HTTP, FTP, SNMP, DNS, SMTP, NFS, LDAP etc. Should be able to block popular peer-to-peer applications like Kaaza, bit torrent, Instant Messaging applications like Yahoo messenger, MSN Messenger etc. Should support TCP stream reassembly and analysis, TCP traffic normalization, TCP packet checksum verification.	
12	New Connections per second	10,000 or higher	
13	Transparent Firewall	Should provide layer 2 transperent firewalling functionality	
14	Access Control	Should support time based access list to control the usage of applications and resources based on time parameters.	

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Corporate Information Technology
Rate Contract 2009

Item Name	Network Security Device	
Item Code	**NS07H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
15	NAT Modes	Should support Static NAT, Dynamic NAT, PAT, etc.	
16	Encryption Standards	Should provide DES, 3DES, AES (128, 192, 256 bit) encryption.	
17	Authentication Standards	Should provide MD-5 & SHA-1 authentication	
18	IPSec VPN Services	Should provide Site-to-Site and Remote Access IPSec VPN services. Should come with minimum 500 IPSec VPN licenses.	
19	SSL VPN Services	Should provide Remote Access SSL based VPN services from day one.	
20	VPN Throughput	200 Mbps or higher	
21	Intrusion Prevention	Should come with integrated intrusion prevention features based on attack signature database of at least 1500 signatures.	
22	Attack Protection Features	Should be able to inspect and protect against all the major attacks based on protocols like TCP,UDP and ICMP. Should protect the network from known and unknown network and application layer attacks, Reconnaisance attacks, DoS attacks, DDOS attacks, malwares, worms, viruses, Trojan horses, spywares etc. Should also provide protection from ping sweep, port scanning, SQL Injection, Cross Site Scripting and Brute Force attacks.	
23	Action Response	Should be able to respond to attacks in the following ways: 1) Generate an alarm 2) Log the alarm event 3) Record the session to an IP session log 4) Reset TCP connections 5) Deny network access	
24	Intrusion Prevention System Operation Modes	The intrusion prevention system should be able to operate in inline mode and in promiscuous mode for trafic inspection.	
25	Management & Monitoring	Should be configurable usign CLI, GUI interface and central management software. Should support SNMP, SSH, Telnet, HTTP(s)	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Network Security Device	
Item Code	NS07H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
26	Operating System	The offered device should have the latest operating system supporting all the above features, standards & protocols.	
27	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Router - Type I	
Item Code	NS08H	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model Offered		
2	Router Architecture	The router architecture should have following features	
		Should be based on high speed RISC processor	
		Should be a multi-service capable router supporting data, voice and video.	
3	Interface Modules Supported	Fast Ethernet ports 10/100Mbps, V.35 WAN interfaces, Upto 4xE1 G.703 interfaces, 1 E3 interface, ISDN Interface, Console interface. Should support Voice interfaces like FXS, FXO, E&M, E1. Should support onboard integration modules for providing hardware based VPN encryption and intrusion prevention capabilities. Should also support Network Modules for providing services like WAN Optimization, Network Admission Control and network analysis.	
4	Ports Required	The following ports should be available from day one.	
		2 Nos. of Layer 3 1000Mbps Ethernet Ports	
		4 Nos. of Layer 3 10/100 Ethernet Ports	
		1 No. Console Port	
5	Memory Required	256 MB DRAM or higher	
6	Flash Memory Required	64MB or higher	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Router - Type I	
Item Code	**NS08H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
7	Router Functional Requirements	The router should come with the latest Operating System. The following features should be available from day one.	
		Should support Standard Access Lists, Extended Access Lists & Named Access Lists.	
		Should support Route Maps, Class Maps & Policy Maps.	
		Class of Service, Prioritization, Policy based Routing and Low Latency Queuing, NBAR, etc.	
		Network Address Translation (Static NAT, Dynamic NAT, PAT)	
		Context Based Access Control	
8	Routing Protocol Support Required	RIP (V1 & V2) , OSPF, BGP4, Policy based Routing, PPP, Multilink PPP, IPv6	
9	Multicasting and QoS	The router should have following multicasting and QoS features:	
		Resource Reservation Protocol (RSVP)	
		Support for QoS	
		Support for WFQ, CAR , IP Precedence, DSCP	
		Internet Group Management Protocol (IGMPv2)	
		Multicast Routing support such as DVMRP, Protocol Independent Multicast (PIM) or MOSPF	
10	Performance Requirements	Should have packet forwarding rate (before encryption) of at least 2,00,000 64 byte packets per second on a single chassis.	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Router - Type I**	
Item Code	**NS08H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
11	IP Telephony Support	Should be future scalable to support call processing and voicemail capabilities for 250 users. Should support onboard DSPs slots to provide support for analog voice, digital voice, conferencing, transcoding, and Secure Real Time Protocol (sRTP). Should also support fallback mechanism for providing connectivity for IP Telephony for remote sites.	
12	Management Features		
		Should support Telnet, SSH, TFTP and BOOTP protocols.	
		Should support SNMP V1 & SNMP V2c & SNMP v3 for remote management.	
		Should be configurable usign CLI & GUI interface.	
		Should support NTP & RADIUS protocols	
		Should support syslog logs.	
13	Operating System	Should come with the latest operating system supporting the above features.	
14	Mounting	The offered router should be rack mountable	
15	Accessories	Should come with all necessary power cords, adapters, data cables, connectors, CDs, manuals, brackets accessories, etc, required for installation and commissioning of the equipment.	
16	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Corporate Information Technology
Rate Contract 2009

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
Item Name		**Router - Type II**	
Item Code		**NS09H**	
1	Make & Model Offered		
2	Router Architecture	The router architecture should have following features	
		Should be based on high speed RISC processor	
		Should be a multi-service capable router supporting data, voice and video.	
3	Interface Modules Supported	Fast Ethernet ports 10/100Mbps, V.35 WAN interfaces, Upto 4xE1 G.703 interfaces, 1 E3 interface, ISDN Interface, Console interface. Should support Voice interfaces like FXS, FXO, E&M, E1. Should support onboard integration modules for providing hardware based VPN encryption and intrusion prevention capabilities. Should also support Network Modules for providing services like WAN Optimization, Network Admission Control and network analysis.	
4	Ports Required	The following ports should be available from day one.	
		2 Nos. of V.35 Serial Ports	
		4 Nos. of Layer 3 10/100 Ethernet Ports	
		1 No. Console Port	
5	Memory Required	256MB DRAM or higher	
6	Flash Memory Required	64MB or higher	

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Corporate Information Technology
Rate Contract 2009

Item Name	Router - Type II	
Item Code	NS09H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
7	Router Functional Requirements	The router should come with the latest Operating System. The following features should be available from day one.	
		Should support Standard Access Lists, Extended Access Lists & Named Access Lists.	
		Should support Route Maps, Class Maps & Policy Maps.	
		Class of Service, Prioritization, Policy based Routing and Low Latency Queuing, NBAR, etc.	
		Network Address Translation (Static NAT, Dynamic NAT, PAT)	
		Context Based Access Control	
8	Routing Protocol Support Required	RIP (V1 & V2) , OSPF, BGP4, Policy based Routing, PPP, Multilink PPP, IPv6	
9	Multicasting and QoS	The router should have following multicasting and QoS features:	
		Resource Reservation Protocol (RSVP)	
		Support for QoS	
		Support for WFQ, CAR , IP Precedence, DSCP	
		Internet Group Management Protocol (IGMPv2)	
		Multicast Routing support such as DVMRP, Protocol Independent Multicast (PIM) or MOSPF	
10	Performance Requirements	Should have packet forwarding rate (before encryption) of at least 2,00,000 64 byte packets per second on a single chassis.	

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Corporate Information Technology
Rate Contract 2009

Item Name	**Router - Type II**	
Item Code	**NS09H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
11	IP Telephony Support	Should be future scalable to support call processing and voicemail capabilities for 250 users. Should support onboard DSPs slots to provide support for analog voice, digital voice, conferencing, transcoding, and Secure Real Time Protocol (sRTP). Should also support fallback mechanism for providing connectivity for IP Telephony for remote sites.	
12	Management Features		
		Should support Telnet, SSH, TFTP and BOOTP protocols.	
		Should support SNMP V1 & SNMP V2 for remote management.	
		Should be configurable usign CLI & GUI interface.	
		Should support NTP & RADIUS protocols	
		Should support syslog logs.	
13	Operating System	Should come with the latest operating system supporting the above features.	
14	Mounting	The offered router should be rack mountable	
15	Accessories	Should come with all necessary power cords, adapters, data cables, connectors, CDs, manuals, brackets accessories, etc, required for installation and commissioning of the equipment.	
16	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Bharat Heavy Electricals Limited

Corporate Information Technology

Rate Contract 2009

Item Name	Wireless Access Controller	
Item Code	**NS10H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Acess Point Support	Should be able to support upto 25 access points	
3	Wireless Standard	Should be IEEE 802.11a/b/g/n compliant.	
4	Data Transfer Rate	Should provide minimum 100 Mbps data transfer rate.	
5	Uplink	Autosensing 10/100Base-T Ethernet	
6	Software	Should come with the latest operating system.	
7	Management	Should support SNMP V1, V2c, V3, SNTP, TFTP. Should support web-based (http/https) and CLI (telnet, ssh, serial port) management. It should have Real-time RF Management with Real-time monitoring and analysis	
8	Security	Should support security standards like: 802.11i (WPA2), WPA, WEP, 802.1X with multiple Extensible Authentication Protocol (EAP) types, including Protected EAP (PEAP), EAP with Transport Layer Security (EAP-TLS), EAP with Tunneled TLS (EAP-TTLS), IPSec, Web Authentication. Should have proven security for any enterprise environment with Integrated wireless intrusion protection, including rogue location and containment Integrated with AAA services	
9	Guest Access	Should provide centralized secure guest access provisioning and administration.	
10	WiFi Certification	Wi-Fi Protected Access (WPA) and WPA 2	
11	Redundancy	Should have features to avoid Single Point of Failure by ensuring Access Point Redundancy. In case of failure of an access point, other access points should automatically increase their power settings to ensure the coverage is maintained, resulting in self-healing networks.	
12	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Corporate Information Technology

Rate Contract 2009

Item Name	WAN Optimization Device	
Item Code	NS11H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Ports	Minimum 2 numbers of 10/100/1000BASE-T & optional support for 4-port nic for inline deployment	
3	Memory	Minimum 2GB RAM	
4	Storage Capacity	Hard Disk : Minimum 2 X 250 GB of disk based Cache	
5	Application Acceleration	The solution offered should provide application-specific acceleration for CIFS, MAPI and video streaming traffic.	
6	Compression	Should support standard compression mechanisms such that a bidirectional database to store previously-seen TCP traffic is used and replace redundant patterns with very small signatures to minimize the bandwidth consumption of each message	
7	Caching features	Pre-fetching of contents for Software distribution,Patch Management and VoD distribution	
8	Resiliency	Should support retransmission of lost data in case of any packet-loss. In case of WAN outage or centralized application server not being available, the solution should be able to provide Read-only view of the files / content.	
9	Deployment Features	Should support either inline or out of Band deployment without chanding network characteristics/parameters. Should support deployment using WCCP and Policy Based Routing. Should be able to preserve QoS and security features defined on the WAN router.	
10	Performance	Should support acceleration of all TCP based applications and support up to 1500 Optimized TCP connections. Should support minimum 4Mb large initial TCP Windows. Should support a minimum compressed throughput of 1Mbps & maximum 20Mbps of WAN link.	
11	Certifications	Security Certification from Industry Standard Bodies/Government Bodies(the likes of C2,PCI Compliance and ISO 15408)	

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Corporate Information Technology
Rate Contract 2009

Item Name	WAN Optimization Device	
Item Code	NS11H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
12	High Availability	Solution should support clustering and load-sharing. Should support RAID1 mirroring pairs to protect against multi-disk failures. Should support for environments with redundant WAN links.	
13	Management	Solution should provide Unified GUI management tool for centralized configuration; monitoring provisioning and reporting. Instead managing individual devices. Should provide reports detailing the effectiveness of acceleration and optimization within in a network	
		Should support remote notification capabilities, including SNMP v2c, v3, SMTP notification, and syslog notifications.	
		Should have Encryption support for the cache storage with Centralize Key Management	
14	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Corporate Information Technology
Rate Contract 2009

Item Name	Print Server	
Item Code	**MS01L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Network Interface	10/100 Mbps Ethernet Interface with autosensing dual speed minimum TCP/IP support	
3	Ports	2 parallel and 1 USB	
4	Bidirectional communication	Should have Bidirectional communication	
5	Remote management	Should have Telnet support	
6	OS Compatibility	Windows XP/Vista/2003, Redhat Linux	
7	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Date

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Corporate Information Technology
Rate Contract 2009

Item Name	42U Rack	
Item Code	**MS02L**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Mounting	Floor Standing (OEM make, same make as Server)	
3	Height	42 U	
4	Dimensions (Width X Depth)	800 x 1000 mm	
5	Doors	Lockable front door of perforated steel & lockable vented rear door of steel	
6	Side Panels	Side Panels with Slam Latches and Key Locks	
7	Top & Bottom Covers	Top & Bottom Covers with cable entry gland plates	
8	Stationary Shelves	3 No. of Stationary Shelves	
9	Sliding Rotary Keyboard Tray	1 No. of 19" Sliding Keyboard Tray	
10	Equipment Mounting Angles	One pair of Equipment Mounting Angles to provide 19" mounting positions	
11	Cooling Fans	Min. 4 Nos. of Cooloing Fans (230VAC, 90 CFM) in top mounted Fan Housing Unit	
12	Mounting Hardware Packet	Captive Mounting Hardware (10 Pkts)	
13	PDU	Min. Two independent & redundant vertical or horizontal power strips each containing 10 Nos. of 5/15A IEC320 C14 & 2 normal type sockets, a fuse, indicator lamp and 15A Switch	
14	Cable Management accessories	Two horizontal , two vertical cable managers & two vertical Cable Channels with cabling loops	
15	Castors	4 castors with foot operated brakes	
16	Earthing Kit	Copper earthing kit (bars, straps, continuity kit, etc) to be provided.	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	42U Rack	
Item Code	MS02L	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
17	Color	Preferred Graphite black	
18	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	21U Rack	
Item Code	MS03L	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Mounting	Floor Standing	
3	Height	21 U	
4	Dimensions (Width X Depth)	800 x 1000 mm	
5	Doors	Lockable front door of toughened tinted glass or perforated steel & lockable vented rear door of steel	
6	Side Panels	Side Panels with Slam Latches and Key Locks	
7	Top & Bottom Covers	Top & Bottom Covers with cable entry gland plates	
8	Stationary Shelves	2 No. of Stationary Shelves	
9	Sliding Rotary Keyboard Tray	1 No. of 19" Sliding Keyboard Tray	
10	Equipment Mounting Angles	One pair of Equipment Mounting Angles to provide 19" mounting positions	
11	Cooling Fans	Min. 4 Nos. of Cooloing Fans (230VAC, 90 CFM) in top mounted Fan Housing Unit	
12	Mounting Hardware Packet	Captive Mounting Hardware (10 Pkts)	
13	PDU	Min. Two independent & redundant vertical or horizontal power strips each containing 10 Nos. of 5/15A IEC320 C14 & 2 normal type sockets, a fuse, indicator lamp and 15A Switch	
14	Cable Management accessories	Two horizontal , two vertical cable managers & two vertical Cable Channels with cabling loops	
15	Castors	4 castors with foot operated brakes	
16	Earthing Kit	Copper earthing kit (bars, straps, continuity kit, etc) to be provided.	

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Corporate Information Technology
Rate Contract 2009

Item Name	21U Rack	
Item Code	**MS03L**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
17	Color	Preferred Graphite black	
18	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Place

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Date

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Item Name	15U Rack	
Item Code	MS04L	
S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Specification	A wall mount 15U double section rack of MS Steel with glass front door, adjustable 19" rails in the front and rear, Top and bottom cable entry facility, front section with glass door and lock, 2 lightweight MS shelves, 1 No. of AC Power Ditribution Box with 5 Nos of 5A sockets.	
2	Warranty	OEM onsite / labour / parts warranty for the entire lease period.	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Touchscreen Kiosk	
Item Code	**MS05H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Processor	True X86 1 GHz or higher	
3	MemoryType	Flash ROM and DDR SDRAM	
4	Memory	1 GB Flash Memory, 1 GB DDR SDRAM	
5	Keyboard	USB/PS-2 Metallic (Rugged) Keyboard	
6	Ports	2 USB, 1 Serial, 1 Parallel	
7	Network Connectivity	10/100 Base T Fast Ethernet wireless enabled 802.11 (b/g)	
8	Network Protocol Support	TCP/IP with DNS and DHCP, PPP, Direct Connection through RS232,PPPoE, PPTP, I2TP,PXE SNTP, SNMP.	
9	Audio	Full 16 bit Stereo over internal speakers with / external Speaker with provision of Audio out / Microphone ports.	
10	Operating System	Windows XP/Vista embedded with SP2.	
11	Remote Management Software Support.	Administration suite using industry standard protocols, administrator should be able to control the following terminal settings based on user privileges like Network Settings, Firewall, Display Settings, Input Parameters, Internet Options, Power Options, Regional Languages etc. It will also provide common functions like Wake-On-LAN, Restart, Backup and Restore options etc.	
12	Security	Enhanced User Security Policy: User privileged Security Access to view or access Control panel applets Enhanced Write Filter options.	
13	Monitor	17" TFT	
14	Touch Screen Resolution	16 K x 16 K	

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Date

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Touchscreen Kiosk	
Item Code	MS05H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
15	Input Method	Finger	
16	Optical Clarity	More than 85% light transmission at 550 nm	
17	Coating	Protective Glass overcoat for protection of sensor by resisting scratches and increasing durability.	
18	Touch Contact Requirement	3 ms for finger print	
19	Surface Scratch hardness	Able to withstand more than 10000 grams of force per balance beam scrape adhesion mar tester	
20	NEMA Rating	NEMA Scalable	
21	Gasketing	Complete water resistant seal	
22	Cleaning	Water, Isopropyl Alcohol and similar no-abrasive cleaners.	
23	Endurance Test	Capability to withstand over 225 million mechanical touches without noticeable degradation to surface.	
24	Surface Obstructions	Touch screen operations shall be unaffected by surface obstructions such as dirt, dust, grease, smoke butter etc.	
25	Operating Temperature Range	10 to 65 Degree Celsius	
26	Accuracy & Precision Area	Reported touch coordination are within 1.0% of true position.	
27	Glass Thickness	0.125" (+ or -- 0.01) Typical.	
	Cabinet for Touch Screen Kiosk		
	a. Suitable for indoor use		

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Touchscreen Kiosk	
Item Code	**MS05H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
		b. Outlet dimension shall be capable of housing Thin client, Touch Screen and 500 VA UPS.	
		c. Metal Cabinet made from high grade steel plates should be rugged, sturdy and durable	
		d. Should have cooling fans (proper size) & internal power distribution box.	
		e. Display Angle - 20 degree	
		f. Optional rear or side door	
		g. Front side speaker provision.	
		h. Adjustable levelling legs for adjustment on uneven floor surface with folding caster and brakes.	
		I. CNC based designing and manufacturing of Cabinet.	
		j. Base / Structure should be in metal frame.	
		Bidder shall be required to finalize Kiosk Cabinet Design in consultation with BHEL officials. Manufacturing of kiosk cabinet shall be after approval of design by BHEL.	
28	Warranty	OEM onsite / labour / parts warranty for the entire lease period.	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Blade Server Chassis	
Item Code	MS06H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Form Factor	Upto 10 U Form factor per chassis with all redundancy features (Hard Drives, Power, Cable Management).	
3	Power Supplies & Fans	The chassis should be fully populated with redundant hot-swap power supplies & fans.	
4	Processor Support	The enclosure offered should support Intel Xeon Dual Core and Quard core based Blade severs within the same enclosure.	
5	Management Software	Should come with web based management software for inventory control, power management, remote image based OS deployement and Performance Management	
6	Ethernet Switches	Should come with two hot swappable redundant cisco compatible ethernet switches, each having at least 4 gigabit ethernet uplink ports and adequate internal gigabit ethernet ports to support fully populated chassis. In addition to 4 uplink ports, each switch should come with at least 1 (one) 10Gbps external port.	
7	SAN Connectivity	Necessary Fibre Pass Through Units to be configured to enable connectivity to the external SAN switch for the Blade servers required to be on the SAN	
8	KVM/CD/USB	To be enabled Virtually over IP for Remote Access or Provided Locally	
9	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Tape Library	
Item Code	**MS07H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Drives	Should have 2 Fibre LTO Gen 4 drives.	
3	Cartridge Slots	Should have minimum 48 cartridge slots.	
4	Bar Code Reader	Should have internal bar code reader to label and identify the data tapes.	
5	Mounting	Should be rack mount.	
6	Connectivity	Should come with two nos. of SAS/SCSI ports & necessary SAS/SCSI cards & cables for connecting with backup server.	
7	Management	Should come with a web management software to monitor and manage the library remotely through a standard web browser.	
8	Backup Software	A backup software such as (Tivoli / Veritas / Legato / Data Protector) capable of taking back up of minimum 16 servers including 4 Oracle Database Servers, should be provided. The backup software should be able to take LAN based backup of linux, unix and windows based servers.	
9	Data Cartridges	Should come with 48 data cartridges of 800GB capacity (uncompressed) and 2 cleaning cartridges.	
10	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Date

(Stamp of Bidder)

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Corporate Information Technology
Rate Contract 2009

	Item Name			
	Item Code		**MS08L-12L**	
S.No.	Item Code	Item Name	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	MS08L	DVD Writer	USB based external DVD Writer with minimum 8x Speed	
2	MS09L	CDRW-DVDROM Combo Drive	USB based External CDRW / DVDROM Combo Drive with minimum 48x Speed	
3	MS10L	Ultrium Autoloader	Ultrium Auto Loader (OEM Make) (Rack Mount) with 1 no. of LTO (Generation 4) drive (800/1600GB) and min. 7 nos. of media slots with necessary SCSI Controller (to be installed on server) & cable to connect to server. Necessary backup software for automated backup of **multiple Windows & Linux servers** and 10 media packs & one cleaning cartridge to be provided. The Ultrium Auto Loader must work with Windows 2000/2003/2008 or higher, Red Hat Linux 7.2 or higher & Unix Systems	
4	MS11L	KVM Switch	A 16 port rack mount KVM switch with integrated LCD monitor, keyboard and mouse (touchpad) and min. 8 ft. length cables for connecting 16 servers. Should comes with necessary rack rails.	
5	MS12L	UTP Cable Tester	UTP Cable Tester with length measurement feature , Should be able to measure length of all 4 pairs, Should be able show wiremap, Should be able to detect Opens, Shorts, Reversed pairs, Swapped pairs, Split pair faults. Should come with necessary attachments/Carrying case/Batteries/cables, etc. Make Fluke / AMP	

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(Signature of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Software	
Item Code	**SW01-20H**	

S.No.	Item Code	Product Discription	Vendor Compliance (Yes /No)
1	SW01H -	Red Hat Enterprise Linux AS Standard v5 or latest with 5 years subscription and support (for updates & upgrades, telephonic / web support) from the Principal OEM	
2	SW02H-	Red Hat Enterprise Linux ES Standardv5 or latest with 5 years subscription and support (for updates & upgrades, telephonic / web support) from the Principal OEM	
3	SW03H	Red Hat Cluster Suite with 5 years subscription and support (for updates & upgrades, telephonic / web support) from the Principal OEM	
4	SW04H	Red Hat Global File System v 6.1 or latest with 5 years subscription and support (for updates & upgrades, telephonic / web support) from the Principal OEM	
5	SW05H	Microsoft Windows Server 2008 Enterprise Edition Lic/SA with Media	
6	SW06H	Microsoft System Centre Configuration Manager Server Lic/SA with Media	
7	SW07H	Microsoft Client Access Lic/SA for SW05H	
8	SW08H	Microsoft Client Access Lic/SA for SW06H	
9	SW09H	Microsoft Office Sharepoint Server 2007 Lic/SA with media & necessary Database Enterprise Edition	
10	SW10H	Microsoft Office Sharepoint Server 2007 Lic/SA with media & necessary Database Standard Edition	
11	SW11H	Microsoft Office SharePoint CAL 2007 Lic/SA	
12	SW12H	Microsoft System Centre Configuration Manager Server Management Lic/SA with media	
13	SW13H	Microsoft Sharepoint Enterprise CAL 2007 Lic/SA	
14	SW14H	Toad for Oracle	
15	SW15H	Cisco Unified Communication Manager Express	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Software	
Item Code	**SW01-20H**	

S.No.	Item Code	Product Discription	Vendor Compliance (Yes /No)
16	SW16H	Adobe Acrobat 9 Pro	
17	SW17H	Adobe Acrobat 9 Pro Extended	
18	SW18H	Adobe Photoshop CS4	
19	SW19H	Adobe Photoshop CS4 Extended	
20	SW20H	Adobe Dreamweaver CS4	

Place

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Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name		Add-Ons	
S.No.	Item Code	Item Name	Additional Component / Part/ Configuration Required
1	NB01L (A1)	Notebook - General (Higher RAM)	4 GB 667MHz DDR2 SDRAM **in place of** 2 GB 667 MHz DDR2 SDRAM expandable to 4 GB
2	NB02L (A1)	Notebook - Lightweight Type-I (Higher RAM)	4 GB 667MHz DDR2 SDRAM **in place of** 2 GB 667 MHz DDR2 SDRAM expandable to 4 GB
3	NB02L (A1)	Notebook - Lightweight Type-II (Higher RAM)	4 GB 667MHz DDR2 SDRAM **in place of** 2GB DDR2 SDRAM
4	PC01L (A1)	PC (Higher RAM)	6 GB 667MHz DDR2 SDRAM **in place of** 4 GB 667 MHz DDR2 SDRAM expandable to 4 GB
5	WS01L (A1)	Graphics Workstation - P4 (Higher RAM)	16 GB 667 DDR2 SDRAM **in place of** 8 GB dual channel DDR2 ECC @667 MHz
6	WS02L (A1)	Graphics Workstation - Xeon (Higher RAM)	16 GB 667 DDR2 SDRAM **in place of** 8 GB dual channel DDR2 ECC @667 MHz
7	SR01H (A1)	Server - 2 Way Rack (Type -I) (Higher HDD)	6 x 300 GB SFF hot Pluggable SAS 10K rpm **in place of** 6 x 146 GB higher SFF hot Pluggable SAS 10K rpm
8	SR01H (A2)	Server - 2 Way Rack (Type-I) (Higher RAM)	16 GB ECC DDR2 667 MHz SDRAM **In place of** 8 GB ECC DDR2 667 MHz SDRAM
9	SR02H (A1)	Server - 2 Way Rack (Type-II) (Higher HDD)	6 x 300 GB SFF hot Pluggable SAS 10K rpm **in place of** 6 x 146 GB higher SFF hot Pluggable SAS 10K rpm
10	SR02H (A2)	Server - 2 Way Rack (Type-II) (Higher RAM)	32 GB ECC DDR2 667 MHz SDRAM **In place of** 16 GB ECC DDR2 667 MHz SDRAM

Place

(Signature of Bidder)

Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name		Add-Ons	
S.No.	Item Code	Item Name	Additional Component / Part/ Configuration Required
11	MS02L (A1)	42U Rack (Glass Door)	Lockable front door of toughened tinted glass **in place of** perforated steel front door
12	MS07H (A1)	Tape Library (With Fibre Ports)	2 Nos. of 4Gbps FC ports **in place of** SAS/SCSI ports & SAN based backup software licenses for 2 Oracle, 2 Windows & 2 Linux Servers

Place

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	WAN Optimization Module	
Item Code	OP01H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Integration	Should be pluggable in / integrable with the offered routers (Router Type-I & Router Type-II)	
3	Ports	Min 1 Internal Network 10/100/1000 Gigabit Ethernet Interface for connecting to router backplane and minimum 1 External Network 10/100/1000 Gigabit Ethernet Interface	
4	Memory	Minimum 1GB RAM	
5	Storage Capacity	Hard Disk : Minimum 100 GB of disk based Cache	
6	Application Acceleration	The solution offered should provide application-specific acceleration for CIFS, MAPI and video streaming traffic.	
7	Compression	Should support standard compression mechanisms such that a bidirectional database to store previously-seen TCP traffic is used and replace redundant patterns with very small signatures to minimize the bandwidth consumption of each message	
8	Caching features	Pre-fetching of contents for Software distribution,Patch Management and VoD distribution	
9	Resiliency	Should support retransmission of lost data in case of any packet-loss. In case of WAN outage or centralized application server not being available, the solution should be able to provide Read-only view of the files / content.	
10	Deployment Features	Should support either inline or out of Band deployment without chanding network characteristics/parameters. Should support deployment using WCCP and Policy Based Routing. Should be able to preserve QoS and security features defined on the WAN router.	
11	Performance	Should support acceleration of all TCP based applications and support up to 500 Optimized TCP connections	
12	Certifications	Security Certification from Industry Standard Bodies/Government Bodies(the likes of C2,PCI Compliance and ISO 15408)	

Place
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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	WAN Optimization Module	
Item Code	OP01H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
13	High Availability	Solution should support clustering and load-sharing. Should support RAID1 mirroring pairs to protect against multi-disk failures. Should support for environments with redundant WAN links.	
14	Management	Solution should provide Unified GUI management tool for centralized configuration; monitoring provisioning and reporting. Instead managing individual devices. Should provide reports detailing the effectiveness of acceleration and optimization within in a network	
		Should support remote notification capabilities, including SNMP v2c, v3, SMTP notification, and syslog notifications.	
		Should have Encryption support for the cache storage with Centralize Key Management	
15	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Intrusion Prevention System Module	
Item Code	OP02H	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Integration	Should be pluggable in / integrable with the offered routers (Router Type-I & Router Type-II)	
3	Ports	Should have a standard monitoring interface using the router internal bus. Should have an internal Gigabit Ethernet inteface for inband management.	
4	IPS Features and Attack Detection Capabilities	The IPS module should have the followingf attack detection capabilties: Stateful pattern recognition, Heuristic detection, Anomaly detection, Sweeps or floods, Denial-of-service (DoS) mitigation, Worms or viruses, Common gateway interface (CGI) or web attacks, Buffer overflow protection, Remote-procedure call (RPC) attack detection, IP fragmentation attacks, Internet Control Message Protocol (ICMP) attacks, (SMTP), Send Mail, (IMAP), (POP) attacks, FTP, SSH, Telnet, and rlogin attacks, Domain Name System (DNS) attacks, TCP hijacks, Windows or NetBIOS attacks, TCP application protection, (NTP) attacks, IP Fragmentation and Reassembly, TCP Stream Reassembly	
5	Signature Management and Updates	Should provide the capability of customizable signatures and provide Automated signature updates	
6	General Security Features	IP Security (IPsec) or Secure Sockets Layer (SSL) between sensor and management console, Encrypted signature packages, SSH for remote administration, Serial Control Protocol (SCP) support for secure file transfer	
7	Management	Web user interface (HTTPS), Command-line interface (CLI; console), CLI (Telnet or SSH)	
8	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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Date   (Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	**Network Access Control (NAC) Module**	
Item Code	**OP03H**	
S.No.	**Parameter / Feature**	**Minimum BHEL Requirements**	**Vendor Compliance (Yes /No)**
1	Make & Model		
2	Integration	Should be pluggable in / integrable with the offered routers (Router Type-I & Router Type-II)	
3	Ports	Two monitoring interfaces: one internal backplane interface for receiving a copy of LAN or WAN traffic and one external Gigabit Ethernet interface for receiving traffic directly from local or remote LAN ports	
4	Memory	1 GB RAM	
5	Storage Capacity	Hard Disk : Minimum 120GB Hard Drive	
6	Performance	The internal monitoring interface should be able to provide traffic monitoring throughput of up to 100 Mbps. The external monitoring interface should be able to provide traffic monitoring throughput of up to 200 Mbps.	
7	Protocols	Sould be able to provide the following protocol support: TCP and User Datagram Protocol (UDP) over IP including IPv6 HTTP and HTTPS Voice over IP (VoIP) including Skinny Client Control Protocol (SCCP), Real Time Protocol/Real Time Control Protocol (RTP/RTCP), Media Gateway Control Protocol (MGCP), and Session Initiation Protocol (SIP) Storage area network (SAN) protocols including Fibre Channel over TCP/IP AppleTalk, DECnet, Novell, Microsoft Database protocols, including Oracle and Sybase Peer-to-peer protocols such as Gnutella, FastTrack, and WinMX Bridge and router protocols Unknown protocols by TCP/UDP ports, Remote Procedure Call (RPC) program numbers	
8	Data collection and Analysis	Should be able to collect data from data sources over LAN and WAN and analyze the same using traffic analyzer provided with the module. Should support Netflow (versions 1, 5, 6, 7, 8, and 9) for data collection.	
9	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

Place

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Date

(Stamp of Bidder)

Bharat Heavy Electricals Limited
Corporate Information Technology
Rate Contract 2009

Item Name	Network Analysis Module	
Item Code	**OP04H**	

S.No.	Parameter / Feature	Minimum BHEL Requirements	Vendor Compliance (Yes /No)
1	Make & Model		
2	Integration	Should be pluggable in / integrable with the offered routers (Router Type-I & Router Type-II)	
3	Ports	Two monitoring interfaces: one internal backplane interface for receiving a copy of LAN or WAN traffic and one external Gigabit Ethernet interface for receiving traffic directly from local or remote LAN ports	
4	Memory	1 GB RAM	
5	Storage Capacity	Hard Disk : Minimum 120GB Hard Drive	
6	Performance	The internal monitoring interface should be able to provide traffic monitoring throughput of up to 100 Mbps. The external monitoring interface should be able to provide traffic monitoring throughput of up to 200 Mbps.	
7	Protocols Suport	Sould be able to provide the following protocol support: TCP and User Datagram Protocol (UDP) over IP including IPv6 HTTP and HTTPS Voice over IP (VoIP) including Skinny Client Control Protocol (SCCP), Real Time Protocol/Real Time Control Protocol (RTP/RTCP), Media Gateway Control Protocol (MGCP), and Session Initiation Protocol (SIP) Storage area network (SAN) protocols including Fibre Channel over TCP/IP AppleTalk, DECnet, Novell, Microsoft Database protocols, including Oracle and Sybase Peer-to-peer protocols such as Gnutella, FastTrack, and WinMX Bridge and router protocols Unknown protocols by TCP/UDP ports, Remote Procedure Call (RPC) program numbers	
8	Data collection and Analysis	Should be able to collect data from data sources over LAN and WAN and analyze the same using traffic analyzer provided with the module. Should support Netflow (versions 1, 5, 6, 7, 8, and 9) for data collection.	
9	Warranty	OEM onsite / labour / parts warranty for the entire lease period	

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