Date: - 13th September, 2018

Corrigendum
For
PACS-RIS System for the Department of Radiology

NIT Issue Date	**:**	**26th July, 2018**
NIT No.	**:**	**Admn/Tender/65/2018-AIIMS.JDH**
Pre-Bid Meeting	**:**	**09th July, 2018 at 03:15 PM**
Earlier Last Date of Submission	**:**	**10th September, 2018 at 03:00 PM**
Extended Last Date of Submission	**:**	**27th September, 2018 at 03:00 PM**
Bid opening	**:**	**28th September, 2018 at 03:15 P.M**

The following revised and additional specification will be added:-

1. **Page No. 19:** After Technical Specifications for Picture Archiving and Communications System (PACS) Radiology information System (RIS) Vendor Neutral Archive (VNA) and Advance Visualization Software.

Added Para 1 to 05:

1. PACS OEM should bid directly and not via channel partner:
2. Vendor Should offer the Latest Product version which is released in RSNA 2017 as part of the solution offered: addendum.
3. 3.All software updation during warranty period should be done free of cost: addendum in general points.
4. The uptime guarantee for the software and hardware should be at least 97%(out of 365 days).
5. The vendor has to ensure the availability of a competent on Site engineer for 1 year.
6. System should be available through internet at all times.

2. **Page No. 19 to 20, Security, Para No. 01 to Last:**

For

Security	40 concurrent user license
· All user access (ex. login, study access, report access) should be saved into database as AUDIT TRAIL and this should be accessible/searchable by Administrator	150K per year
· Vendor will provide applicable antivirus Software for the various clinician and Radiology terminals.	150K per year
4. Software Licenses	150K per year
License requirement for RIS PACS Solution	150K per year

Unlimited Modality connectivity including for MRI, CT, PET, SPECT, NM, X Ray, US (as and when needed)	
RIS User Licenses (Reception/Technologists, Transcriptionist/Radiologist) for RIS Application	
150K Exams per year license for Radiology Viewer	
150K Exams per year license for Clinical ZFP FDA Diagnostic Approved Viewer with unlimited user license.	150K per year
150K Exams per year license for PACS VNA (Dicom)	
150K Exams per year license for Mobility Viewer on Tablet with unlimited user license for iPad/TAB viewing licenses	
3D post processing applications should be from the same OEM who is providing the PACS. Third party 3D post processing applications should not be quoted.	2 concurrent user license
3D post processing applications should have a common database with the PACS. There should be no separate storage needed for the 3D post processing applications.	2 concurrent user license
The 3D post processing capability should be embedded inside the PACS viewer	2 concurrent user license
3D Post processing License for 150k Exams per year for and below application available on all Radiology Workstations - Pre Processing - Volume Rendering - Auto Bone Removal - Multi Modality Fusion	2 concurrent user license
Advanced 3D post processing Tools needed on Concurrent user basis which are embedded with PACS Viewer	2 concurrent user license
The 3D post processing capability should share the same Database as PACS and should not needs its own separate storage	2 concurrent user license
Stroke Analysis Software	2 concurrent user license
Oncology Quantification Software including RESIST & WHO	2 concurrent user license
Lung Nodule Visualization and Analysis Software	2 concurrent user license
PET Lesion Management Software including RESIST, WHO & Functional PERCIST	2 concurrent user license
Virtual Colonoscopy Software	2 concurrent user license
Extract CT angio data from CT Perfusion Exams	2 concurrent user license
MR Elastography Tools	2 concurrent user license
MR Tools for ADC, DTI, Spectroscopy and Fusion	2 concurrent user license
MR Multi Parameter imaging for Body and Breast	2 concurrent user license
MR Multi Parameter imaging for Brain	
CT Vessel analysis with automated real time tracking and labelling	for 5 High Acuity Care Units in the Hospital
MR Tools for Vessel assessment	
Cardiac anatomical, functional and perfusion information	
CT Perfusion for complete perfusion assessment for Multiple Organ	
CT Perfusion for complete perfusion assessment for Brain	

Read

Security	
· All user access (ex. login, study access, report access) should be saved into database as AUDIT TRAIL and this should be accessible/searchable by Administrator	
· Vendor will provide applicable antivirus Software for the various clinician and Radiology terminals.	
4. Software Licenses	
License requirement for RIS PACS Solution	
Unlimited Modality connectivity including for MRI, CT, PET, SPECT, NM, X Ray, US (as and when needed)	
RIS User Licenses (Reception/Technologists, Transcriptionist/Radiologist) for RIS Application	40 concurrent user licenses
300K Exams per year license for Radiology Viewer	
300K Exams per year license for Clinical ZFP FDA Diagnostic Approved Viewer with unlimited user license.	300K per year
300K Exams per year license for PACS VNA (Dicom)	
300K Exams per year license for Mobility Viewer on Tablet with unlimited user license for iPad/TAB viewing licenses	
3D post processing applications should be from the same OEM who is providing the PACS. Third party 3D post processing applications should not be quoted.	
3D post processing applications should have a common database with the PACS. There should be no saperate storage needed for the 3D post processing applications.	
The 3D post processing capability should be embedded inside the PACS viewer	
3D Post processing License for 300k Exams per year for and below application available on all Radiology Workstations - Pre Processing - Volume Rendering - Auto Bone Removal - Multi Modality Fusion	300k per year
Advanced 3D post processing Tools needed on Concurrent user basis which are embeded with PACS Viewer	
The 3D post processing capability should share the same Database as PACS and should not needs its own seprate storage	
Stroke Analysis Software	3 concurrent user license
Oncology Quantification Software including RESIST & WHO	3 concurrent user license
Lung Nodule Visualization and Analysis Software	3 concurrent user license
PET Lesion Management Software including RESIST, WHO & Functional PERCIST	3 concurrent user license
Virtual Colonoscopy Software	3 concurrent user license
Extract CT angio data from CT Perfusion Exams	3 concurrent user license

MR Elastography Tools	3 concurrent user license
MR Tools for ADC, DTI, Spectroscopy and Fusion	3 concurrent user license
MR Multi Parameter imaging for Body and Breast	3 concurrent user license
MR Multi Parameter imaging for Brain	3 concurrent user license
CT Vessel analysis with automated real time tracking and labeling	3 concurrent user license
MR Tools for Vessel assessment	3 concurrent user license
Cardiac anatomical, functional and perfusion information	3 concurrent user license
CT Perfusion for complete perfusion assessment for Multiple Organ	3 concurrent user license
CT Perfusion for complete perfusion assessment for Brain	3 concurrent user license

Price of all these and any future advancements/ new softwares would be frozen for the next 5 years.

3. **Page No. 20 to 22, High Acuity Care Integration Software, Para No. 01 to Last:**

For

1. GENERAL:	
The system should be used to plan, implement, record, archive and analyze details of the patient care process in High Acuity Care Area of the Hospitals	
Support dynamic hyperlinks (www links) embedded to the application to open other applications with patient context such as imaging information systems or HIS without re-entering user ID or password.	
2. FUNCTIONAL REQUIREMENTS:	
a. Ease of Use.	
The user must be able to make quick start of the system in case of emergency and not knowing the patient details. The quick start will start the default device data collection and prompt the user for patient group for choosing the right case configuration and protocols.	
Anaesthesia type specific graphical task lists for supporting anaesthesia workflow.	
The system should have the facility to flag	
(i) warning messages if information input does not conform to the input expected and	
(ii) inform the user that it cannot proceed if this mandatory field is not completed appropriately.	
The system must use drop down menus or similar to present to the users the valid choices for coded fields. These lists must be user definable.	
b. Look and Feel.	
The screens displaying clinical data must be clear and easy to look at,	

understand and tasks colour coded with finger operated touch screen.	
Data Entry Requirements – allow dropdown menus or lists, free text notes or comments, touch screen support , scroll wheel, alarm invalid dates and numbers, support data modifications and deletion of erroneous data, entry of progress notes displaying the authorship with the date and time of entry	
c. Automated Data Collection.	
Automated online data collection from patient monitors and ventilators, data displayed in real time graphically.	
It must be possible to automatically and simultaneously connect multiple devices to one patient including infusion pumps data (rate, volume, bolus dose).	
Support for device swapping during a case.	
Clinical staff should be able to rapidly disconnect or connect equipment to a patient without the need to power down any part of the equipment.	
The system should automatically detect connections and disconnections.	
It must be possible to manually enter all data fields, including those, which normally would be collected automatically.	
d. General Features.	
Possibility to view and edit several cases by one user in the same workstation.	
Capability to view data as a trend over time for the whole perioperative period.	
If a patient has had earlier procedures documented with the system, it should be possible to easily view their previous record(s).	
Records stored must be accessible by a variety of ways e.g. searches by hospital number, patient id, diagnosis coding, age,	
name, etc.	
Patient care information summary views, to get an overview.	
Support online automatic calculation of durations (e.g. anaesthesia duration), drug and fluid totals and fluid balances.	
Support separation of drug and fluid totals and fluid balances according to phases (e.g. intraop, recovery) and support a combined summary of the totals and balances for the whole perioperative case.	
e. Patient Demographics.	
The system must be able to accept patient demographic data through an interface and to store it on the database to form the basis of the patient record.	
The supplier must indicate the minimum information required to admit a patient onto the system in an emergency and the	
system the system must allow preliminary and incomplete patient information to be updated when actual details become available	
The system must allow adding new patients and cases to the system manually.	
f. Laboratory Data.	
The system must provide the facility to store details of laboratory data results, either received through an interface or	
documented manually and arrival of new laboratory data should be visually signalled.	
g. Support searching for a drug or fluid.	
Displays the dosage administered of any drug used in the anesthesia period and maintain a continuous cumulative total of	
individual drugs.	
Support manual entry of all information associated with blood and blood	

products.	
Support automatic calculation of the correct dosage and rate of a continuous medication infusion.	
Document fluid output, hourly and cumulative.	
The system should provide access to a drug directory from which users can select a drug for prescription, or record a patient's medication on admission. This should be an existing reputable database, which is regularly updated.	
h. Alarms and Data Validation.	
It must be possible to enter unlimited notes and the authorship of these notes must be clearly displayed.	
i. Point of Care Printouts.	
It should be possible to save the reports in electronic format (e.g. PDF) and should be configurable.	
Point of care printouts must include (but are not limited to): patient lists, anesthesia plan, anesthesia consent, patient instructions, anesthesia record, lab tests requests and reports and recovery record.	
j. Configurability.	
List choices or similar data, default values, normal value ranges, data entry displays, point of care patient record printouts and patient list reports, retrospective statistical reports and colour codes must be configurable by the system administrator after initial setup and password protected.	
The tools for configuration must be an integral part of the system.	
It must be possible to see how a display or a printout looks like in the configuration tool (WYSIWYG).	
Archived patient records can be restored for reviewing and reprinting of the data. k. Statistical Report Generation with Reporting Tools.	
Data from different sources can be combined into the reports, e.g. data documented with the system and data from other information systems in the hospital.	
Provides ability to produce reports on demand and allows reports to be saved for future use.	
Provides on-line help functions without requiring the user to access a manual.	3
Supports basic statistical functions (count, sum, average, min & max).	

Read

Deleted

4. **Page No. 22 to 24, Point No. 05, Hardware requirement for new Digital Healthcare Solution, Para No. 01 to Last:**

For

The proposed hardware should be deployed and configured in a virtualized environment using Vmware ESXi Hypervisor. Below mentioned architecture is provided for reference.	
1. PACS Workstation Diagnostic Monitor 4MP 30" Fusion display	
Fusion 4MP LED can be used as two seamless 2MP heads or one wide-screen 6MP display.	
Screen technology TFT AM Color LCD Dual Domain IPS-Pro and LED backlight.	

Active screen size (diagonal) 772 mm (30.4)	
Pixel pitch 0.256 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology and I guard sensor	
Maximum Luminance 1050cd/m2, DICOM calibrated at 600cd/m2 with Contrast ratio of 1500:1.	2
Screen protection Protective, non-reflective glass cover	
Response time 18ms, Video input signals DVI-D Dual Link (2x), Display Port (2x)	
Display Card with support for 4 displays – Online QA software	
System should come with a touch pad and should have features like Spot view, dim view and profile setting function for Radiologist	
2. PACS Workstation Diagnostic Monitor 6MP 30" Fusion display	
Fusion 6MP LED can be used as two seamless 3MP heads or one wide-screen 6MP display.	
Screen technology TFT AM Color LCD Dual Domain IPS-Pro and LED backlight.	
Active screen size (diagonal) 772 mm (30.4")	
Pixel pitch 0.1995 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology and I guard sensor	
Maximum Luminance 1050cd/m2, DICOM calibrated at 600cd/m2 with Contrast ratio of 1500:1.	
Screen protection Protective, non-reflective glass cover	
Response time 18ms, Video input signals DVI-D Dual Link (2x), Display Port (2x)	1
Display Card for proposed monitor	
System should come with a touch pad and should have features like Spot view, dim view and profile setting function for Radiologist	
3. PACS Workstation Diagnostic Monitor 5.8MP Color Mammo display system	
Screen technology LCD	
5.8 MP (2100 x 2800 pixels), aspect ratio 3:4 for each display in portrait mode, 3:2 overall	
Pixel pitch 0.1545 mm	
Backlight warranty 40,000 hours @ 500cd/m2.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology and steady grey	3
Maximum Luminance 1000cd/m2, DICOM calibrated at 500cd/m2 with Contrast ratio of 1400:1.	
Screen protection Protective, non-reflective glass cover	
Response time 12.5ms, Video input signals DVI-D Dual Link, Display Port	
Display Card for proposed monitor	
4. PACS Workstation Diagnostic Monitor 2MP colour display	
Screen technology LED IPS-Pro.	
Active screen size (diagonal) 540 mm (21.3)	
Pixel pitch 0.27 mm, color and grey scale imaging.	1
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology	
Maximum Luminance 800 cd/m2, DICOM calibrated at 500cd/m2 with Contrast ratio of 1400:1.	
Response time 10ms, Video input signals DVI-D (1x), Display Port (1x)	
Display Card for proposed monitor	
5. PACS Workstation Diagnostic Monitor 3MP colour display	
Screen technology TFT LCD IPS.	

Active screen size (diagonal) 540 mm (21.3)	
Pixel pitch 0.2109 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology	10
Maximum Luminance 900cd/m2, DICOM calibrated at 500cd/m2 with Contrast ratio of 1400:1.	
Screen protection Protective, non-reflective glass cover	
Response time 20ms, Video input signals DVI-D Dual Link, Display Port	
Display Card for proposed monitor	
6. PACS Workstation Clinical Monitor 21" display	
Screen technology TFT color LCD	
Active screen size (diagonal) 541 mm (21.3)	
Pixel pitch 0.270 mm, color and grey scale imaging.	10
Features to improve and maintain image quality such as Ambient light compensation	
Maximum Luminance 440cd/m2, DICOM calibrated at 250cd/m2 with Contrast ratio of 1500:1.	
Video input signals DVI-D, Display Port	
Display Card for proposed monitor	
7. PACS Workstation	
Model - DELL 7810 or equivalent	
CPU - One Processor - Intel E5-2637v3	
Cores per Process - 8	
Memory - 16 GB	
Hard drive - 512GB SSD or 1TB SATA	
NIC - 1GB	
Display Card - ATIW2100	15
Operating System - Windows 7 Professional 64 bit	
DVD - DVDRW media drive	
Power Supply - Single Power Supply	
Software License - Necessary software for integration	
	5
8. Desktop PCs	
Intel processor, 4GB RAM, 500 GB HDD, CD/ DVD	
20" Monitor, Keyboard, Mouse	

Read

The proposed hardware should be deployed and configured in a virtualized environment using Vmware ESXi Hypervisor. Below mentioned architecture is provided for reference.	
1. PACS Workstation Diagnostic Monitor 4MP 30” Fusion display	3 in number
Fusion 4MP LED can be used as two seamless 2MP heads or one wide-screen 6MP display.	
Screen technology TFT AM Color LCD Dual Domain IPS-Pro and LED backlight.	
Active screen size (diagonal) 772 mm (30.4)	
Pixel pitch 0.256 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology and I guard sensor	
Maximum Luminance 1050cd/m2, DICOM calibrated at 600cd/m2 with	

Contrast ratio of 1500:1.	
Screen protection Protective, non-reflective glass cover	
Response time 18ms, Video input signals DVI-D Dual Link (2x), Display Port (2x)	
Display Card with support for 4 displays – Online QA software	
System should come with a touch pad and should have features like Spot view, dim view and profile setting function for Radiologist	
2. PACS Workstation Diagnostic Monitor 6MP 30" Fusion display	2 in number
Fusion 6MP LED can be used as two seamless 3MP heads or one wide-screen 6MP display.	
Screen technology TFT AM Color LCD Dual Domain IPS-Pro and LED backlight.	
Active screen size (diagonal) 772 mm (30.4")	
Pixel pitch 0.1995 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology and I guard sensor	
Maximum Luminance 1050cd/m2, DICOM calibrated at 600cd/m2 with Contrast ratio of 1500:1.	
Screen protection Protective, non-reflective glass cover	
Response time 18ms, Video input signals DVI-D Dual Link (2x), Display Port (2x)	
Display Card for proposed monitor	
System should come with a touch pad and should have features like Spot view, dim view and profile setting function for Radiologist	
3. PACS Workstation Diagnostic Monitor 5.8MP Color Mammo display system (dual head)	01 in number
Screen technology LCD	
5.8 MP (2100 x 2800 pixels), aspect ratio 3:4 for each display in portrait mode, 3:2 overall	
Pixel pitch 0.1545 mm	
Backlight warranty 40,000 hours @ 500cd/m2.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology and steady grey	
Maximum Luminance 1000cd/m2, DICOM calibrated at 500cd/m2 with Contrast ratio of 1400:1.	
Screen protection Protective, non-reflective glass cover	
Response time 12.5ms, Video input signals DVI-D Dual Link, Display Port	
Display Card for proposed monitor	
4. PACS Workstation Diagnostic Monitor 2MP colour display (dual head)	3 in number
Screen technology LED IPS-Pro.	
Active screen size (diagonal) 540 mm (21.3)	
Pixel pitch 0.27 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology	
Maximum Luminance 800 cd/m2, DICOM calibrated at 500cd/m2 with Contrast ratio of 1400:1.	
Response time 10ms, Video input signals DVI-D (1x), Display Port (1x)	
Display Card for proposed monitor	
5. PACS Workstation Diagnostic Monitor 3MP colour display	1 in number
Screen technology TFT LCD IPS.	
Active screen size (diagonal) 540 mm (21.3)	
Pixel pitch 0.2109 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation, Uniform Luminance technology	

Maximum Luminance 900cd/m2, DICOM calibrated at 500cd/m2 with Contrast ratio of 1400:1.	
Screen protection Protective, non-reflective glass cover	
Response time 20ms, Video input signals DVI-D Dual Link, Display Port	
Display Card for proposed monitor	
6. PACS Workstation Clinical Monitor 21" display	10 in number
Screen technology TFT color LCD	
Active screen size (diagonal) 541 mm (21.3)	
Pixel pitch 0.270 mm, color and grey scale imaging.	
Features to improve and maintain image quality such as Ambient light compensation	
Maximum Luminance 440cd/m2, DICOM calibrated at 250cd/m2 with Contrast ratio of 1500:1.	
Video input signals DVI-D, Display Port	
Display Card for proposed monitor	
7. PACS Workstation	10 in number
Model - DELL 7810 or equivalent	
CPU - One Processor - Intel E5-2637v3	
Cores per Process - 8	
Memory - 16 GB	
Hard drive - 512GB SSD or 1TB SATA	
NIC - 1GB	
Display Card - ATIW2100	
Operating System - Windows 7 Professional 64 bit	
DVD - DVDRW media drive	
Power Supply - Single Power Supply	
Software License - Necessary software for integration	
8. Desktop PCs	15 in number
Intel processor, 4GB RAM, 500 GB HDD, CD/ DVD	
20" Monitor, Keyboard, Mouse	
Display card: 2GB or more	
Operating system: Window 10 or later	

5. Page No. 24 to 25, I to III:

For

I. Specification for the Healthcare Digital Solution Servers	
Servers	
Rack Server with Redundant Power Supply	
Dual Processor - Xeon 8 Core V4	1
64 GB RAM	
10x1.2 10K RPM SAS HDD with RAID-5 Support	
Quad Port PCI 1Gbps NIC	
Windows 2012 x64 R2 Standard Edition	
II. Specification for the Healthcare Storage	
Configuration of Storage to be offered – Primary Storage	1
Storage with Dual Controller and Dual port FC/iSCSI connectivity per controller	
72x1.2TB 10K RPM SAS HDD with RAID-5 Support	

Dual Port 12 Gbps SAS Port	
12 Gbps Dual Port SAS Card for above Rack Servers	
III. Specification for the Healthcare Storage	
Configuration of Storage to be offered – DR Storage	
Storage with Dual Controller and Dual port FC/iSCSI connectivity per controller	1
24x4TB 7.2K RPM NL-SAS HDD with RAID-5 Support	
Dual Port 12 Gbps SAS Port	
12 Gbps Dual Port SAS Card for above Rack Servers	
CD/ DVD Publisher	
Rimage 7200 Cd/DVD	
Number of Recorders - 1/2	
External Output Bin Capacity - 100	

Read

I. Specification for the Healthcare Digital Solution Servers	
Servers	4 in number
Rack Server with Redundant Power Supply	
Dual Processor - Xeon 8 Core V4	
64 GB RAM	
10x1.2 10K RPM SAS HDD with RAID-5 Support	
Quad Port PCI 1Gbps NIC	
Windows 2012 x64 R2 Standard Edition	
II. Specification for the Healthcare Storage	
Configuration of Storage to be offered – Primary Storage	1 in number
Storage with Dual Controller and Dual port FC/iSCSI connectivity per controller	
72x1.2TB 10K RPM SAS HDD with RAID-5 Support	
Dual Port 12 Gbps SAS Port	
12 Gbps Dual Port SAS Card for above Rack Servers	
III. Specification for the Healthcare Storage	
Configuration of Storage to be offered – DR Storage	1 in number
Storage with Dual Controller and Dual port FC/iSCSI connectivity per controller	
24x4TB 7.2K RPM NL-SAS HDD with RAID-5 Support	
Dual Port 12 Gbps SAS Port	
12 Gbps Dual Port SAS Card for above Rack Servers	
CD/ DVD Publisher (with printed AIIMS, Jodhpur logo on CDs)	1 in number
Rimage 7200 Cd/DVD	
Number of Recorders - 1/2	
External Output Bin Capacity - 100	

6. **Page No. 25, Point No. 06. Terms and Conditions for proposed Healthcare Solutions. Sub point no. 12:**

For

Warranty: Vendor should provide a solution with 3 year warranty and subsequently 2 years CMC

Read

Warranty: Vendor should provide a solution with 5 year warranty and subsequently 5 years CMC

7. **Page No. 25, Point No. 07. Vendor Qualification Criteria. Sub point no. f & g:**

For

f) Financial qualification criteria
1. Should be a registered company in the country for last 20 Years
2. Should be doing a turnover of 500 Crore or more for last Financial Year
g. All the proposed IT solutions included in this tender should be from single OEM. Third party clinical OEM products cannot be quoted.

Read

f) Financial qualification criteria
1. Should be a registered company in the country for last 10 Years
2. Should be doing a turnover of 150 Crore or more for last Financial Year
g. All the proposed IT solutions included in this tender should be from single OEM. Third party clinical OEM products cannot be quoted.

8. **Page No. 26, Point No. 08 and 09, Turn Key for PACS Data Center, Turn Key for PACS Reporting Room:**

For

8. Turn Key for PACS Data Center	As per room design
a. 42 U Server rack with dual PDU	4
b. Switches with 48 port 100/1000 MBPS ports (preferably CISCO L2 Switches)	
c. UPS - 20 KVA with 15 mins battery back up	
d. Split AC or equivalent of 2 ton each	
g. Civil Work for floor (Raised Floor,conduits for network etc.)	
h. Furniture (Table, Chair, closet)	1
i. Finger based Biometric device	As per room requirement
j. On Site engineer for 1 year.	1
	1
	1
9. Turn Key for PACS Reporting Room	50
a. Furniture for diagnostic workstations (Tables & Chairs) for 10 radiology workstations	
b. Networking for reporting room (2 network point of 1 GBPS per workstation)	
c. Switches - 48 Port 100/1000 Gbps switch	
d. Finger based Biometric device	
e. Music system for reporting room (Sony or equivalent)	
f. Electrical point with concealed wiring - 5 electrical points per workstation	
g. Ergonomic furniture for the reporting room including but not limited to high quality tables, mid back chairs, cove lighting, high quality gypsum false ceiling, excellent quality heavy duty doors, almirahs and lockers for doctors' use(kindly consult with the departmental team for any clarifications)	

Read

1. Civil Interior

Sl.No	PARTICULARS		UNIT	QUANTITY
1	Dismantling	All types of masonry works, plain & reinforced concrete tiles floor tranc, plaster, M.S.Grill door, window and stacking serviceable materials and dumping	LS	1
		Dismantlign of OLD Grid Falseceiling alon with lighting etc	Sq.Ft	550
2	False flooring	Providing & fixing stringer based raised access floor of approved make metal cladded system finished in bare finish : Panel Construction: Panels of size 600 mm X 600 mm are manufactured from pressed form corrosion resistant galvanized steel. The above hollow panel shall have an infill of light weight cementatious material. The entire panel shall be coated with epoxy coating on the exposed surface. Pedestal construction shall be all steel construction, zinc plated and consisting of anti vibrational head cap with cruciform up stands and four panel locating studs, positively clipped to the steel top plate . Pedestal shall be screwed to floor. Uniformly distributed load shall be 12 kN/m2 Concentrate point load : 4.0 kN over 25 sqmm. Floor void should be 450 mm minimum from underside of raised floor pan to finish slab. Provision should made for satisfactory earthing for all floor tiles.	SQ.FT	150
3	Brick Work	Brick work of thickness 230 mm and above of any shape except curved using selected quality burnt clay FPS bricks (Crushing strength not less than 75 kg/sqcm) in super structure laid in cement mortar 6:1 (6 coarse sand : 1 cement) mix, joints finished, flush raked to 6mm depth including jointing with concrete (with holdfast) where required and as per specification and drawing or as directed by Project Manager.	SQ.FT	100
		Brick work of thickness 230 mm and above of any shape except curved using selected quality burnt clay FPS bricks (Crushing strength not less than 75 kg/sqcm) in super structure laid in cement mortar 6:1 (6 coarse sand : 1 cement) mix, joints finished, flush raked to 6mm depth including jointing with concrete (with holdfast) where required and as per specification and drawing or as directed by Project Manager.	SQ.FT	200

5	TMT	Providing and Laying and fixing in position Thermo mechanically Treated reinforcement (TMT of all grades) in all reinforced concrete work, including straightening, cutting, removal of loose rust by wire brush and coating with cement slurry, bending, hoisting, laying in position to the shape and profile required at all levels and heights as per drawing and design and/ or as directed, with18 guage MS binding wires etc. complete. (Quoted rate also to include providing & fixing the binding wire, PVC cover blocks, Chairs, Spacer etc.)	Kg	300
6	Plain cement concrete	Providing, laying using pumps & testing cast - in - place structural controlled cement concrete grade M25 using 20mm down coarse aggregates excluding cost of centering, shuttering and steel reinforcement but including cost of making shear keys and provision of construction / contraction / control joints in various locations, laid, consolidated and cured, item to include all structural items like base raft, ramp, column, wall, footings, equipment foundations, fins, mullions, beams, lintels, pergola, chajja, facia, parapet, railing, slab trenches, drains and sumps etc. of any shape and sizes. The rates of concrete to include the cost of admixtures / plasticisers to achieve specified strength. This item to also include the concrete requiring waterproofing compound like water tanks, basement retaining walls, base raft, leaving sleeves to beams etc. complete.		
7	PCC	4: 2 : 1 (4 graded stone aggregate 20 mm and down gauge. : 2 coarse sand : 1 cement)	Cu.ft	150
8	Lintel	2: 1 : 1 (4 graded stone aggregate 20 mm and down gauge. : 1 coarse sand : 1 cement)	Cu.ft	100
9	Plaster	Providing and applying 15-20 mm cement plaster on the walls of mix 1:4 (1 cement : 4 sand) including racking joints, curing, scaffoldings etc complete as directed	SQ.FT	500
10	Work station with pedestal	Providing and making the **Work stations table 600mm deep** in 19mm thk commercial plywood of approved make with necessary verticals / supports as per the drawings and detail. The table shall finished from all sides with the 1 mm Thk. Laminate of appproved make. The Table Top shall be provided with powder coated wire manager and complete the same all per the drawings and details and as directed. masurement will cout form front hight and	SQFT	150

		lenght		
11	Over head storage	Providing and making the Over Head Storage **600mm deep** in 19mm thk commercial plywood of approved make with necessary verticals / supports as per the drawings and detail. The table shall finished from all sides with the 1 mm Thk. Laminate of appproved make. The Table Top shall be provided with powder coated wire manager and complete the same all per the drawings and details and as directed. masurement will cout form front hight and lenght	SQFT	150
		Racks for books H9'xL18'D1'6"	SQFT	180
12	Soft board	Providing & Fixing **Soft Board** panelling over framework of 25 mm x 18 mm T.W. Frame at 600 mm c/c with 6mm comm. ply skimming on top & 12mm thk. soft board with fabric finishing over 6mm ply. Complete as per drawings & directions of the Architect. 25 mm x 12 mm T. W.Moulding on edges(Basic Price of fabric RS:200 -/ meter).	SQ.FT	80
13	Glass partition	Providing and fixing glass partition in line, level and plumb made out of 12 mm thk thoughened glass of Saint Gobain or equivalent approved make using Anodised Aluminium U channels fixed in wooden frame, with joints inbetween glass should be filled with clear accoustic sealant etc. all complete as per architects instructions. All exposed edges of the glass shall be machine polished. The rate of glass shall be inclusive of chamfering, cutting of glass, joint filling, octroi, loading - unloading, delivery on site and taxes thereon. etc.	SQ.FT	90
14	Glass door	**Providing & fixing** 12 mm thk Toughened Glass door with top & bottom Patch Fittings Floor Spring, Door Stoppers, Handle - 2100x1200 mm Bottom Locks and all required accessories.	SQ.FT	28
15	Vinyl Flooring	Providing and fixing 2mm thick Roll / TILED formed conductive vinyl flooring make of Armstrong/Jarflor LG Wonder or approved make laid on the existing floors as per the drawing	SQ.FT	500

16	Modular Ceiling	**Providing and fixing Mineral Fibre Board modular Ceiling** in Armstrong / Nitobo or Equivalent make as approved by Architect in Mineral textured tiles with approved surface pattern of size 600 mm X 600 mm having Noise reduction Co-efficient 0.7, light reflection over 75%, Relative Humidity 95%, Suspension system of Silhouette reveal profile grid system with 15 mm wide flanges incorporating a 3 or 6 mm central recess of colour all white or all black or white with black as directed, Silhouette main runners and cross tees to have mitred ends and "birds mouth" notches to provide mitred cruciform junction, fixed to the structural soffit by Butterfly clip hangers suspension wires & anchor fasteners as per the manufacturer's specification, Suspension wires to be provided at every 600 mm c/c with two nos of ties on each anchor fastener, Perimeter trim of Trulok wall angle in white colour secured to wall at 450 mm maximum centres.	SQ.FT	350
17	Gypsum ceiling	**Providing and fixing Gypsum False Ceiling** of India Gypsum make which includes G.I. Perimeter Channels of size 0.55 mm thick (having One Flange of 20 mm. and another flange of 30 mm and a web of 27 mm) along with perimeter of ceiling, screw fixed to brick wall / partition with the help of Nylon sleeves and screws at 610 mm centers. Then suspending G.I. intermediate channels of size 45 mm (0.9 mm thick with 2 flanges of 15 mm each) from the soffit at 1220 mm centers with ceiling angle of width 25 mm X 10 mm X 0.55 mm thick fixed to soffit with G.I. cleat and steel expansion fasteners. Ceiling section of 0.55 mm thick having knurled web of 51.5 mm and 2 flanges of 26 mm each with lips of 10.5 mm are then fixed to the intermediate channel with the help of connecting clips and in direction perpendicular to the intermediate channel at 450 mm centers. All steel sections shall be marked with 'Gypsteel' (Registered trademark Hologram) . Flush fitting 1200 mm long cross tees to be interlocked between main runners at 600 mm centers to form 1200 mm x 600 mm modules. Cut cross tees longer than 600 mm require independent support. 600 mm x 600 mm modules to be formed by fitting 600 mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter	SQ.FT	150

		trim to be (Turlock or approved equivalent) 15 mm exposed trim, with manufacturer specific sized wall angle of approved color, secured to walls at 450 mm maximum centers.12.5 mm tapered edge Gypboard (conforming to IS 2095-1982) is then screw fixed to ceiling section with 25 mm dry wall Philips screws at 230 mm centers. Screw fixing is done mechanically with drilling machine with suitable attachment. Finally tapered edges of the Gyp boards are to be jointed and finished so as to have a flush look which includes filling and finishing with jointing compound, paper tape etc complete as per the recommended practices of India Gypsum. Rate to be included all kinds of profiles and cut outs required for light fixtures, Speakers, Smoke detector, trap doors and AC grill in the ceiling.		
		False ceiling dual combination of Gypsum cove with 600x600 mm Silhouette GI grid and mineral fiber tiles complete	SQ.FT	550
18	Cove band	Providing and Fixing Cove light / Indirect Lighting in False Ceiling in 12 mm thk Gypsum Board as shown in drwg. on 24 gauge G.I. frame work which includes Providing & fixing G I framing as per India Gypsum specifications. The Facia & upstand in approved shape shall be in perfect line & level. Boards to be joint & finished so as to have flush look including filling & finishing edges with jointing compound paper tape suitable for receiving paint. complete as directed by Architect. ceiling should be free from any undulation.	RFT	200
19	Viewing Glass Window	Wood Panelling with 19mm ply finishing with 1mm laminate photo frame type with 10 mm toughened glass of Saint Gobain or equivalent complete	SQ.FT	50
20	signages	4"x14" signages	No	10
21	Lustre painting	Providing and applying three coats of Luster paint of desired shade, of Asian / Berger / ICI paints or equivalent on internal wall surfaces wherever required at all heights to give an even and uniform shade, applied over a coat of primer and putty "Altek" or "Wall care" or approved equivalent as per manufacturer specification fully to give a smooth and even surface including thoroughly brushing the surface free from water / mortar dropping and other foreign matter and sand papered smooth, complete per manufacturers specifications and as directed.	Sq.ft	3000
22		Paint work on wall and ceiling 2 coat wall putty 2 coat primer and 2 coat washable	Sq.ft	4000

		paint with smooth finishing		
23		Existing Door frames paint and doors re-laminate work	No	4
24		Digital Wallpaper	Sq.ft	120
25		Biomatrix Door Access System	No	6
26		Music system for reporting room (Sony or equivalent)		1
27		Ergonomic furniture for the reporting room including but not limited to: high quality tables(10 in number) mid back chairs(10 in number) Almirahs(6 in number) Lockers for doctors' use(kindly consult with the departmental team for any clarifications)		
28		15 T of ductable air conditioning for the server room, reporting room and disaster recovery room(Brands: Bluestar/Carrier)		
29		Speech magic voice recognition system with hardware and licences		10 pieces of hardware with licences

2. Electrical : To ensure ambient lighting according to latest ACR guidelines for reporting room

SI. No.	ITEM Description	UNIT	QUANTITY
(Internal Electrification)			
1.00	**Point Wiring and Sub-mains wiring**		
1.10	Wiring for light point/plug points in following groups with 3x1.5 Sq. mm PVC insulated FR flexible copper conductor wire of 1100 volts grade drawn in 2 mm thick MS conduit on surface of the wall, in the wallar in ceiling false ceiling with continuous run.		
a	Primary Light point controlled by one 6A SP switch	no	10
b	Same as item 1.1 above but secondary point i.e. points to be looped with primary point	no	5
1.20	Wiring for 5 pin 6 A light plugpoints with 2 x 1.5 sqmm PVC insulated FR flexible copper conductor wires of grade 1100 V grade drawn in 2mm thick MS conduit pipe recessed in wall/ ceiling or surfaced on wall / ceiling with continuous run of 1.5 Sq.rnm PVC insulated FR flexible green colour copper conductor for earthing the third pin of socket outlet including metal box with modular type switch and socket complete as required.		
a	(1 Socket + 1 switch)	no	30
1.30	Wiring for 6 pin, 6/16 A power plug outlets with 2C X 4.0 Sq. rnm PVC insulated FR flexible copper conductor wires of 1100 Volts grade drawn in 2 rnm thick PVC conduit pipe recessed in wall/ceiling or surfaced on wall/ceiling/ false ceiling with continuous run of 2.5 Sq.rnm PVC insulated FR flexible green colour copper conductor for earthing the third pin of socket outlet including metal box with modular type		

	switch and socket complete as required.		
a	One outlets per circuit.	no	20
1.40	Wiring for 16A NEEMA type plug & socket. single phase outlets with 2 X 4.0 Sq. mm PVC insulated FR flexible copper conductor wires of 11 00 Volts grade drawn in 2mm thick PVC conduit pipe recessed in wall/ceiling or surfaced on wall/ceiling.with continuous run of 2.5 Sq.rnm PVC insulated FR flexible green colour copper conductor for earthing the third pin of socket outlet including metal box with modular type switch and socket complete as required.		
a	One outlet per circuit.	no	4
1.50	Wiring for 25/32 A weather proof type plug & socket. single phase outlets with 2 X 6.0 Sq. mm PVC insulated FR flexible copper conductor wires of 11 00 Volts grade drawn in 2mm thick PVC conduit pipe recessed in wall/ceiling or surfaced on wall/ceiling.		
a	One outlet per circuit.	no	10
2.00	**DISTRIBUTION BOARDS**		
2.10	Supply, installation, testing and commissioning of wall mounted sub distribution boards of 16 SWG sheet steel cubical design, double door, dust and vermin proof suitable for operation on 415 volts, 50 Hz three phase A.C. supply system, IP-42 protection		
2.1.1	**Lighting Distribution Board:**		
	6Way TPN-DB with 1 No 63A TPN MCB for incomer and 24 No SP MCB	No	4
	MAIN DISTRIBUTION PANEL AS per the Drawing		
	Incomer		
	2 No 200A TPN Change Over 3way & VAF		
	Out Going		
	200A Alu Busbar		
	4 N 63A TPN MCB		
	10 No 32A DP MCB		
	Complete 1 Set	**SET**	**1**
3.00	**Fittings and fixtures**		
3.10	Installation testing and commissioning of following fixtures complete with special electronic low loss ballast lamps/LEDs/tube/condenser/starters/louvers/reflectors/covers etc & making connections from light point outlet to the fixture with suitable size		
a	34W 600x600 LED Light Make (Philips/ Havels/Wipro)	No	15
b	15W Led Light Make (Philips/ Havels/Wipro)	No	4
c	600x600 36W led lighting	No	12
	Dimmer controlled 10W led spot light	No	10
4.00	**Computer system wiring**		

4.10	Supply and drawing of CAT 6e Lan cable AMP in the floor trunking/conduit including connections etc. complete as required compatible with ferruls for numbering	RM	305
	25mm MS conduit including wall chipping laying and fixing	RM	100
4.20	Supply and fixing of the I/O RJ 11 of AMP/ AVIAVA make on the modular face plate including termination of the CAT6e cable including supply of the face plate with additional space for voice RJ6		
a	One data per point	no	20
b	One voice point	no	10
5.00	**Earthing Protection**		
5.10	Chemical Earthing with copper electrode 80x300mm lockable heavy duty cover plate suitable for fire Tender, watering.		
a	for UPS & Panel	no	2
5.20	**Earthing Strips and wires**		
5.2.3	Supplying and installation of 35mm 1C copper wire	RM	100
6.00	**Telephone wiring**		
6.10	Supplying and drawing PVC / Polythene insulated and PVC sheathed unarmoured telephone cable with 0.5 mm dia. Tinned/ annealed copper conductor taped & confirming to ITD specification S/WT-129C of approved make in existing surface or recessed conduit/casing.		
a	5 pair	RM	100
7.00	**CABLES**		
7.10	Providing and laying in open with clamps, or in existing trenches or in existing cable trays armoured aluminium/Alu conductor FRLS XLPE armured of following sizes. The job involves cable end termination on both ends with compression type brass glands and crimping type thimbles of appropriate sizes as required all complete. (for single run only)		
b	3.5 core 95 sqmm	RM	100
	6 Pair armoured Fiber Optics cable	RM	100
	fibre patch cord	No	12
	FSP	No	2
	Fibre laying and jointing charges	No	1
9	**Fire Separation System Gas Based for Data Center**	Qty.	1
10	**Very Early Smoke Detection Apparatus (VESDA) for Data Center room**	Qty.	1
11	**Water Leak Detection Apparatus for Data Center room**	Qty.	1

3. Access Control & Rodents

Sl.No	Description	Qty	Unit
1.00	**ACCESS CONTROL SYSTEM**		
1.10	Providing and fixing of the PVC insulated, shielded and sheathed 4 core 24 AVG stranded copper conductor control cabling for access control system in 25 mm PVC conduits	30.00	rm
1.20	Supply, installation, testing, commissioning, training of software, programming etc of PROXIMITY Based Multi Door Access Control System (SO 9001, CE & FC approved).		

1.2.1	Microprocessor Based Fully Software Controlled 2 Door Controller with LCD Display & Key-Pad + Power Supply built in Battery Back-up.	1.00	no
1.2.2	Proximity Reader.(RFID)	2.00	no
1.2.3	Prox Card with ID Sticker & Necklanyard.	10.00	no
1.2.4	Electromagnetic Lock.	2.00	no
1.2.5	Exit Switch.	2.00	no
1.2.6	Access Control & Time Attendance Software + Signal Converter.	1.00	no
2.00	**RODENT CONTROL SYSTEM**		
2.10	VHFO Master Console	1.00	no
2.20	Transducers	2.00	no
2.30	Stand Bracket	2.00	no
2.40	Junction box for Transducers	2.00	no
2.50	Connecting Cables	1.00	Lot

4. Video wall for Reporting Room

Item	Specifications
Native Resolution per Panel	1920x1080
Aspect Ratio	16:9
Bezel Gap Screen to screen	Less than 1mm
Backlight	Direct LED
Brightness	should be Min 700 cd/m2 or higher
Contrast ratio	4000:01:00
Viewing angle	The screen shall have a H 178°/V 178° viewing angle or greater with a screen “haze” value of 44% or greater for wide viewing angles for operators.
Continous Automatic colour and brightness calibration	Yes
Connectivity	2 DP , 2 HDMI , 2 USB , 2 LAN
HDCP	Yes
Ethernet ports	2
Redundant Power supply	Yes
Illumination	Each LCD Panel shall be equipped with Direct LED illumination. The LEDs should have a “Typical” lifetime rating of ≥100K hours in normal operation for cost-effective operation.
Redundant wall	Complete wall should be redundant and no downtime to be there in case of power supply failure
Power control:	1 AC power ON/OFF switch
Input signal flexibility:	The LCD panels shall have digital input connectivity options, including, but not limited to, HDMI, full Display Port and IP inputs supporting up to Quad HD resolutions at 30fps or higher.
Component Life- LCD	>=100,000 Hours
Power consumption	Less than 190 watt in Normal/Typical Mode

Operating Temperature	system shall be operate properly under 10ºC to 40ºC Temperature
Storage Temperature	-20°C to +60°C
Heat Dissipation	Less than 680 BTU/Hr
Humidity	20%-80%
OEM Certification	All features and functionality should be certified by the OEM. The Display Modules, Display Controller & Software should be from a single OEM.
Modular & Scalable	The Videowall system provided should be modular , scalable & Faster in Installation & repair & with automatic allignment of screens
Signal cropping	Each LCD panel shall have signal "cropping" capabilities allowing a single image to be displayed across the entire video wall array
Remote Management	The control of the wall shall be possible via a network. All LCD panels shall have their own IP address, and the control software can access all of them at the same time. The available features shall be: On/Off, Brightness and Colour, Input control
Automatic calibration	Each LCD panel shall be equipped with two (2) built-in sensors, permitting the brightness level of each LED Backlight to be controlled and adjusted automatically.

5. Specifications of Display Wall Controllers

Item	Specifications
Display controller	Controller to be able to control mentioned video wall panels
Redundant Controller	The controller should be based on the latest architecture .
Platform	Windows 7
Processor	Xeon with 3 GHz or higher end processor
RAM	Minimum 16 GB
Chassis Type	19" Rack mount industrial chassis
Network	2 Network Ports
Resolution Support for Outputs	Minimum1920 x 1080 or higher
Ticker	There should be a possibility in the controller to create user defined multiple tickers. It should also be possible to place these tickers anywhere on the wall
Scalability	The system should be able to add additional inputs as required in the future
Control	The system should have the capabilities of interacting (Monitoring & Control) with various applications on different network through the single Operator Workstation. It shall be possible to launch layouts, change layouts in real time using Tablet
Keyboard & Mouse Extension	Keyboard and Mouse along with mechanism to extend them to 20 Mtrs. operator desk from display controller to be provided

24 x 7 operation	The controller shall be designed for 24 x 7 operation
Others	The Video Wall and the Controller should be of the same make to ensure better performance and compatibility
OEM Certification	All features and functionality should be certified by the OEM. The Display Modules, Display Controller & Software should be from a single OEM.

6. Specifications of Display Wall Management Software

Item	Specifications
Layouts	The software should be able to pre configure various display layouts and access them at any time with a simple mouse click or schedule/timer based.
Sources	The software should be able display multiple sources anywhere on video wall in any size.
Remote Viewing	The video wall content will be able to show live on any remote display Mobile with IE
User management	Key features of Video Wall management Software
	• Central configuration database
	• Browser based user interface
	• Auto-detection of network sources
	• Online configuration of sources, displays and system variables
Software features	Video Wall Control Software shall allow commands on wall level or cube level or a selection of cubes :
	• Switching the entire display wall on or off.
	• Setting all projection modules to a common brightness target, which can be either static (fixed) or dynamic to always achieve maximum (or minimum) common brightness between projection modules.
	• Fine-tune colour of each cube
Client & Server based Architecture	Should support Multiple clients / Consoles to control the Wall layouts
Collaboration	The Software should be able to share layouts comprising of multiple sources with workstations / Displays over LAN for remote monitoring
Scaling	Software should enable the user to display multiple sources (both local & remote) up to any size and anywhere on the display walls (both local & remote).
Display	The software should be able to create layouts and launch them as and when desired
Remote Control	The Display Wall and sources (both local & remote) should be controlled from Remote PC through LAN without the use of KVM Hardware.
Support of Meta Data	Software should support display of Alarms
Authentication	The software should provide at least 2 layer of authentication
Scenarios	Software should able to Save and Load desktop layouts from Local or remote machines

Layout Scheduler	All the Layouts can be scheduled as per user convince.
Layout Scheduler	Software should support auto launch of Layouts according to specified time event by user
Layout Management	It should be possible to create layouts comprising of screen scrapped content of Workstations, DVI inputs, Web sources, URLs configured as sources. Layouts can be pre-configured or changed in real time
Layouts Configuration	Can be pre-configured or changed in real time
Scheduling	It should be possible to schedule specific Layout based on time range
Sharing & Collaboration	It should be possible to share the layouts over LAN/WAN Network with Display in Meeting room or on Remote Workstations connected on LAN/WAN Network
Soft KVM	The system shall include complete Soft KVM to permit operators to take mouse & keyboard control of Displays, Screen Scrapped applications and DVI source
Ticker	It should be possible to create two separate Tickers which run concurrently. These can be positioned at top or bottom and can run independently .The Ticker can be picked from data source through screen scrapping or through typing specific incidence, manually
OEM Certification	All features and functionality should be certified by the OEM.
	The Display Modules, Display Controller & Software should be from a single OEM.

7. Collaboration Solution Specification

Full HD Output
30fps
2 users on screen
Frequency band -Dual band WiFi- 2.4 & 5 GHz
Network Integration
Central Management
Enhanced Security
Firmware updates & Upgrades
Airplay, Google cast, iOSapp, Android app, MirrorOp
Up to 16 users connected
External Antennas
Signal Strength modulation- max 30 m (100 feet)
LAN x1 , USB x 3
Audio analog lineout on mini jack 3.5mm
FCC / CE Certification
Temperature range- Operating 0 to + 40 degree Centigrate
Humidity- Storage - 0 to 90 %, Operation- 0 to 85% relative humidity non condensing
Five years Warranty