Guru Gobind Singh Indraprastha University

Sector 16C, Dwarka, New Delhi -110078
Phone No.-011-25302149-151
Website: http://ipu.ac.in

Date: 24.12.2014

TENDER NO. 14/PUR/GGSIPU/2014-15

E-TENDER (NIT)

On behalf of Registrar, Guru Gobind Singh Indraprastha University, sealed items rate tenders are invited from reputed and eligible contractors/firms in two bid system (Technical & Financial) for the **Supply and Installation of IP based CCTV cameras in the University Campus at** Dwarka, New Delhi-110078. Tender document can also be downloaded from Delhi Govt. e-procurement website i.e. www.govtprocurement.delhi.gov.in

1.	Name of work	**Supply and Installation of IP based CCTV cameras in the University Campus** at Guru Gobind Singh Indraprastha University, Sector 16 C, Dwarka, New Delhi – 110078
2.	Pre-Bidder Meeting	The pre – bidders meeting will be held on 06.01.2015 at 02.00 p.m. in the office of Dy. Registrar (Purchase), Ground Floor, Library Block, GGSIPU, Sector 16 C, Dwarka, New Delhi – 110078. All the interested tenderers/firms may put/submit their clarification regarding the tender documents in the office of Dy. Registrar (Purchase) latest by 05.00 pm upto 01.01.2015.
3.	Last date, time and venue for submission of EMD and Technical bid documents	23.01.2015 Upto 02.00 p.m. in the office of Dy. Registrar (Purchase), Ground Floor, Library Block, GGSIPU, Sector 16 C, Dwarka, New Delhi – 110078
4.	Date and time for opening of technical bid	23.01.2015 at 02.30 p.m. in the office of Dy. Registrar (Purchase), Ground Floor, Library Block, GGSIPU, Sector 16 C, Dwarka, New Delhi – 110078
5.	EMD	**Rs.5.00 lakh** (Rupees five lakh only) in the favour of Registrar, GGSIP University payable at Delhi,
6.	Estimated cost of work	**Rs.2 Crore (approximate)**
	The bids shall be submitted in two stages viz.(i) *Technical bid* (ii) *Financial bid.* Detailed specification of the item(s) to be supplied is placed at **Annexure-H. The Technical & Financial bid should also be uploaded on e-procurement website i.e.** www.govtprocurement.delhi.gov.in	
	Financial bid shall be opened after evaluation of technical bid/time notified thereafter on e-tender website www.govtprocurement.delhi.gov.in	

(REGISTRAR)

GURU GOBIND SINGH
INDRAPRASTHA
UNIVERSITY

TENDER DOCUMENT

FOR

Supply and Installation of IP based CCTV cameras in the University

AT

Guru Gobind Singh Indraprastha University
[*A state University under Govt. of NCT of Delhi]*
Sector 16 C, Dwarka, New Delhi 110 078

Dy. Registrar (Purchase)
Room No. L 010, Ground Floor, Library Block,
GGSIPU, Sector 16C, Dwarka, New Delhi 110078
Contact Nos.011 25302149-150
Email :purchaseipu@gmail.com.

NOTICE INVITING TENDER

TENDER NO. /PUR/GGSIPU/2014-15

Registrar, Guru Gobind Singh Indraprastha University (GGSIPU) invites item rate e-tender (in two bid system – Part I & II) from reputed and experienced manufacturer/contractors/suppliers for the **Supply and Installation of IP based CCTV cameras in the University Campus at Dwarka, New Delhi.**

1. **Particulars of Items: Supply and Installation of IP based CCTV cameras**

2. **Technical specification, Quantity**: As per **Annexure-H**

3. **Earnest Money Deposit (EMD) in DD/FDR :- Rs. 5.00 lakh** (Rupees five lakh only) in favour of Registrar, GGSIP University.

4. **Completion period:** Supply within 4 weeks from the date of issue of work award letter/Purchase Order, whichever is later and installation within 16 weeks after the receipt of material at University.

5. **Availability of Tender Document:** Tender Documents with detail terms & conditions can be downloaded from Delhi govt. e-procurement website.

6. **Validity Period of Offer:** The rates offered in Part II (Financial bid) should be valid for one hundred and Eighty days (180) from the date of opening of Part II (Financial Bid) of the Tender.

7. **Receipt and opening of Tenders:** The Technical bid along with EMD should reach to this office on or before 23.01.2015 upto 02.00 PM. The Technical Bid will be opened on the same day at 02.30 pm.

8. The required EMD as stated above in the form of DD or FDR must be enclosed with the technical bid failing which the offer will be treated as non-responsive.

9. GGSIPU reserve the right to accept or reject any or all the tenders wholly or partially without assigning any reason thereof.

10. The University reserves the right to relax any terms & conditions in the interest of the University.

INSTRUCTIONS TO BIDDERS

11.0 Scope

The work consists of:

11.1 **Supply and Installation of IP based CCTV cameras in** University Campus at Sector-16C, Dwarka, New Delhi as per specification in **Section-I.**

12.0 Definitions:

12.1 **GGSIPU** means Guru Gobind Singh Indraprastha University, Delhi

12.2 **University** means Guru Gobind Singh Indraprastha University, Delhi

12.3 **Employer** means the Registrar, GGSIPU and his successor

12.4 **Bidder** means the Manufacturer or his direct authorized distributor (dealing at first point), proprietary firm, partnership firm, limited company private or public or corporation

12.5 **"Year"** means "Financial Year" unless stated otherwise.

13.0 Who can apply:

13.1 If the bidder is a proprietary firm, the application shall be signed by the proprietor with his full typewritten name and the full name of his firm with its current address, Contact details etc.

13.2 If the bidder is a firm in partnership, the application shall be signed by all partners of the firm with their full typewritten names and current addresses, or alternatively, by a partner holding power of attorney for the firm. In the latter case a certified copy of the power of attorney should accompany the application. In both cases, a certified copy of partnership deed and current address of all the partners of the firm should accompany the application.

13.3 If the bidder is a limited company or a corporation, the application shall be signed by a duly authorized person holding power of attorney for signing the application accompanied by a certified copy of the power of attorney. The bidder should also furnish a certified copy of the Memorandum and Articles of Association duly attested by a Public Notary.

13.4 **Joint Venture/ Consortiums are not accepted.**

14.0 Sealing and Marking of Bids

14.1 Technical Bid shall be submitted along with EMD.

14.2 The bidder shall place the two separate sealed envelopes marked "**Technical Bid**" and "**Earnest Money Deposit**" in one outer envelope. The inner envelopes will have marking as follows:-

a) Technical Bid
b) Earnest Money Deposit (EMD)

14.3 The sealed outer envelope containing the technical bid and EMD shall be addressed to Dy. Registrar (Purchase), Guru Gobind Singh Indraprastha University, Sector 16C, Dwarka, New Delhi – 110078.

14.4 The sealed tender shall bear the name and identification number of the Tender on the cover of the Envelope(s).

14.5 In addition to the identification required as above, **each** of the envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared late or is declared non-responsive.

15.0 **Bid Submission:**

15.1 The envelop named **"Technical Bid"** shall comprise of all documents as per **Clause-16** and also uploaded on the e-tender website of Govt. of NCT of Delhi.

15.2 The **"Financial Bid"** must be uploaded on e-tender website i.e. www.govtprocurement.delhi.gov.in

15.3 Each page of the Technical Bid, Tender Document must be sealed and signed by the authorized signatory of the bidder.

15.4 Duly signed tender document alongwith all corrigenda, addendum issued, if any, should also be sealed as part of technical bid.

15.5 Conditions other than those laid down in the Tender document will not be entertained.

16.0 Eligibility Criteria for Technical Bid

All eligibility documents with EMD must also be submitted in hard copy as per the date and time mentioned above.

The formats/Annexure for the documents to be submitted, with Technical bids are placed at **Section –II (Annexure – A, A1, A2 to Annexure H):**

16.1	Letter of Transmittal	**Annexure – A**
	Declaration by Bidder	**Annexure – A1**
	Compliance to Bid Requirement	**Annexure – A2**
	A declaration by the manufacturer.	**Annexure – A3**
16.2	Organizational Structure: - Legal status of the company/ organization with legal proof along with certified copies.	**Annexure - B**
16.3	Income Tax Registration (PAN No.),	Attach certified copies
	Service Tax Registration,	
	DVAT Registration/ TIN Number	
16.4	Average financial turnover of **Rs.3 Crore (Rupees Three Crore)** during the immediate last three consecutive financial years ending 31st March 2014, duly audited, signed & stamped by a Chartered Accountant.	**Annexure C**
	The bidder should not have incurred losses in more than two years in the last 3 consecutive financial years, duly certified by Chartered Accountant, along with copies of audited profit and loss account of last three years	
16.5	Firm should have executed atleast one of the following in the last three years: One single order of similar work of **CCTV Cameras** having value of Rs.**35 Lacs** OR Two similar work of **CCTV Cameras** having value of Rs.**20 Lacs** each OR Three similar work of **CCTV Cameras** having value of Rs.**15 Lacs** each Explanation: "Similar work" means the work of Supply & Installation **CCTV Cameras** in public sector undertaking, Govt. Department, Educational Institutions or in reputed private sector. "Value" shall mean gross value of the completed work including the cost of materials. This should be certified by an officer of the client organization on their letter-head.	**Annexure D**
16.6	That the bidder/organization has not been blacklisted/debarred by any of the government/ public sector agencies in India. A declaration of fair business practice by the Bidder.	**Annexure – E**
16.7	Firm should have an authorized service centre in **DELHI/NCR.**	**Enclose Copy**
16.8	The bidder must submit the technical specification of the quoted items alongwith printed catalogues for technical evaluation.	**Enclose Copy**

16.9	The intending bidder must submit compliance report of the each item of the bid.	**Enclose Copy**
16.10	Certificate of Authorized dealership/distributor/manufacturer. (In case of manufacturer, they will self certify so). Authorized dealers/distributor shall attach manufacturer authorization certificate for this tender addressed to The Registrar, GGSIPU, New Delhi.	**Enclose Copy**
16.11	All items of the Tender must be quoted by the Manufacturer or his direct authorized distributor (dealing at first point), proprietary firm, partnership firm, limited company, private or public or corporation. Incomplete quote shall be summarily rejected.	

17.0 Opening of Technical Bids & Evaluation:-

The details submitted by the bidders will be evaluated in the following manner:

17.1 The "initial eligibility criteria" prescribed in Para 16.1 to 16.12 above in respect of experience in similar class of works completed, financial turnover, profitability and valid registrations, etc. will first be scrutinized.

17.2 Examination of the specification of all the items will be done by specialized specification evaluation Committee.

17.3 Even though any bidder may satisfy the above requirements, he/she would be liable to disqualification if he/she has:-

- Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the eligibility criteria document.
- Record of poor performance such as abandoning work, not properly completing the contract, or financial failures/weaknesses etc.

18.0 Opening of Financial bid and evaluation:

After the Technical evaluation of the bids, the University will open the 'Financial Bids' of all the bidders who have qualified in the Technical Eligibility Criteria as per Clause 16, at notified time, date and place, if any. The lowest financial bidder shall only be considered for award of work.

18.1 AMC and operation item would also be considered as a criterion for deciding the lowest bidder i.e. overall quoted amount shall be considered for deciding lowest bidder.

19.0 Earnest Money Deposit:

19.1 The Earnest Money Deposit (EMD) must be attached (see Clause 3). The Earnest money shall be accepted in the following forms and shall be in favour of "Registrar, GGSIPU", payable at Delhi:-

1. Fixed Deposit Receipt (FDR)
2. Bank Draft /Demand Draft

19.2 Tenders with no earnest money deposit will summarily be rejected. In case of successful bidder of the financial bids, the earnest money will be returned after obtaining the required 10% Performance Security in the form of FDR/BG (FDR/BG should be valid for a period of 4 years 6 months) alongwith the agreement on non-judiciary stamp paper of Rs. 100/-. However, the successful bidder shall be required to enter into an agreement with the University for providing the Comprehensive Irrecoverable Warrantee of 3 years and AMC of next 1 year (extendable) after completion of warranty period from the date of final installation of the product.

19.3 In the case of unsuccessful bidders, the Earnest Money Deposit will be refunded without any interest.

20.0 Financial Bid:

20.1 The bidder shall quote unit item rates in INR only, both in words and figures in the Financial Bid only. In case of difference between the rates of items written in figures and in words, the rates of items written in words shall be taken as correct. No changes in unit rates shall be allowed. The rates quoted in schedule of quantity (Financial Bid) are for finished and completed items and no extra amount for cartage or transporting material, labour etc. shall be paid. The rates should be inclusive of all loads and lifts for all materials for the completed items and also include all taxes, insurance, royalties etc. as applicable. Supplier has to quote the price inclusive of all charges i.e. freight, insurance, packing, handling, assembling, installation, commissioning upto the University or as given in the work order.

21.0 General:

21.1 All information called for in the enclosed forms should be furnished against the relevant places in the forms. If for any reason, information is furnished on a separate sheet, this fact should be mentioned against at the relevant place. Even if no information is to be provided in a column, a "Nil" or "No Such Case" entry should be made in that column. If any particular/query is not applicable in case of the bidder, it should be stated as "not applicable". The bidders are cautioned that incomplete information called for in the tender document or deliberate suppression of any information may result in the bid being summarily disqualified. Bids received after the expiry of the stipulated date and time mentioned in the tender document will not be entertained.

21.2 The bid document should be legibly written and serially numbered with proper tagging and binding. The bidder should sign each page of the bid.

21.3 Overwriting should be avoided. Correction, if any, should be made by neatly crossing out, initialing with date and rewriting. Pages of the eligibility criteria document are to be numbered. Additional sheets, if any added by the bidder, should also be numbered. Bid should be submitted as a package with signed letter of transmittal.

21.4 References, information and certificates from the respective clients certifying suitability, technical knowledge or capability of the bidder should be signed by officer of the client organization with name & designation.

21.5 The bidder may furnish any additional information which he thinks is necessary to establish his capabilities to successfully complete the envisaged work. He is, however, advised not to furnish superfluous information. No information shall be entertained after submission of tender document unless it is called for by the University.

21.6 Any information furnished by the bidder found to be incorrect either immediately or at a later date, would render him liable to be debarred from tendering/taking up of any work in GGSIPU **which may also result in forfeiture of EMD/performance security.**

21.7 The successful bidder shall have to work in co-ordination and co-operation with any other agencies appointed by the University to work simultaneously in the same or adjoining area. The decision of the University in case of any dispute between the different agencies appointed by the University shall be final and a binding.

21.8 Income tax, Works Contract Tax and any other tax at the rates in force during the progress of contract / **award of work** that will be in force from time to time shall be recovered / deducted from the released payment amount.

21.9 Sales Tax, purchase Tax, turnover tax or any other tax on material applicable on the date of submission of bid in respect of this contract shall be payable by the contractor and University will not entertain any claim whatsoever in respect of the same.

21.10 The bidder shall have to make his own arrangement at no extra cost to the University for water, sanitation and electric, etc. at the site of work for supply installation of the items.

21.11 On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the University shall be communicated in writing to the Registrar.

21.12 The contractor shall furnish a list of University employees related to him, if any in the "Technical Bid".

21.13 If the bidder shall obtain a contract with GGSIPU as a result of wrong tendering or other non-bonafide methods of competitive tendering, the University reserves the right to terminate the contract without any liability to the contractor, which may also result to forfeiture of EMD/performance security.

21.14 Without prejudice to any of the rights or remedies under this contract if the contractor dies, the University shall have the option of terminating the contract without compensation to the legal heir of the contractor.

21.15 Escalation: Increase in rates of material / Labour shall not be payable on any account. Price quoted shall be firm and no escalation will be allowed on any account.

21.16 The successful bidder will have to sign an agreement within stipulated time period as mentioned in the letter of intent. The necessary fees, stamp paper, etc. required for completing the agreement have to be borne by the bidder.

21.17 The University reserves the Right to vary quantities at the time of placement of Purchase Order/signing of contract.

22.0 Scope of Works

The Scope of work shall consist, Supply & Installation, erection and placing in position at site, complete in all respects, and its maintenance during warranty period for items mentioned at clause 1 as per specification given under Section I.

22.1 Specification for Work and Quality

The procurement of various materials shall be either from the manufacturers or their main authorized dealers to ensure that no duplicate/spurious makes are used in the works. The entire work shall be warranted for a period of 3 years and AMC of 1 year against defective material with liability of replacement or to the satisfaction of the University.

22.2 **Safety and Security**
Safety and Security of workers/staff, material, equipments, etc. will be the responsibility of the contractor. The university will not be held responsible on this account

22.3 The University reserves the right, without being liable for any damages or obligation to inform the bidder, to:
(a) Amend the scope and value of contract to the bidder.
(b) Reject any or all the applications without assigning any reason.

22.4 Any effort on the part of the bidder or his agent to exercise influence or to pressurize the University would result in rejection of his bid. Canvassing to any kind is prohibited.

23.0 Final decision making authority

The University reserves the right to accept or reject any bid and to annul the process and reject all bids at any time, without assigning any reason or incurring any liability to the bidders. No claim whatsoever will be entertained / paid by the university to the bidder (s).

24.0 Summary Rejection of tender:

24.1 The tenders not accompanied with Earnest Money Deposit shall be summarily rejected. Similarly, if the bidder proposes any alternation in or additions to the prescribed form of tender or decline to carry out any work of the tender document; or any conditions mentioned, etc., his tender is liable to be rejected.

25.0 Particular provisions

25.1 The University reserves the right to execute the work or reject the tender without assigning any reason or incurring any liability to the bidder.

25.2 The University has the power to make alteration in, omission from, addition of or substitution for the original specifications, drawings, designs.

26.0 Site visit

The bidder is requested to visit the work site and get acquainted with site conditions regarding layout and all other matters, affecting the work before filling in the item rates. Submission of a tender by a bidder, implies that they have read these instructions and have made themselves aware of the scope of the work, conditions of contract and University will not, therefore, bear any extra charges on any account, in case the bidder finds later on to have misjudged the site conditions or specification.

27.0 Amendment of tender document:

27.1 Before the deadline for submission of tender, the University may modify the tender document by issuing addenda.

27.2 Any addendum thus issued shall be a part of the tender document and shall be uploaded on the e-procurement website of Govt. of NCT of Delhi. Prospective bidders must visit the website before filling and submission of Tender Document for such information.

28.0 Validity of Tender:

One hundred and Eighty days from the date of opening of **Financial Bid** of the tender. During this period no bidder shall be allowed to modify/withdraw his tender. In case of withdrawal, the EMD submitted by the bidder shall be forfeited and no claim shall be entertained on this regard.

29.0 Performance Guarantee:

29.1 The successful bidder shall be required to furnish a Performance Guarantee of 10% of the total tendered value after successfully installation of the product at site. The Performance Guarantee should be valid up to 4 years 6 months. The Performance Guarantee shall be accepted in the following form and shall be in favour of "Registrar, GGSIPU", payable at Delhi:-

i. Fixed Deposit Receipt (FDR) of a Nationalized Bank
ii. Bank Guarantee (As per Annexure-G)

29.2 Performance Guarantee will be refunded after completion of the warrantee and AMC period as per clause 30.

29.3 In case of non submission of Performance Guarantee within specified time, the earnest money will be forfeited and the University may consider to black list/de-bar the contractor.

29.4 In case a fixed deposit receipt/ Bank Guarantee of any bank is furnished by the contractor to the University as part of the Performance Guarantee and the Bank is unable to make payment against the said instrument. The loss caused thereby shall fall on the supplier and the supplier shall forthwith on demand furnish additional security to the University to make good the deficit.

30.0 Warranty/AMC

30.1 The bidder shall provide 3 years Warranty and 1 year AMC (extendable) (on-site and comprehensive) on all items from the last date of final acceptance by the University and shall be responsible for any defects that develop in the item. They shall also replace any defective part of the product supplied and other accessories, without any exception and recourse, free of cost.

30.2 The bidder is responsible for all packing, unpacking, assembly, installation of units. The bidder will test the products and accomplish the adjustments necessary for successful and continuous operation of the products supplied at all installation sites and shall ensure maintenance of the supplied products during the warranty period. All the repairing / replacing of defects shall be done by the bidder totally free of cost.

30.3 The Supplier must have a maintenance base in Delhi/NCR to provide maintenance service, efficiently and promptly. If the performance of any individual equipment or System fails to meet the contract specifications then the same shall be replaced by the Supplier free of cost during the term of the warranty and AMC period.

30.4 The Supplier shall provide necessary Software updating free of cost during the Warranty and AMC period. During the term of warranty and AMC the service/repair calls will have to be attended by the Supplier within two hours from the time of such calls. The defective item should be repaired the same day at University premises.

30.5 In case of major defects requiring the defective item to be taken to the Supplier's workshop, it should be returned within two weeks duly repaired and an immediate substitute item will be provided by the Supplier for the smooth operation of the System. The to and fro transportation of the item will be borne by the Supplier.

30.6 Apart from the service/repair calls, the service engineer deputed by the Supplier will visit the site once every fortnight to assess the serviceability of the System and once in every 03 months to carryout the Preventive Maintenance and diagnostic of the system during the Warranty and AMC Period.

30.7 Delays in attending the calls and or repairing the defective item beyond time limit specified, without providing the substitute, will attract penalties in accordance with Clause 37.

30.8 If the Supplier fails to repair or replace the defective item, the University will be free to get the same repaired/replaced from the market and its cost will be adjusted from the Supplier's Performance Bank Guarantee.

30.9 The contractor will post at least two resident engineers in the University on all working days including general holidays. One Resident Engineer must be MCSE/CCNA with 1 year of experience in hardware maintenance and networking equipments and others should have minimum experience of 1 year in handling other equipments related to this project.

30.10 The Company has to provide the Bio-Data of the Resident Engineers appointed for the above work. In case of the above engineer’s non-availability, contractor will provide standby engineers arrangement. If not deduction of Rs.200/- per day per engineer will be deducted from the Performance Security / Bank Guarantee Amount.

30.11 The contractor will render maintenance service from 9:00 A.M. to 6:00 P.M. on all working days plus on general holidays, to keep the equipment in good working condition and order.

31.0 Training

31.1 The scope of work envisages that the Bidder shall undertake to train the staff nominated by the University in different aspects of equipment design, functioning, field installation, testing, commissioning, system management, operation & administration, maintenance and repair.

31.2 The supplier shall at every stage of installation; testing and commissioning provide all facilities for adequate training of University personnel who may be deputed to work on the project.

31.3 The system Administration and Maintenance Training program at the University will be structured so as to train the University employees deputed for the purpose.

31.4 The user operational training program at the University will be structured so as to train up supervisory and training personnel who will, in turn, train individual operators.

31.5 The maintenance training program at the University will be structured to train up engineers and technicians in the complete trouble shooting and maintenance of the equipment to both the board replacement and board repair level.

31.6 Bidder will provide complete details on the training programs to be offered including:

I. Material to be covered
II. Number of hours of training per operator or technician for each specific course
III. Supporting documentation to be provided

32.0 Spare Parts : The Bidder will undertake that supplies of necessary maintenance equipment and spare parts will be made available for the complete System for a period of 4 years on continuing basis and life time spares after 4 years.

33.0 Site Preparation: The site for installation of the CCTV System shall be provided by the University as per the required environmental conditions before the installation of the system. The Supplier shall provide site plan and equipment layout plan for the System. The complete installation of the System including civil work at the University site shall be the responsibility of the Supplier. Earthing arrangements for all the Equipment shall be the responsibility of the Supplier and to be carried out as per standard procedures.

34.0 Responsibility of Completion & Software Optimization: Any fittings or items which may not be specially mentioned in the specifications but which are necessary are to be provided by the Supplier without any extra charge for completeness of the work under this Tender.

35.0 Duration

The items covered under this tender are required to be delivered and installed in University Campus at Sector 16C, Dwarka, New Delhi within 140 days. The 140 days will start after 10 days from date of Issue of letter of Indent/Purchase Order by the University.

36.0 Payment Terms

36.1 First payment: The University shall pay to the Supplier forty percent (40%) amount of the total value of the Purchase Order after due inspection of the material by the Inspection Committee of the University as First Payment, within Thirty (30) working days from the date of receipt of all material and bill complete in all respects.

36.2 Final payment: The University shall pay, to the Supplier, the balance amount with applicable VAT/Service Tax amount as "Final Payment" within thirty (30) working days after successful installation, commissioning and Final Acceptance of the system and receipt of bill complete in all respect.

36.3 AMC Payment: The payment of the AMC period will be made on half yearly basis after successful completion of the each half year and submission of the bills by the supplier.

36.4 Each invoice should be submitted in duplicate clearly specifying contact no, goods description, quantity, unit price, total amount along with warranty certificate, etc.

36.5 No advance payment will be made under any circumstances.

37.0 Delay and Non Conformance

37.1 If the bidder fails to Install the Equipment with in the period specified in the Purchase Order, University shall without prejudice to its other remedies under the Purchase Order, deduct from the contract price, as

liquidated damages, a sum equivalent to 1% (one percent) of the contract price of the delayed goods weekly or part thereof of delay until actual delivery. The penalties will be maximum of 10% of the contract amount / awarded value.

37.2 In case of extraordinary delay or beyond 30 days of stipulated delivery period, University reserves the right to terminate the contract, without any liability to cancellation charges, forfeit/en-cash the submitted Performance Guarantee and blacklist/debarred the defaulting firm.

38.0 Services during warranty/AMC period

38.1 The Supplier shall provide necessary Software updating free of cost during the Warranty and AMC period. During the term of warranty and AMC the service/repair calls will have to be attended by the Supplier within two hours from the time of such calls. The defective item should be repaired the same day at University premises.

38.2 In case of major defects requiring the defective item to be taken to the Supplier's workshop, it should be returned within two weeks duly repaired and an immediate substitute item will be provided by the Supplier for the smooth operation of the System. The to and fro transportation of the item will be borne by the Supplier.

38.3 Apart from the service/repair calls, the service engineer deputed by the Supplier will visit the site once every fortnight to assess the serviceability of the System and once in every 03 months to carryout the Preventive Maintenance and diagnostic of the system during the Warranty and AMC Period.

38.4 Delays in attending the calls and or repairing the defective item beyond time limit specified, without providing the substitute, will attract penalties in accordance with Clause 37.

38.5 If the Supplier fails to repair or replace the defective item, the University will be free to get the same repaired/replaced from the market and its cost will be adjusted from the Supplier's Performance Security.

38.6 The contractor will post at least two resident engineers in the University on all working days including general holidays. One Resident Engineer must be MCSE/CCNA with 1 year of experience in hardware maintenance and networking equipments and others should have minimum experience of 1 year in handling other equipments related to this project.

38.7 The Company has to provide the Bio-Data of the Resident Engineers appointed for the above work. In case of the above engineer’s non-availability, contractor will provide standby engineers arrangement. If not deduction of Rs. 500/- per day per engineer will be deducted from the Performance Security / Bank Guarantee Amount.

38.8 The contractor will render maintenance service from 9:00 A.M. to 6:00 P.M. on all working days plus on general holidays, to keep the equipment in good working condition and order.

39.0 Packing and Marking

39.1 All packing should be strong enough to withstand rough handling during loading/ unloading and transporting. Fragile articles should be packed with special precaution and should bear the marking like Fragile, handle with care, This side up etc.

40.0 Substitution and Wrong Supplies

Unauthorized substitution or materials delivered in error of wrong description or quality or supplied in excess quantity or rejected goods shall be returned to the contractor at contractor’s cost and risk.

41.0 Insurance, Freight and Deliveries

41.1 The supplier shall make his own arrangements towards safe and complete delivery including insurance, freight, state level permits etc. as applicable at the designated locations indicated by University in the Purchase Order.

41.2 The contractor will keep University informed about changes, if any, in various stages of deliveries, installation.

42.0 Arbitration and Settlement of Disputes:

42.1 University and the contractor shall make every effort to resolve amicably by direct information negotiation by difference or dispute arising between them under or in connection with the University order.

42.2 If after thirty (30) days from the commencement of such informal negotiations, University and the supplier are unable to resolve amicably the dispute, either party may require that the dispute be referred for resolution to the formal mechanisms as specified hereunder:

42.2.1 Any dispute or differences whatsoever arising between the parties out of or relating to the manufacturing, meaning, scope, operation or effect of this contract or the validity or the breach thereof shall be settled by arbitration in accordance with the provisions of the Arbitration & Conciliation Act, 1996 and the award made in pursuance thereof shall be binding on the parties. The sole arbitrator shall be appointed by the Vice Chancellor, GGS Indraprastha University.

42.2.2 The performance under this contract shall not stop for any reason whatsoever during the said dispute/proceedings, unless the contractor is specifically directed by University to desist from working in this behalf.

42.2.3 The venue of arbitration shall be Delhi/ New Delhi. The language of proceedings shall be English. The Law governing the substantive issues between the parties shall be the Laws of India. All disputes are subject to the jurisdiction of the Delhi Courts only

42.2.4 It is also a term of that if any fees are payable to the arbitrator, these shall be paid equally by both the parties. It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims.

43.0 Force Majeure For purpose of this Clause, Force Majeure shall mean fires, floods, natural disasters or other acts, that are unanticipated or unforeseeable, and not brought about at the instance of the party claiming to be affected by such event, or which, if anticipated or foreseeable, could not be avoided or provided for, and which has caused the non-performance or delay in performance, such as war, turmoil, strikes, sabotage, explosions, quarantine restriction beyond the control of either party. A party claiming Force Majeure shall exercise reasonable diligence to seek to overcome the Force Majeure event and to mitigate the effects thereof on the performance of its obligations under this Supply Order.

If a Force Majeure situation arises, the supplier shall promptly notify the University in writing of such conditions and the cause thereof. Unless otherwise directed by the University in writing, the Supplier shall continue to perform its obligations under the Purchase Order as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

SECTION II

INFORMATION REGARDING TECHNICAL ELIGIBILITY
(Annexure A to H)

Annexure – A

LETTER OF TRANSMITTAL

From:

_____
_____

To

The Registrar
GGS IPU
Sector 16C, Dwarka,
Delhi

Sub: Submission of Tender Document for the work of "**Supply and Installation of IP based CCTV cameras at GGSIPU Campus, Sector 16C, Dwarka, New Delhi".**

Sir,

Having examined the details given in Tender document for the above work, I/we hereby submit the relevant information:-

1. I/we hereby certify that all the statement made and information supplied in the enclosed annexure / forms accompanying statement are true and correct.

2. I/we have furnished all information and details necessary for eligibility and have no further pertinent information to Supply & Installation.

3. I/we submit the requisite certified solvency certificate and authorize the Registrar, GGSIPU to approach Bank issuing the solvency certificate to confirm the correctness thereof. I/we also authorize the GGSIPU to approach individuals, employers, firms and corporation to verify our competence and general reputation.

Name & Signature(s) of Bidder(s) with seal

Annexure – A1

DECLARATION BY THE BIDDER

We _____ (Name of the Bidder) hereby represent that we have gone through and understood the Bidding Document (which in two parts) in Part-I (Commercial Section & Technical Section) and Part-II (Schedule of Quantities) and that our Bid has been prepared accordingly in compliance with the requirement stipulated in the said documents.

We are submitting a copy of Bidding Document marked "Original" as part of our Bid duly signed and stamped on each page in token of our acceptance. We undertake that Part-I and Part-II of the Bidding Document shall be deemed to form part of our bid and in the event of award of work to us, the same shall be considered for constitution of Contract Agreement. Further, we shall sign and stamp each page of this Part-I and Part-II as a token of Acceptance and as a part of the Contract in the event of award of Contract to us.

We further confirm that we have indicated prices in Schedule of Quantities and submitted in Price Bid in separately sealed envelope. We confirm that rate quoted by us includes price for all works/activities/supply etc. as mentioned in item description of the items in Schedule of Quantities.

SIGNATURE OF BIDDER :_____

NAME OF BIDDER : _____

COMPANY SEAL : _____

Note : This declaration should be signed by the Bidder's representative who is signing the Bid.

Annexure – A2

COMPLIANCE TO BID REQUIREMENT

We hereby agree to fully comply with, abide by and accept without variation, deviation or reservation all technical, commercial and other conditions whatsoever of the Bidding Documents and Addendum to the Bidding Documents, if any, for subject work issued by GGSIPU.

We hereby further confirm that any terms and conditions if mentioned in our bid (Un-priced as well as Priced Part) shall not be recognized and shall be treated as null and void.

SIGNATURE OF BIDDER : _____

NAME OF BIDDER : _____

COMPANY SEAL : _____

Annexure – A3

DECLARATION BY THE BIDDER

We _____ (Name of the Bidder) hereby declare that the item for which we have quoted our price in the Financial Bid would not be an item used so far for demo/any other purposes and will be unused (brand new).

SIGNATURE OF BIDDER :_____

NAME OF BIDDER : _____

COMPANY SEAL : _____

Note: This declaration should be signed by the Bidder's representative who is signing the Bid.

Annexure - B

ORGANISATION STRUCTURE

1. Name & Address of the Bidder :

2. Telephone No./Fax No./ e-mail :

3. Legal status of the Bidder (attach copies of original document defining the legal status)
   a) An Individual
   b) A proprietary firm
   c) A firm in partnership
   d) A limited company or Corporation
   e) A Public Sector Undertaking

4. Particulars of registration with various Government Bodies (Attach attested Photo Copy)
   Organization /Place of registration Registration No

5. A. PAN No. ----------
   B. DVAT No. ----------
   C. Service T No. ----------

6. Names and Titles of Directors & Officers with designation to be concerned with this work. :

7. Name & Designation of individuals authorized to act for the organization :
   (Pl attach power of attorney in favour of authorized representative duly signed by authorized signatory)

8. Has the Bidder ever required to suspended work for a period of more than six months continuously after you commenced the business? If so, give the name of the project and reasons of suspension of work. :

9. Has the Bidder, or any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion? If so, give name of the project and reasons for abandonment. :

10. Has the Bidder, or any constituent partner in case of partnership firm, ever been debarred/ black listed for tendering in any organization at any time? If so, give details. :

11. Has the Bidder, or any constituent partner in case of partnership firm, ever been convicted by a court of law? If so, give details. :

13. Any other information considered necessary but not included above. :

(Stamp, Name & Signature of Bidder)

Annexure – C

DETAILS OF ANNUAL TURNOVER

A. FINANCIAL DETAILS

Financial Years	Gross Annual Turnover (In Lakhs)	Profit/Loss (In Lakhs)
2013-2014		
2012-2013		
2011-2012		

B. Audited balance sheet and profit & loss account for above three years to be submitted. Must be attested by the Chartered Accountant.

Signature & stamp by Chartered Accountant

(Stamp, Name & Signature of Bidder)

Annexure – D

DETAILS OF SUPPLY OF ITEMS (AS PER SPECIFICATION GIVEN IN SECTION III BELOW) IN LAST 03 (THREE) YEARS

S. No.	POSTAL ADDRESS OF CLIENT WITH CONTACT NUMBERS	STARTING DATE	SCHEDULED COMPLETION DATE	ACTUAL COMPLETIO N DATE	REASONS FOR DELAY, IF, ANY

(Stamp, Name & Signature of Bidder)

Annexure -E

DECLARATION FOR FAIR BUSINESS BY THE BIDDER

This is to certify that We, M/s_____ in submission of this offer confirm that:-

i) We have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements;

ii) We do not have records of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion, litigation history or financial failures etc.

iii) Business has not been banned with us by any Central / State Government Department/ Public Sector Undertaking or Enterprise of Central / State Government.

iv) We have submitted all the supporting documents and furnished the relevant details as per prescribed format.

v) The information and documents submitted with the tender by us are correct and we are fully responsible for the correctness of the information and documents submitted by us.

vi) We understood that in case of any statement/information/document furnished by us or to be furnished by us in connection with this offer is found to be incorrect or false, our EMD in full will be fortified and business dealings will be banned.

vii) We have not been punished / penalized by way of imprisonment in last three years.

viii) We have not been blacklisted/debarred by any of the Government/Public Sector Agency in last three years.

SEAL, SIGNATURE & NAME OF THE BIDDER

Signing this document

Annexure -F

CHECK LIST FOR SUBMISSION OF BID

Bidder is requested to fill this check list and ensure that all details/documents have been furnished as called for in the Bidding Document along with duly filled in, signed & stamped checklist **with each copy of the "Un-priced** bid (Part – I)".

Please tick the box and ensure compliance:

1	EMD
2	Bid Forwarding Letter
3	Power of Attorney in Favour of the person who has signed the bid on stamp paper of Appropriate value.
4	Partnership Deed in case of partnership firm and Article of Association in case of limited company.
5	Compliance to Bid Requirement
6	Declaration by the bidder
7	All pages of the bid have been page numbered in sequential manner.
8	Annexure(s) – A to E
9	Valid, PAN, DVAT, Service Tax, Excise Registration

SIGNATURE OF BIDDER **:_____**

NAME OF BIDDER **: _____**

COMPANY SEAL **: _____**

Annexure – G

Form of Performance Guarantee
Bank Guarantee Bond

1. In consideration of the GGSIPU (hereinafter called "The University") having offered to accept the terms and conditions of the proposed agreement between ---------- and ---------- (hereinafter called "the said Contractor(s)") for the work ---------- (hereinafter called "the said agreement") having agreed to production of a irrevocable Bank Guarantee for Rs.---------- (Rupees ---------- only) as a security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and condition in the said agreement.

   We, ---------- (indicate the name of the Bank) ---------- (hereinafter referred as "the Bank") hereby undertake to pay to the University an amount not exceeding Rs.---------- (Rupees ---------- only) on demand by the University.
2. We, ----------(indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the University stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.---------- (Rupees ---------- only).
3. We, the said bank further undertake to pay the University any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.
   The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such payment.
4. We, ----------(indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the University under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Project-in-Charge on behalf of the University certified that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.
5. We, ----------(indicate the name of the Bank) further agree with the University that the University shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the University against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of the University or any indulgence by the University to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. We, ----------(indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the University in writing.
8. This guarantee shall be valid upto ---------- unless extended on demand by the University. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs.---------- (Rupees ---------- only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Dated the ---------- day of ---------- for ---------- (indicate the name of the Bank)

Annexure-H

SECTION III

TECHNICAL SPECIFICATIONS

1.0 Indoor HD Dome Network Camera

1.1 The HD 720p True Day/Night Network Dome Camera shall be ONVIF compliant.

1.2 The HD Dome Camera shall incorporate digital signal processing (DSP) with 1/3" or 1/ 2.7" or better progressive scan CCD/MOS sensor with effective 1.3 Megapixel pixels for superior picture detail and clarity.

1.3 The Network Camera shall offer wide dynamic range circuit to deliver 100 dB wide dynamic range and Multi Process Noise Reduction and 3D-Digital Noise Reduction (DNR) features for real surveillance purposes under severe conditions.

1.4 The camera shall feature a Day & Night mode that may be manually or automatically engaged on low light level and permit the use of an external infrared illuminator. The camera shall incorporate independent automatic Colour to Black/White switching modes for switchover on light threshold and sensitivity to IR illumination.

1.5 The Network Camera shall offer feature to transform shadows and dark areas into natural and crisp images in real time and support intelligent features like Auto Backlight Compensation/ Adaptive Black Stretch (ABS), ATW, AWC, Gain Control and MNR (Multi Process Noise Reduction), Digital Noise Reduction (DNR) etc.

1.6 The cameras shall have a minimum illumination of 0.04 lux in colour mode and 0.01 lux in Black/White mode.

1.7 The Network Camera shall offer hardware-based Automatic Back Focus mechanism for adjustment through web browser or Video Management System (VMS) software. The feature shall optimally adjust delicate lens focusing automatically or manually.

1.8 The cameras shall feature IR Corrected variable focal lens with a focal length of 2.8-10mm, auto iris lens or better. The lens shall be suitable for use in areas where there is a varying light source.

1.9 The cameras shall support wide angular field-of-view of 100° or better in 16:9 Mode

1.10 The camera's built-in shutter shall be 1/60 to 1/10000 or better at 1.3 mega pixel, 16:9 Aspect Ratio and 60 fps

1.11 The Network Camera shall use a multiple Streaming Codec capable of simultaneously generating and transmitting JPEG and four independent H.264 (High/Main Profile) video streams, at different configurable resolutions and frame rates.

1.12 The Network Camera shall be capable of generating and transmitting images at 1,280 x 960, 1,280 x 720, 800 x 600, 640 x 480, 640 x 360, 320 x 240, 160 x 90 resolutions at 60 fps or better in any of the streams.

1.13 The camera shall have the feature to capture video on variable image qualities/ resolution that shall allow the designated eight or more areas to retain higher image quality while the excluded area shall have a decreased image quality, which shall enable to use lower image file size and bit rate.

1.14 The camera shall have Cropping function that shall enable to provide whole image and the part image simultaneously. Up to 4 image capture areas shall be able to be specified, and it shall be able to control the sequence.

1.15 The camera shall feature cropping or region of Interest function which enables to provide whole image and the part of image simultaneously with up to 4-image capture areas which can be sequenced or Pan/Tilt/Zoom

1.16 The Network Camera shall offer on-device intelligence like special dynamic range/Face Detection feature to enhance details of human faces for better identification.

1.17 The Network Camera shall have Lens Distortion Correction feature to capture the natural images without distortion, using wide angle lens and 2x extra optical Zoom.

1.18 The camera shall have Lens distortion compensation for the distorted images that shall be able to be adjusted 256 steps.

1.19 The camera shall be able to support uni-cast and multi-cast transmission.

1.20 The Network Camera shall provide bandwidth controls with various throughput levels or frame priority mode having Constant Bit Rate and Advanced VBR. The Bandwidth Limit for a video stream shall be adjustable to 512 Kbps to 8 Mbps or better

1.21 The camera shall be able to support intelligent Video Motion Detection (VMD)/Analytics without any external hardware required

1.22 The camera shall have Privacy Zone that shall be able to mask up to 8 private areas, such as house windows and entrances/exits.

1.23 The camera shall have Alarm sources including 3 terminal input, VMD and Panasonic alarm command that shall be able to trigger actions such as SDXC/SDHC/SD memory recording, FTP image transfer, E-mail notification, Indication on browser, Alarm terminal output and Panasonic alarm protocol output.

1.24 With the camera, JPEG Image compression ratio shall be able to be changed by alarm so that higher quality image shall be provided.

1.25 Prioritized stream control: One of the video streams shall be prioritized when multiple recorders or client PCs shall access the camera so that the recorder or the client PC shall be able to maintain the frame rate.

1.26 The camera have SDXC/SDHC/SD Memory card slots for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (H.264 / JPEG) and also shall have long-term recording and auto backup function.

1.27 The camera shall have Fog compensation function and Super Chroma Compensation function that shall realize a better color reproducibility even in foggy & low illumination environment.

1.28 The Network Camera shall support IPv4 and IPv6 network addressing and shall support TCP/IP, UDP/IP, HTTP, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, and SNMP protocols

1.29 The camera shall be capable of being configured to automatically transmit alarm images transfer via FTP file transfer and/or e-mail. In addition the camera shall support the scheduled transfer of image data via FTP to an FTP server.

1.30 The camera shall generate a VBS 1V p-p/75Ohm NTSC or PAL composite signal for local adjustment.

1.31 The camera shall have full duplex two-way audio feature and be capable of transmitting and receiving the audio stream through the same Ethernet connection as the video. The audio shall be encoded using G.726 (ADPCM) 32 kbps/ 16 kbps, G.711 64 kbps or AAC-LC compression method.

1.32 The power source for the camera shall be PoE (IEEE 802.3af)@125mA or 12V DC or 220V AC

1.33 The camera shall be capable of operating at an Ambient Temperature of -10 degrees C ~ +50 degrees C

1.34 The network Camera must be certified to CE and UL, FCC Safety/EMC standards

2. Full HD Fixed Network Camera with 3 Megapixel Lens & IP 66 Housing

2.1 The Full HD 1080p True Day/Night Network Camera shall be ONVIF compliant.

2.2 The Network Camera shall incorporate digital signal processing (DSP) with 1/3" or 1/ 2.7" or better progressive scan CCD/CMOS/MOS sensor with effective 3.1 Megapixel pixels for superior picture detail and clarity.

2.3 The camera lens shall be 3MP, IR Corrected, 1/3" or 1/ 2.7" CS Mount Megapixel 8-50 mm or better Vari-Focal Lens with aperture range from F/1.6 – 360, Focus range 0.4 –infinity, DC Iris, Manual Zoom etc.

2.4 The Network Camera shall offer wide dynamic range of 100dB or better and Digital Noise Reduction (DNR) features for real surveillance purposes under severe conditions.

2.5 The camera shall feature a Day & Night mode that may be manually or automatically engaged on low light level and permit the use of an external infrared illuminator. The camera shall incorporate independent automatic Colour to Black/White switching modes for switchover on light threshold and sensitivity to IR illumination.

2.6 The Network Camera shall offer feature to transform shadows and dark areas into natural and crisp images in real time and support intelligent features like Auto Backlight Compensation/ Adaptive Black Stretch (ABS), ATW, AWC, Gain Control and Digital Noise Reduction (DNR) etc.

2.7 The Network Camera shall support 3D-DNR to ensure noise reduction in various conditions.

2.8 The Network Camera shall have Lens Distortion Correction feature to capture the natural images without distortion, using wide angle lens and 2x extra optical Zoom.

2.9 The Network Camera shall offer hardware-based Automatic Back Focus mechanism for adjustment through web browser or Video Management System (VMS) software. The feature shall optimally adjust delicate lens focusing automatically or manually.

2.10 The cameras shall have a minimum illumination of 0.5 lux in colour mode and 0.06 lux in Black/White mode with F1.4, Gain-On and Auto slow shutter-Off condition.

2.11 The Network Camera shall offer Automatic Light Control to reduce the Flicker caused by fluorescent lightning, Sodium Vapour and other night time Street illumination.

2.12 The Network Camera shall have Fog compensation feature for clear image visibility in winter seasons

2.13 The camera shall be able to support intelligent Video Motion Detection (VMD)/Analytics without any external hardware required

2.14 The Network Camera shall offer on-device intelligence like special dynamic range/Face Detection feature to enhance details of human faces for better identification.

2.15 The Network Camera shall use a minimum Triple Streaming Codec capable of simultaneously generating and transmitting JPEG and two independent H.264 (High/Main Profile) video streams, at different configurable resolutions and frame rates.

2.16 The Network Camera shall be capable of generating and transmitting images at 1,920 x 1,080, 1,280 x 960, 1,280 x 720, 640 x 480, 640 x 360, 320 x 240 resolutions at 30 fps and 2,048 x 1,536 resolution at minimum 15 fps or better in any of the streams.

2.17 The camera shall be able to support uni-cast and multi-cast transmission.

2.18 The Network Camera shall provide bandwidth controls with various throughput levels or frame priority mode having Constant Bit Rate and Advanced VBR. The Bandwidth Limit for a video stream shall be adjustable to 512 Kbps to 8 Mbps or better

2.19 The camera shall have the feature to capture video on variable image qualities/ resolutions i.e. higher resolution only on specified 2 areas of the image, to reduce the maximum network Bandwidth.

2.20 The camera shall feature cropping or region of Interest function which enables to provide whole image at 1080p resolution and the part of image at lower resolution simultaneously with up to 4-image capture areas which can be sequenced or Pan/Tilt/Zoom

2.21 The camera shall have Picture in Picture feature that enables the cropped or alarm image added to the main image and transmitted to server.

2.22 The camera shall have a built-in web server so that access to the IP video stream can be obtained using Internet Explorer Version 6.0 SP3 or later version (32bit). Up to 14 users shall be viewable simultaneously when connected to the camera, and it is viewable without any additional software required.

2.23 The camera shall support Audio input/output. The camera shall have full duplex bidirectional audio feature and be capable of transmitting and receiving the audio stream through the same Ethernet connection as the video. The audio shall be encoded using the G.726 (ADPCM standard) and G.711.

2.24 The camera shall provide an Memory Card (SDXC/SDHC/SD) slot which can support a maximum of a 64 Gbytes SD card that can cache images in the event of a network failure, manual/alarm recording. The Network Camera shall also provide notification of the remaining capacity of the optional Memory Card.

2.25 The camera shall be capable of being configured to automatically transmit alarm images transfer via FTP file transfer and/or e-mail. In addition the camera shall support the scheduled transfer of image data via FTP to an FTP server.

2.26 The camera shall support network mobile terminal compatibility with iPad, Android, iPhone and iPod Touch.

2.27 The Network Camera shall support IPv4 and IPv6 network addressing and shall support TCP/IP, UDP/IP, HTTP, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, and SNMP protocols

2.28 The camera shall feature an alphanumeric title of 20 characters and 2 Privacy Zones

2.29 The camera shall have three external I/O Terminals which can support Alarm IN/OUT or External Day/Night control or exposure out which is for external flash/IR synchronizing.

2.30 The camera shall generate a VBS 1V p-p/ 75Ohm PAL composite signal for local adjustment.

2.31 The power source for the camera shall be PoE (IEEE 802.3af)@125mA or 12V DC or 220V AC

2.32 The camera shall be capable of operating at an Ambient Temperature of -10 degrees C ~ +50 degrees C

2.33 All Camera must be certified to CE and UL, FCC Safety/EMC standards

2.34 The camera must be complying to EN-61000-4-2, EN-61000-4-3 & EN-61000-4-4 guidelines/standards

2.35 The camera shall be provided with aluminium body Outdoor IP66 Housing (same make as of camera) with inbuilt heater, blower and sunshield etc. with suitable mountings.

3. Weather Resistant 20x HD PTZ Dome Network Camera

3.1 The 20x HD True Day/Night PTZ Dome Network Camera shall be ONVIF compliant.

3.2 The 20x HD True Day/Night PTZ Dome Network Camera shall offer an advanced 1/3" or 1/4" Progressive Scan Megapixel CCD/CMOS/MOS Sensor for superior picture detail and clarity.

3.3 The HD PTZ Camera shall be a self-contained unitized dome camera assembly that incorporates an integral day/night camera, pan-and-tilt motor, zoom lens and network interface. The Dome assembly shall

come pre-wired from the factory. **The units with external pan-and-tilt motor, encoder, lens etc. will not be accepted.**

3.4 The PTZ Dome Camera shall feature a dome cover with Rain Wash Coating which shall soak rain drops into surface of camera dome maintaining better view during raining conditions. In addition, stain on camera dome surface can be relatively washed away by rain or by just spraying water without wiping. If the rain-wash coating is not available then bidder should quote integrated PTZ with wiper and washer units, maintaining clear pictures in bad/rainy weathers also.

3.5 The Network Camera shall produce a high quality picture with a minimum illumination of 0.03 lux in colour mode or 0.004 lux in B/W mode at F1.4 or better. It shall offer IR cut filter that switches automatically to on/off, to enhance low-light or IR light sensitivity during B/W mode.

3.6 The Network Camera shall offer wide dynamic range circuit and Digital Noise Reduction (DNR) features for real surveillance purposes under severe conditions.

3.7 The Network Camera shall offer on-device intelligence like special dynamic range/Face Detection feature to enhance details of human faces for better identification.

3.8 The Network Camera shall offer automatic gain control (AGC) function and an S/N ratio of 52dB or better.

3.9 The Network Camera shall use a minimum Triple Streaming Codec capable of simultaneously generating and transmitting JPEG and two independent H.264 (High/Main Profile) video streams, at different configurable resolutions and frame rates.

3.10 The Network Camera shall be capable of generating and transmitting images at 1,280 x 960, 1,280 x 720, 800 x 600, 640 x 480, 640 x 360, 320 x 240 resolutions at 25/30 fps

3.11 The Camera shall support uni-cast and multi-cast transmissions.

3.12 The Network Camera shall offer feature to transform shadows and dark areas into natural and crisp images in real time and support intelligent features like Auto Backlight Compensation/ Adaptive Black Stretch (ABS), ATW, AWC, Gain Control and Digital Noise Reduction (DNR) etc.

3.13 The Network Camera shall support 3D-DNR to ensure noise reduction in various conditions.

3.14 The Network Camera shall offer a built-in digital motion detection feature with minimum four configurable areas per scene and fifteen sensitivity levels adjustments.

3.15 The Network Camera shall be capable of Advanced Auto Tracking function which track and follow a single moving target. The Advanced Auto Tracking function shall not require an external video processor to control the Network Camera.

3.16 The Network Camera shall incorporate motorized zoom lens with a focal length of 3 mm to 5 m ~ 80 to 125mm or better with automatic iris and automatic focus features.

3.17 The Network camera shall provide 36x Optical zoom in HD mode with continuous 12x digital zoom

3.18 The Network Camera shall offer an automatic zoom-to-window feature allowing the user to draw a box area using his mouse and the camera will automatically zoom in on that area.

3.19 The Network Camera shall offer Automatic Tracing White Balance Adjustment feature for Sodium Vapour and other night time Street illumination.

3.20 The Network Camera shall be equipped with image stabilization feature capable of electronically stabilizing the image against mechanical vibration.

3.21 The pan-and-tilt motor shall be a high-speed unit which allows 360° endless panning with a tilt range of -15 to +185°.

3.22 The pan-and-tilt motor shall allow for preset and sequence rotation speed of approximately 400° per second or better for Panning & Tilting.

3.23 The Network Camera shall use variable manual speed control to allow for super fine pan & tilt control of 0.065° to 120°/s.

3.24 The Network Camera shall be a direct drive motor assembly. **Belt-driven unitized** camera units will not be acceptable.

3.25 The Network Camera shall offer a minimum of 256 preset positions and 8 privacy zones.

3.26 The Network Camera shall support an image hold capability for retaining images during preset position acquisition phase.

3.27 The Network Camera shall be able to automatically sequence through the preset positions in logical programming order (sequence mode).

3.28 The camera shall support 360° map shot / preset map shot.

3.29 The camera shall have a built-in web server so that access to the IP video stream can be obtained using Internet Explorer Version 6.0 SP3 or later version (32bit). Up to 14 users shall be viewable simultaneously when connected to the camera, and it is viewable without any additional software required.

3.30 The IP address of the Network Camera shall be able to be detected by a software tool that is provided free-of-charge and Camera shall have the capability of password protecting all menu settings.

3.31 The web browser shall include the ability to electronically zoom into the picture between 1x to 12x.

3.32 The Network Camera shall be able to take snapshots of the video by clicking on an icon in the web browser. The image shall be saved as a JPEG file format.

3.33 The Network Camera shall be able to connect to a Network Time Protocol (NTP) server automatically and synchronize to the network time. The time zone shall be made selectable.

3.34 Up to 15 other network cameras shall be viewable simultaneously by the user, when connected to the Internet Explorer of the Network Camera without any additional software required.

3.35 The Network Camera shall generate a VBS 1V p-p / 75Ohms PAL composite signal through a 3.5mm mini jack.

3.36 The Network Camera shall have built-in Audio input and output jacks for transmitting and receiving full duplex audio stream through the same Ethernet connection as the video. The audio shall be encoded using the G.726 or equivalent ADPCM standard.

3.37 The Network Camera shall have 3 external I/O Terminals which can support alarm inputs/outputs or external Day/Night controls or exposure out for external flash synchronizing.

3.38 The Network Camera shall provide a Secure Digital High Capacity (SDHC) Memory Card slot which can support up to a maximum of 32GB SDHC memory card that can cache images in the event of a network failure, manual/alarm recording. The Network Camera shall also provide notification of the remaining capacity of the SDHC Memory Card.

3.39 The Network Camera shall provide bandwidth controls with various throughput levels or frame priority mode having Constant Bit Rate and Advanced VBR

3.40 The Network Camera shall be capable of being configured to automatically transmit alarm images transfer via FTP file transfer and/or e-mail. In addition the Network Camera shall support the scheduled transfer of image data via FTP to an FTP server.

3.41 Terminal inputs, VMD alarms, and alarm commands shall be able to trigger actions such as SDHC memory recording, FTP file transfer, e-mail notification, alarm indications on web browser, alarm terminal output, and alarm command output.

3.42 Alarm log, Manual recording log, FTP error log saved in the SDHC memory card shall be able to display on the web browser GUI and can also be downloaded to the PC. Video playback or image download from the log shall also be made available.

3.43 Alarm log, Manual recording log, FTP error log saved in the SDHC memory card shall be able to display on the web browser GUI and can also be downloaded to the PC. Video playback or JPEG image download from the log shall also be made available.

3.44 The Network Camera shall support IPv4 and IPv6 network addressing and shall support TCP/IP, UDP/IP, HTTP, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, and SNMP protocols

3.45 The power source for the Network Camera shall be IEEE802.3at (Power over Ethernet Plus, PoE+) compliant or 24VAC.

3.46 The integrated housing shall have a polycarbonate dome cover, die cast aluminium body and use tamper resistant hardware. The housing shall have a built in sunshield. The housing shall be weatherproof to IP66. The Camera shall have inbuilt Heater, Blower or Dehumidification device for use in various weather conditions

3.47 The Network Camera shall meet the following operating conditions:

Temperature : -30 to +55^{o}C or better

Humidity : 90% or less (without condensation)

3.48 All units must be certified to CE, UL, FCC Safety & EMC standards

4. Video Management Server

4.1 Server E5- 24xx processor, 12 GB Ram, 8 core with 2 LAN Ports - 4 nos.(Minimum)

5. Network Video Management & Monitoring Software (NVMMS)

5.1 The VMS OEM shall be of Global repute and shall have been incorporated at least 15 years from the date of publish of Tender

5.2 The VMS described in this specification is highly scalable Multi Site enterprise level (IP) based Video Management (VMS) Software, centrally managed with multi server as well as distributed sites. The VMS shall have at present capacity to switch, control and record up to 64 cameras per server. One master

server shall have the capacity to control 99 slave servers. The system shall be able to Support Minimum 1000 cameras and shall be expandable to unlimited cameras in future by adding more slave and master servers.

5.3 The proposed solution shall not require proprietary camera, computer, server, network or storage hardware and shall provide seamless integration of third party security infrastructure, wherever possible. Software shall be ONVIF and PSIA compliant with APIs and SDKs available without any additional charge

5.4 VMS should support 3 motion detection methods.

5.5 The VMS shall support inbuilt Video Analytics.

5.6 The VMS shall be Windows based supporting native or virtualized Windows Server 2008R2 and Server 2012 and Windows 7 and 8. The VMS shall allow operation with PC Keyboard, Mouse and DirectX compliant CCTV Keyboard (Joystick).

5.7 The VMS OEM shall be atleast Microsoft Gold Certified Partner for enhanced experience.

5.8 The VMS shall be able to support cameras at upto 60 frames per second and any resolution supported by the camera and the camera driver. The VMS shall automatically offer only supported fps and resolution combinations for user convenience.

5.9 The system shall allow the recording, live monitoring, playback of recorded video audio, and data simultaneously

5.10 The VMS software shouldn't require additional Database Server. If required, then should be in scope of bidder

5.11 The VMS shall allow bidirectional audio communication with the cameras

5.12 The VMS shall be able to integrate with other systems using video, data or digital I/O

5.13 The VMS shall supported unlimited storage.

5.14 The VMS shall support Network Attached Storage (NAS) systems and shall have the ability to directly record in NAS.

5.15 The VMS shall support H.264, MPEG-4 and MJPEG compression methods

5.16 The VMS shall support multi-live streaming.

5.17 The VMS shall support exporting video in a tamper proof format. The media player provided in the software shall automatically notify if the video or audio has been modified

5.18 The VMS shall provide file export tool for export of single frame of video in BMP, GIF, TIF, JPG and PNG formats and export of video files in ASF,AVI and MKV format

5.19 Live Display of Cameras

5.20 Various layout configurations (2X2, 3X3 & 4X4etc.)

5.21 Recording of Video and Audio

5.22 Playback of Video and Audio

5.23 Should support multicast communication

5.24 Configurable recording rate per camera

5.25 Remote Administration, Monitoring & Management of Video

5.26 Archiving Support

5.27 Logical camera grouping

5.28 Quick review of the recorded video

5.29 Support any video resolution like CIF, 2CIF, 4CIF & HD up to 8MP and above

5.30 Support for IP Cameras & Encoders (for analog camera interface) The VMS shall also have a hybrid solution where both analog and IP cameras can be directly connected to the PC recorder without use of encoders

5.31 Quick search of devices in the viewing application

5.32 Extended camera viewing on multiple monitors

5.33 Multi camera sequential tours

5.34 Digital zooming feature for live video and playback

5.35 Facility for exporting the video on a portable media such as pen drive/DVD/portable hard disk etc.

5.36 Alarm pop ups for the associated cameras

5.37 Virtual camera views

5.38 PTZ Support

5.39 Video search on the basis of date, time, event, camera, location & alarm

5.40 Post recording motion search analysis

5.41 Image enhancement tools for live and playback

5.42 Object virtual PTZ following

5.43 The VMS shall have the following licensing policies:

5.43.1 The VMS shall not have base licenses and standard channel modules. The VMS shall be flexible to provide and support licenses for any number of cameras.

5.43.2 The VMS licensing shall allow changing any and all of the cameras at any time without extra cost or license key change

5.43.3 The VMS shall not require online licensing process

5.43.4 The VMS shall support instant device/ Camera replacement using original IP address. The IP of the new device/ camera shall not be feeded in the software while replacing faulty camera / device

5.43.5 The VMS Server should support minimum 25 VMS & 25 VCA on a single server when VCA is required.

5.43.6 The VMS licensing shall require MAC Id of Server/ Recorder only, not of camera devices.

5.44 **Recording redundancy**

5.44.1 The VMS shall support software inbuilt modified RAID 0 for fault tolerance - continuous recording even after disk failure

5.44.2 Redundant Recording

5.44.2.1 Warm standby recorder: in case of a recorder hardware failure, it is possible to restore the backed up settings of the failed recorder into the spare recorder server where the VMS is also installed

5.44.2.2 Redundant recorders: have two recorders with same settings in different locations. One is primary and the other is secondary. Primary server is used to configure cameras; secondary server is used only to receive streams and record. Camera stream can be multicasted to preserve network bandwidth

5.44.2.3 VMS should have Secured Data Distribution Technology which distributes video frames evenly between disks. A single drive failure would thus only decrease the frames on a video clip and not leave any large blank areas during the storage interval.

5.45 Ability to Define a Virtual camera that focuses in the part of camera view is it live or playback. Using Virtual Cameras one can view chosen parts of the full recorded Camera View in a Separate Window. View Specific Area of interest in a virtual camera and choose per virtual camera for zooming, View, Aspect Ratio and resolution. Virtual cameras may overlap each other. Atleast 16 such Virtual camera can be made from one single camera view.

5.46 Shall have visualized Video intelligence for the Virtual camera to Auto Zoom and track an object.

5.47 **Recording Software**

5.47.1 Software shall operate in server-client architecture. The servers shall include recorders, system management server(s) and possible gateway/web server(s).

5.47.2 Software should be of enterprise level and able to handle up to 64 cameras with one recorder. One master recorder shall manage a system of up to 100 recorders with the possibility to expand the system to include multiple master recorders. Recorder Software should have a spare of minimum 15 %

5.47.3 The system management server shall run as a Windows service on one of the recorders. The system management server shall control the following:

5.47.3.1 Overall system operation.
Data communication between recorders and client programs.

5.47.3.2 Maintain user and profile lists.

5.47.3.3 Authenticate and authorize users and applications.

5.47.3.4 Maintain system logs.

5.47.3.5 Handle system diagnostics.

5.47.4 Software shall allow the recording, live monitoring, playback of archived video, audio and data, network transmission and changes to settings simultaneously.

5.47.5 Server software shall enable the client to dynamically create connections between Cameras and workstations and view live or recorded video on the digital monitors(audio, video, serial ports and digital (I/Os)

5.47.6 Server software shall provide the client seamless operation of all cameras and workstations available in the system regardless of the actual connection to different archive servers

5.47.7 The recorders shall support multistreaming between the recorder server and the client machines

5.47.8 Offered software shall use standard servers for all the processing and shall not need any proprietary server hardware

5.47.9 The alarms may be triggered by the following events:

5.47.9.1 Motion (or lack of motion) in camera view

5.47.9.2 Change in sound level

5.47.9.3 Text data string

5.47.9.4 Digital input signal from an external device

5.47.9.5 Missing camera signal (resulting for example from sabotage)

5.47.9.6 Custom event from 3rd party application.

5.47.9.7 Video Content Analytics (VCA) event from inbuilt.

5.47.10 The alarm management shall support the following automatic responses: Pre- and post-recording of video and audio

5.47.10.1 Opening an alarm camera window or audio window (real-time or playback) on the workstation screen

5.47.10.2 Displaying the alarm on the alarm list activating a digital output

5.47.10.3 Turning a dome camera to a preset position

5.47.10.4 Starting a dome camera tour Sending an alarm e-mail message

5.47.10.5 The alarm management shall be able to acknowledge alarm automatically or manually

5.47.11 The alarm management shall support the following alarm viewing features:

5.47.11.1 It should provide the facility to assign the priority level to different alarms.

5.47.11.2 It should allow pass the specifical alarms to specified users rather than sending all alarms to every user.

5.47.11.3 Users in same user group should see and be able to manage received alarms assigned for the same user group. All users should see the alarm status in real time.

5.47.11.4 System should have single alarm stack even though there are multiple recording servers

5.47.12 Software should allow creation of multiple camera sequences. It should be possible to set the dwell time for the cameras within the sequence.

5.47.13 Software should allow taking the backup of the recorder server configuration and restoring the same if required.

5.47.14 Software should allow easy and user friendly menus for camera configurations. It shall allow changing settings for multiple cameras of the same type simultaneously

5.47.15 Software should provide totally configurable user privileges with independent user rights. The user privileges are saved in profiles which can be assigned for the required users

5.47.16 Software should support the export of video clips. It should allow the export of multiple camera videos simultaneously. Export should be possible in ASF, AVI and MKV format. The video clips shall be playable either using the software specific player or Windows Media Player. The software specific player shall support authenticity check for the media clips

5.47.17 Software should provide the utility to interface the recorder servers with internet. Internet Gateway server shall allow clients to view live and playback video streams, control PTZ cameras and control digital I/O devices over the internet

5.47.18 Software shall allow the client applications to interact with multiple recorder servers simultaneously and allow the simultaneous display cameras from different recorders on the same monitor

5.47.19 The VMS shall support reporting tool with the following features:
a. Alarm reports, for example daily or weekly alarm statistics.
b. Audit trail search with filters for time, user, action, device and application.
c. The reporting tool shall be web based for easy access.

5.47.20 The VMS shall support integration with different applications like Baggage Scanner, Radars, UVSS, RFID, ACS etc.

5.47.21 The VMS shall support at least 40 different Camera manufacturer, ONVIF and PSIA

5.48 **Recording Software**

5.48.1 The client programs shall include end user client program, system management client program, browser-based client program and mobile client programs, atleast 10 concurrent client license to be provided which can be expandable upto 30 User license without any charge.

5.48.2 The end user client program shall support multiple profiles for each user

5.48.3 Client applications shall provide an authentication mechanism, which verifies the validity of the user through the selected system management server

5.48.4 Client shall perform the following applications simultaneously without interfering with any of the Archive Server operations (Recording, Alarms, etc.)

5.48.4.1 Live display of cameras and audio

5.48.4.2 Live display of camera sequence

5.48.4.3 Playback of video and audio

5.48.4.4 Media search tools

5.48.4.5 PTZ control

5.48.4.6 Display and control of Maps

5.48.4.7 Alarm management

5.48.4.8 Digital I/O control

5.48.5 Client applications shall support any form of IP network connectivity including: LAN, WAN, VPN, Internet and Wireless

5.48.6 Client applications shall support IP Multicast (RTP) and Unicast (TCP or RTP) video and audio streaming as required depending on the network capabilities

5.48.7 Client application should support multi monitor workstations

5.48.8 Client application should support both dynamic and predefined Video display layouts, for example Full screen, Quad ,3x3 ,4x4 ,1+5,1+12 etc.

5.48.9 Client application shall enable playback of audio along with video. The monitor shall enable the user to work with multiple Audio layouts containing collections of audio clips

5.48.10 Users shall be able to define and store their own layouts, which they will be able to recall later through a layout list. Each layout shall contain information about the dimensions and positions of all windows along with image filter data and data about the active profile

5.48.11 Client application shall enable playback of audio mixed from both live and recorded audio sources, allowing the user to control the volume of each source independently as well as mute them

5.48.12 Client application shall be able to control the playback with play, pause, forward and speed buttons

5.48.13 Client application shall allow operators to save bookmarks with description of the recorded video, audio and text data

5.48.14 Client application shall provide drag and drop facility for selection of the devices to be viewed in the viewing layout

5.48.15 Client application shall support Graphical Site Representation (Maps) functionality, where digital maps are used to represent the physical location of cameras and other devices throughout facility. Maps should have the capability to add the hyperlinks to create interlinked maps. It should allow the selection of any camera for display from the map

5.48.16 Client application shall support digital zoom on a fixed/PTZ camera's live and recorded video streams

5.48.17 Client application shall provide management and control over the system using a standard PC mouse, keyboard or CCTV keyboard. The client application shall support area zoom and click to center functions for PTZ cameras if supported by the specific camera driver. Area zoom zooms into the rectangle drawn by mouse and click to center means clicking anywhere on the PTZ camera view centers the camera to that position

5.48.18 Client application shall be able to control pan-tilt-zoom, iris, focus, presets and dome patterns of the PTZ camera

5.48.19 PTZ Controls on individual camera for efficient monitoring and management.

5.48.20 Software should provide the ability to play multiple video channels in time sync with each other. Software shall support exporting a multichannel clip with video, audio and text channel data

5.48.21 Any user can share layouts and should be visible to all users od same profile

5.48.22 Ability to Autocrop

5.48.23 Activity Map to provide the detail of the movement in the area of Interest/zone

5.48.24 Should support Virtual Matrix option to build video walls and video matrixes, the matrix can be created by having a separate display server for each four monitors in the matrix, as well as an operator console server to manage the display servers.

6. Video Recorder Server

6.1 Server E5- 24xx processor, 12 GB Ram, 8 core dual LAN Ports - 1 no. (Minimum)

7. NAS Storage for 15 Days

S No	Item	Specification
1	Connecting Ports (SAN)	Should have minimum of 2 * 10 Gbps iSCSI Host ports and 2 * 6 GBPS SAS Ports per Controllers. The quoted model should support FC connectivity in lieu of iSCSI
2	Management Software	Must include Storage Manager software, to centrally manage allStorage subsystems, Multi-path (Load Balancing & Failover), LUN masking and should Support RAID migration on to the vacant space available
3	O/S Support	Support for multiple Operating Systems connecting to it, including of Windows, UNIX , Linux, AIX, HP UX etc.
4	Disk Capacity	Offered SAN Array shall be configured with 38 TB usable capacity using 3 TB or higher drives.
5	Raid Controllers	Dual, both Active, Mimimum 8 GB usable cache across the two Controllers (8 GB per Controller).
6	Protocol support	FC, iSCSI, FCoE
7	Cache safety	Cache should be mirrored and battery-backed-up /disk-de-staged, to provide protection of data for 72 hours or more.

8	Drive Interface	6 Gbps SAS /4 Gbps FC-AL, with auto-sensing,
9	Supported drives, Mixed drive	Should support SSD, SAS,NL-SAS, 6 GBPs Drives.
10	RAID Levels	0/1, 4/ 5, and 6 or better
11	Min. Usable capacity support	The system should be scalable to minimum 300TB Usable capacity using 3 TB or higher drives
12	Fans & Power Supplies	Minimum 2, Dual-Power, redundant, hot-swap Power supplies for storage and switches
13	Rack Support	Suitable for industry-standard Racks and PDUs
14	Data Services	Should include data Snapshot, Thinprovisioning, Tiering and Volume cloning or equivalent features for the offered capacity of the storage array. The proposed system should also include storage based replication software (Any Harware if required needs to be provided).
15	Reconfiguration	storage should support RAID /LUN migration and Tiering
16	Warranty & Support	3 Years, Comprehensive, On-Site Support Warranty including part replacement /repairs within 8 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days.
17	Alerts	Automated alerts for Improving service response times.
18	Others	All required cable and connectors to be supplied

8. 42" LED Monitor with Work station for monitoring at each department

Workstation with LAN Graphic card I7 processor, 8 GB Ram with each PC we can connect 1 LED

Screen Size	**42-inch**
Aspect Ratio	16:9
Panel Backlight	IPS/Direct-LED
Backlight Scanning	100Hz
Resolution	1920 x 1080 pixels
Brightness	450cd/m^2
Effective Display Area (WXH)	928 x 522mm
Viewing Angle	$178^0/178^0$
Operating Life	50000 Hrs.(Approx.)
VIDEO IN	RCA X 1 1.0V(p-p) 75Ω
AUDIO IN (L/R)	RCA Pin Type X 2 (0.5Vrms)
HDMI IN	TYPE A Connectors X 2
COMPONENT / RGB IN	Y,PB/CB,PR/CRX1
USB Input	USB 2.0 X 1
Audio Out	RCA Pin Type X 2
Power Requirements	AC 110~240V,50/60Hz
Rated Power Consumption	73W
Power off condition	0.25W
Stand By condition	0.25W
Built -in Speakers	Full range 20W (10w+10W)(10%THD)
Dimensions(WXHXD) W Pedestal	963 x 610 x 247mm
Dimensions(WXHXD) W/O Pedestal	963 X566 X69 mm
Carton Dimension(WXHXD)	1259 X 640 X 128mm
Weight	8.5Kg

Gross Weight	13Kg
Cabinet Color	Glossy Black
VESA Mount	200 x 200mm
Operating Environment	Operating Temerature : 0^0C to 40^0C
	Operating Humidity : 20% to 80%
Storage Environment	Temperature : -20^0C to 60^0C
	Humidity : 20% to 90% (noncondensation)
SAFETY REGULATIONS	IS 13252:2010
AC cord	Y
Operating Manual	Y
Remote	Y
Batteries	Y
Table Mount	Y
Wall Mount	Y
Media Player	Y
Auto Stand by	Y
Support Format	JPEG , Video: AVI, MKV (.mkv)/ASF (.asf, .wmv) /MP4 (.mp4), .m4v) / FLV (.flv) / 3gpp (.3gp, .3g2) /TS (.ts) /PS (.vob, .vro)
Back light control	User Control

9. 4 Nos 42" LED Monitor with Work station for monitoring at Central Location

Workstation with LAN Graphic card I7 processor, 8 GB Ram with each PC we can connect 4 LED

Screen Size	**42-inch**
Aspect Ratio	16:9
Panel Backlight	IPS/Direct-LED
Backlight Scanning	100Hz
Resolution	1920 x 1080 pixels
Brightness	450cd/m^2
Effective Display Area (WXH)	928 x 522mm
Viewing Angle	$178^0/178^0$
Operating Life	50000 Hrs.(Approx.)
VIDEO IN	RCA X 1 1.0V(p-p) 75Ω
AUDIO IN (L/R)	RCA Pin Type X 2 (0.5Vrms)
HDMI IN	TYPE A Connectors X 2
COMPONENT / RGB IN	Y,PB/CB,PR/CRX1
USB Input	USB 2.0 X 1
Audio Out	RCA Pin Type X 2
Power Requirements	AC 110~240V,50/60Hz
Rated Power Consumption	73W
Power off condition	0.25W

Stand By condition	0.25W
Built -in Speakers	Full range 20W (10w+10W)(10%THD)
Dimensions(WXHXD) W Pedestal	963 x 610 x 247mm
Dimensions(WXHXD) W/O Pedestal	963 X566 X69 mm
Carton Dimension(WXHXD)	1259 X 640 X 128mm
Weight	8.5Kg
Gross Weight	13Kg
Cabinet Color	Glossy Black
VESA Mount	200 x 200mm
Operating Environment	Operating Temerature : 0^0C to 40^0C
	Operating Humidity : 20% to 80%
Storage Environment	Temperature : -20^0C to 60^0C
	Humidity : 20% to 90% (noncondensation)
SAFETY REGULATIONS	IS 13252:2010
AC cord	Y
Operating Manual	Y
Remote	Y
Batteries	Y
Table Mount	Y
Wall Mount	Y
Media Player	Y
Auto Stand by	Y
Support Format	JPEG , Video: AVI, MKV (.mkv)/ASF (.asf, .wmv) /MP4 (.mp4), .m4v) / FLV (.flv) / 3gpp (.3gp, .3g2) /TS (.ts) /PS (.vob, .vro)
Back light control	User Control

10. 48 Port Core Switch L3

1	48 10Gigabit SFP+ ports supporting 10GbE/ 1GbE including. Management and console port separate, Loaded with 12 Nos 1000Base TX module and 24 Nos 10G Minimum 10Km Distance support on SM fiber.
2	Shall have 4 QSFP+ slot each supporting 40GbE or 4*10GbE , Quoted SFP+ shall be DDM supported and 1 USB port for external storage
3	Shall supply with loaded power supply with two RPS support for Load Sharing. Hotswapable and FanTray (3+1) redundant Fans s (F2B and B2F Airflow)
4	Shall have Switching Capability: 1.28Tbps,Forwarding Rate: 950 Mpps,MAC Address Table: 128K
Layer 2 & Security Feature set	
6	Shall support STP,RSTP,MSTP and DDM feature.
7	Shall support BPDU guard,ROOTguard,BPDUfilltering, Loop back detection.
8	Shall Supports 4K IEEE 802.1Q VLANs, port-based VLANs, GVRP,IEEE 802.1v Protocol-based VLANs,PrivateVLAN,Static Trunk, IEEE 802.3ad Link Aggregation Control Protocol , IGMP V1,2,3, MVR
9	Shall support LACP Load balance based on MAC SA/DA, Ether type, SIP, DIP,Source (TCP/UDP) port,Destination (TCP/UDP) portIGMP Snooping:
10	Shall support L3 IPv4 Host Table: 16K,L3 IPv4 Net Table: 8K,L3 IPv4 Multicast Table: 4K,L3 IPv6 Host Table: 8K,L3 IPv6 Net Table: 4K,L3 IPv6 Multicast Table: 4K
11	Shall support BGP/BGP+, RIPv1&v2,OSPF,OSPF V3 routing protocol support from day 1
12	Shall support 802.1Qau Congestion Notification(QCN)
13	Shall support 802.1Qaz Enhanced TransmissionSelection (ETS)
14	Shall support 802.1Qbb Priority Based FlowControl (PFC)

15	Shall support Multiple configuration files, SNTP / NTP support
16	Shall support Remote Switched Port Analyzer(RSPAN),sFlow,Traceroute/Traceroute6
17	Shall support PIM-DM6,PIM-SM6 and IPV6 MVR
18	Shall supportDenial of Service Protection (DoS),IEEE 802.1X port-based and
19	Shall support MAC-based authentication
20	Shall support L2/L3/L4 Access Control Lists,EAPOL frames pass-through
21	Shall support Dynamic ARP Inspection (DAI),Instruction lock (link detection)
Electromagnetic Compatibility	
22	CSA (CSA 22.2 NO 60950-1 & Shall be ROHS-6
23	Shall support CE Mark,UL 60950-1),FCC Class A,CB(IEC/EN60950-1)
Environmental Specifications	
24	Shall support 0℃ to 40℃ (Standard Operating)
25	Shall support Minus -40℃ to 70℃ (Non-Operating)
26	Shall support Humidity: 5% to 95% (Noncondensing)
27	Shall support Vibration: IEC 68-2-36, IEC 68-2-6
28	Should support ISO under category, design, develop and sale switches
29	OEM should be ISO9000 and 14001 Certified.
30	All the switch IOS shall be same industry grade CLI support for simple Mangement.

11. 12 Port Fiber Distribution Switch L3

Physical Configuration	
1	Shall supoort fully loaded 12 SFP 1000 base ports and 2 combo Port Gig Minimum 10Km Distance support on SM fiber.
2	4 x10G SFP+ ports, (Loaded with 2 10 Gig SFP+ Transreciever)
3	Should support Out of band Managment console port
4	Shall support DDM and UDLD feature on all ports
5	Shall support External Power supply for redundant purpose.
Performance	
6	Shall support Switching Capacity 108Gbps, Forwarding Rate 80Mpps
7	Shall support MAC Address Table Size 10K,Should support 1023 multicast groups
L2 Features	
8	Shall be IEEE 802.1D Spanning Tree Protocol (STP,RSTP,MSTP) Shall be BPDU Guard,BPDU filtering, Root Guard BPDU transparent Loopback detection
9	Shall Supports 4K IEEE 802.1Q VLANs Port-based ,GVRP,IEEE 802.1v Protocol-based VLANs, Mac-based VLANs , IP subnet based VLAN, Private VLAN (Traffic Segmentation per port/ VLAN), Guest VLAN, Support Voice VLANs ,Qin Q and Selective QinQ
10	Shall support Trunk groups: 16,Trunk links: 2~8 ports for Gigabit Ethernet ports 2-4 ports for 10 Gigabit Ethernet ports Load Balance: SA+DA, SA,DA,SIP+DIP, SIP, DIP
11	Shall support IGMP v1/v2/v3 snooping, MVR,QinQ,Selective QinQ
12	Shall support Loop Back Detection and DAI support
Layer 3 Features	
13	Should support hardware base IPv4 and IPv6 Static Route
14	Static route and RIPV1&V2, OSPF,OSPFv3,BGP4+
QoS Features	
15	H/W Queues 8 (8 egress queues per port)
16	Priority Queue Scheduling WRR | Strict Priority | Hybrid
17	Rate Limiting (Ingress and Egress, per port base)

18	Shall support GE: Resolution 64Kbps ~ 1000Mbps
OAM Features	
19	IEEE 802.3ah Link ,IEEE 802.1ag Connectivity Fault Management,Loopback,ITU-T Y.1731 Performance and Throughput Management,G.8032 (ERPS),
Security Features	
20	Shall support ACL,Port security,MAC authentication, Web authentication
21	Shall support IEEE 802.1X port based and MAC based authentication
22	Shall support Dynamic VLAN Assignment, Auto QoS, Auto ACL
23	Shall support L2/L3/L4 Access Control List.
24	Shall support DHCP Snooping,DHCP Option 82,IP Source Guard, Dynamic ARP Inspection, Instruction lock (link detection),PPPoE Intermediate Agent
25	Shall support RADIUS authentication,TACACS+ 3.0
Management Features	
26	CLI via console port,Telnet,HTTPS,SSH V2.0
27	Supports SNTP, NTP
28	Supports Port mirroring, Support VLAN mirror,MAC Based Mirror ACL Mirror, Supports Flow
29	All the switch IOS shall be same industry grade CLI support for simple Mangment.
IPv6 Features	
30	Shall support IPv6 ACL L2/L3/L4 , ICMPv6
31	Shall support IPv6 Address Types Unicast
32	Shall support IPv6 Neighbor Discovery-Router Discovery | Duplicate Address Detection | Parameter Discovery | Prefix Discovery | Address Resolution | Unreachable Neighbor Detection
33	Shall support PIM-DM6,PIM-SM6 and MLDv1 and V2
Shall support Temperature:	
35	0ºC to 45ºC (32 °F to 122 °F) standard operating
36	40ºC to 70ºC (-40 °F to 158 °F) non-operating
37	Humidity: 5% to 95% (non-condensing)
Shall Support Power Supply	
38	100 to 240 V, 50-60 Hz, Max System Power Consumption (Watts) 49 W
39	Shall support FCC Class A,EN55022 (CISPR 22) Class A,EN 61000-3-2/3, VCCI Class A
40	Shall be Environmental Regulation compliance: RoHS
41	Shall be ISO9001 and 14001 Certified company

12. 24 Port PoE Managed Switch L2

Physical Configuration	
1	Shall Support 24 RJ-45 (PoE) 10/100/1000BASE-T ports , Auto MDI-X Port
2	Shall Support 4 SFP(Loaded with 2 x 1 Gig SFP Transreciever) Minimum 10Km Distance support on SM fiber, Power budget min 400 W
3	Should support Out of band Managment console port
Performance	
4	Shall beSwitching Capacity 56 Gbps,MAC Address Table Size 16K
5	Shall be Forwarding Rate 41.7 Mpps,Jumbo Frames 13K
L2 Features	

6	Shall be IEEE 802.1W ,IEEE802.1S) Shall be BPDU Guard,BPDU filtering, Root Guard BPDU transparent Loopback detection
7	Shall Supports 4K IEEE 802.1Q VLANs,Port-based ,GVRP,IEEE 802.1v Protocol-based VLANs,Mac-based VLANs,IP subnet based VLAN Traffic Segmentation per port,Guest VLAN,Support Voice VLANs Support VLAN Trunking, MVR (Multicast VLAN Registration)
8	Shall be Static Trunk,IEEE 802.3ad Link Aggregation Control Protocol Trunk groups: 12,Trunk links: 2~8 ports for Gigabit Ethernet ports Load balance based on MAC SA/DA, Ethertype, SIP, DIP,
9	Shall be IGMP v1/v2/v3 snooping,IGMP Proxy reporting,IGMP Filtering,IGMP Throttling,IGMP Immediate Leave,IGMP Querier
10	Shall Supports QinQ,Supports select QinQ,Remote Port Mirroring (RSPAN),VLAN Mirroring,MAC Based Mirroring
QoS Features	
11	Shall be CoSIEEE 802.1p | DSCP|IP PRESEDENCE
12	Shall be H/W Queues 8 (8 egress queues per port), Priority Queue Scheduling WRR | Strict Priority | Hybrid
Security Features	
13	Shall support Dynamic VLAN Assignment, Auto QoS, MAC authentication, Web authentication, IEEE 802.1X port based and MAC based authentication
14	IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number) ACL, Mac Base ACL
15	DHCP Snooping,DHCP Option 82, IP Source Guard, Dynamic ARP Inspection, Instruction lock (link detection),PPPoE Intermediate Agent
16	shall be RADIUS authentication, TACACS+ 3.0
17	Rate Limiting (ingress and egress, per port base) GE: Resolution 64 Kbps ~ 1000 Mbps
Management Features	
18	shall support Supports dual image, Multiple configuration files
19	shall Supports RMON (groups 1, 2, 3 and 9)
20	shall Supports Port mirroring,Vlan Mirror, Supports sFlow
21	Event/Error Log/Syslog, Remote log(RFC3164), SMTP
22	Shall support DHCP dynamic provision option 66,67
23	All the switch IOS shall be same industry grade CLI support for simple Mangment.
IPv6 Features	
24	Shall be IPv4/IPv6 dual protocol stack,IPv6 Neighbor Discovery,HTTP,SNMP,SSH over IPv6,IPv6 ACL
Temperature:	
25	Shall support 0ºC to 50ºC (32 °F to 122 °F) standard operating
26	Shall support -40ºC to 70ºC (-40 °F to 158 °F) non-operating
27	Shall support Humidity: 10% to 90% (non-condensing)
Power Supply	
28	Shall support 100 to 240 V, 50-60 Hz
29	Shall support EMISSIONS,FCC Class A,VCCI Class A
30	Shall be RoHs and UL certified
31	OEM shall be ISO9001 and 14001 certified

13. 8 Port PoE Managed Switch L2

Physical Configuration	
1	Shall Support 8 RJ-45 (PoE) 10/100/1000BASE-T ports , Auto MDI-X Port
2	Shall Support 2 SFP (Loaded with 2 x 1 Gig SFP Transreciever) Minimum 10Km Distance support on SM fiber, (8+4 Active 12 Port) PoE Power budget min 140 W
3	Should support Out of band Managment console port
Performance	
4	Shall beSwitching Capacity 24 Gbps,MAC Address Table Size 16K
5	Shall be Forwarding Rate 17.9 Mpps,Jumbo Frames 13K
L2 Features	
6	Shall be IEEE 802.1W ,IEEE802.1S) Shall be BPDU Guard,BPDU filtering, Root Guard BPDU transparent Loopback detection
7	Shall Supports 4K IEEE 802.1Q VLANs,Port-based ,GVRP,IEEE 802.1v Protocol-based VLANs,Mac-based VLANs,IP subnet based VLAN Traffic Segmentation per port,Guest VLAN,Support Voice VLANs Support VLAN Trunking, MVR (Multicast VLAN Registration)
8	Shall be Static Trunk,IEEE 802.3ad Link Aggregation Control Protocol Trunk groups: 12,Trunk links: 2~8 ports for Gigabit Ethernet ports Load balance based on MAC SA/DA, Ethertype, SIP, DIP,
9	Shall be IGMP v1/v2/v3 snooping,IGMP Proxy reporting,IGMP Filtering,IGMP Throttling,IGMP Immediate Leave,IGMP Querier
10	Shall Supports QinQ,Supports select QinQ,Remote Port Mirroring (RSPAN),VLAN Mirroring,MAC Based Mirroring
QoS Features	
11	Shall be CoSIEEE 802.1p | DSCP|IP PRESEDENCE
12	Shall be H/W Queues 8 (8 egress queues per port), Priority Queue Scheduling WRR | Strict Priority | Hybrid
Security Features	
13	Shall support Dynamic VLAN Assignment, Auto QoS, MAC authentication, Web authentication, IEEE 802.1X port based and MAC based authentication
14	IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number) ACL, Mac Base ACL
15	DHCP Snooping,DHCP Option 82, IP Source Guard, Dynamic ARP Inspection, Instruction lock (link detection),PPPoE Intermediate Agent
16	shall be RADIUS authentication, TACACS+ 3.0
17	Rate Limiting (ingress and egress, per port base) GE: Resolution 64 Kbps ~ 1000 Mbps
Management Features	
18	shall support Supports dual image, Multiple configuration files
19	shall Supports RMON (groups 1, 2, 3 and 9)
20	shall Supports Port mirroring,Vlan Mirror, Supports sFlow
21	Event/Error Log/Syslog, Remote log(RFC3164), SMTP
22	Shall support DHCP dynamic provision option 66,67

23	All the switch IOS shall be same industry grade CLI support for simple Mangment.
IPv6 Features	
24	Shall be IPv4/IPv6 dual protocol stack,IPv6 Neighbor Discovery,HTTP,SNMP,SSH over IPv6,IPv6 ACL
Temperature:	
25	Shall support 0ºC to 50ºC (32 °F to 122 °F) standard operating
26	Shall support -40ºC to 70ºC (-40 °F to 158 °F) non-operating
27	Shall support Humidity: 10% to 90% (non-condensing)
Power Supply	
28	Shall support 100 to 240 V, 50-60 Hz
29	Shall support EMISSIONS,FCC Class A,VCCI Class A
30	Shall be RoHs and UL certified
31	OEM shall be ISO9001 and 14001 certified

14. NMS Software

1	Should be of same make of the offered switches
2	Management station should be enabled for minimum 200 active devices from day 1 .
3	It shall be possible to manage, configure, administer, monitor, upgrade and troubleshoot all the switches from a central Element Network Management System (SOFTWARE).
4	The offered SOFTWARE should be deployable of Linux, Solaris and Microsoft Windows Server on Intel based Hardware for Flexibility
5	It shall be possible to monitor real time device status and network traffic for individual devices and ports.
6	The SOFTWARE shall be able to upload firmware images & bootrom images to multiple switches at the same time
7	The SOFTWARE shall be able able to upload and download configuration files to /from multiple switches at the same time and also able to schedule the activity on periodic interval.
8	The SOFTWARE shall able to set baseline configuration for every switches and do comparison analysis on configuration changes
9	The SOFTWARE shall be able to receive network events like snmp alerts , RMON threshold changes , display alerts and make configuration changes on the network switches based on the alert information without the requirement of human intervention
10	The SOFTWARE shall support pictorial display of the status of power supply and active ports / slots
11	Should support User Based Policies, Policies specifically configured to control user network access and resource access at the entry point of the network. User Based Policies may be QoS and / or security policies. User Based Policies can applied on an individual user or on a group / department of users
12	Complete reporting status for policies deployed throughout network
13	The SOFTWARE shall be able to authenticate login acces to all network devices without the requirement of a separate application/server
14	The SOFTWARE should should support ability to create single template configurations which can be deployed on single or multiple device with the facility to input device specific informations when prompted to reduce the need for creating / editing the templates every time.
15	The SOFTWARE shall support ability to push policies on the switches which can be triggered by time , network event , user authentication , device detect
16	The SOFTWARE shall support topology maps to monitor the link state of the network devices with realtime update of the link utilization on the same map
17	The SOFTWARE shall have support for custom port descriptions which should be reflected on topology maps
18	The SOFTWARE shall be able to receive all error logs from the network devices and display on a per device context
19	The SOFTWARE shall be able to schedule Jobs and Configuration Tasks on periodic intervals without manual intervention
20	The SOFTWARE should not require separate client installation or if it necessary the client installation should be automated
21	OEM should be ISO 9001:2000 and 14000 certified in areas of design, service and distribution of telecom hardware and software products

15. Fiber Optic LIU with Pigtails, Splice Trays& Splice Protectors (Fully Loaded):

24 Port Rack Mount Fibre Patch panel should be of Dimensions: 19" (Width) x 1U (Height) x 270mm (Depth)
Should be able accept SC Duplex, SC Simplex, LC Duplex and MTRJ Adaptors.
Should have snap-in sub modules with six single fibre or 3 dual fibre ports
Should have a fibre management system moulded in to the unit structure to effectively route fibres from an incoming cable through to the connector interface.
Should have knockouts at the rear to enable termination of loose tube or tight buffered cables as well as blown fibre tubes
Should be made up of polycarbonate, PC/ABS.
Should have the option of accommodating 6 nos. of splice protection sleeve, each can accommodate 4 connectors.
Should be slideable and should have tamper proof positive locking mechanism by means of clips supplied as standard with each unit
Should meet EN50173 and ISO/IEC 11801 operating specifications

16. LC-LC OFC Patch Cords SM:

Shall consist of tight buffered, Singlemode fibres with a 9 Micron core and a 125 micron cladding	
The fibre patch cord shall be duplex type and factory terminated with LC ceramic connectors at both the ends.	
Tip material should be made of Ceramic	
Insertion Loss (Max): Cable OD: Service life (Cycles): Tensile strength:	0.5dB 2mm 1000 cycles 100N
Patch cords should be of Duplex	

17. 6-Core Optical Fiber Cable, Outdoor, Singlemode, 9/125um:

Cable Type	**6-core, Single Mode, Corrugated Steel tape Armour, Loose-tube, Fully water blocked core ,E glass Yarns, Out door fiber cable**
Fiber Type	Single Mode, 9 / 125, 250 micron primary coated buffers
No. of cores	6
Armor	Corrugated Steel Tape Armor
Cable standard Comply with	IEC 60793-2-50 ,B1.3 and ITU-T.G.652.d.
Fiber Attenuation	
@ 1310nm	0.34 db/KM
@1550nm	0.22 dB/KM
@1380 – 1386 nm	0.31db/km
@1625 nm	0.24db/km
Manufactured technology	Using VAD (Vapor Phase axial Deposition) technology
Link Length	
	1000 Base-LX … 2-5000 m
	10G BASE-LX …. 2-10000 m
	10G BASE-LX4 ….. 2-10000 m
Optical Characteristics	
Chromatic dispersion @1310nm	<=3.5 ps/(nm.Km)

Chromatic dispersion @1550nm	<=18.0 ps/(nm.Km)
Cut-off Wavelength (nm)	<= 1260
Point discontinuity (dB)	<=0.1
Environmental Characteristics	
Operating Temperature	-20 Degree C to +70 Degree C
Induced attenuation at 1310 and 1550 @(-60 Degree C to +85 Degree C	<=0.05db/Km
Tensile rating	1250N
Maximum Crush resistance	3000N

18. CAT6 UTP Cable Box,4-Pair:

The horizontal cables should be 4-pair unshielded twisted pair (UTP) meeting Category6 specifications.	
The cable should be of 4 twisted pairs of 23 AWG solid conductors with a PVC jacket.	
Should have Star filler (No bisector tape) cable construction for improved performance	
Insulation Material	Polyethylene
Electrical Performance	
Conductor DC resistance @ 20°C (max)	9.38 Ω /100m
DC resistance Unbalance (max)	5%
Mutual Capacitance @ 20°C (max)	5.6 nF/100m
Nominal Velocity of Propagation.	70%
Attenuation at 250 MHz	32.8 dB
Return Loss at 250 MHz	17.3 dB
ACR at 250 MHz	5.5 dB
PSACR at 250 MHz	3.5 dB
NEXT at 250 MHz	38.3 dB
PSNEXT at 250 MHz	36.3 dB
ELFEXT at 250 MHz	19.8 dB
PSELFEXT at 250 MHz	16.8 dB
Thermal Characteristics	
Operating temperature	-15 to +70 °C
Mechanical Characteristics	
Minimum Bending Radius	
- During Installation	50 mm
- After Installation	25 mm
Maximum Pulling Tension	108 N (11Kg)

19. CAT6 UTP Patch Cords:

Details	**Specification**
Type	Unshielded Twisted Pair, Category 6, TIA / EIA 568-C.2 & ISO/IEC 11801
Conductor	24 AWG 7 / 32, stranded copper conductors 100 Ohm
Length	4 feet, 7 feet, 10 feet
Plug Protection	Transparent Slim boot
Warranty	25-year component
Insulation	Flame Retardant Polyethylene

20. CAT6 UTP 24 Port Jack Panel Loaded, Straight:

Patch panel must be with 45 degree silver-plated IDCs (Insulation Displacement contacts) to provide secure, reliable gas-tight connections	
Patch panel must be supplied with paper labels for station identification and ID tabs for individual port identification	
Patch panel must be supplied with Rear cable management as a standard accessories and this should only occupy the same area as the panel	
Operating temperature range:	-10°C to + 70°C
Wire diameter range for solid and Stranded Copper Conductors	22-26 AWG (0.40 to 0.63 mm)
Wire Insulation Diameter Range (PE,PVC):	(0.70 to 1.40 mm)

Number of Plug Insertion Cycles:	≥ 750
Contact Resistance:	< 1 mΩ
Contact Re-terminations	≥ 200
Insulation Resistance at 40° C and 93% RH	≥ 500 MΩ
Safety Rating:	UL 1863
Compliances	≥ ANSI/TIA/EIA Category 6, ≥ ISO/IEC 11801 Class E

21. CAT6 UTP Information Outlet with face plate

Details	Specification
Type	PCB based, Unshielded Twisted Pair, Category 6, TIA /EIA 568-C.2 and ISO/IEC 11801
Modular Jack	750 mating cycles
Wire terminal	200 termination cycles
Accessories	Integrated bend-limiting strain-relief unit for cable entry
	Support cable pair termination process on the jacks at 90 degree angle.
	Bidder should have a mechanism to maintain the quality of the termination ir-respective of the skill level of the termination staff.
Housing	Polyphenylene oxide, 94V-0 rated.
110 Blocks	polycarbonate, 94V-0 rated
Jack contacts	Beryllium copper, plated with 1.27 mm [.000050] thick gold in localized area and 3.81 mm [.000150] minimum thick tin-lead in solder area over 1.27 mm [.000050] minimum thick nickel under plate
Wiring blocks	Polycarbonate, 94V-0 rated
Approvals	(a) UL Listed / CSA Approved
Performance Characteristics to be provided with bid	Attenuation, NEXT, PS NEXT, FEXT and Return Loss
It should have shutter to prevent dust and dirt getting into the outlet for single/dual port faceplate. It should have clear label for application It should be of the size identification.	85 mm X 85 mm

SECTION IV

FINANCIAL BID

Supply and Installation of IP based CCTV cameras in the University Campus at Dwarka, New Delhi-110078
The rates should in quoted in INR only both in words and figures

S. No.	Description	Qty.	Unit Cost	DVAT/Sales Tax/Any other	Total Amt. in figure	Total Amt. in words
1	Supply and Installation of **Indoor HD Dome Network Camera as per technical specification**	118 Nos.				
2.	Supply and Installation of **Full HD Fixed Network Camera with 3 Megapixel Lens & IP 66 Housing as per technical specification**	71 Nos.				
3.	Supply and Installation of **Weather Resistant 20x HD PTZ Dome Network Camera as per technical specification**	4 Nos.				
4.	Supply and Installation of **Video Management Server as per technical specification**	1 Nos.				
5.	Supply and Installation of **Network Video Management & Monitoring Software (NVMMS)as per technical specification**	1 Nos.				
6.	Supply and Installation of **Video Recorder Server as per technical specification**	4 Nos.				
7.	Supply and Installation of **NAS Storage for 15 days**	1 Nos.				
8.	Supply and Installation of **42" LED with Work Stations for monitoring at departments as per technical specification**	24 Nos.				
9.	Supply and Installation of **4 Nos 42" LED with Workstation for monitoring at Central Location as per technical specification**	1 No.				
10.	Supply and Installation of **48 Port Core Switch L3 with 24 X 10G SMF Modules and 12 X 1G Copper Modules as per technical specification**	1 No.				
11.	Supply and Installation of **12 Port Fiber Distribution Switch L3 with 2 X 10G SMF Modules and 12 X 1G SMF Modules as per technical specification**	4 No.				
12.	Supply and Installation of **24 Port Switch Manageable L2 with 2 X 1G SMF Modules as per technical specification**	25 Nos.				
13.	Supply and Installation of **8 Port Switch Manageable L2 with 2 X 1G SMF Modules as per technical specification**	16 Nos.				
14.	Supply and Installation of **NMS Software for Network as per technical specification**	1 No.				
15.	Supply and Installation of **Fiber Optic LIU with Pigtails, Splice Trays& Splice Protectors (Fully Loaded) as per technical specification**	41 Nos.				
16.	Supply and Installation of **LC-LC OFC Patch Cord SM as per technical specification**	175 Nos.				
17.	Supply and Laying of **6-Core Optical Fiber Cable, Outdoor, Singlemode, 9/125um as per technical specification**	3000 Mtrs.				
18.	Supply and Laying of **CAT 6 UTP Cable box, 4-Pair as per technical specification**	15000 Mtrs.				

19.	Supply and Fixing of **CAT 6 (UTP) Patch Cord 1 Mtrs as per technical specification**	500 Nos.				
20.	Supply and Installation of **CAT6 UTP 24 Port Jack Panel Loaded, Straight as per technical specification**	41 Nos.				
21.	Supply and Fixing of **CAT 6 (UTP) I/O with Face Plate as per technical specification**	50 Nos.				
22.	Supply and Fixing of **PVC Conduit for CAT 6 Cable**	8000 Mtrs.				
23.	Supply and Laying/Fixing of **HDPE Pipe / Gi Pipe**	2800 Mtrs.				
24.	Supply and Laying of **Power Cable 3 Core X 1.5 sqmm**	600 Mtrs.				
25.	Supply and Installation of **Pole 4 Mtr. for IP Camera**	4 Nos				
26.	Supply and Installation of **Rack 6 U**	50 Nos.				
27.	Supply and Installation of **Rack 32 U**	1 No.				
28.	Supply and Installation of **UPS 20 KVA online**	1 No.				
29.	**Installation : Trenchless Digging for OFC**	200 Mtrs.				
30.	**Installation : Moling for OFC**	100 Mtrs.				
31.	**Installation : Digging Hard Soil for OFC**	1200 Mtrs.				
32.	**Installation : Digging Soft Soil for OFC**	1200 Mtrs.				
33.	**Installation : Digging of Road for OFC**	100 Mtrs.				
34.	**Comprehensive Annual Maintenance of complete system of CCTV cameras as per above items for:-**					
	a. 1st year beyond warranty					
	b. 2nd year beyond warranty					
	c. 3rd year beyond warranty					
35.	**Operation of complete system of CCTV cameras by deploying one resident engineer and one technical assistant as per qualification mention in the tender document**	6 months				
Total Amount in rupees (inclusive of all taxes)						

The quantity mentioned against each item is tentative and can be increase or decrease as per actual requirement. Rate of unit price/Per Mtrs./Per No. of each item and AMC, operation would be the criterion to decided Lowest bidder.

(SEAL, SIGNATURE & NAME OF THE BIDDER)