



राष्ट्रीय विज्ञान शिक्षा एवं अनुसंधान संस्थान, भुवनेश्वर  
(परमाणु उर्जा विभाग, भारत सरकार का एक स्वयं शासित संस्थान)  
**NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, BHUBANESWAR**  
(AN AUTONOMOUS INSTITUTE UNDER DEPT. OF ATOMIC ENERGY, GOVT. OF INDIA)

Name of Work: -“Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Computer Centre and Detector lab and Electronics workshop at SPS building of NISER Jatni Campus”

NIT No. & Date:-NISER/CC/(2016-17)/001 Dt.22.12.2016

Estimated cost of tender: - ₹197,000.00/-

Completion time: - 60 (Sixty) days

This tender documents contains 19(nineteen) pages.

## WORK

“Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Computer Centre and Detector lab and Electronics workshop at SPS building of NISER Jatni Campus”

### NOTE

The tenderer should enclose the following documents along with the Bid otherwise tender will be summarily rejected.

- 1)
  - a) Self attested copy of works completed during the last five years from Govt. /Semi Govt. organization not below the rank of E.E as per NIT.
  - b) Self attested copy of valid Registration Certificate.
  - c) Self attested copy of PAN card.
  - d) Self attested copy of VAT clearance certificate.
  - e) The cost of tender paper for the bidders who submit the downloaded tender document and EMD amount in separate D.D's as per NIT.
- 2) Contractors shall enclose the above documents (self-attested) along with the bid. Any conditional/ changed or altered bids are liable for rejection. The bidders shall sign all the pages of technical bid i.e. NIT, Architectural Drawing (if any), as acceptance of the terms and conditions.
- 3) Incomplete/Partial bid or bid not submitted in prescribed format will be rejected. Bids not submitted/received within stipulated date/time as per NIT will not be accepted.



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**TENDER DOCUMENTS**

**File No. NISER/CC/(2016-17)/001**

Name of work: -“Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Computer Centre and Detector lab and Electronics workshop at SPS building of NISER Jatni Campus”

**I N D E X**

Sl. No.	Particulars	Page No.	Remarks
1.	Notice Inviting Tender and General Term and Condition for works.	1- 8	First part i.e. Tech. Bid
2.	Detailed list of completed works by the Contractor	10	-Do-
3.	Detail credential of the Contractor	11	-Do-
4.	Schedule of Quantities	12-13	Second part i.e. Financial Bid
5.	Summary Sheet	14	-Do-
6.	Abstract of cost	15	-Do-
7.	Technical Specifications and other conditions of work	16-20	-Do-

NOTE: The tenderer should confirm before submission of the bid that they are in possession of all the above papers. All the documents issued are to be submitted along with the bid, duly signed by the tenderer while submitting the bid, as acceptance of the terms and conditions of NIT.

TENDER ISSUED TO:

M/s. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Telephone No. \_\_\_\_\_

**REGISTRAR  
NISER**



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**NOTICE INVITING TENDER**

Director of NISER invites sealed tender on **Single envelope system** for the following work:-

**NIT No.NISER/CC(2016-17)/001 Dated. 22.12.2016**

Name of the work: "Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Computer Centre and Detector lab and Electronics workshop at SPS building of NISER Jatni Campus"

Estimated Cost	:	Rs.197,000.00/-
Earnest Money	:	Rs. 3,940.00/-
Period of Completion	:	60 (Sixty Days).
Cost of tender (non-refundable)	:	Rs.500/-(Rupees Five hundred only)

Last date of receipt of tender: **09<sup>th</sup> Jan 2017 up to 3.30 p.m.**

**REGISTRAR  
NISER**



**राष्ट्रीय विज्ञान शिक्षा एवं अनुसंधान संस्थान, भुवनेश्वर**  
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**Tender Notice**

Director of NISER hereby invites sealed tender in a Single envelope for the following work from **contractors** those who have worked for DAE or its Organizations or Govt. /Semi Government organizations and have successfully carried out a minimum of one/two/three similar works (BUILDING or Lab. Wiring/ LAN Points) of 80%/60%/40% respectively of the estimated cost or above, as indicated below during the last five years. The eligible contractors may submit their bid along with supporting documents of fulfilling the above conditions otherwise the bids bear the risk of not being considered. The eligible contractors are also required to submit the self-attested copies of PAN Card, Registration and VAT certificate etc. as mentioned in the NIT.

In support of fulfilling all the essential conditions mentioned in the previous Para the contractor shall submit the past details, mentioning the name of work, estimated cost, tendered amount, gross value of work done, date of commencement as per agreement & actual date of completion as per agreement along with schedule of quantities executed and any penalty levied due to delay in executing the work from an officer not below the rank of Executive Engineer at CPWD.

Name of Work	Estimated Cost ₹	Earnest Money ₹	Duration of work
<b>Name of the work:-</b> “Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Core Centre and Detector lab and Electronics workshop at SPS building of NISER Campus” NIT No. NISER/CC (2016-17)/001 Dt. 22.12.2016	197,000.00 /-	3,940.00 /-	60 (Sixty ) Days

The tender document can be downloaded from the Institute’s website <http://www.NISER.ac.in> & submitted along with tender cost of ₹500.00 & EMD of ₹3,940.00, separately in the form of A/C payee DD/ Banker’s cheque drawn on any scheduled Bank, in favor of Finance Officer of NISER.

The tender documents are to be submitted in a Single envelope in sealed cover. The documents in support of eligibility criteria of the contractor, tender cost and EMD along with the bid are to be submitted in a sealed cover superscripting the name of work, address of contractor and date of opening. Bids complete in all respects will be accepted up to **3.30 PM on 09th Jan 2017** and **the bid will be opened at 4.00 PM on 09th Jan 2017**.

Director of NISER, reserves the right to accept/reject any/all tenders without assigning any reason whatsoever. Part or incomplete tenders will be summarily rejected. No further correspondences whatsoever shall be entertained in this regard. Canvassing in any manner shall result in rejection of the tender

Any dispute arising out of this shall subject to Bhubaneswar jurisdiction only.

**REGISTRAR  
NISER**

**General Terms and Conditions:**

1. Sealed tenders are hereby invited for the work of -“Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Computer Centre and Detector lab and Electronics workshop at SPS building of NISER Jatni Campus” The estimated cost of work is ₹197,000.00/- (based on DSR-2014). The Earnest Money Deposit is ₹3,940.00/- Registered/ empaneled contractors of CPWD, MES, Railways and State PWDs and/or those who have worked for DAE or its units or in any Govt./Semi Govt. organizations and have successfully carried out minimum one/two/three similar work (BUILDING or Lab. Wiring/ LAN Points work) of 80%/60%/40% respectively of the estimated cost and above during the last five years, The eligible contractors may submit their bid along with supporting documents of fulfilling the above conditions otherwise their bids bear the risk of not being considered. The eligible contractors are also required to submit the self-attested copies of PAN card, registration and VAT certificate.  
In support of fulfilling all the essential conditions mentioned in the previous Para the contractor shall submit the details of the past work, mentioning the name of work, estimated cost, tendered amount, gross value of work done, date of commencement as per agreement & actual date of completion as per agreement along with schedule of quantities executed and any penalty levied due to delay in executing the work from an officer not below the rank of Executive Engineer (Electrical).
2. The estimated cost of the work is ₹197,000.00/-**(Rupees One Lakh Ninety Seven Thousand only)** (as per DSR- 2014).
3. Period for completion of the work will be **60 (Sixty) days** and the date of commencement shall be reckoned from the tenth day of issue of award letter.
4. The tender documents can be made available at the office of SO-E (Computer) on written request along with the tender cost through DD. No cash will be accepted towards tender cost.
5. Tenders should be submitted in the prescribed format (Non-transferable), which may be downloaded from NISER website: [www.NISER.ac.in](http://www.NISER.ac.in), or collected from the office of the SO-E (Computer) by depositing the tender cost of ₹500/-**(Rupees Five hundred only)** through A/c payee DD or pay order from any scheduled bank drawn in favor of the Finance Officer of NISER. In case of downloaded tenders, the cost of tender document shall be submitted along with the bid. Please note that tender documents are not transferable.
6. Tender documents are to be submitted in a sealed cover. The cost of tender (if downloaded), EMD and the documents in support of eligibility criteria along with the bid should be covered in a single envelope super scribing the name of work, address of contractor and date of opening. Tenders complete in all respects, will be accepted up to **3.30 PM on 09th Jan 2017**. The bid shall be opened at **4.00 PM on 09th Jan 2017**. Please note, that bids submitted without tender cost (if downloaded) and EMD are summarily being rejected.  
  
Tenders should be dropped in the Tender Box before the closing date and time indicated above or should be send by regd. /speed post to **Scientific Officer-E (Computer)** of NISER at **Jatni Campus, Bhipur, Dist: Khurda, Pin-752050** to ensure that the same reaches before the date and time indicated above. Late or delayed tenders are liable for rejection.
7. The Earnest Money amounting to ₹3,940.00**(Rupees Three Thousand Nine Hundred Forty only)** as demand draft or pay order from any scheduled Bank and drawn in favor of the Finance Officer of NISER should be deposited along with the tender documents. Tender received without earnest money will be invalid and reject

8. Director of NISER does not bind himself to accept the lowest or any tender and reserves the right to accept the tender either in whole or in part. The decision of the Director shall be final in this regard.
9. Canvassing in any manner or form will lead to rejection of the Bid.
10. The tenderer shall not be permitted to bid for works in any unit of DAE where any of his/her relatives are employed. He shall also intimate the names of any such persons who are working with him in any capacity or subsequently employed by him and whose relatives are working in DAE or its units.

**NOTE :**

A person shall be deemed to be a relative of another if, (a) they are members of a Hindu undivided family; or (b) they are husband and wife; or (c) the one is related to the other in the following manner : Father, Mother (including step mother), Son (including step son), Son's wife, Daughter (including step daughter), Father's father, Son's son, Son's wife, Son's daughter, Son's daughter's husband, Daughter's husband, Daughter's son, Daughter's son's wife, Daughter's daughter, Daughter's husband, Brother (including step brother), Brother's wife, Sister (including step sister), Sister's husband.

11. The Bid shall remain valid for a minimum period of 90 days from the date of opening of the tender for the purpose of acceptance and award of work. Validity beyond 90 days from the date of opening shall be by mutual consent.
12. The Tenderer shall quote the rates both in figures as well as words. The cost of individual items shall also be worked out and mentioned in the financial bid (both in figures and words). On check if there are differences between the rates quoted by the tenderer in words and in figures or in the amount worked out by him, the following procedure shall be followed
  - i) When there is a difference between the rates in figures and in words, the rates, which correspond to the amounts worked out by the bidder for individual items, shall be reckoned.
  - ii) In case, the amount of an individual item is not mentioned by the bidder or it does not correspond with the rate written either in figures or in words, the rate quoted by the bidder in words shall be reckoned.
  - iii) In case the rate quoted by the bidder, both in figures and in words tallies but the amount is not worked out correctly, the total rate quoted by the bidder shall be taken as correct
13. The tenderer should see and obtain the drawings. In case of any queries, necessary clarifications may please be sought from the office of the Scientific Officer-E(Computer). No claim whatsoever will be entertained in this regard for any alleged ignorance, thereof.

14. Before tendering, the tenderer shall inspect the site to fully acquaint himself about the condition in regard to accessibility to site, nature and extent of ground, working condition of site and locality including stacking of materials, conditions affecting accommodations and movement of labor, etc., which are required for satisfactory execution of the work. No ignorance of the same, whatsoever shall be entertained under any circumstances.
15. EMD is liable to be forfeited if the contractor fails to commence the work as per award letter.
16. Except writing rates and amount, the tenderer should not write any conditions or make any changes, additions, alterations and modifications in the printed tender form. Tenderer who are desirous to offer rebate the same should be brought out separately in the covering letter and submit along with the financial bid.
17. Some of the provisions of the contract are given below.
  - a). DEFECT LIABILITY PERIOD - Twelve months from the date of completion as certified by the authorized engineer.
  - b). MINIMUM VALUE OF WORK FOR THE INTERMEDIATE CERTIFICATE  
Intermediate certificate for a lesser amount can be admitted for payment at the discretion of the Institute.
  - c). SECURITY DEPOSIT - A sum @ 5% of the gross amount of the bill shall be deducted from each running bill of the contractor, till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the tendered value of the work. In addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as **Performance Security** within the period prescribed for commencement of work in the letter of award issued to him.
  - d). COMPENSATION – In the event of any delay in completion of the work beyond the scheduled period, the contractor shall pay an amount equal to one per cent of the total cost of work or such smaller amount as decided by Director of NISER (whose decision shall be final) as compensation to the institute, for every week that the work remains un-commenced or unfinished. Compensation to be paid shall not exceed ten per cent of the estimated cost of the total work as per award letter.
18. Stores to be issued: - No material shall be issued by the Institute. The responsibility for arranging all materials from approved manufacturer as per award letter lies with the contractor
19. There will be deduction of VAT/IT/WCT from every RA bill and also from the final bill of the contractor at the rate prescribed by govt. of India from time to time.
20. The successful bidder will be required to submit the names, qualifications and experiences of the supervising staff to be deployed for execution of the work. In case of any changes occurring during the course of execution of the said work, the same shall also be intimated by the bidder to the institute.



21. The tenderer should also submit the detail list of tools and plants/ machineries/ equipment, etc. that he proposes to place at the site of work.
22. The Contractor shall have to make his own arrangements for storage of materials required for execution of the work and NISER in any manner shall be held responsible for the storage and safe custody of the said materials at work site.
23. Electricity will be supplied to the site of work at one point only if required and Contractor can do onward distribution with metering arrangement as per the requirement. Electricity charges; if any will be recovered from the Contractor's bill based on meter readings towards its consumption.
24. Before commencement of the work, the contractor has to submit the list of tools and plants brought to the site of work. No items other than the list submitted will be allowed to be taken out from the work site.
25. All the mandatory testing charges will be borne by the contractor.
26. Cost escalation in any manner whatsoever, will not be accepted for the said work, where in the stipulated period of completion of work is 18 (eighteen) months or less.
27. **The tenderer shall show all the original documents which he/she has furnished in the tender within two working days after opening of bid, else otherwise the bid of the tenderer will not be considered.**

**REGISTRAR  
NISER**

**List of completed works by the Contractor:**

Detail list of works, completed satisfactorily during last five years (minimum 3), the value of such completed works should be approximately of the same value or near to the value of the present work, for which tender is being submitted by the contractor to NISER

Name of works	Location of site	Value of Work	Name of organization/ engineer in charge under whom the work is completed

N.B:- The copy of work order and completion certificates from the organization may be attach

**DETAIL CREDENTIALS OF THE CONTRACTOR**

Contractors shall fill this form and enclose it with the original copy of tender (Technical Bid)

Name of the Contractor \_\_\_\_\_

Firm of the Contractor \_\_\_\_\_

Telephone No. (Official) \_\_\_\_\_

Office Address \_\_\_\_\_

Residential Address: \_\_\_\_\_  
\_\_\_\_\_

Is the firm limited? : Yes/No.

Give name and address of partners:

Name (s) Address (s)

(a)

(b)

(c)

Partnership deed (Please enclose self attested copy with the bid)  
Name of Bankers M/s.

Power of Attorney \_\_\_\_\_ Please enclose attested copy/original Power of  
Attorney in case of firm

**NAME AND ADDRESS OF PERSON HOLDING POWER OF ATTORNEY**

Name \_\_\_\_\_

Address \_\_\_\_\_

Specimen signature, of persons holding Power of Attorney.

Registration particulars:-

1. Registered with:
2. Registration No.:
3. Financial limit up to which registered:
4. Trade for which registered:
5. Details of BUILDING (if any):
6. Details of Furniture (if any):
7. Details of Electrification(if any):
8. Details of Sanitary Installation (if an



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Name of work: **“Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Computer Centre and Detector lab and Electronics workshop at SPS building of NISER Jatni Campus”**

**SCHEDULE OF QUANTITIES**

Sl No	Description	Unit	Qty	Rate	Amount
1	CAT6 UTP CABLE (Rate in Words: _____)	Meter	2200		
2	CAT6 SINGLE FACE PLATE I/O WITH SURFACE MOUNT BOX (Rate in Words: _____)	No's	50		
3	24 PORT CAT6 PATCH PANEL (Rate in Words: _____)	No's	04		
4	CAT6 UTP 1 METER PATCH CORD (Rate in Words: _____)	No's	40		
5	CAT6 UTP 2 METER PATCH CORD (Rate in Words: _____)	No's	14		
6	WALL MOUNT 6 U RACK WITH 16/5AMP PDU,FAN AND CABLE MANAGER (Rate in Words: _____)	No's	02		
7	24PORT UNMANAGED SWITCH (Rate in Words: _____)	No's	02		
8	32" CASHING CAPPING (Rate in Words: _____)	Bundle	01		

No. of Cutting :

No. of Corrections :

No. of Over writing:

**Signature of tenderer**

**with date & address**

<b>SERVICE/LABOUR CHARGE</b>					
<b>8</b>	CAT6 CABLE LAYING WITH CASING AND CAPPING AND PVC PIPE  (Rate in Words: _____ )	Meter	2200		
<b>9</b>	INFORMATION OUTLET TERMINATION AND FIXING  (Rate in Words: _____ )	No's	50		
<b>10</b>	FIXING OF PATCH PANEL (Rate in Words: _____ )	No's	04		
<b>11</b>	FIXING OF 6U RACK (Rate in Words: _____ )	No's	02		

Total No. of cuttings:  
Total No. of corrections:  
Total No. of Over writings:

**Signature of the Tenderer**  
**With date & address**



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### TENDER DOCUMENTS

(NIT No. NISER/CC(2016-17)/001 Dt.22.12.2016)

**Tender for “Supply and Installation of Data Points and LAN cabling and other required computer networking materials at Computer Lab-3 of Computer Centre and Detector lab and Electronics workshop at SPS building of NISER Jatni Campus”**

### SUMMARY SHEET

1. Brought forward from Page No.....	Schedule of quantities:	Rs.
2. From page No.....	-do-	Rs.
3. From page No.....	-do-	Rs.
4. From page No.....	-do-	Rs

TOTAL

(Rupees \_\_\_\_\_  
 \_\_\_\_\_)

C.O. to Page – ABSTRACT OF COST Rs. \_\_\_\_\_

**SIGNATURE OF THE TENDERER**



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**ABSTRACT OF COST**

TOTAL COST BROUGHT FORWARD FROM PAGE 12 to14

(Rupees \_\_\_\_\_  
\_\_\_\_\_ ) only

**SIGNATURE OF THE TENDERER**

### **Technical Specifications**

1. **The OEM should be ISO 9001:2000 & QS: 9000 Certified.** If the company has environmental management systems in place like ISO 14001 accreditation the same shall be added advantage
2. **CAT 6 UTP components should have independent lab verification like ETL Certified ANSI/TIA-568-C.2, ISO/IEC 11801 and EN50173-1 Category 6.** The cabling should be certified to have application support warranty for next 25 years. OEM should be a partner with standard committee like EIA/TIA and TR standards.
3. OEM and their Brand quoted should have minimum 10 Years of Installation presence in India. Proof of Documents to be attached
4. For CAT6 Cable **Belden/Systimax/Panduit/Siemons/CommScope or Equivalent Brands Are Preferred.**
5. For Unmanaged Switch Cisco **SG100-24 24-Port/Higher Version** Preferred.

### **CAT 6 Cable Specifications**

Sl. No.	Cat6+ 4 Pair 23 AWG U/UTP Nonbonded-Pair LSZH Cable
01	Cat6+ U/UTP cables should be with 4 Twisted Pairs, Solid Bare Copper, 23 AWG.
02	Cat6+ U/UTP cable shall have performance up to 250 MHz as per EIA/TIA.
03	Cat6+ cable Insulation materials should be PO-Polyolefin
04	Cat6+ cable jacket material should be with LSZH jacket.
05	Cat6+ U/UTP cables should be UL 444.
06	Cat6+ U/UTP should have a central (+ design) spline.
07	Overall Nominal Diameter should not be more than 6.1mm.
08	Cat6+ U/UTP cable should have a Rip Cord for easy removal of jacket.
09	Cat6+ U/UTP should be Third part verified to TIA-568-C.2 Category 6.
10	It should comply to ISO/IEC 11801 Category 6 standard.
11	Nom. Mutual Capacitance @1Khz should be 5.6 nF/100m.
12	Maximum Capacitance Unbalance should be around 330 pF/100m.
13	Nominal Velocity of Propagation should be 70%.
14	Maximum Delay should be 538 ns/100m @ 100 MHz.
15	Maximum Delay Skew should be 45 ns/100m.
16	Maximum Conductor DC Resistance 9.38 Ohms/100m @ 20 Deg.C.
17	Characteristic Impedance should be 100 +/- 15 Ohms
18	Maximum DCR should be Unbalance 5% @ 20 Deg.C.
19	UTP cable datasheet should have electrical parameter values tested at up to 250 MHz only.
20	Cat6+ U/UTP should have Max. Intended Operating Voltage of 80 V RMS.
21	Cat6+ U/UTP cable should have operating temperature range of -20 Deg C to +75 Deg C.
22	Max. Recommended Pulling Tension should be 110N.
23	Min. Bend Radius (Install) should be around 24.4 mm.
24	Cat6+ U/UTP should comply to IEC 60332-1 Flame Rating standard.



25	Cat6+ U/UTP should have jacket sequentially marked with length in Feet
26	Cat6+ U/UTP cable should be ROHS.

### CAT6 IO Specification

Sl. No.	Cat6+ Modular Jack (Including T Bar), Key connect, Unshielded
01	Cat6+ IO should meet or exceed Category 6 transmission requirements for connecting hardware, as specified in ANSI/TIA 568-C.2 Commercial building telecommunications Cabling standard and ISO/IEC 11801:2002 second edition.
02	Cat6+ IO should be ETL Verified as per ANSI/TIA 568-C.2
03	Bidder should offer a mechanism to maintain the quality of the termination ir-respective of the skill level of the termination staff.
04	Modular jack performance shall be third-party verified by an internationally recognized independent testing laboratory.
05	All pair combinations must be considered, with the worst-case measurement being the basis for compliance.
06	Cat6+ IO should be with Encapsulated Lead Frame technology.
07	Modular jack should have Keystone type for compatibility with market available faceplate.
08	Cat6+ IO should support cable pair termination process on the jacks at 90 degree angle.
09	Mechanism to guarantee the IO termination in real life field conditions to have similar performance to a module that is terminated in ideal conditions in a laboratory environment.
10	Mechanism to provide a locking of cable at the back of the Information Outlet
11	Bidder should offer a mechanism to maintain the quality of the termination ir-respective of the skill level of the termination staff.
12	Cat6+ IO Usable Bandwidth should be atleast 250 MHZ.
13	Cat6+ IO Transmission Performance should be atleast 1 Gb/s Bit Rate.
14	Cat6+ IO should have both wiring scheme printed on it T568A and T568B.
15	Cat6+ IO should have front mating connection of 1000 Cycles.
16	Cat6+ IO should have rear gas tight IDC connection of at least 20 terminations.
17	Cat6+ IO should have connector/hardware retention of at least 88.5 N and plug/connection retention of at least 50N.
18	Cat6+ IO should have storage temperature range of -40 Deg C to +70 Deg C.
19	Cat6+ IO should have installation temperature range of -10 Deg C to +60 Deg C.
20	Cat6+ IO should have operating temperature range of -10 Deg C to +60 Deg C.
21	Modular Jack shall have Fire Retardant Plastic, UL94V-0
22	Dielectric Strength should be 1,000 V RMS at 60 Hz for 1 Minute.
23	Current Rating should be 1.5A Max
24	Insulation resistance-500 M-Ohm minimum
25	Max. Contact resistance-20 m Ohm
26	Cat6+ IO should confirm or exceed IEC 60603-7-4 standards requirements for Cat-6.
27	Below characteristic should be on Worst-case performance for a CAT6+ mated connection using CAT6+ modular plugs.
28	Min. NEXT 49 dB @250Mhz
29	Min. FEXT 39.1 db@250Mhz
30	Max. Insertion Loss 0.28dB @250Mhz

31	Min.Return Loss 22.0 dB @250Mhz
32	Cat6+ IO should be available in below mentioned colors
33	Gray, Almond, Elec. White, Black, Ivory, Orange, Red, Yellow, Green, Blue, Purple, Orange (TIA 606), Red (TIA 606), Yellow (TIA 606), Green (TIA 606), Blue (TIA 606), Purple (TIA 606), Brown (TIA 606).
34	Cat6+ IO should be RoHS certified and could have safety listing of ACA and Bi-national standard listed.

#### CAT6 Patch Cord Specification

Sl. No.	Cat6 UTP LSZH Stranded Patch Cord
01	Cat6 Patch cord should be confirm or exceed TIA -568-C.2 standards requirements for Cat-6.
02	Cat6 Patch Cord should be 4 Twisted Pair, 24 AWG Stranded Bare Copper Conductors.
03	Cat6 Patch Cord Plug Housing should be of PC-Polycarbonate, UL 94V-2 rated
04	Cat6 Patch Cord Contact Blade should be Phosphor bronze plated with 50u'' gold over 100u'' nickel undercoat
05	Max. Current Rating should be 1.5 Amp
06	Min. Insulation Resistance should be 100MOhm
07	Max. Contact Resistance should be 20mOhm
08	Dielectric Strength should be 1000 VAC (RMS)
09	Voltage Rating should be 30 VAC Maximum.
10	The patch cord should have Insertion Life of 750 mating cycles with Pull force of min. 89 Newton, Humidity 10% to 90% R.H.
11	The patch cord should have temperature range of -10 Deg C to +60 Deg C
12	The patch cord should comply to IEC 60603-7 , FCC Part 68 Subpart F Specifications.
13	The patch cords should be RoHS Compliant at least by Mar 2008
14	Patch cord should have factory fitted Moulded (Injection Moulded) boots on RJ-45 plugs at both ends.
15	Patch cord should be 100% factory tested and certified for Cat6.
16	Patch cord should come with 25 Year performance warranty.
17	Patch cord Durability should be atleast 750 Mating Cycles.
18	It should be available in 16 different colors

#### OEM Eligibility

Sl. No.	General terms and conditions for Cat6 Structured cabling Systems:
01	The UTP-based cabling system shall have a 250 MHz Channel Bandwidth over a maximum distance of 100m (328 ft.).
02	The UTP cable shall have a maximum Propagation Delay (Skew) of 45 ns/100 m.
03	The cable should be with LSZH Jacket.
04	The UTP-based cabling system shall, unless otherwise Accepted and Endorsed use matched components from a single manufacturer.
05	All components used in the UTP-based cabling system shall have a design life of 25 years from date of installation against defects in materials and/or workmanship.
06	All the components of Structured Cabling system like Cable, Information Outlet, Patch Panel, Patch Cords, Face Plate should be from a single manufacturer.
07	The UTP-based cabling system shall be suitable for below applications

	Premise Horizontal Cable ,Gigabit Ethernet,100BaseTX ,100BaseVG ANYLAN,155ATM, 622ATM ,NTSC/PAL Component or Composite Video, AES/EBU, Digital Video,RS-422,250MHz Category 6,Preferred Make: <b>Belden\ Systimax\Panduit\Siemons</b>
08	OEM should be present in India for more than 10 years
09	OEM should be a partner with standard committee like EIA/TIA and TR standards.
10	All products should be RoHS Complied.
11	OEM should provide 25yeas performance warranty for end to end connectivity
12	OEM should have ISO Certification.
13	OEM should provide a below mentioned third party test report for Cat6 LSZH Cable
14	Transmission Test : TIA/EIA 568 C.2
15	Channel test : TIA/EIA 568 C.2
16	Smoke Density Test : IEC61034-1
17	Halogen Acid Gas Content : IEC60754-1
18	Flame Retardancy Test: IEC60332-1

### **MEASUREMENT AND RA/ FINAL BILL**

1. The contractor shall submit his running and final bills with detail measurement for the purpose of payment & bills shall be processed by the various offices for payment, as per existing procedure. He has to sign the MB Book as an acceptance to the measurements carried out by the engineer in charge of NISER, based on which the RA/Final Bill shall be generated for payment.
2. The contractor shall extend all possible co-operations for checking the measurement. Decision of the staff in charge of NISER shall prevail. In case of any dispute, the final decision lies with the Director of NISER, which shall be binding on both the parties.

### **OTHERS**

If, the contractor has to remove/dismantle any old, damaged wiring & fixtures etc. for the purpose of execution of the said work, the same shall be deposited with NISER Stock Yard along with the list of materials under intimate to the concerned staff in-Charge. No extra payment will be made by the institute for this purpose.

**SIGNATURE OF THE TENDERER**