

E-TENDER DOCUMENT

for

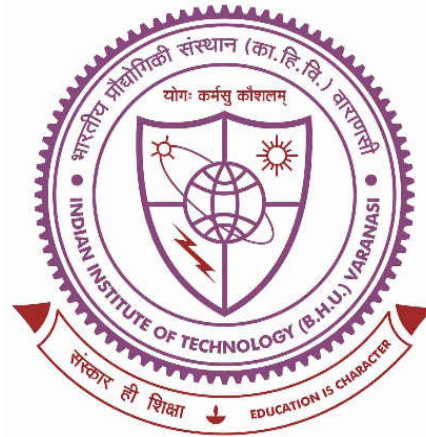
Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi

Tender No.: IIT(BHU)/IWD/Lift/ET-11/2021-22/711 Dated 28.09.2021

Tender Publishing Date: 29.09.2021 (3:00 P.M.)

Last Date of Submission of bids: 20.10.2021 (3:00 P.M.)

Tender Opening date: 21.10.2021 (4:00 P.M.)



**Indian Institute of Technology
(Banaras Hindu University)
Varanasi-221005**

E-mail: office.iwd@iitbhu.ac.in

ABSTRACT OF COST

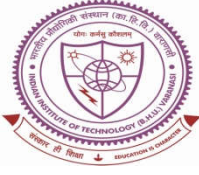
NAME OF WORK:- Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi.

Sl. No.	Details of Sub-Head	Amount (with Taxes) (in Rs.)
1	Lift Annual Maintenance Work	6,40,095.00
	Say	6,40,095.00

This NIT containing pages 15 amounting to Rs. 6,40,095.00 is hereby approved.

Sd-
Assistant Engineer (Electrical)
IWD, IIT (BHU) Varanasi

Sd-
Superintending Engineer, (IWD)
IIT (BHU) Varanasi



भारतीय
प्रौद्योगिकी
संस्थान
काशी हिन्दू विश्वविद्यालय



INDIAN
INSTITUTE OF
TECHNOLOGY
BANARAS HINDU UNIVERSITY

) 6702068, 2307004 (A.R.); 6702076, 2307005 (Office); FAX : 91-542-2368428; e-mail : administration@itbhu.ac.in

Institute Works Department

Ref.No. IIT(BHU)/IWD/Lift/ET-11/2021-22/711

Date: 27.09.2021

NOTICE INVITING TENDER

Online bids are invited from OEM or OEM authorized agency for **Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi.** The online bids will be received up to **20.10.2021 (3:00 P.M.) vide CPP Portal.**

Sl.No	Description	Details
1.	NIT No.	IIT(BHU)/IWD/Lift/ET-11/2021-22/711 Dated 28.09.2021
2.	Name of Works & Location	Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi
3.	Total Estimated cost put to tender	Rs. 6,40,095.00 (Six Lakh Forty Thousand Ninty-five only) Inclusive of GST
4.	Earnest Money Deposit (EMD)	Rs. 19,500.00 to be paid in the form of DD/FDR in the name of The Registrar, IIT(BHU), Varanasi, payable at VARANASI. (Scanned copy of DD/FDR to be uploaded in cover-1) (Original to be submitted in cover-1 alongwith eligibility criteria documents)
5.	Tender fee (Non-refundable)	Rs. 1000.00 + Rs. 180.00 (GST @ 18%) = Rs.1180.00 (To be paid through RTGS/NEFT) as per the following details: Name of Account – Registrar, IIT(BHU) Name of the Bank – State Bank of India Name of Branch – IT, BHU, Varanasi Account No. – 32778803937 IFSC Code- SBIN0011445 (The proof of payment must be uploaded in cover-1)
6.	Period of Completion	One Year
7.	Last Date & Time of Submission of Technical and Financial Bids	20.10.2021 (3:00 P.M.)
8.	Period during which Tender Document-Tender Processing Fee and other Documents shall be submitted	20.10.2021 (3:00 P.M.)
9.	Date & Time of opening of Tender	21.10.2021 (4:00 P.M.)
10.	No of Cover	2 (Cover 1 = Technical Evaluation & Cover 2 = Financial Evaluation)
11.	Address for Communication	The Superintending Engineer, Institute Works Department, IIT (BHU) Varanasi – 221005, U.P.
12.	Email Address	office.iwd@iitbhu.ac.in (all pre-bid queries shall be emailed on mentioned account)

Sd-
Assistant Engineer (E), IWD

Sd-
Superintending Engineer, IWD

INFORMATION AND INSTRUCTIONS FOR CONTRACTORS FORMING PART OF NIT

The Superintending Engineer, Institute Works Department, IIT (BHU) Varanasi invites tender from OEM or OEM authorized agency for Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi. The online bids will be received up to **20.10.2021 (3:00 P.M.)** vide CPP Portal:

1. The tender document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen from Institute website and CPP Portal.
2. The authorized dealership of the contractors should be valid on the last date of submission of tenders.
3. In case only the last date of submission of tender is extended, the dealership of contractor should be valid on the original date of submission of tenders.
4. Earnest Money in the form of Demand Draft or FDR (drawn in favour of **The Registrar, IIT (BHU), Varanasi, payable at Varanasi.**
5. **Copy of Enlistment Order and certificate of work experience and other documents as specified shall be submitted by the lowest bidder only along with online/physical EMD.**
6. **List of Documents to be scanned and uploaded under cover-1 on e-tendering website:**
 - i). Demand Draft of Tender Processing Fee and EMD from any Scheduled Bank in India payable to the **Registrar, IIT (BHU), Varanasi.**
 - ii). OEM or OEM authorization certificate.
 - iii). Solvency certificate from bank and scanned copy of DD/FDR for EMD.
 - iv). Certificates of Work Experience and work completion certificate during last 3 years ending 31st March, 2021.
 - v). Any Other document as specified in Eligibility Criteria and/or in IWD, IIT(BHU) e-TENDER.
 - vi). No loss certificate, turnover from CA, GST registration certificate, PAN card ESI, EPF

etc.

vii). Qualifications and experiences of key site management, technical personnel proposed for the contract.

7. List of documents to be uploaded upto the last date & time mentioned above in cover-2 (Financial Bid):

i). Duly filled in priced BoQ.

ii). Duly signed and scanned copy of priced BoQ in PDF format.

(Kindly note that no physical submission of tender documents is required and it is to be uploaded only on e-tendering (CPP Portal) website)

Sd-
Superintending Engineer
Institute Works Committee
IIT (BHU), Varanasi.

NOTICE INVITING TENDER

The Superintending Engineer, Institute Works Department, IIT (BHU) Varanasi invites tender from OEM or OEM authorized agency for Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi. The online bids will be received up to 20.10.2021 (3:00 P.M.) vide CPP Portal.

1. In case only the last date of submission of tender is extended, the dealership of contractor should be valid on the original date of submission of tenders
2. The work is estimated to cost **Rs. 6,40,095.00**. This estimate, however, is given merely as a rough guide.
3. Agreement shall be drawn with the successful tenderer on prescribed format of IIT (BHU).
4. The time allowed for carrying out the work will be **12 months** from the date of start from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender documents.
5. The tender document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen & downloaded from institute website (<https://iitbhu.ac.in/tenders> or <https://eprocure.gov.in/eprocure/app>).
6. The physical or online EMD shall be deposited by the lowest tenderer within a month after opening of financial bid failing which the tender shall be rejected.
7. Interested contractor who wish to participate in the tender has also to make following payments in the form of Demand Draft within the period of tender submission:

Tender Processing Fee – Rs.1180 (Including 18% GST), shall be payable to Registrar, IIT (BHU), Varanasi along with the bid.

The financial bids of tenderers shall be opened at **21.10.2021 (4:00 P.M.)**.

8. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
9. The responsibility of all safety and precautions will be bear by maintaining agency.

10. The contractor shall not be permitted to tender for works in the IWD-IIT(BHU) responsible for award and execution of contracts, in which his near relative is posted a Assistant Engineer or as an officer in any capacity between the grades of The Superintending Engineer, IWD, IIT(BHU).
11. This Notice Inviting Tender shall form a part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract.

Sd-

Superintending Engineer
Institute Works Department
IIT(BHU), Varanasi

On the letter head of Bidder

ITEM RATE TENDER AND CONTRACT FOR WORKS

Tender for the work of: **Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi.**

TENDER AGREEMENT

I/We hereby tender for the execution of the work specified for within the time specified schedule of quantities and in accordance in all respects with the specifications, safety precaution measures, designs, drawings and instructions in writing.

We agree to keep the tender **open for Thirty (30) days from the date of opening of tender** and not to make any modifications in its terms and conditions.

A sum of **Rs.19,500.00** is hereby forwarded in favour of the Registrar, IIT (BHU), Varanasi Bank/Fixed deposit receipt of scheduled bank/demand draft of a scheduled bank/bank guarantee issued by scheduled bank as earnest money. If I/we, fail to furnish the prescribed performance guarantee or fail to commence the work within prescribed period I/we agree that the said Superintending Engineer IWD, IIT (BHU) or his successors in office shall without prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely.

Further, I/We agree that in case of forfeiture of earnest money or both Earnest Money & Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/ have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for tendering in IWD-IIT (BHU) in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I/We hereby declare that I/we shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information derived there from to any person other than a person to whom I/we am/are

authorized to communicate the same or use the information in any manner prejudicial to the safety of the Institute.

Clause 1 List of testing equipment to be provided by the contractor at site lab. *1. Earth Tester, 2. Insulation Tester, 3. LT/HT, Tong Tester, 4. Multimeter 5. Digital Temperature & humidity measuring device, 6. Vernier Caliper 7. Wire Gauge 8. Cable Jacks, 9. Tacho meter*

Clause 2 List of mandatory machinery, tools & plants to be deployed by the contractor at site. **1. Drill Machine 2. Chase Cutting Machine 3. Crimping Tool Kit 4. Self Supporting Ladder-4 ft. 5. Ladder-20ft. 6. Electrical wiring drawing machine.**

Signature of contractor
Postal
Address

Terms & conditions

- 1 The work shall be carried out as per the instruction of IWD-IIT (BHU) Engineer In-charge up to full satisfaction.
- 2 All T & P & special T& P shall be arranged by the contractor & nothing extra shall be paid on this account.
- 3 All the material /parts required at site during the maintenance shall be provided and replaced by the firm and no extra payment shall be made on this account.
- 4 Minimum Servicing & routine maintenance shall be carried out as per the service/maintenance schedule attached (**Annexure 1 to 4**).
- 5 The complaints shall be attended by the firm at the earliest after the lodging of the complaint through phone / SMS / Email etc., but within the maximum time of 24hrs after lodging of the complaint.
- 6 The firm shall strictly adhere to the maintenance schedule & replacement schedule etc.
- 7 The firm shall depute trained supervisory staff in lifts for maintenance, to make the lift run in safe operating condition.
- 8 The firm shall carry out maintenance and check all items as laid down in the maintenance schedule. All maintenance check shall be properly recorded by the maintenance staff of the firm in the prescribed maintenance register.
- 9 The contractor shall systematically examine various parts of the lift and the parts which need repair or replacement in the opinion of the Engineer-in-charge shall be provided and replaced or repaired accordingly.
- 10 The existing parts required to be replaced shall have to be replaced with the maker of the existing part, by the firm
- 11 Only skilled employees shall be deputed to carry out the maintenance jobs.
- 12 Any part broken / damaged by the lift mechanic during the work shall be made good by the firm; otherwise the same will be replaced/rectified at the risk and cost of the firm. The decision of the Engineer-in-charge in this regard shall be final and binding.
- 13 If any complaint is lodged for any defects in the lift, the defects shall have to be attended to at the earliest possible time period and in case of urgency, this shall have to be attended to even after the normal working hours without any extra claim.

- 14 The Engineer-in-charge shall keep up to date record for the comprehensive maintenance work done or attended to by the firm.
- 15 **Payment:** The payment will be made on quarterly basis for the work done and after submission of the functional report by the firm and maintenance log sheet as per scheduled annexure. However, if any payment is delayed due to non-availability of funds etc. no extra claim of the firm shall be entertained.
- 16 The department shall not accept any responsibility or liability, in case of any accident or mis-happening occurred during the servicing / repairing of the lift by the firm.
- 17 Any damage done to the building or any equipment during servicing or repair shall have to be made by the firm and nothing shall be paid on this account.
- 18 Comprehensive maintenance of ARD system lift voice announcement system, emergency lights (lamps excluded) are within the scope of work and nothing extra shall be paid on this account.
- 19 After completion of the work, the firm shall handover the lifts in writing to the department duly acknowledge by the Engineer-in-charge.
- 20 Preventive maintenance of lifts must be carried out by 10th of every month with prior intimation to the Engineer-in-charge.
- 21 Recovery (except in case of a major fault):- (For failure continues beyond 48 hrs after lodge of the complaint)
- a) Lift not working @Rs.1000/- per day per lift.
 - b) Lift ARD @Rs. 500/- per day per lift.
 - c) Lift firemen switch @Rs. 200/- per day per lift.

22. **Other Conditions of Contract:**

1. If applicable, 2% Income Tax shall be deducted and deposited against PAN No.
2. GST wherever applicable shall be deducted as per prevailing rates.
3. Applicable rates of service tax shall be mentioned clearly in the priced bid.
4. The maintaining agency will be responsible for any loss of man or material.

MONTHLY MAINTENANCE OPERATIONS

Sl.No	Items	Checked by	Crossed Checked by
A.	CONTROLLER		
1	Clean contacts and arc shields with carbon tetra chloride (CCL4)	M	JE/AE
2	Mover relay armature by hand for free movement and see that contacts are properly aligned.	M	JE/AE
3	Replace carbon contacts if worn out.	M	JE/AE
4	Check flexible leads to relays	M	JE/AE
5	Check oil fuses of controller and mains	M	JE/AE
6	Check oil lever in days pots	M	JE/AE
B.	MOTOR GENERATOR AND/OR DC MOTOR		JE/AE
1	Check and adjust carbon brushes, spring, pressure commutator	M	JE/AE
2	Reseat brushes.	M	JE/AE
3	Grease bearings	M	JE/AE
C.	AC MOTOR		JE/AE
1	Lubricate bearings	M	JE/AE
2	Clean ventilation passages	M	JE/AE
D.	GEAR BOX		JE/AE
1	Inspect for Stray noises and oil leaks	M	JE/AE
2	Check arial play of work shaft	M	JE/AE
3	Lubricate bearings and top us in gear box.	M	JE/AE
E.	BRAKES		JE/AE
1	Clean if only and trace source of oil leakage.	M	JE/AE
2	Adjust clearance between shoes and drum.	M	JE/AE
F.	SELECTOR		JE/AE
1	Clean Contacts	M	JE/AE
2	Adjust for proper leveling	M	JE/AE
3	Check tape safety switch	M	JE/AE
4	Lubricate shaft bearings	M	JE/AE
5	Check performance without load and with full load	M	JE/AE
G.	GOVERNOR		JE/AE
1	Lubricate bearings	M	JE/AE
2	Check that the levers work smoothly	M	JE/AE
3	Check that electrical contract opens before the tope sets looked.	M	JE/AE
H.	ROPES		JE/AE
1	Check condition of hoist ropes and governor rope	M	JE/AE
2	Check slack rope safety switch	M	JE/AE
3	Lubricate rope if too dry	M	JE/AE
I.	HOISTWAY		JE/AE
1	Lubricate guides and guide shoes	M	JE/AE
2	Check that the buffers are in proper position and measure and record counter weight buffer clearance with car at the top.	M	JE/AE
J.	RETIRING CAM AND LOCKS		JE/AE

1	Check operation of cam and lock from the top of the car at each Landing.	M	JE/AE
2	Check that retiring can solenoid is not getting	M	JE/AE
3	Overheated and that movement of the cam is smooth.	M	JE/AE
4	Check that all locks are functioning properly after opening and Electrically after opening the cover.	M	JE/AE
5	Check all set screws and springs and replace if necessary the lever should lock the break properly.		JE/AE
6	Check that the retiring cam does not touch the lock roller at the landing which is being passed.	M	JE/AE
7	Check that car gate switch separate properly.	M	JE/AE
8	Check car top controls and emergency stop.	M	JE/AE
9	Check door closer safety, clean and readjust if necessary.	M	JE/AE
10	Lubricate top track and door motor and linkage.	M	JE/AE
11	Check that landing door can be opened by emergency keys.	M	JE/AE
K			JE/AE
1	Check that lift stops in downward direction properly with 25% overload with operation of the emergency stop when lift is moving at full speed.		JE/AE
2	Check that leveling is within limits + 75 mm for single speed lifts and 10 mm for other lifts.(For certain makes of lifts slightly larger to may be permitted).	M	JE/AE
3	Check and lubricate by gear CUP or top up oil on sleeve type bearings on (a) Sheave Shaft, (b) Motor Shaft. (c) Deflector Sheave Shaft. (d) Governor Pulley	M	JE/AE
4	Check and Lubricate sleeve bearings of governor tensioning pulley at the pit.	M	JE/AE

ANNEXURE – 2

QUARTERLY MAINTENANCE OPERATIONS

S. No	Items	Checked	Counter Checked
1	Check and adjust overload relay and phase failure relay.	M	JE/AE
2	Check power wiring terminations in switch, motor, Controller and power switching relays.	M	JE/AE
3	Check commutator	M	JE/AE
4	Check lubrication	M	JE/AE
	HOISTWAY		JE/AE
1	Check rope fastenings at the car and counterweight.	M	JE/AE
2	Check guide clamps connections. After physical inspection get the lift to over-travel by holding from controller and see that the switches operate properly.	M	JE/AE
3	Check guide clearances and adjust.	M	JE/AE
4	Check condition of traveling cable end terminations at junction boxes.	M	JE/AE

ANNEXURE -3

ANNUAL MAINTENANCE OPERATIONS

S No	Items	Checked by	Counter Checked by
1	Inspect the car frame for bends for cracks.	M	JE/AE
2	Check insulation of power circuits	M	JE/AE
	(a) Incoming Cable.		
	(b) Switch & feed up to controller.		
	(c) Between different power relays.		
	(d) Motor.		
	(e) Power cores in the traveling cable.		
3	Check operation of the car over speed safety gear by moving the levers manually and see that the safety locks up to properly.	M	JE/AE
4	Check that the sheave is tight on the shaft. Also check with hammer sounding for cracks. Check sleeve bearings, clean and re-lubricate adjust for proper Arial play.	M	JE/AE
5	Unload car (a) Check the warm gear back lash and adjust by removal of shims as required. (b) Check thrust bearing and checks Arial play and railing.	M	JE/AE
6	Check motor bearings, clean and re-lubricate.	M	JE/AE
7	Check that the gear coupling bolts are tight.	M	JE/AE
8	Check oil sales and gear box and fill fresh oil.	M	JE/AE
9	Remove brake shoes, clean and refit or replace brake linings. Suspect fulcrum pins, springs, clean and reassembly. Check that drum is not scored or worm unevenly.	M	JE/AE
10	Clean guide shoes with carbon tetra chloride (CCL 4) and Flushing oil and re-lubricate. Thereafter clean the pit.	M	JE/AE

**DETAILED SPECIFICATIONS FOR PASSENGER LIFT
(13 PASSENGER)**

Capacity(Kgs)	884 Kgs.(13 Passengers)
Speed-Mps	1.0 m/sec.
Travel (Max)- Mtrs.	<i>Approx. 13.0 Mtrs LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg Department lift No 52NT0098</i>
Stops & Openings (Max.)	Ground, 1 st Floor to 3 rd Floor, 4/4 (All openings on same side)
Drive	AC Variable Voltage Variable Frequency drive/ VF Regenerative (Closed loop)
Power Supply	415 Volts, 3 Phases, 50 Hertz. A.C.
Operation	Simplex Full Collective
Machine	Geared (placed directly above the hoist way)
False ceiling type	Stainless Steel (CD-35-SS)
Car size	2000 mm Wide x 1100 mm Deep
Car Entrance Size	900 mm Wide x 2000 mm High.
Entrance Height	2000 MM
Car Entrance Doors.	Centre Opening Stainless Steel.
Car Panels	Stainless Steel panels in hairline finish.
Car Door Operation	Automatic with ACVVVF Door Operator.
Car Door Protection	Multi Ray Electronic Door Protection Device.
Handrails on 3 side in car	Mirror Stainless Steel
Cop Type	Box type SS finish
Cop Buttons	illuminated Braille Buttons
Car Position Indicator	Scrolling type
Flooring of Car.	Vinyl Tiles.
Hoist way Entrances	Centre Opening Stainless Steel Doors
Landing Buttons	Stainless Steel with illuminated Braille Buttons suitable for visually handicapped person.
SIGNALS	<ol style="list-style-type: none"> 1. Combined luminous hall Button with 16 segment Digital Hall Position Indicator. 2. Integral full height Car operating panel with luminous brail buttons, Digital Car Position Indicator combined with direction arrows. Over load warning indicator and Service Cabinet. 3. Battery Operated Alarm Bell and Emergency Light. 4. Fireman's Switch at main Lobby. 5. Automatic Rescue Device. 6. Intercom System 7. Master Display (indicating status of floor for each lift)
Face Plate Finish	Stainless steel.
Face Plate Shape	Rectangular.

BOQ

OFFICE OF THE SUPERINTENDING ENGINEER INSTITUTE WORK DEPARTMENT INDIAN INSTITUTE OF TECHNOLOGY (BHU)					
Name of Work:- BOQ for AMC of Lifts installed in LT-1, LT-2 ,LT-3, GRTA and Mechanical Engineering, IIT(BHU) Varanasi.					
S.No.	Description of items	Qty		Rate	Amount (with Taxes)
1	Comprehensive annual maintenance contract of passenger lifts installed at LT-1 Lift No. 52NY5204, LT-2 Lift No. 52NY5206 and LT-3 Lift No. 52NY5202, GRTA lift no 52NY5203 & Mechanical Engg. Department lift No 52NT0098 in IIT(BHU) Varanasi	1	Jobs	6,40,095.00	6,40,095.00
Total					6,40,095.00

Sd-

**Assistant Engineer (Electrical)
IWD, IIT (BHU) Varanasi**