

**GAUHATI UNIVERSITY  
GOPINATH BARDOLOI NAGAR  
GUWAHATI - 781014**

# **TENDER DOCUMENT**

**FOR**

**DESIGN, MANUFACTURE, SUPPLY, DELIVERY  
OF 1x750 KVA & 1x500 KVA, 11/0.433 KV,  
ONAN, OUTDOOR TRANSFORMER FOR THE  
GAUHATI UNIVERSITY**

**PART - I**

**TECHNO-COMMERCIAL BID**

**NIT No. T/16-17/71 Dt. 13-06-16**

**GAUHATI UNIVERSITY**  
**GOPINATH BARDOLOI NAGAR**  
**GUWAHATI – 781 014**

**Ref : NIT No. T/16-17/71**  
**Date : 13-06-16**

Tender document for “Design, manufacture, supply, delivery of 1 x 750 KVA & 1 x 500 KVA, 11/0.433 KV, ONAN, Outdoor Transformer for the Gauhati University”, consisting of Part - I : Techno-commercial Bid and Part – II : Price Bid is issued to —

M/s. / Sri : .....

Address : .....

.....

.....

**Superintending Engineer, i/c**  
**Gauhati University**

**GAUHATI UNIVERSITY**  
**GOPINATH BARDOLOI NAGAR**  
**GUWAHATI – 781 014**

**NOTICE INVITING TENDER**

**No.T/16-17/71, Dt. 13-06-16**

Sealed tenders in two-bid-system are invited from reputed transformer manufacturers for and on behalf of the Gauhati University for “Design, manufacture, supply, delivery of 1 x 750 KVA & 1 x 500 KVA, 11/0.433 KV, ONAN, Outdoor Transformer for the Gauhati University”.

**EARNEST MONEY DEPOSIT** : Rs.47500.00 (Rupees forty seven thousand five hundred only).

The Earnest Money Deposit mentioned above should be paid by crossed Demand Draft / Banker’s Cheque / Bank Guarantee from a Schedule Bank in favour of “Gauhati University, Gopinath Bardoloi Nagar, Guwahati, payable at Gauhati”.

- |  |   |                            |
|--|---|----------------------------|
| 1) Cost of Tender Document                       | — | Rs. 2000.00                |
| 2) Date of issue of Tender Paper                 | — | From 13-06-16 to 20-06-16. |
| 3) Last date & time for submission               | — | 22-06-16, 2-00 p.m.        |
| 4) Date & time for opening Techno-Commercial Bid | — | 22-06-16, 2-30 p.m.        |
| 5) Time of Delivery & Commissioning              | — | 3 (three) months           |

**QUALIFYING CRITERIA :**

- 1) Must be a manufacturer of distribution transformer having experience of manufacture of similar or higher capacity transformer since last 5 (five) years.
- 2) Must have experience in executing two(2) orders of manufacturing & supplying similar transformer, i.e. at least the capacity of 750 KVA, 11 KV or above to any Govt. / Semi-Govt. departments, autonomous body, supported by supply order.
- 3) Must possess complete CPRI test report of at least one similar transformer (500 or 750 KVA, 11/0.433 KV) including S.C. test and no load & loss management. The copy of the test report shall be enclosed

### **APPLICATION FOR TENDER DOCUMENT :**

- 1) Applications for tender document must be accompanied by the attested copies of the qualifying documents as stated in Serial No. 1,2 & 3 above. Tender documents in duplicate will be issued on any working day within the last date of issue of the tender documents on payment of (Non-refundable) Demand Draft / Banker's Cheque/G.U. (Cash Deposit) Challan of Rs. 2000.00 "in favour of Gauhati University, payable at Guwahati".
- 2) The issue of tender papers to a tenderer does not automatically mean that the tenderer is considered qualified for the priced part of the bid. For all clarifications regarding site conditions, items of work or any matter related to the tender, University Engineer may be contacted during office hours on all working days.
- 3) Tender document may also be downloaded from the website of the University [www.gauhati.ac.in](http://www.gauhati.ac.in). In that case cost of tender document shall be enclosed along with the Techno-Commercial Bid in the form of non-refundable Demand Draft / Banker's Cheque of Rs. 500.00 payable in favour of Gauhati University.
- 4) While evaluation will be made for the 2 (two) transformers together (considering the total value quoted for two transformers), the university reserves the right to place separate orders for the 750 KVA & 500 KVA transformers.

### **SUBMISSION OF TENDER :**

1. **Tender shall be submitted in the following manner in separate sealed covers duly superscripted as explained in the special conditions of contract :**

**Part I – Techno-Commercial Bid**

**Part II – Price Bid**

**The EMD shall be deposited along with Part – I, i.e. Techno-Commercial Bid.**

2. In case the day of submission of the tenders happens to be holiday on account of Govt. notification, the submission & opening of the tenders shall automatically be extended to the next working day, the times specified remaining the same.

**Superintending Engineer, i/c  
Gauhati University**

# GAUHATI UNIVERSITY

## Submission of tender

From : .....

To  
The University Engineer  
Gauhati University  
Gopinath Bardoloi Nagar, Guwahati – 781 014

I / We hereby tender for execution of the work of design, manufacture, supply, delivery of 1 x 750 KVA & 1 x 500 KVA, 11/0.433 KV, ONAN, outdoor transformer for the Gauhati University as per tender within the time schedule mentioned therein as separately signed and accepted by me / us, at the schedule of rates quoted by me / us for the whole work in accordance with Notice Inviting Tender, Intent of the Specification and General Information for Tenderer, Special Instructions to Tenderer, Technical Specification, workmanship, drawings, other documents and papers, all as detailed in the tender documents.

1. It has been explained to me / us that the time stipulated for job and completion of works in all respects and in different stages mentioned in the "Time schedule" of completion of job and signed and accepted by me / us is the essence of the Contract. I / We agree that in the case of failure on my / our part to strictly observe the time of completion mentioned for jobs or any of them and to the final completion of works in all respects according to the schedule set out in the said "Time Schedule of Completion of Job", I / We shall pay compensation to the Owners as per provision and stipulations contained in clause – 1.14 of General conditions of Tender and I / We agree to recovery being made as specified therein. In exceptional circumstances extension of time which shall always be in writing may, however, be granted by the Engineer-in-Charge at his entire discretion for some items of work, and I / We agree that such extension of time will not be counted for the extension of completion dates stipulated for job and for the final completion of works as stipulated in the said "Time Schedule" of Completion of Jobs.
2. I / We agree to pay the earnest money and security deposit and accept the terms and conditions laid down in the memorandum below in this respect.

### MEMORANDUM

(a) General description of work .....

(b) Earnest Money Rs.....  
(Rupees).....

The Earnest money is payable in the manner set out in para 5 below. The Earnest money, if the tender is accepted, will be retained against the security deposit when Earnest Money is paid in cash or demand draft only.

(c) Security Deposit 10% of the contract amount which will be paid in the manner set out in clause (1.7) in Section – I of the Special Conditions of Contract.

(d) Time allowed for starting work: Fifteen days from the date of issue of letter of acceptance of the tender

3. Should this tender be accepted I / We hereby agree to abide by and fulfill all terms and conditions referred to above and in default thereof, to forfeit and pay to the Owner or its successors or its authorized nominees such sums of money as are stipulated in conditions contained in Notice Inviting Tender and other tender documents.

4. If I / We fail to commence the work specified in the memorandum in para (3) above, or I / We fail to deposit the amount of security deposit specified in the Memorandum in para (2) above, I / We agree that the said Owner and its successors without prejudice to any other right or remedy be at liberty to forfeit the said earnest money in full otherwise the said earnest money shall be retained by Owner, towards the security deposit specified in para (2) above. The said Owner shall also be at liberty to cancel the notice of acceptance of tender if I/We fail to deposit the security amount as aforesaid or to execute an agreement or to start work as stipulated in the tender documents.

I / We enclose herewith evidence of my/ our experience of execution of work of similar nature and magnitude carried out by me/ us in the prescribed proforma and also the Income Tax and Sales Tax Clearance Certificate.

Date.....day of.....2016

Witness :

Name in Block Letters :

Address :

Signature of Tenderer(s),with the seal of Firm

## PROPOSAL PARTICULARS

1. Tenderer's complete Company Name & Address :
  
2. Tenderer's proposal no. :
3. Tenderer's proposal date :
4. Tenderer's proposal validity period :
5. Whether Earnest Money Deposited ?
  - a) Is so, give the amount and details :
6. Name and designation of the officer of the tenderer to whom all reference shall be made for expeditions technical co-ordination. :
7. Make & capacity of the transformer(s) offered :
  
8. Are you a manufacturer of transformer tendered for or accredited agent of the manufacturer? :
9. Complete period for delivery :
10. Performance guarantee period for the equipment offered from the date of supply / commissioning :
11. Particulars of past experience of execution of similar supply orders :

Date :

(Signature of the tenderer)

# **SECTION - 1**

## **INTENT OF THE SPECIFICATION AND GENERAL CONDITIONS**



## **SECTION – 1**

### **INTENT OF THE SPECIFICATION AND GENERAL CONDITIONS**

#### **1.1 Intent of Specification :**

This specification is intended to cover the design, manufacture, testing at manufacturer's works, transportation, supply and delivery to site of 1 (one) no. 750 KVA & 1 (one) no. 500 KVA, 11/0.433 KV, outdoor, ONAN distribution transformer to Gauhati University.

#### **1.2 General information :**

The transformer covered under this specification will be required for D.G. House near Physics Dept. of Gauhati University.

#### **1.3 Technical Specification :**

Technical Specifications of the transformer covered under this specification are furnished in Section – 3.

#### **1.4 Delivery :**

The transformer covered under this specification shall be delivered within 1 (one) month from the date of issue of the purchase order.

#### **1.5 Payment terms :**

Payment shall be released after delivery of the transformers in good condition complete with all accessories. No payment shall be released unless the security deposit as per clause no.: 1.7 is deposited.

#### **1.6 Price Variation :**

It is desired that the prices shall be firm till delivery of the transformer. If so desired, the tenderer may quote for price variation indicating the formula for price variation with ceiling. However, in that case ceiling percentage quoted will be loaded to the tender value for comparison of the tenders. Escalation without ceiling shall be considered null and void and in such cases prices shall be considered firm till completion of work.

#### **1.7 Security Deposit :**

- 1.7.1 A sum of 10% of the accepted value of the tender shall be deposited by the successful tenderer whose tender has been accepted as security deposit with Gauhati University. This may be deposited initially at 2% of the value of contract (referred as initial Security Deposit) within 7 days from the date of issue of the Letter of Intent and the balance 8% will be recovered in installments through deductions @ 10% of the value of each running account bill till the total security deposit amount is collected, after which no further deductions from bills will be made on this account..
- 1.7.2 The earnest money deposited with the tender shall be adjusted towards security deposit, provided it is furnished in demand draft only.
- 1.7.3 The Security deposit & Earnest Money Deposit shall not bear any interest.

1.7.4 If the supplier / contractor fails or neglects to observe, perform any of his obligation under the contract either in respect to manufacture, supply or in respect to the guarantee period, it will be lawful for the purchaser / owner to forfeit either in full or in part at his absolute discretion, the security deposit furnished by the supplier.

1.7.5 No interest shall be payable on such deposit.

### **1.8 Earnest Money :**

1.8.1 Earnest money prescribed in the NIT shall be paid in the shape of Demand Draft or Banker's Cheque only from any Nationalised/ Schedule 'A' Bank in favour of "**The Registrar, Gauhati University**" payable at Guwahati or in the form of Gauhati University Challan. EMD submitted in the form of Bank Guarantee will not be accepted and the tender will be summarily rejected.

1.8.2. In case of unsuccessful tenderers, earnest money will be released within a period of 75 days from the date of award of the contract.

1.8.3. In case of successful tenderer, the earnest money will be retained until submission of the security deposit referred to in the clause 1.7.

1.8.4. No interest shall be payable on such deposits.

1.8.5. The Purchaser / Owner reserves the right to forfeit the EMD or part thereof, in circumstances which according to him indicate that the tenderer is not earnest in accepting / executing the order(s) placed under this specification.

### **1.9 Guarantee :**

**It is expected that the transformer shall be guaranteed for a period of 60 months from the date of delivery.** The supplier / tenderer shall guarantee for rectification of any defect in the transformer within this period free of cost.

### **1.10 Drawing :**

The successful tenderer shall furnish for approval four copies of the following drawings immediately after award of the contract —

- a) General arrangement drawing showing all components, features, dimensional details, weights etc.
- b) Name plate details
- c) Complete particulars of foundation

### **1.11 Type / special test reports (to be submitted along with the tender) :**

The particular design of the transformer offered by the tenderer against this specification must have successfully passed the type tests as mentioned below within a period not earlier than 5 years :

- i) Impulse withstand test
- ii) Dynamic short-circuit test
- iii) Temperature rise test

Test-reports pertaining to above test shall be submitted along with the tender document.  
Price-bids of only those tenderers who have submitted the above test-reports along with

the tender document shall only be opened.

**1.11.1 Routine tests :**

All routine and acceptance tests specified under relevant standard shall be conducted on the transformer in presence of purchaser's representative. The tenderer shall inform the purchaser at least 7 days in advance to enable the purchaser to depute his representative to witness the test.

**1.12 Transformer losses :**

**1.12.1** The no load loss in KW at rated voltage and rated frequency and the total losses in KW at rated out put, rated voltage and rated frequency shall be guaranteed under penalty by the tenderer. For the purpose of penalty computations, the test figures of the non-load and total losses shall be compared with the guarantee figures. **Maximum guaranteed loss (after considering tolerance, if any) shall be as follows –**

**i) 750 KVA – 6875 Watt.**

**ii) 500 KVA – 4750 Watt**

**If the total loss is higher than this value, the tender will be rejected**

**1.12.2** The penalties shall be separately computed from –

(i) The excess of the test figure of the no-load loss in killo-watts over the corresponding guaranteed values, and (ii) the excess for the difference between the test value of the total losses and the no-load in kilo-watts over the difference of the corresponding guarantee values. No tolerance shall be permitted over the test figures of the losses.

The penalties shall be calculated by multiplying the excess no-load and load loss figures computed as above by 'X' and 'Y' respectively. Values of 'X' and 'Y' are shown in item 1.12.4.

**1.12.3** If the guarantee losses are subject to tolerance as per the standard specification, the maximum losses including plus tolerance will be taken for capitalization.

**1.12.4** For comparison of the different offers, and to arrive at competitive price, the sum of quoted price (FOR destination) and capitalized charges of the losses as per the formula given below shall be considered and the lowest of these shall be considered as the most economical.

$$\text{Capitalized losses} = XL_1 + YL_2$$

where,  $L_1$  = no-load loss of the transformer in K.Watt.

$L_2$  = load losses (copper loss + cooler loss) of the transformer in K.Watt.

X = Rs. 5,78,359 /- per K.Watt

Y = Rs. 1,73,508 /- per K.Watt.

**1.12.5** The purchaser reserves the right to reject or accept the transformer if the losses are more than the declared losses beyond the tolerance limits as relevant standards.

**SECTION - 2**

**SPECIAL INSTRUCTIONS TO  
TENDERER**

## SECTION – 2

### **SPECIAL INSTRUCTIONS TO TENDERER**

- 2.1 Tenders are invited for design, manufacture, supply, delivery (including loading / unloading) of 1 x 750 KVA & 1 x 500 KVA, 11/0.433 KV outdoor ONAN transformer, complete with all accessories to the Gauhati University located at Gopinath Bardoloi Nagar, Guwahati in the district of Kamrup (Urban), Assam.

Tenderer is advised to read these instructions carefully to ensure that his response complies fully therewith. Failure to provide the information and documents required by this invitation to tender may render the tender to be unacceptable. For tenderer's convenience, this section is divided into three main sections as follows —

- a) General Conditions of Tendering
- b) Tender Requirement
- c) Proposal of the tenderer

#### **2.1.1 General Conditions of Tendering :**

- 2.2.1. Two sets of tender documents are issued / sent herewith marked "Original" and "Tenderer's Copy". Tenderers shall submit the "Original" along with their offers and "Tenderer's Copy" shall be retained by him as his reference copy.

Tenderer shall sign each page of Original copy with office seal as token of his acceptance.

#### **2.2.2. Tender Validity :**

Tender shall remain valid for acceptance for a period of 90 (ninety) days from the date of opening of the tender. The tenderer shall not be entitled during the said period, to revoke or cancel his tender or to vary the tender given or any term thereof. In case of tenderer revoking or canceling his tender or varying any term in regard thereof, the owner shall forfeit the earnest money paid by him along with the tender. The tender shall be revalidated for extended period as required by owner in writing.

#### **2.2.3. Submission of Tender :**

- a) Tenders must be submitted by the time and date mentioned in the Notice Inviting Tender in the office of Gauhati University at the address stated in para (c) hereunder. The University takes no responsibility for any delay, loss or non receipt of tender documents sent by post. Tenders received after the time and date fixed for receipt of tenders are liable for rejection.
- b) Priced and Unpriced parts of the tender must be submitted in separate sealed covers in two parts as follows :

#### **PART – I : TECHNO-COMMERCIAL (UNPRICED) BID**

This part shall contain techno-commercial (unpriced) proposal required as per para 2.4.1 hereinafter. The tenderer shall also submit subsequent correspondences in two copies.

Part – I of the tender i.e. the Techno-Commercial (Unpriced) Bid shall be opened on the time and date as given in the tender notice. The owner shall evaluate Techno-

Commercial bid and Part – II (Priced) bid of only those tenderers who are found qualified shall be opened at a later date to be notified to the qualified tenderers. Price bid of other tenderers shall be rejected.

## **PART – II : PRICE BID**

This part of the tender shall contain bill of quantity duly filled in, signed & sealed in two copies.

c) Tenderers must submit tender including queries if any, at the following office :

**The Registrar  
Gauhati University  
Gopinath Bardoloi Nagar, Guwahati – 781 014**

d) The tender and all details submitted subsequent to the tender shall be signed by any one, legally authorized to enter into commitment on behalf of the tenderer. Tenderer shall submit power of attorney in favour of the person who is authorized to enter into commitments on behalf of the tenderer.

Owner will not be bound by any power of attorney granted by the tenderer or changes in the constitution of the firm made subsequent to submission of the tender or the award of the contract. The owner may, however, recognize any such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the tenderer.

The cancellation of any document such as power of attorney, partnership deed etc. should be communicated by the tenderer to the owner in writing well in time, failing which it shall have no responsibility or liability for any action taken by it on the strength of the said documents.

### **2.3. Tender requirement :**

Tenderers are informed that owner intends to fully evaluate the technical ability of the firms. It is therefore, very important that tenderer clearly demonstrates his ability, giving to owner a high level of confidence that the tenderer will be able to execute the job within scheduled time, meeting all the tender requirements. Failure to do so may result in disqualification of the tender.

Tenderer shall provide narrative on his approach for execution of services in line with the owners own project execution approach. As a minimum following shall be covered.

#### **2.3.1. Status & Experience of the tenderer :**

**Price-bids of only those tenderers who fulfill the following criteria, shall be opened —**

- i) The tenderer must be a manufacturer of transformer, having experience of manufacture of transformers of similar or higher capacity and voltage grade for at least 5 (five) years. Necessary documents to be attached.**
- ii) The tenderer must have experience of supplying transformers of similar or higher capacity and voltage grade to the Govt. / Semi-Govt. departments, autonomous bodies from last 5 (five) years. Copies of necessary supply orders shall be attached.**
- iii) Dynamic short circuit test reports of transformer of similar capacity & design shall be submitted along with the tender.**

### **2.3.2. Performance record of similar transformers :**

- i) The tenderer shall furnish the list of transformers of capacity 750 KVA & 500 KVA and above of the same make quoted by him under operation in different organizations.
- ii) Performance certificates of at least 3 (three) such transformers for at least 5 (five) years from competent authority shall be enclosed along with the tender.
- iii) Performance record of a particular brand of transformer will be assessed on the basis of these information and also through direct contact with the clients. The owner reserves the right to disqualify the tender for (a) poor performance record, and / or (b) high incidents of failure of the brand quoted by him.

### **2.3.3. Compliance to requirements of tender document :**

Tenderer shall confirm his compliance to the requirement of tender document as per Annexure – V.

### **2.3.4. Organisation :**

- a) In case the tenderer is a partnership firm, certified copy of the partnership deed together with a certified extract from the register of firms containing names and addresses of all the partners of the firm should be furnished along with the tender.
- b) In case of the company (whether private or public), certified copy of the certificate of incorporation together with certified Memorandum of Articles of Association and a list containing names and address of all the directors should accompany the tender.
- a) In case of a proprietorship firm, the name and address of proprietor, should be furnished.

### **2.3.5. Pricing Requirements :**

- a) All rates set forth in tenderer's quotation, shall be in Indian Rupee as payment shall be made only in the Indian currency.
- b) The rate should be written both in figures and words. In case of difference between the two, the lower of the two will be considered.
- c) The quoted rate should be inclusive of all taxes as applicable.
- d) **The tenderers are requested to furnish the rebate, if any, only in the last page of 'Schedule of Rates' only. Rebate, if offered at any other place, shall be considered INVALID.**

**2.4. Proposal of the tenderer.** The tenderers shall arrange their tenders in the following order :

#### **2.4.1. Part – I : Techno-commercial Bid (to be submitted in a sealed envelope) –**

- a) Submission of tender letter along with original set of tender document and drawings / documents duly signed and sealed.
- b) Earnest Money Deposit and its details
- c) Power of Attorney in the name of person who signed the tender document.
- d) List of similar or higher capacity transformers supplied during last 5 (five) years as per Annexure – III
- e) Performance record of the offered brand of transformer as per Annexure – IV

- f) Acknowledgement letter as per Annexure – I
- g) Particulars of contractor as per Annexure – II
- h) Compliance to requirement of tender document as per Annexure – V
- i) Validity of tender as per Annexure – VI
- j) Price escalation in Annexure – VII
- k) Deviation sheet of Technical Specification in Annexure – VIII
- l) Deviation sheet of Tendering & General Conditions in Annexure – IX
- m) Any other relevant document tenderers wish to furnish.

**2.4.2 Part – II : Price Bid (to be submitted in a sealed envelope) –**

- a) Bill of quantity duly filled in along with proposal particulars

**2.4.3** Both the Techno-Commercial Bid (Part – I) and Price Bid (Part – II) shall be sealed in separate envelopes. On the top of each envelopes, NIT No., Name & address of the tenderer, Name of the item tendered for and “Price Bid” or “Techno-Commercial Bid” (whichever is applicable), shall be clearly written or typed. Both the sealed envelopes shall be submitted inside a bigger envelope, which shall also be sealed and superscribed on top with NIT No., item tendered for, Tenderer’s name and address.



**SECTION - 3**

**SCOPE & TECHNICAL  
SPECIFICATION**

## **SECTION – 3**

### **TECHNICAL SPECIFICATION**

#### **3.1 Scope :**

The equipment to be supplied under this specification is – 750 KVA, 11/0.433 KV outdoor, ONAN DY<sub>n</sub>II distribution transformer – 1 no.

#### **3.2 Standard :**

- 3.2.1 Transformers covered by this specification shall, unless otherwise specified be built to conform to the latest Indian Electricity Rules, wherever applicable and the requirements of latest issue of ISS: 1180 and ISS 2026, CBIP Standards and other ISS (All as per latest issues).
- 3.2.2 In the event of a conflict between the above standards and the stipulation laid down in the specification the later shall govern.

#### **3.3 Rating and General Data :**

- i) **Type** : Core form, three phase oil immersed step down two winding distribution transformers.
- ii) **Rating:** i) 750 KVA.  
ii) 500 KVA
- iii) **Number of Phase:** Three.
- iv) **Frequency:** Transformer shall be suitable for continuous operation with a frequency variation of: 3% from normal 50 Hz without exceeding the specified temperature rise.
- v) **Type of cooling:** ONAN
- vi) **Voltage Ratio:** 11/0.433 KV
- vii) **Vector Group Reference:** DY<sub>n</sub>11

#### **3.4 Connection :**

The primary (HV) winding shall be connected in delta and the secondary (LV) winding star with vector group Dyn11. The neutral of the secondary (LV) winding shall be brought out to a separate insulated terminal.

The size (Cross Section) of the neutral connection conductors and jumpers must be of same size as that of the phase connection conductors and jumpers and shall be properly supported and insulated.

#### **3.5 Temperature Rise :**

- (a) For winding 50°C (measured by resistance) and for top oil - 40°C (Measured by thermometer) when tested in accordance with IS: 2026/1977.

#### **3.6 Terminal Arrangement :**

H.V. - Bare outdoor bushings  
L.V. – Cable box suitable for connection of 3 nos. 300 sq.mm 3.5 C cables.

### **3.7 Tap changing Switch :**

Off circuit tap changing switch shall be provided having the range of +5% to -10% in steps of 2.5% where switch position No.1 shall correspond to the maximum plus tapping. The tap position No. should be of increasing order at clock-wise direction, the top marking should be of engraved in nature. Provision shall be made for locking the tap switch handle at each position. The locking arrangement shall be such that padlock cannot be inserted unless required contacts corresponding to the tap position are correctly connected with full contact pressure. Mechanical backstops should be provided at the limiting tap position. The tap changing shall be effected by an external three-phase gang operated switch. The Operation shaft shall be brought out of the tank provided with a hand wheel so that it can be operated at standing height from ground level and shall be easily accessible. The tap changer handle should be fitted on the side wall of the transformer.

The supplier must provide all information to establish the quality, make and type of tap changers to be used in the transformer with sectional drawings showing the size, arrangement and functioning of the contacts and tap switch.

The sample of the tap switch used for different sizes of transformers and voltage grades shall have to be approved before using them in transformers, if called for.

### **3.8 Leads :**

All leads of the windings, connection of the windings or their wires to one another, to terminal bushings or to a tap changer shall be properly insulated and covered with insulation sleeves. The soldering materials shall have higher melting temperature above 300°C and preferably above 400°C for better thermal endurance and mechanical strength. The tenderer shall specifically mention the method and materials to be used by them for lead connections.

### **3.9 Conductors : Copper.**

### **3.10 Tank :**

3.10.1 Tank wall must be fabricated from tested quality of mild steel sheets of thickness minimum 4 mm. Top and bottom plate of the tank must be of minimum 5 mm. thick. It should be shaped so as to make welding to a minimum. All welding shall be done electrically and relieved of welding stresses. All seams shall be double welded (both outside & inside of tank) for absolute oil tightness. The tank wall shall be formed by stiffeners of structural steel for general rigidity and to dampen transformer noise. It shall also withstand partial vacuum as per latest CBIP manual against standard atmospheric pressure. Maximum Tolerance on the negative side of the steel sheets shall be 0.15 mm. Tank design shall be such that the core and coil assembly can be tanked or detanked freely and easily without dismantling LV bushing etc. The top cover plate should be slightly sloped towards HV side for non-accumulation of rain water / transformer oil.

Inside wall of the tank and the M.S. Channel shall be painted with varnish or with hot oil resistance paint.

3.10.2 The tank cover shall be bolted on to flanged rim of the tank with a weather proof, hot oil resistant, resilient gasket in between for oil tightness. If the gasket is compressible, metallic strips shall be provided to prevent over compression of the gasket. Access and inspection holes blanked with oil tight gasket sealed cover plate

shall be provided for working on the connection of the lead of windings, the bottom terminals of bushings and the off load tap switch. Bushing turrets, cover of access holes, covers for pockets of thermometers and other devices shall be designed to prevent any ingress of rain water into the tank and the tank cover as a whole shall shed off all rain water.

All the gaskets including Gasket used between tap cover and tank flange shall be of neoprene rubberised cork sheet RC 70-C and shall be provided with watertight compound between the tank flange of the gasket. Top cover gasket & HV bushing gasket should be of minimum 6 mm thick. The gaskets should be of either Grind beck / Gujarat cork / Bharat corrob / Talbros / Cortica /any reputed make.

3.10.3 The conservator shall be provided with oil level indicator, drain plug & oil filling hole with cover. Conservator pipe shall be welded on the top cover and should be projected at least 20 mm inside the bottom of conservator so as to create a sump for collection of impurities. The minimum oil level should be above the top of the HV bushing.

The conservator oil level indicating portion (which contains oil) should be painted in White colour. The indicating portion of the glass should be of minimum 15mm width. The glass should be of transparent & non-sticky type so that the oil level can be easily seen from a distance of 8 meters.

Inspection cover has to be provided on the top cover. The inspection cover shall be suitably elevated from the level of the top cover to prevent ingress of water into the tank. Air release plug has to be provided on inspection cover.

### **3.11 Core :**

3.11.1 The magnetic core shall be build of very low loss cold rolled grain oriented steel.

3.11.2 The materials used for insulating the sheets shall have high interlamination resistance and rust inhibiting property. It shall not be deteriorated by *from* hottest operating temperature and clamped pressure of the core of disintegrates due to mechanical modes of core vibration. It shall not have the least tendency to absorb moisture or to react with the dissolved particles in the insulating oil thus accelerating sludge formation.

3.11.3 The assembled core shall be securely clamped in the lines and in the uniform pressures so as to minimize the noise *from* the core.

The tie rod & core bolt should be made of MS Bright rods having dia not be less than 16 mm.

3.11.4 The core clamping frame shall be provided with lifting eyes for the purposes of tanking and un tanking the active part of the transformers. The whole core shall be electrically connected by copper strip of adequate section to the core frame at two points for being eventually earthed through the tank to drain *off* electrostatic potential that may be build up.

3.11.5 The supporting frame work of the cores shall be so designed so as to avoid the presence of pockets which would prevent complete emptying of the tank through the drain valve or cause trapping of air during filling.

3.11.6 Adequate provision shall be made to prevent movement of the core and winding relative to the tank during transport installation or while in service.

3.11.7 The cores shall conform to:

IS: 3024 = 1965 Electrical sheet steel. &

IS: 649= 1983 method of test of steel sheet.

3.11.8 Flux density at normal voltage & frequency shall not be more than 1.65 tesla. All the cores should be annealed rust free, of same grade & same thickness. Cores of *M3jM4* or better grade should be used. Suppliers should give the manufacturer's test certificate, Purchase Order copy, received challans j bill copy of core supplier at the time of inspection call definitely.

3.11.9 Over flux in the core shall be limited to 12.5% to ensure that in the event of over voltage to the extent of 12.5%, the core does not get saturated.

### 3.12 WINDING :

3.12.1 Transformer shall be provided with the requisite number of windings and shall be designed to withstand the electromechanical stress exerted under short circuit conditions as per ISS: 2026: 1977.

Class "A" insulation shall be used. Wooden supports, if used, shall be well seasoned and compatible with hot transformer oil.

3.12.2 The insulation level of the windings shall be as follows:

<u>Voltage</u>	<u>Impulse Voltage (KV peak)</u>	<u>Short duration power frequency voltage (KV)</u>
433	---	3
11000	75	28

3.12.3 The winding shall be so designed to reduce to a minimum the out of balance forces in the transformer at all voltage ratios.

3.12.4 The winding shall also be designed such that all coils assemblies of identical voltage rating shall be interchangeable and repairing of the winding can be made readily without special equipments.

3.12.5 Conformation to IS standards relating to conductors and insulation.

The following Indian standards specification shall govern the quality of conductor, covering insulation such as enamel, paper and insulating boards.

(1) IS: 2067 - 1975: Wrought Aluminium Wire for electrical purposes.

(2) IS: 4800 - 1968: Enameled round winding wire.

(3) IS L 7404 (Pt- I & II) 1974: For paper covered copper conductor (round and rectangle)

(4) IS: 1397 - 1967: Kraft paper

(5) IS: 335 - 1983: New Insulating Oil.

(6) IS: 1576 - 1967

IEC: B-2.1}

IEC: B - 3.1}

IEC: B - 4.3}

Solid press Board for electrical purposes.

**3.13 BUSHING :**

The bushings shall conform to IS: 2099 - 1962 (Latest): Bushing for Alternating voltages above 1000 volts. The dimensions of bushings shall conform to IS: 3347.

The clearance in air between live and conductive parts and live conductive part to earthed structures shall be as follows:

Clearance

Nominal System Voltage KV rms.	Test Voltage Impulse KVR	Phase to phase (mm)	Phase to earth (mm)	Arcing Horn Gap.
0.433	-	85	40	-
11	75	280	140	85

**3.14 Cooling Arrangement :**

3.14.1 The transformer shall be suitable for loading of 100% continuous maximum rating with 'ON' cooling without exceeding the thermal limit.

3.14.2 The transformer shall be fitted with cooling tubes bent and welded to tank or radiators consisting of a series of separate circular or ERW Elliptical tubes of Sec-57, or a pressed steel plate assembly formed into Elliptical oil channels, welded at their top and bottom to the tank. In case of Pressed Steel Radiator no joints in between the radiator fins connecting pipe assembly is accepted.

3.14.3 The radiator tubes shall be seamless, made of CRCA sheet having a maximum wall thickness of 1.5mm and a clean bright internal surface free from rust. They shall be suitably branched to protect them from mechanical shocks normally met in transportation and to damp the modes of vibration transmitted by the active part of the transformer in service.

3.14.4 The manufacturer will have to provide wall surface area of tank & radiator cooling tubes separately as part of the guaranteed technical particulars. They have to give the oil temperature rise calculation with radiator size & pieces provided along with the cooling chart of the radiator of the same manufacturer are to be used.

**3.15 PAINTING :**

3.15.1 The surface to be painted shall be made free from all rust and mill scale or foreign adhering mater of grease and all external rough surface cavities by shot blasting or other approved method.

3.15.2 All steel surfaces in contact with insulating oil as far as accessible shall be painted with heat resistant, oil insulable, insulating varnish or paint.

3.15.3 All steel surfaces exposed to weather shall be given a primary coat of Zinc chromate and two coats of dark admiralty gray paints.

- 3.15.4 All paints shall be carefully selected to withstand tropical heat and extrimitics of weather.  
The paint shall not scale off or wrinkle or be removed by abrasion due to normal handling.
- 3.15.5 All nuts and bolts used in the transformer for external fittings shall be galvanized or zinc passivated.
- 3.15.6 All nuts and bolts used in the transformer for internal fittings i.e. in oil shall be painted.

### **3.16 TEST & INSPECTION (AS PER ISS) :**

#### **3.16.1 Routine Test:**

All transformers shall be subjected to routine tests at the manufacturer's works. The following tests are to be carried out.

- (a) Measurement of winding resistance by Kelvin / Wheat stone's Bridge.
- (b) Ratio, polarity and vector group.
- (c) Load loss & Impedance voltage.
- (d) No-load loss & No-load current at normal & 112.5 % over voltage.
- (e) Insulation resistance & PI value by motorised megger.
- (f) Induced over voltage withstand.
- (g) Separate source voltage withstand.
- (h) Oil BDV test.
- (i) Temperature rise test - will be conducted on one transformer for every lot offered for inspection. As per amendment No.2, October, 1984 to IS 2026 (Part-2) - 1977, the temperature rise test for transformers having tap changer will be performed on the lowest tap at appropriate current relating to the said tapping (with losses fed corresponding to minimum voltage tapping).
- (j) Oil leakage test-Pressure test at 0.8 kg/ sq. cm. will be conducted on one transformer for every lot offered for inspection.

#### **3.16.2 TYPE TESTS:**

The supplier should produce the type test reports of the above KVA ratings done earlier within last 5 years for similar design.

- (a) Dynamic short circuit withstand test.
- (b) Impulse voltage withstand test.
- (c) Temperature rise test if any.

**3.16.3** The transformers to be manufactured and supplied should have identical design and drawings as that of approved design and drawings. Approved drawings are to be submitted before commencement of supply.

**3.16.4** Performance under External Short Circuit conditions and limit of temperature.

All transformers shall be capable of withstanding, without damage, the thermal and mechanical effects of a short circuit at the terminals of any or all windings for 2 secs. The temperature in the windings after 2 secs of over current must not exceed 250°C for copper windings.

### **3.17 Inspection :**

The transformer may be stage inspected at the factory of the manufacturer. The manufacturer shall intimate in advance in writing to the purchaser about the stages of manufacture & subsequent readiness of the transformers to enable him to carry out stage inspection, final inspection and testing of the finished transformers.

The stage inspection will be carried out at the discretion of the purchaser during the process of manufacturing of the transformers. The manufacturer need not stop the process of production because of programme of stage inspection of the Purchaser.

While offering for final inspection the following point should invariably be taken care of:

- (i) Nameplates should be welded / reveded on the tanks of the transformer. SL No. of the transformer should be welded to the main tank wall before inspection.
- (ii) The bolts connecting the top cover of the transformer with the tank at the two opposite corners are to be provided with holes at their lower portions which would go beyond nuts so that the transformers may be sealed by inserting sealing wire in these holes.

**3.17.1** The purchaser has got the right to have further tests carried out at any place including the testing at supplier's end, which may include cut-open test, winding resistance test, etc.

### **3.18 Contract Drawings :**

The General outline drawing giving details of dimensions and fittings should be submitted for the transformer.:

### **3.19 Overload Capacity :**

Each transformer shall be capable of carrying sustained overload as stated in ISS.

### **3.20 Transformer Oil :**

The oil shall be as specified in IS: 335- 1993 and it shall be free from moisture and have uniform quality throughout. It shall be capable of withstanding BDV of 60KV at 2.5 mm gap moisture contain 5ppm. The transformer oil used should be new transformer oil of Apar/ Savita/Raj or any reputed brand. Reclamation oil should not be used.

### **3.21 FITTINGS AND ACCESSORIES:**

1. Two earthing terminals of M12 size.
2. Oil level gauge indicating three positions of oil marked as follows

Minimum at	-	5°C
Normal at	-	30°C
Maximum at	-	95°C
3. Lifting lugs
4. Rating, diagram and terminal marking plate of AL etched.
5. Transparent type silicagel breather with aluminium end cover & oil cup.
6. Drain cum sampling valve
7. Filter valve



8. Platform mounting arrangement
9. HV bushing with arcing homo
10. LV cable box
11. Bi-metallic connector for both HV & LV
12. Filling hole having P-1 1/4" thread on conservator.
13. Thermometer pocket as per ISS.
14. Air release plug.
15. Conservator with fittings.
16. Off circuit tap switch
17. Cast iron roller
18. Explosion vents with air release plug
19. Inspection cover with air release plug
20. Stem type oil temperature indicator
21. SL No. of the transformer welded on the tank.

## ANNEXURE – A

### TECHNICAL SPECIFICATIONS OF TRANSFORMER

1. Rating : 750 KVA & 500 KVA
2. Number required : 1 (one)
3. Service : Outdoor
4. Type : Oil filled type
5. Type of cooling : ONAN
6. Temperature rise above ambient temp. 50°C in winding by resistance : 40°C
7. Temperature rise above ambient .50°C in top oil measured by thermometer : 35°C
8. No. of phases and cycles / sec. : 3 phase, 50 c/s
9. Winding per phase : 2
10. Rated voltage (line to line)
  - a) H.V. : 11 KV
  - b) L.V. : 0.433 KV
11. Maximum flux density : 1.65 tesla
12. Inter phase connection :
  - a) H.V. : Delta
  - b) L.V. : Star
13. Vector group reference : Dy<sub>n</sub>II
14. Type of taps provided : Off Circuit full capacity
15. Taps provided on : H.V. Winding
16. Range of tap : +5% to -10% in steps of 2.5%
17. Maximum loss (no load +load loss)  
750 KVA – 6875W  
500 KVA – 4750 W
18. Insulation level :
  - a) Power frequency withstand voltage :
    - i) H.V. Winding : As per standard
    - ii) L.V. Winding : - do -
  - b) Impulse withstand voltage :
    - i) H.V. Winding : - do -
    - ii) L.V. Winding : - do -
19. Highest system voltage :
  - i) H.V. System : 12 KV
  - ii) L.V. System : 0.440 KV
20. Terminal Arrangement :
  - i) H.V. : Outdoor bushing type
  - ii) L.V. : Cable box suitable for connection of 3 nos. for 750 KVA and 2 nos. for 500 KVA, 300 sq.mm 3.5C underground cables.
21. System Earthing : Solidly earthed neutral

**SECTION - 4**  
**ANNEXURES**

## ANNEXURE – I

### **Acknowledgement letter to NIT No.**

**To,**

The Superintending Engineer, i/c  
Gauhati University  
Gopinath Bardoloi Nagar, Guwahati – 781 014.

**Sub:** Design, manufacture, supply, delivery of 1 x 750 KVA, 11/0.433 KV transformer for the Gauhati University.

**Dear Sir,**

We acknowledge receipt of your invitation to Tender which was received on ..... and understand that the documents received remain the property of Gauhati University, Gopinath Bardoloi Nagar, Guwahati. We indicate below our intentions with respect to the letter Inviting Tender.

A) We intend to tender as requested and furnish following details with respect to our quoting office :

i) Postal address :

ii) Telephone no. :

iii) Fax no. :

iv) Contact person :

B) We are unable to tender for the reasons given below and hereby return the Tender Documents.

Reasons for non-submission of tender :

Company's name :

Signature :

Name :

Designation :

## ANNEXURE – II

### **Particulars of contractor :**

1. Name & Address of Contractor / Firm :  
Telephone No. :  
Fax No. :
  2. Whether the firm is private or public limited :  
(attested copies of deed for Articles of Association to be enclosed)
  3. Name of person holding the power of attorney :  
(attested copy of power of attorney to be enclosed )  
State his present nationality and liabilities
  4. Name of partners, their present nationalities :  
with their liabilities (attested copy of partnership deed to be enclosed)
  5. Name & Address of Bankers :
- I / We authorize Gauhati University to make any investigation to verify the correctness of the statements and documents submitted with this application and obtain clarifications or information on the technical and financial aspects of the applicant.

Seal of the Company

( Signature of Company/ Contractor )

Date :.....

**ANNEXURE – III**

**List of similar or higher capacity transformers supplied during last  
5 (five) years :**

Sl. No .	Full Postal Address of client & Name of Officer-in- Charge	Rating of Transformer Quantity	Value of contract	Date of Supply	Remarks

**Note:** Original or attested copies of supply order and completion certificates from the client should be attached by the applicant without which information furnished shall be considered null and void.

Seal

(Signature of Tenderer)

**ANNEXURE – IV**

**Performance record of offered brand of transformers**

Sl. No.	Capacity, Ratio	Name of the client & address	Year of commissioning	Present status of performance	Remarks

Seal

(Signature of the Tenderer)

**ANNEXURE – V**

**Compliance to requirement of tender documents:**

We confirm that our tender complies to the total Techno-Commercial requirements of Bidding document without any deviation.

Seal

(Signature of the Tenderer)



## **ANNEXURE – VI**

### **TENDER VALIDITY**

Tender shall remain valid for acceptance for a period of 90 (ninety) days from the date of opening of the tender. The tenderer shall not be entitled during the said period to revoke or cancel his tender or to vary the tender given or any term thereof. In case of tenderer revoking or canceling his tender or varying any term in regard thereof, the OWNER shall forfeit the earnest money paid by him along with the tender. Tender shall be revalidated for extended period as required by Owner in writing.

Seal

(Signature of the Tenderer)

**ANNEXURE – VII**

**Price escalation :**

- a) Whether the tenderer desires to have :  
escalation provision on supply part
  
- b) If so, type formula of escalation :
  
- c) Ceiling of escalation :  
(Only percentage to be quoted)

Seal

(Signature of the Tenderer)

## ANNEXURE – VIII

### Deviation sheet – Technical Specification

If the proposal has got any deviation from the Technical Specification, the Tenderer shall tabulate these deviations clause by clause in this schedule. Add more sheets, if required.

Sl. No.	Clause No.	Deviations

Seal

(Signature of the Tenderer)

**ANNEXURE – IX**

**Deviation sheet – Tendering & General Conditions**

If the proposal has got any deviation from the tendering conditions, the Tenderer shall tabulate those deviations clause by clause in this Schedule. Add more sheet, if required.

<b>Sl. No.</b>	<b>Clause No.</b>	<b>Deviations</b>

Seal

(Signature of the Tenderer)

**SECTION - 5**

**GUARANTEED TECHNICAL  
PARTICULARS**

## SECTION – 5

### GUARANTEED TECHNICAL PARTICULARS

The tenderer shall furnish the technical particulars below for the transformer quoted without which the tender shall be considered as incomplete

Sl. No.	Description	750 KVA	500 KVA
1.	Name of Manufacture	:	
2.	a) Service	:	
	b) Type Core or shell	:	
3.	Reference Standard	:	
4.	Type of Cooling	:	
5.	Rating		
	a) Rated KVA	:	
	b) Rated current .... Amps. r.m.s.		
	i) H.V.	:	
	ii) L.V.	:	
6.	A. Temperature rise above 50°C ambient		
	a) In winding by resistance .....°C	:	
	b) In top oil measured by thermometer	:	
	B. Hottest spot temperature in winding limited .....°C	:	
7.	A. Connections		
	a) High Voltage	:	
	b) Low Voltage	:	
	c) Vector group reference in accordance with IS : 2026	:	
	B. Terminal Arrangement		
	H.V.	:	
	L.V.	:	

8. Taps
  - a) Capacity :
  - b) Steps & range :
  - c) Tapping provided on H.V. side :
9. Guaranteed Losses at principal tapping
  - a) Total losses at rated voltage & frequency :
  - b) No-load loss at rated voltage and frequency :
  - c) Load loss at rated current and at 75°C :
  - d) Whether tolerance applicable to the above loss figures? If so, mention the percentage. :
10.
  - a) Impedance at rated current & frequency and at 75°C..... % :
  - b) Reactance at rated current and frequency ..... % :
  - c) Resistance at rated current and at 75°C .....% :
11. Efficiency at 75°C & 0.80 power factor .....%
  - a) At 100% load :
  - b) At 75% load :
  - c) At 50% load :
12. Regulation at full load and at 75°C
  - a) At Unity power factor .....% :
  - b) At 0.80 power factor lagging .....% :
13. No-load current referred to H.V. and 50 c/s.....% rated current :
14. Maximum current density .....Amps/cm<sup>2</sup>
  - a) H.V. winding :
  - b) L.V. winding :

15. Clearance
  - Maximum clearance in Air..... mm
  - i) Between phases :
  - ii) Between phases & ground :
  
16. Withstand time without injury for
  - i) Three phase dead short circuit at terminal ..... sec. :
  - ii) Single phase short circuit at terminal .....sec. :
  
17. Insulation levels
  - a) Separate source power frequency withstand voltage
    - i) H.V. winding ..... KV rms. :
    - ii) L.V. winding ..... KV rms. :
  - b) Induced over voltage withstand
    - i) H.V. winding ..... KV rms. :
    - ii) L.V. winding ..... KV rms. :
  - c) Full wave lightning impulse withstand voltage
    - i) H.V. winding ..... KV peak :
    - ii) L.V. winding ..... KV peak :
  - d) Switching impulse withstand voltage
    - i) H.V. winding ..... KV peak :
    - ii) L.V. winding ..... KV peak :
  
18. Details of Tank :
  - a) Material :
  - b) Thickness of sides .....mm :
  - c) Thickness of cover ..... mm :
  - d) Thickness of tube ..... mm :
  - e) Thickness of bottom ..... mm :



- f) Maximum internal pressure :  
the tank is capable of withstanding .....  
kg/cm<sup>2</sup>
- 19. Details of Core material
  - a) Core lamination material :
  - b) Thickness of lamination .....mm :
  - c) Insulation of lamination :
  - d) Core bolt withstand voltage for one minute :  
.....KV
- 20. Insulating Material
  - a) Turn insulation ..... H.V. :
  - b) Turn insulation ..... L.V. :
  - c) Insulation ..... Core to L.V. :
  - d) Insulation ..... H.V. to L.V. :
- 21. Approximate Overall dimension :
  - a) Length :
  - b) Breadth :
  - c) Height :
- 22. Approximate Weights ..... kg :
- 23. Shipping Data :
  - a) Weight of the heaviest package ..... :  
Kg
  - b) Dimension of the largest package :  
(L x B x H) ..... mm
- 24. Accessories furnished
  - 1)
  - 2)
  - 3)
  - 4)
  - 5)



**GAUHATI UNIVERSITY  
GOPINATH BARDOLOI NAGAR  
GUWAHATI - 781014**

# **TENDER DOCUMENT**

**FOR**

**DESIGN, MANUFACTURE, SUPPLY, DELIVERY  
OF 1x750 KVA & 1x500 KVA, 11/0.433 KV, ONAN,  
OUTDOOR TRANSFORMER FOR THE  
GAUHATI UNIVERSITY**

**PART - II  
PRICE-BID**

**NIT No. T/16-17/71 Dt. 13-06-16**

## PROPOSAL PARTICULARS

1. Name & Address of the Tenderers :
  
2. Tenderer's proposal no. :
  
3. Tenderer's proposal date :
  
4. Whether prices for supply items are firm ? :
  
5. In case, escalation is required, give the :  
formula for calculation and the ceiling
  
6. Terms of payment sought :
  
7. Total Amount of the tender :

Date :

(Signature of the Tenderer)

# **BILL OF QUANTITIES**

**BILL OF QUANTITIES**

**FOR DESIGN, MANUFACTURE, SUPPLY, DELIVERY OF 1 x 750 KVA & 1 x 500 KVA, 11/0.433 KV, ONAN, OUTDOOR TRANSFORMER**

Sl. No.	Item Description	Unit	Qty.	Rate in Figure (Rs.)				Rate in Words	Amount (Rs.)
				Basic Price including Excise Duty	Transportation with transit insurance to site	Taxes	Net Rate		
1	Design, manufacture, supply, delivery of 1 x 750 KVA, 11/0.433 KV, ONAN, Outdoor Transformer complete with all accessories.	No.	1						
2	Design, manufacture, supply, delivery of 1 x 500 KVA, 11/0.433 KV, ONAN, Outdoor Transformer complete with all accessories.	No.	1						
<b>Total</b>									
( Rupees ..... only )									

**Note :** Rates of excise duty and taxes considered shall be mentioned.

Seal

Signature of the Tenderer