कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

क्रमांकः ECD Dholpur/2026-27/2333 दिनांकः– 01/07/2026

ई–निविदा सूचना संख्या 15/2026–27

Two Bid System

अभियांत्रिकी महाविद्यालय, धौलपुर में Electrical Engineering Department Lab की आपूर्ति, स्थापना एवं कमिंशनिंग हेतु निर्माता/अधिकृत आपूर्तिकर्ताओं/विक्रताओं से मोहरबंद खुली निविदाएं निर्धारित प्रपत्र में (तकनीकी एवं वित्तीय) दिनांक 28/07/2026 को 5:00PM बजे तक आमंत्रित की जाती है। प्राप्त निविदाओं की तकनीकी निविदाए दिनांक 28/07/2026 को प्रातः 6PM .....बजे खोली जावेगी।

क्र.सं.	लैब सामग्री का विवरण	अनुमानित लागत	बोली प्रतिभूति राशि (रूपये में)	निविदा प्रपत्र शुल्क (रूपये में)
1.	Electrical Engineering Department Lab की आपूर्ति, स्थापना एवं कमिंशनिंग	55.00 लाख	110000.00	500.00

निविदा से सम्बन्धित सम्पूर्ण विवरण, बोली प्रपत्र एवं विस्तृत शर्ते वेबसाईट http://eproc.rajasthan.gov.in and http://sppp.rajasthan.gov.in (राजस्थान राज्य लोक उपापन पोर्टल) एवं महाविद्यालय की वेबसाईट www.ecd.ac.in पर देखा जा सकता है।
UBN:

प्राचार्य
अभियांत्रिकी महाविद्यालय
धौलपुर

प्रतिलिपि :– निम्न को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित हैः–

1. श्रीमान निजी सचिव, कुलपति महोदय, राजस्थान तकनीकी विश्वविद्यालय, कोटा
2. श्रीमान कुलसचिव महोदय, राजस्थान तकनीकी विश्वविद्यालय, कोटा
3. संयुक्त शासन सचिव, तकनीकी शिक्षा विभाग, राजस्थान सरकार
4. आयुक्त, कॉलेज शिक्षा, राजस्थान, जयपुर।
5. कोषाधिकारी/वरिष्ठ लेखाधिकारी कलेक्ट्रेट धौलपुर।
6. संबंधित विभागाधिकारी .....
7. जिला सूचना एवं जनसम्पर्क अधिकारी, धौलपुर।
8. रक्षित पत्रावली।

(Dr. Rahul Srivastava)

कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

क्रमांकः दिनांकः–

विस्तृत ई–निविदा सूचना –15 / 2026–27

अभियांत्रिकी महाविद्यालय, धौलपुर में Electrical Engineering Department Lab की आपूर्ति, स्थापना एवं कमिंशनिंग हेतु निर्माता/अधिकृत आपूर्तिकर्ताओं/विक्रेताओं से मोहरबंद खुली निविदाएं निर्धारित प्रपत्र में (तकनीकी एवं वित्तीय) दिनांक 28/07/2026 को 5 PM बजे तक आमंत्रित की जाती है। प्राप्त निविदाओं की तकनीकी निविदाए दिनांक 28/07/2026 को ~~प्रातः~~ 6 PM बजे खोली जावेगी।

निविदा से सम्बन्धित सम्पूर्ण विवरण, बोली प्रपत्र एवं विस्तृत शर्ते विभागीय वेबसाईट http://eproc.rajasthan.gov.in and http://sppp.rajasthan.gov.in (राजस्थान राज्य लोक उपापन पोर्टल) एवं महाविद्यालय की वेबसाईट www.ecd.ac.in पर देखा जा सकता है।

क्र.सं.	सामान का विवरण	अनुमानित लागत	बोली प्रतिभूति राशि (रूपये में)	निविदा प्रपत्र शुल्क (रूपये में)
1-	Electrical Engineering Department Lab की आपूर्ति, स्थापना एवं कमिंशनिंग	55.00 लाख	110000.00	500.00

विशेष विवरण–

क्र.सं.	विवरण	दिनांक	समय
1	निविदा जारी करने की दिनांक एवं समय	दि. 01/07/2026	5:00 PM
2	निविदा प्रपत्र डाउनलोड प्रारंभ करने की दिनांक एवं समय	दि 01/07/2026	6:00 PM
3	निविदा अपलोड करने की अंतिम दिनांक एवं समय	दि 28/07/2026	5:00 PM
4	सामग्री के नमूने जमा करवाने की दिनांक एवं समय	दि 28/07/2026	5:00 PM
5	तकनीकी बोली खोले जाने की दिनांक एवं समय	दि 28/07/2026	6:00 PM

1. बोली प्रपत्र शुल्क, प्रतिभूति राशि एवं RISL फीस DD के माध्यम से प्राचार्य अभियांत्रिकी महाविद्यालय धौलपुर में जमा कराना होगा। बोली प्रपत्र शुल्क, बोली प्रतिभूति/बोली प्रतिभूति घोषणा के बिना प्राप्त बोली पर कोई विचार नहीं किया जावेगा। बोली प्रतिभूति घोषणा के संबंध में वित्त (जी.एफ.एण्ड ए.आर.) विभाग द्वारा जारी परिपत्र दिनांक 23.12.2020 के प्रावधान लागू होंगे।
2. प्राप्त निविदाओं को क्रय समिति द्वारा उपस्थित बोलीदाताओं के समक्ष उपरोक्तानुसार निर्धारित दिनांक व समय पर खोली जायेगी।
3. बोली की वैधता निविदा जमा कराने की दिनांक से 90 दिवस तक मान्य होगी।
4. निविदादाता निविदा भरने से पूर्व निविदा प्रपत्र का सावधानी पूर्वक गहन अध्ययन कर निविदा में वर्णित में अपेक्षित समस्त अर्हताओं एवं दस्तावेजों को स्वयं सत्यापन कर समाधान कर ले कि वह इस बोली हेतु समस्त पात्रताएं पूर्ण करता है। किसी भी स्तर पर गलत सूचनाएं, मिथ्या दस्तावेज आदि पाए जाने पर बोली अस्वीकार कर दी जाएगी।

Treasury Officer Dholpur

Milesh Chh... Brajesh

5. बोली में आंमत्रित दरें अनुमोदित किये जाने की दिनांक से एक वर्ष के लिये विधिमान्य होगी।
6. क्रय की जाने वाली सामग्री के कैटलॉग मय स्पेशिफिकेशन के तकनीकी बोली के साथ प्रस्तुत किये जावे जिनका अवलोकन उपापन समिति/तकनीकी समिति द्वारा किया जायेगा।
7. क्रय की जाने वाली सामग्री की सप्लाई एफ.ओ.आर. कार्यालय प्राचार्य अभियांत्रिकी महाविद्यालय धौलपुर में करनी होगी।
8. कार्य आदेश जारी करने की दिनांक से 40 दिवस की अवधि के भीतर फर्म द्वारा आईटम सप्लाई, स्थापना एवं कमिंशनिंग करना होगा। निर्धारित समयावधि में सामग्री सप्लाई नहीं करने पर नियमानुसार परिसमापित नुकसानी (L.D.) की कटौती की जावेगी।
9. बोली प्रतिभूति/कार्य सम्पादन प्रतिभूति राशि में छूट के लिये आयुक्त, उद्योग विभाग, राजस्थान जयपुर के पास रजिस्ट्रीकृत कुटीर एवं लघु उद्योग विभाग उन मदों के सम्बन्ध में जिसके लिये वें इस रूप में रजिस्ट्रीकृत है, सामान का क्रय राजस्थान के उद्योग के अधिमान नियम 1995 के नियम–8 के अनुसार अपेक्षित कार्यवाही जो वित्त (जीएफ एण्ड एआर) विभाग के आदेश क्रमांक : प1(1)वित्त/सा.नि.लेनि./2007 दिनांक 19.10.2010 परिपत्र संख्या 24/2010 में वर्णित है के अनुसार प्रस्तुत किया जाना अनिवार्य है। अन्यथा बोली बयाना/कार्य सम्पादन प्रतिभूति राशि में छूट देय नहीं होगा।
10. यदि उपापन संस्था परिस्थितियों में परिवर्तन के कारण उपापन की कोई विषयवस्तु उपाप्त नहीं करती है या बोली दस्तावेजों में विनिर्दिष्ट परिमाण से कम उपाप्त करती है तो बोली लगाने वाला बोली दस्तावेजों में अन्यथा उपबंधित के सिवाय, किसी भी दावे या प्रतिकर का हकदार नहीं होगा।
11. अतिरिक्त मदों या अतिरिक्त परिमाणों के लिए पुनरादेश, यदि यह बोली दस्तावेजों में उपबंधित हो, संविदा में दी गयी दरों और शर्तो पर दिये जा सकेंगे यदि मूल आदेश खुली बोली आमंत्रित करने के पश्चात् दिया गया था। प्रदाय या पूर्ण हाने की कालावधि भी आनुपातिक रूप से बढायी जा सकगी। पुनरादेश की सीमाऐं राजस्थान लोक उपापन में पारदर्शीता नियम, 2013 के नियम 73 के अनुसार होगी।
12. विशेष परिस्थितियों में राज. लोक उपापन में पारदर्शीता नियम 2013 के नियम 74 के अनुसार कार्य Fair,Transparent & equitable manner से विभाजित किया जा सकेगा।
13. इस निविदा पर सामान्य वित्तीय एवं लेखा नियम, राजस्थान लोक उपापन में पारदर्शिता अधिनियम 2012 एवं राजस्थान लोक उपापन में पारदर्शिता नियम 2013 के नियम व प्रावधान तथा इनमें समय समय पर किए गए संशोधन लागू/प्रभावी होंगें।
14. निविदा से सम्बन्धित सभी अधिकार विभागाध्यक्ष के पास सुरक्षित रहेगें। किसी भी बोली को स्वीकार या अस्वीकार करने तथा बोली प्रक्रिया को रद्द करने का अधिकार अद्योहस्ताक्षरकर्ता को होगा। निविदा से सम्बन्धित अन्य शर्तें एवं जानकारी कार्यालय से कार्यालय समय में प्राप्त की जा सकती है।

प्राचार्य
अभियांत्रिकी महाविद्यालय
धौलपुर

कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

अपेक्षित दस्तावेज एवं चेक लिस्ट –

Sr.No.	Particulars	Enclosed (Yes/No)	PageNo
1.	D.D. for Bid Fees, Bid Security and RISL Processing Fees		
2.	The bidder shall have Minimum Average Annual Turnover of Rs 28.00 lacs during last three Financial Years i.e. 2023-24, 2024-25 and 2025-26.Net worth shall be positive as per audited accounts of bidder/firm on 31.03.2025. Regarding average annual turnover of last three Financial years Bidders shall submit Auditors Report/CA Certificates along with Bid.		
3.	During last five years period , the Bidder Shall have successfully completed similar nature of work of cumulative value of minimum Rs 33.00 lacs or more in all over India (any state & UT). **The bidder shall provide & append copies of work order and submit certificates regarding successful completion of above said work.**		
4.	Self attested copy of PAN card.		
5.	Self-attested copy of Goods and Service Tax registration and copy of latest GST return (Not older than four months) filed shall be enclosed.		
6.	Self attested Copy of firm's registration under Proprietorship/ Indian Partnership Act, 1932/ Indian Companies Act, 1956/Societies Registration Act, Cooperative Societies Act along with copy of bye laws be submitted with relevant authority in India or any other Act of State/ Union, as applicable for dealing in the subject matter of procurement.		
7.	If the bidder is MSME, in this regard they shall submit relevant forms, certificates and affidavit for applicability.		
8.	Annexure-A: Compliance with the code of integrity and no Conflict of Interest		
9.	Annexure-B: Declaration by the Bidder regarding Qualifications		
10.	Annexure-C: Grievance Redressal during Procurement Process		
11.	Annexure-D: Additional Conditions of Contract		
12.	Annexure-E: Annual Turnover Statement (duly certified and signed by Chartered Accountant)		
13.	Annexure-F: Statement of Past Work Experience and Performance		
14.	Annexure-G: Declaration regarding acceptance of Terms & Conditions of Bid		
15.	Annexure-H: Manufacturer's Authorization Form (MAF)		
16.	Annexure-I: Bidder's Authorization Certificate		
17.	Annexure-J:Certificate regading Non Black listed		
18.	Annexure-K: Certificate of Conformity/No Deviation		
19.	Annexure-L: UNDERTAKING ON AUTHENTICITY OF EQUIPMENTS		
20.	Annexure-K:Bid Security Declaration in pursuant to the Circular No.पं. 2(1)वित्त/जीएण्डटी–एसपीएफसी/2017 दिनांक 23.12.2020 of finance (G&T) department jaipur, Rajasthan		

कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

Electrical Engineering Department Lab की आपूर्ति, स्थापना एवं कमिंशनिंग हेतु खुली निविदा

Pre-Qualification/Eligibility Criteria:

1. बोलीदाता की फर्म अधिकृत पंजीयन अधिकारी से पंजीकृत एवं यथा आवश्यक संबंधित सामग्री के व्यापार का वैध लाईसेंस होनी चाहिए जिसके संबधं में फर्म का पंजीयन प्रमाण पत्र निविदा के साथ संलग्न प्रस्तुत किया जावें।
2- GST पंजीयन संख्या का प्रमाण पत्र स्वयं द्वारा प्रमाणित प्रति निविदा के संलग्न प्रस्तुत किया जावें।
3. बोली शुल्क एवं बोली प्रतिभूति राशि के D.D. निविदा में प्रस्तुत करने की अन्तिम दिनांक तक कार्यालय में व्यक्तिश अथवा डाक द्वारा प्राप्त हो जाने चाहिये अन्यथा तकनीकी स्तर पर ही निविदा निरस्त कर दी जायेगी ।
4. आयकर विभाग द्वारा जारी पैन नम्बर की प्रमाणित प्रति निविदा के संलग्न प्रस्तुत किया जावें।
5. फर्म का गत 03 वित्तीय वर्षों (वर्ष 2023–24 से 2025–26) का कुल औसत वार्षिक वित्तीय टर्नओवर राशि रूपए 28.00 लाख से कम का नहीं होना चाहिये। वित्तीय टर्न ऑवर के संबंध में सी.ए. द्वारा ऑडिटेड विवरण पत्र /बैलेंस शीट/सी.ए. सर्टिफिकेट की स्वहस्ताक्षरित प्रति स्केन कर बोली दस्तावेजों के साथ निर्धारित दिनांक तक अपलोड करने होंगे। फर्म की नेट वर्थ पॉजिटिव होनी चाहिए।
6. विगत 5 वर्षों में फर्म को केन्द्र/राज्य के किसी भी राजकीय विभाग/उपक्रम/स्वायत संस्थाए/परियोजनाए/ बोर्ड/ समिति / आयोग/ शिक्षण संस्था/बैंको/आदि में कुल 33.00 लाख रू. या उससे अधिक मूल्य की समान प्रकृति की सामग्री की सफलतापूर्वक आपूर्ति का अनुभव होना आवश्यक है। इस हेतु फर्म द्वारा क्रयादेश अथवा संतोषजनक कार्य के प्रमाण पत्र की प्रति निविदा के साथ संलग्न प्रस्तुत किया जावें।
7. क्रय की जाने वाली सामग्री के नमूने के रूप में सामग्री के कैटलॉग मय स्पेशिफिकेशन के तकनीकी बोली के साथ प्रस्तुत किये जावे। बोलीदाता द्वारा प्रस्तुत कैटलॉग मय स्पेशिफिकेशन बोली में चाहे अनुसार होने चाहिए अन्यथा तकनीकी बोली स्वीकार नहीं की जावेगी। कैटलॉग का अवलोकन उपापन समिति/तकनीकी समिति द्वारा किया जायेगा। बोली में सफल बोलीदाता द्वारा सामग्री की आपूर्ति के समय नमूनों को उपापन समिति/तकनीकी समिति से अनुमोदित करवाना होगा।
8. नवीनतम जी.एस.टी. रिटर्न/चुकता प्रमाण पत्र संलग्न करना होगा।
9. तकनीकी बोली के साथ बोली के साथ यथा संलग्न प्रपत्र/एनेक्सर ए से के तक प्रमाणित कर प्रस्तुत करने होंगे।
10. बोलीदाता केन्द्र/राज्य के किसी भी राजकीय विभाग/उपक्रम/स्वायत संस्थाए/परियोजनाए/बोर्ड/समिति /आयोग/षिक्षण संस्था/बैंको/आदि के द्वारा ब्लैक

लिस्टेड अथवा डि–बार किया हुआ नहीं होना चाहिए। इस हेतु बोलीदाता को नॉनज्यूडिशियल स्टाम्प पर शपथ पत्र देना होगा। यदि शपथ पत्र गलत पाया जाता है तो उस बोलीदाता की बोली पर विचार नहीं किया जावेगा।

11. बोलीदाता द्वारा वित्तिय बोली /प्राईस बिड को छोडकर शेष बोली दस्तावेजों को बोलीदाता के सम्बन्धित प्रमाण पत्र एवं कागजात के साथ तकनीकी बोली /क्वालिफाईड बिड के साथ प्रस्तुत करना है । वितिय बोली /प्राईस बिड पृथक से वित्तीय बोली प्रपत्र में भरकर अलग लिफाफे में जमा कराना है ।
12. उक्त पात्रता पूरी करने वाले योग्य निविदादाता तकनीकी बोली में (प्री क्वालिफिकेशन से) सफल माने जायेंगे एवं तकनीकी बोली में सफल बोलीदाताओं की ही वित्तीय बोली खोली जायेगी।

दिनांकः **बोलीदाता के हस्ताक्षर मय सील**

कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

Electrical Engineering Department Lab Equipments की आपूर्ति, स्थापना एवं कमिंशनिंग हेतु खुली निविदा

तकनीकी बोली प्रपत्र

क्र.स.	विवरण	बोलीदाता द्वारा की जानेवाली कार्यवाही	संलग्नहै / नहीं (पेज संख्या)
1	बोलीदाता / फर्म / संस्था का नाम	.....	
2	बोलीदाता / फर्म / संस्था का पता मय मोबाईल नम्बर / ई–मेल पता	.... मोबाईलनम्बर..... ई–मेल	
3	बिड सूचना क्रमांक व दिनांक	...../2026–27 दिनांक.....	
4	बिड की अनुमानित लागत	रू. ...../–	
6	बिड प्रस्तुत करने की अन्तिम तिथि व समय	दिनांक ..... समयः–..... **पीएम**	
7	तकनीकी बोली खोलने की दिनांक व समय	दिनांक ..... समयः– ..... **पीएम**	
8	बोली प्रपत्र शुल्क राशि रू 500 / – D.D.	DD No. Date :-	
9	बोली प्रतिभूति राषि (अनुमानित राशि का 2 प्रतिशत)रू..... / –	DD No. Date :-	
10	RISL Fees रू 1500 / – D.D. द्वारा	DD No. Date :-	
11	फर्म का जीएसटी रजिस्ट्रेषन नम्बर (प्रति संलग्न करें)		
12	फर्म का पेन कार्ड नम्बर (प्रति संलग्न करें)		
13	बैक का नाम एवं बैक खाता संख्या मय आईएफएससी कोड	बैक का नाम.....खाता संख्या..... आईएफएससी कोड.....	
14	गत तीन वर्षो का औसत टर्नऑवर राशि रू 33.00 लाख रू. (वर्ष 2023–24, 2024–25 एवं 2025–26) सी.ए. द्वारा प्रमाणित, (प्रति संलग्न करें मय यूडीएन नं0)	औसत टर्नऑवर..... (सीए द्वारा प्रमाणित) (प्रति संलग्न है)	
15	गत 5 वित्तीय वर्ष 2023–24, 2024–25 एवं 2025–26 में क्रेन्द्र / राज्य के राजकीय	क्रयादेश एवं संतोषजनक कार्य संपादन का प्रमाण पत्र की प्रति संलग्न करें।	

	विभाग / उपक्रम / स्वा0 संस्थाए / परियोंजना / बोर्ड / समिति / आयोग / शिक्षण संस्था / बैको में कुल 33.00 लाख रू. या अधिक संबंधित सामग्रीआपूर्ति कराये जाने का प्रमाण पत्र ।		
16	अपेक्षित दस्तावेज एवं चैक लिस्ट के अनुसार सभी एनेक्सर एवं अन्य आवश्यक दस्तावेज।	संलग्न है।	
17	बिड के साथ संलग्न किये गये सभी शर्तो पर शर्ते स्वीकार किये जाने हेतु बोली दाता द्वारा हस्ताक्षर कर दिये गये है।	संलग्न है।	

नोटः–

1. बोलीदाता फर्म पार्टनरशिप फर्म होने की स्थिति पर साझेदारी बिलेख तथा कम्पनी की स्थिति में कम्पनी ऑफ रजिस्ट्रार का प्रमाणित विलेख / दस्तावेज संलग्न करें।
2. फर्म के परिसर / दुकान / कार्यशाला / गोदाम का सही पता जिस का आवश्यकता होने पर उपापन समिति द्वारा निरीक्षण किया जा सके।
3. उपापन समिति / जिला कलक्टर बोली की किसी भी शर्त को किसी भी स्तर पर संशोधन करने / हटाने अथवा् नई शर्त जोड़ने के लिए स्वतंत्र होगा।
4. क्रयादेश जारी करने के दिनांक से 40 दिवस की अवधि के भीतर फर्म द्वारा सामग्री की आपूर्ति, स्थापना एवं कमिंशनिंग करनी होगी। निर्धारित समय तक आपूर्ति नहीं करने पर परिसमापित नुकसानी की नियमानुसार कटौती की जा सकती है।
5. मैं / हम, निविदा सूचना एवं इस प्रपत्र में दी गयी सभी शर्तों से सहमत हूं / है। इसके सभी पृष्ठों पर उल्लिखित शर्तो को हमारे द्वारा स्वीकार किये जाने के प्रमाण में मैंने / हमनें हस्ताक्षर किये है। हम राज्य सरकार के उपापन संबंधी अधिनियम / नियम आदेश से आबद्ध होना स्वीकार करते है। यदि मेरे द्वारा प्रस्तुत कोई तथ्य गलत / मिथ्यापूर्ण पाया जाता है तो मैं उसके लिए पूर्ण रूप से जिम्मेदार रहूंगा।

(बोलीदाता के हस्ताक्षर)
मय सील

कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

1. बोलीदाता से संबंधित सूचनाएं– (बिड संख्या –...)

Sr.No.	DETAILS			
1	**Name of Bidder**			
2	**Business Category: (pl tick)**	Corporation	Individual	Sole Proprietorship
		Partnership	Limited Liability Partnership	Other, Pl Specify
3	**Registration Number of Firm/Company** *(Also attach relevant certificate)*			
4	**Address of Correspondence**			
5	**Mobile No.**			
6	**GST NO.**			
7	**PAN NO.**			
8	**E-Mail Address**			
9	**BANK DETAILS OF BIDDER**	Banker's name Branch Account type Account number/IFS Code		
10	**Name of Authorised Signatory**			
11	**Moblie No. of Authorised Signatory**			
12	**E-mail ID of Authorised Signatory**			
13	**Whether Bidder is a Manufacturer or Authorised Dealer, if Bidder is a Authorised Dealer then Name of Brand/Brands**			
14	**Any other Details**			
	Name ____________________	**Signature of the Bidder with Seal**		

* Attach separate sheet for details, where required. In case of authorized representative signing this document enclose copy of the authority letter.

Brijesh

Bdgst, Hr Krishna To Dlp Mukesh chand

कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

Electrical Engineering Department Lab Equipments के तकनीकी स्पेशिफिकेशन–

A- Electrical Machine Lab Specifications

S. No.	NAME OF ITEM	SPECIFIC-ATION	QTY.	Make/ Trade/ Mark/Brand/Modal	Compliences Yes/ No
1.	To perform O.C. and S.C. test on a 1-phase transformer and to determine the parameters of its equivalent circuit its voltage regulation and efficiency. To determine the efficiency and voltage regulation of a single-phase transformer by direct loading.	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 230 V AC o Supports signal conditioning circuit for smooth supply for machine. **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** 1. This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB Two pole AC16 Amp.250 Volt – 1 Nos. 5. DPM AC Ampere meter 10 A – 1 Nos. - AE 6. DPM AC Volt Meter 300 V – 1 Nos. – AE 7. DPM AC Wattmeter 300V 10 A – 1 Nos. **Machine Section** **Single Phase transformer** 1 KVA 230/115V 50Hz Naturally air cooled , copper double wound Core type .Insulation Class F transformer is housed in MS Sheet Box Enclosure with rubber footing , all the terminals are brought over to bakellite/Acrylic sheet fitted on the top of the box through insulated terminals **Extra accessories** required for experimentation supplied along with the trainer **4 Amp Single Phase Continuously variable Autotransformer - 1 Nos.** Experimental Manual – 1 Nos. Bulb load 1ph 1KW 10 steps - 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer.	01		

		The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
2	To perform sumpner's test on two identical 1-phase transformers and find their efficiency & parameters of the equivalent circuit	**To perform sumpner's test on two identical 1-phase transformers and find their efficiency & parameters of the equivalent circuit.** **Technical Specifications** Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 230 V AC o Supports signal conditioning circuit for smooth supply for machine. **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** 1. This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB Two pole AC16 Amp.250 Volt – 3 Nos. 5. DPM AC Ampere meter 10 A – 2 Nos. - AE 6. DPM AC Volt Meter 300 V – 2 Nos. – AE 7. DPM AC Wattmeter 300V 10 A – 2 Nos. **Machine Section** **Single Phase transformer** - 2 nos. 1 KVA 230/115V 50Hz Naturally air cooled , copper double wound Core type .Insulation Class F transformer is housed in MS Sheet Box Enclosure with rubber footing , all the terminals are brought over to bakellite/Acrylic sheet fitted on the top of the box through insulated terminals **Extra accessories** required for experimentation supplied along with the trainer **4 Amp Single Phase Continuously variable Autotransformer - 1 Nos.** Experimental Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .	01		
3	To perform the heat run test on a delta/delta	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy	01		

	connected 3-phase transformer and determine the parameters for its equivalent circuit.	shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 415 V AC o Supports signal conditioning circuit for smooth supply for machine. o 8Amp 3 Phase continuously variable auto transformer **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 1. Indicating Lights 2. Educational Type Insulated terminals 3. MCB Three pole AC16 Amp 415 Volt – 1 Nos. 4. AC Ampere meter 10 A – 1 Nos. - AE 5. AC Volt Meter 500 V – 1 Nos. – AE 6. AC Wattmeter 500V 10 A – 1 Nos. **Machine Section** **Three Phase transformer** - 1 nos. 2 KVA 415/230V 50Hz Naturally air cooled , copper double wound Core type .Insulation Class F transformer is housed in MS Sheet Box Enclosure with rubber footing , all the terminals are brought over to bakellite/Acrylic sheet fitted on the top of the box through insulated terminals . Experimental Hard Bound Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
4	To perform the parallel operation of the transformer to obtain data to study the load sharing.	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 230 V AC o Supports signal conditioning circuit for smooth supply for machine. **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** 1. This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals	01		

		4. MCB Two pole AC16 Amp.250 Volt – 3 Nos. 5. AC Ampere meter 10 A – 3 Nos. - AE 6. AC Volt Meter 300 V – 3 Nos. – AE 7. AC Wattmeter 300V 10 A – 2 Nos. **Machine Section** **Single Phase transformer** - 2 nos. 1 KVA 230/115V 50Hz Naturally air cooled , copper double wound Core type .Insulation Class F transformer is housed in MS Sheet Box Enclosure with rubber footing , all the terminals are brought over to bakellite/Acrylic sheet fitted on the top of the box through insulated terminals **Extra accessories** required for experimentation supplied along with the trainer Experimental Hard Bound Manual – 1 Nos. Resistive load 1ph 2 KW 10 steps - 1 Nos. Specifications • Fully power coated • Loaded with number of Quality rotary switches • Suitable to continuous applications Durability and safety, Mounted on castor wheels Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
5	Separation of no load losses in single phase transformer.	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** • Input 230 V AC • Full bridge SCR based 220V /10 Amp output DC cosine firing with linear characteristics. • Supports signal conditioning circuit for smooth supply for machine. • System should furnish its DC Requirement inbuilt so as no external DC is required **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** 1. This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB Two pole AC16 Amp.250 Volt 1 Nos. 5. AC Ampere meter 10 A – 1 Nos. 6. AC Volt Meter 300 V – 1 Nos.	01		

		8. AC Wattmeter 300V 20 A – 1 Nos. 7. Frequency Meter – 1 Nos. **Machine Section** **Single Phase transformer** - 1 nos. 3 KVA 230/115V 50Hz 2 Nos. of double wound iron 1 No. of iron core strip lamination Naturally air cooled , copper double wound Core type .Insulation Class F transformer is housed in MS Sheet Box Enclosure with rubber footing , all the terminals are brought over to bakellite/Acrylic sheet fitted on the top of the box through insulated terminals **Frequency source** Rotary frequency source suitable for generating v/f pattern 0-230V upto 50 Hz input DC Output AC single Phase **Extra accessories** required for experimentation supplied along with the trainer Experimental Hard Bound Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
6	To study conversion of three-phase supply to two-phase supplies using Scott Connection.	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 415 V AC o Supports signal conditioning circuit for smooth supply for machine. o 2 Amp 3 phase cont variable auto transformer 0-500V – 1nos **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** 1. This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB Two pole AC16 Amp.250 Volt – 2 Nos. 5. MCB 3 pole AC16 Amp.440 Volt 1 Nos 6. AC Ampere meter 10 A – 3 Nos. - AE 7. AC Volt Meter 300 V – 2 Nos. – AF 8. AC Volt Meter 500 V – 1 Nos. – AE **Machine Section** **Single Phase transformer** - 2 nos. 1 KVA 230/230V 50Hz With tappings at 50% and 86.6 % on both primary and secondary	01		

		Naturally air cooled , copper double wound Core type .Insulation Class F transformer is housed in MS Sheet Box Enclosure with rubber footing , all the terminals are brought over to bakellite/Acrylic sheet fitted on the top of the box through insulated terminals **Extra accessories** required for experimentation supplied along with the trainer Experimental Hard Bound Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
7	DC Motor Trainer	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** ○ Power circuit • Input 230 V DC **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** 1. This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB Two pole DC 25 Amp.250 Volt – 1 Nos. 5. DC Ampere meter 30 A – 1 Nos. - AE 6. DC Volt Meter 300 V – 1 Nos. – AE 7. RPM Meter – 1 nos. **Machine Section** * 10 HP DC Shunt motor 230VDC, 1500rpm,SPDP, IP23, IC01, Class-B, Solid yoke, B3, Single shaft extension, as per IS 4722. * Mechanical spring balance load set-up with QEP Sensor **Motors Generators should be supplied only from CE Certified Manufacturers.** **Extra accessories** required for experimentation supplied along with the trainer **Rheostat 500Ohm 3 Amp – 1** **Rheostat 100Ohm 5 Amp – 1** Experimental Hard Bound Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height =	01		

		810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. A GUI based platform where all the data is displayed live afterdata acquisition , the software provided for that should come alongwith hardware lock license. The Software should be provided with a graphic representationof the trend over time of the recorded variables. It is possible todisplay simultaneously up to 10 trends relating to different variables,each with its own colour and scale. Reports function should be available where data tables are recorded as .CSV files. Each row includes date, time and the values assumed by a set of variables. Rows can be recorded at fixed intervals or when a specific condition occurs (trigger). The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
8	Swinburne's test	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Power circuit • Input 230 V DC **Controlling Section consist of Duly marked terminals on a Laminated printed board with all accessories as mentioned** 1. This section consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB Two pole DC 25 Amp.250 Volt – 1 Nos. 5. DC Ampere meter 30 A – 1 Nos. - AE 6. DC Volt Meter 300 V – 1 Nos. – AE 7. RPM Meter – 1 nos. **Machine Section** * 10 HP DC Shunt motor 230VDC, 1500rpm,SPDP, IP23, IC01, Class-B, Solid yoke, B3, Single shaft extension, as per IS 4722. * Mechanical spring balance load set-up with QEP Sensor **Motors Generators should be supplied only from CE Certified Manufacturers.** **Extra accessories** required for experimentation supplied along with the trainer Resistive load 1ph 5 KW 10 steps - 1 Nos. Specifications • Fully power coated • Loaded with number of Quality rotary switches • Suitable to continuous applications Durability and safety, Mounted on castor wheels Experimental Hard Bound Manual – 1 Nos.	01		

		Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
9	To perform Hopkinson's test on two similar DC shunt machines and hence obtain their efficiencies at various loads.	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 230 V DC **Controlling and Measuring Section** **Controlling Section should Consist of Duly marked terminals on a Laminated board with all accessories as mentioned** 1. This section should consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB 2P 5. Digital Speed Indicator / Tachometer **DC Machine Section** * 3HP DC Shunt motor 230VDC, 1500rpm,SPDP, IP23, IC01, Class-B, Solid yoke, B3, Single shaft extension, as per IS 4722. * Coupled with flexible coupling & mounted on MS base with * 2.2 KW DC Shunt Generator Output 230VDC, Separate excitation 230V DC, 1500rpm,SPDP, IP23, IC01, Class-B, Solid yoke, B3, Single shaft extension as per IS 4722. with QEP Sensor **Motors Generators should be supplied only from CE Certified Manufacturers.** **Extra accessories** required for experimentation supplied along with the trainer Rheostats 270 ohm 1.7 A – 2 Nos. Experimental Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket (2 Nos.) The table is provided with one cabinet & drawer. A GUI based platform where all the data is displayed live afterdata acquisition , the software provided for that should come alongwith hardware lock license. The Software should be provided with a graphic	01		

		representationof the trend over time of the recorded variables. It is possible todisplay simultaneously up to 10 trends relating to different variables,each with its own colour and scale. Reports function should be available where data tables are recorded as .CSV files. Each row includes date, time and the values assumed by a set of variables. Rows can be recorded at fixed intervals or when a specific condition occurs (trigger). The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
10	Load Test on Squirrel cage Induction Motor	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 415 V 3 phase AC **Controlling Section should Consist of Duly marked terminals on a Laminated board with all accessories as mentioned** 1. This section should consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB 3P 5. automatic Star Delta Startor suitable for motor 6. Digital Speed Indicator / Tachometer 7. Digital Wattmeter suitable for measurement of 3 Phase power both for LPF and UPF with 3 inbuilt CT's 3½ digit LED display **Experimentation board Section** This Section should consist of the mimic circuit diagram on board with educational type insulated terminal to conduct various experiments using shrouded patch cords. **Induction Machine Section** Capacity 10 HP voltage 415 v +/- 10 % frequency 50 hz +/- 5 % combined variation +/- 10 % (absolute sum) insulation class 'f' (temp. rise limited to class 'b') as standard mounting horizontal foot mounting (b3) as per IS :12615. ambient / temperature 50° c / 70° c rise degree of protection IP55 as per IS: 4691 * Coupled to suitable Eddy current load setup for providing electrical load to the motor with QEP Sensor **Motors Generators should be supplied only from CE Certified Manufacturers.** **Extra accessories** required for experimentation supplied along with the trainer Experimental Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working	01		

		area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
11	No load and Blocked Rotor test on Induction Motor	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 415 V 3 phase AC **Controlling Section should Consist of Duly marked terminals on a Laminated board with all accessories as mentioned** 1. This section should consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB 3P 5. Digital Speed Indicator / Tachometer 6. Digital Wattmeter suitable for measurement of 3 Phase power both for LPF and UPF with 3 inbuilt CT's 3½ digit LED display **Experimentation board Section** This Section should consist of the mimic circuit diagram on board with educational type insulated terminal to conduct various experiments using shrouded patch cords. **Induction Machine Section** Capacity 10 HP voltage 415 v +/- 10 % frequency 50 hz +/- 5 % combined variation +/- 10 % (absolute sum) insulation class 'f' (temp. rise limited to class 'b') as standard mounting horizontal foot mounting (b3) as per IS :12615. ambient / temperature 50° c / 70° c rise degree of protection IP55 as per IS: 4691 * provided with mechanical loading arrangement with QEP Sensor **Motors Generators should be supplied only from CE Certified Manufacturers.** **Extra accessories** required for experimentation supplied along with the trainer 15A 3 Phase Auto transformer – 1nos. Experimental Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is	01		

		provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .			
12	OCC and SCC of Three phase Alternator and its efficiency using synchronous impedance method	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 230 V DC o Input 230 V AC **Controlling Section should Consist of Duly marked terminals on a Laminated board with all accessories as mentioned** 1. This section should consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB 2P 5. Linear variable DC Voltage source 6. Digital Speed Indicator/Tachometer 7. DC Ampere meter 30 A – 1 Nos. - AE 8. DC Volt Meter 300 V – 1 Nos. – AE 9. 3 Phase Mulitfunction meter – 60 A – 1 Nos. **DC Machine Section** **10 HP DC shunt motor** 230VDC, 1500rpm,SPDP, IP23, IC01 Class-B, Solid yoke, B3, Single shaft extension as per IS 4722. *** Coupled with flexible coupling & mounted on MS base with** *** 3.5 KVA 3 phase alternator** Output 415AC, Separate excitation 230V DC 1500rpm,SPDP, IP23, IC01 Class-B, Solid yoke, B3, Single shaft extension as per IS 4722. * Exciter Panel input 230V AC Single phase, Output variable from 0 to 230V DC with potentiometer, **Extra accessories** required for experimentation supplied along with the trainer Experimental Manual – 1 Nos Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .	01		
13	Synchronization of Alternators	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy	01		

		aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 230 V AC System Should be divided in three sections **Controlling and Measuring Section** **Controlling Section should Consist of Duly marked terminals on a Laminated board with all accessories as mentioned** 1. This section should consist of all the measuring indicators (Digital) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB 2P 5. Linear variable DC Voltage source 6. Digital Speed Indicator/Tachometer 7. DC Ampere meter 20 A – 2 Nos. - AE 8. DC Volt Meter 300 V – 2 Nos. – AE 9. AC Volt Meter 500 V – 2 Nos. – AE 10. AC Ammeter 20 A – 2 Nos. – AE 11. AC Freq. Meter – 2 Nos. – AE 12. Digital Synchrocope – 1 Nos. 13. PSI Meter – 2 Nos. 14. bulbs for dark bright lamp method – 6 **Experimentation board Section** This Section should consist of the mimic circuit diagram on board with educational type insulated terminal to conduct various experiments using shrouded patch cords. **Machine Section – 2Sets** **5 HP DC shunt motor** 440VDC, 1500rpm,SPDP, IP23, IC01 Class-B, Solid yoke, B3, Single shaft extension as per IS 4722. * **Coupled with flexible coupling & mounted on MS base with** * **3.5 KVA 3 phase alternator** Output 415AC, Separate excitation 230V DC 1500rpm,SPDP, IP23, IC01 Class-B, Solid yoke, B3, Single shaft extension as per IS 4722. * Exciter Panel input 230V AC Single phase, Output variable from 0 to 230V DC with potentiometer, **Extra accessories** required for experimentation supplied along with the trainer Experimental Manual – 1 Nos Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer.			

		The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting.			
14	V curves and inverted V curves of Synchronous motor	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Power Circuit** o Input 415 V AC o Supports signal conditioning circuit for smooth supply for machine. o System should furnish its DC Requirement inbuilt so as no external DC is required System Should be divided in three sections **Controlling and Measuring Section** **Controlling Section should Consist of Duly marked terminals on a Laminated board with all accessories as mentioned** 1. This section should consist of all the measuring indicators (Analog) to measure various voltages and currents as per requirement of Experimentation 2. Indicating Lights 3. Educational Type Insulated terminals 4. MCB 2P 5. Digital Speed Indicator/ Tachometer 6. Field Excitation controlling 7. PF Meter **Experimentation board Section** This Section should consist of the mimic circuit diagram on board with educational type insulated terminal to conduct various experiments using shrouded patch cords. **Synchronous Machine – 1Nos.** *** 3.5 KVA 3 phase Auto start synchronous motor** input 415AC, Separate excitation 110V DC 1500 rpm,SPDP, IP23, IC01 Class-B, Solid yoke, B3, Single shaft extension as per IS 4722. * Exciter Panel input 230V AC Single phase, Output variable from 0 to 110V DC with potentiometer, * Mechanical Loading arrangement with spring balances **Extra accessories** required for experimentation supplied along with the trainer Experimental Manual – 1 Nos. Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through	01		

		proper conduit or ducting .			
15	To connect two 3-phase induction motor in cascade and study their speed control. 3 Phase 4 pole Slip ring Induction Motor coupled to 3 Phase 2 pole Slipring Induction Motor	Each of following standalone Electrical trainers may need a set of associated panels which are mounted in a light weight sturdy aluminum flat demo panel system. Facilitates easy and safe wiring by students due to 4mm sturdy shrouded banana patch cords and shrouded socket arrangement for high voltage circuits. **Experiments to be performed:-** Speed Control through Cascade operation **Equipments required:-** 3 phase 4 pole Slipring Induction Motor and 2 pole 3 phase slipring Induction Motor coupled to each other through flexible couplings, rating – 3 HP, 415V, 3 Phase, 50Hz, 1440 rpm self fan cooled, Class F or better Insulation. The Machines should be mounted on powder coated MS base frame (with minimum section of 75mmx40mmx5mm) with shock and anti vibration mounts and with suitable mounting holes on a test bed. **Control Panel** M.S. fabricated box with powder coating & the front panel printed with non-erasable schematic working diagram of the experimental set up on a polycarbonate non-breakable sheet of thickness not less than 5mm, with the dimension of at least 3 feet x 2 feet with all the necessary digital instruments & accessories such as:- (1) Two nos. of 0-300 volts AC Digital Voltmeters for measuring the input voltage of all phases, Two nos. of 0-10 Amps AC Digital Ammeter for current measurement for 3 Phase Slip ring Induction Motors. (2) Provisions should be made for test terminals for connecting external portable measuring instruments. (3) Starters of suitable type and ratings should be incorporated inside the panel with projected handles. (4) The Test terminals should be insulated and duly marked. (5) HRC Fuses for Motor & Generators, push button control for switching ON the AC source with Pilot Lamps. (6) Digital Speed Measurement Facility with sensor Control Desk The control desk made of 30mm x 30mm x 1.6mm tubular mild steel, Siemens Grey colour powder coated MS Frame with plyboard top on the working area. The working area of table Length = 1200mm x Width = 750mm x Height = 810mm and made of 19 mm plywood fitted with colour mica sheet on top with teakwood lipping on outer edges of plyboard top fitted with 5 Amp Switch & Socket.(2 Nos.) The table is provided with one cabinet & drawer. The supplier should be responsible of proper cabling and wiring of the panel and electrical machines from distribution through proper conduit or ducting .	01		
16	DC Rectifier Unit	Input Voltage: 415V (3 phase 4 wires), Output DC Voltage Continuous Motorized Variable: 0-300V, Output Current: 60 Amps (Continuous rating), Ripple Factor: < 5%, Metering Display: Digital, Voltage / Current. Should have short circuit protection and electrical isolation between main supply and DC output.	01		
17	Electrical Distribution and Control Panel	Incomer 100 AMP MCCB L&T/Hager - 1 Digital Multifunction Meter SF 96mm 1 Indication Lamp for AC 3 Indication Lamp for DC 1	01		

	Distribution Panel Board for Machines Lab	20 AMP DP MCB for DC Machine - 10 16 AMP DP MCB (1 Ph AC) - 10 16 AMP TPN MCB (3 Ph AC) - 10 63 AMP TPN MCB (3 Ph AC to input of rectifier supply) 63 Amp DP Isolator (for DC rectifier supply) L&T/Hager 1 MISC ITEMS (Heat Shrink Sleeve, Bus bar insulator, PVC Ferrule, Thimble, Gasket, Legend Plate, Terminal Rail, Bus Bar etc.) Fabricated distribution board with 18 SWG MS Sheet with stand duly power coated with Wiring.			

B- MEASUREMENT & INSTRUMENTATION

1	Digital Storage Oscilloscope 50MHz With inbuilt Function Generator	Bandwidth should be 50 MHz with 2 Analog Channel Maximum Sample Rate should be 1 GSa/s on all Channels The Time Base Range should be 5ns/div to 50 sec/div & Time base accuracy 50 ppm or higher Memory Depth should be 200kpts or higher Waveform update Rate should be ≥ 100,000 or higher Vertical Sensitivity should be 500µV/Div to 10 V/div Vertical Resolution should be 8 Bits & Display ≥7 inch Trigger Selection should consist Edge, pulse width, video, pattern/state Digital Voltmeter and Frequency Counter should available Digital voltmeter and 5 – digit frequency counter upto scope bandwidth should be available, inbuilt array of training signals with lab guide The waveform measurement instrument should have inbuilt Function Generator of 20MHz Includes Bode Plot Features (Waveform Sine Square ramp, Pulse, DC, Noise.) Frequency Range Sine Wave (0.1Hz to 20MHz) and Square, pulse wave (0.1Hz to 10MHz) Amplitude should be 2mVpp to 20Vpp into Hi Z and 1mVpp to 10Vpp into 50Ω.With AM, FM & FSK modulation feature should be available. Automatic Measurement should available More than 30+ automatic measurement function should be available along with math function Passive Probes or lead should be provided 2 Nos.& have selectable 10:1 and 1:1 attenuation. Instrument should be compatible with PC Interface USB and LAN Interface using compatible software to connect and control the instrument and to build custom test sequence with the integrated test flow app to automate and visualize test result without the need for instrument programming Warranty Should have standard 3 Years warranty with 5 years calibration interval Manufacture of instrument should have its own NABL accredited service center and calibration lab in India and NABL certificate of the same should be provided with Technical bid.	01		
2	INDUSTRIAL KELVIN'S DOUBLE BRIDGE Study To Find To Find Unknown Low Resistances 0.000001 to 110 Ohms	**Power Supplies:** Operated on Mains power 230V, 50Hz +10% DC Supply – 10 Amp Variable Dc Source is provided to feed the current to circuit **Spot Deflection Galvanometer:** A precision quality Spot Deflection Galvanometer with hanging mirror for close accuracy for null balancing **Components are mounted on the panels are:** Ratio Dial from 0.1 to 100 by Band Swith Selectable.	01		

		▯ Main dial having standard 1 ohm resitance divided in 10 equal steps of 0.1 Ohms. ▯ Circular Scale having standard 0.1Ohms divided in 1000 gradutions of 0.00001 Ohms ▯ Push Switches to connect galvo and battery in circuit **Measurement Accuracy: +/-1%** **SALIENT FEATURES:** ▯ ▯ Front panel built with high class insulated board sheet with well printed circuits and symbols. ▯ ▯ 4mm spring loaded plug length 1/2 meter. ▯ ▯ Good quality, reliable terminal/sockets are provided at appropriate place on panel for connections/ observation of waveforms. ▯ ▯ Assembled in wodden cabinet with Screen Printed Circuit on front Panel with 4mm Socket for test points & to see the waveforms. ▯ ▯ Set of Patch Chords & Experimental Manual ▯ ▯ Adequate no. of patch cords			
3	Calibrate an ammeter and voltmeter using DC slide wire potentiometer.	Comprising ten constantan wire of 24 SWG connected in series,stretched along a meter scale, clamped under heavy Brass stripsof SWG 18 and fitted by screws in such a manner so that it is easilyreplaceable and has negligible 'END ERRORS'. The end terminating strips are provided with socket type terminalsand the whole is mounted on 18mm thick ply wooden board withteak ply polished top. The potentiometer is provided with pulleyarrangement system to tight the wires. **Electronic unit for calibration of Voltmeter & Ammeter: -** This kit is used for the calibration of Voltmeter, Ammeter &measuring low resistance using DC potentiometer. The kit consistsof following built in parts fitted on a Bakelite panel enclosed in abox. · Analog voltmeter 0-2V · Analog Ammeter 0-200mA · Galvanometer 30-0-30 · Regulated power supply 0-2V/500mA · Standard resistance Unknown resistance to be measured ▪ Front panel built with high class insulated Board sheet with wellprinted circuits and symbols. 4mm spring loaded plug length 1/2 meter. ▪ Good quality, reliable terminal/sockets are provided at appropriateplace on panel for connections/ observation of waveforms.with 4mm Socket for test points. Set of Patch Chords & Experimental Manual Adequate no. of patch cords	01		
4	CROMPTON DC POTENTIOMETER CALIBRATION OF PMMC AMMETER & VOLTMETER	FEATURES:- 1. This trainer is supplied along with higly regulated DC Power Supplies to operate the unit. 2. Further to calibrate PMMC meters, necessary ratio boxes also provided. 3. Resistors used in this Unit for coarse and fine are very standard type of made. 4. This enables the user to measure the potential in a circuit close to microvolts. 5. Necessary schematic/wiring diagram printed on the panel to follow and conduct experiments. 6. User manual and 4mm Patch chords will supply.	01		

5	ANDERDSON'S BRIDGE Study To Find To Find Unknown Inductance	**Power Supplies:** Operated on Mains power 230V, 50Hz +10% DC Supply – Two Sockets for DC Supply is provided on panel **Sine Wave Generator:** 1KHz Sine Wave Oscillator onboard 0-8Vp-p Variable Voltage **Null Detector:** Digital display Null Indicator **Measurement Accuracy: +/-5%** **Components mounted on the panels are:** • Arm S, Four Decade of Resistances by Band Switch Selectable. • Arm r, Potentiometer for varying on arm Potentiometer with calibrated dial. • LX Three Different Values of Unknown Inductance. • C Five capacitors selected by a band switch. • P, Q and R arms are fixed resistances mounted inside the panel. **SALIENT FEATURES:** Front panel built with high class insulated Board sheet with well printed circuits and symbols. 4mm spring loaded plug length 1/2 meter. Good quality, reliable terminal/sockets are provided at appropriate place on panel for connections/ observation of waveforms. Assembled in wodden cabinet with Screen Printed Circuit on front Panel with 4mm Socket for test points & to see the waveforms. Set of Patch Chords & Experimental Manual Adequate no. of patch cords	01		
6	Desauty Bridge	Study To Find To Find Unknown Capacitance **Power Supplies:** Operated on Mains power 230V, 50Hz +10% **Sine Wave Generator:** 1KHz Sine Wave Oscillator **Null Detector:** Digital display Null Indicator **Measurement Accuracy: +/-2%** **Components are mounted on the panels are:** Arm R1, Three Decade of Resistances by Band Switch Selectable. Arm C2, Band Switch Selectable. C1 Unknown capacitor **SALIENT FEATURES:** • Front panel built with high class insulated Board sheet with well printed circuits and symbols. • 4mm spring loaded plug length 1/2 meter. • Good quality, reliable terminal/sockets are provided at appropriate place on panel for connections/ observation of waveforms. • Assembled in wodden cabinet with Screen Printed Circuit on front Panel with 4mm Socket for test points & to see the waveforms.	01		

		• Set of Patch Chords & Experimental Manual Adequate no. of patch cords			
7.	Wien's Bridge (Capacitance)	Study To Find To Find Unknown Capacitance **Power Supplies:** Operated on Mains power 230V, 50Hz +10% **Sine Wave Generator:** 0-1KHz Sine Wave Oscillator **Null Detector:** Digital display Null Indicator **Measurement Accuracy: +/-5%** **Components are mounted on the panels are:** Arm R1, 3 Decade of Resistances by Band Switch Selectable. Arm R3, 3 Decade of Resistances by Band Switch Selectable. C three capacitors selected by a band switch. **SALIENT FEATURES:** • Front panel built with high class insulated Board sheet with well printed circuits and symbols. • 4mm spring loaded plug length 1/2 meter. • Good quality, reliable terminal/sockets are provided at appropriate place on panel for connections/ observation of waveforms. • Assembled in wodden cabinet with Screen Printed Circuit on front Panel with 4mm Socket for test points & to see the waveforms. • Set of Patch Chords & Experimental Manual Adequate no. of patch cords	01		
8	Schering bridge Study To Find To Find Unknown Capacitance	**Power Supplies:** Operated on Mains power 230V, 50Hz +10% **Sine Wave Generator:** 1KHz Sine Wave Oscillator **Null Detector:** Digital display Null Indicator **Measurement Accuracy: +/-5%** **Components are mounted on the panels are:** Arm R3, Four Decade of Resistances by Band Switch Selectable. Arm C4, capacitors selected by a band switch. Other arms are fixed resistances 1KOhm mounted inside the panel. **SALIENT FEATURES:** Front panel built with high class insulated Board sheet with well printed circuits and symbols. 4mm spring loaded plug length 1/2 meter. Good quality, reliable terminal/sockets are provided at appropriate place on panel for connections/ observation of waveforms. Assembled in wodden cabinet with Screen Printed Circuit on front Panel with 4mm Socket for test points & to see the waveforms. Set of Patch Chords & Experimental Manual Adequate no. of patch cords	01		

C. POWER ELECTRONICS LAB

1.	Study of Characteristics of SCR, MOSFET, IGBT	Trainer for studying gate or base drive circuit for different types of power semiconductor devices (SCR / MOSFET). Trainer includes: Different types of triggering circuits for SCR: DC Triggering, R Triggering, RC Triggering, UJT Triggering. Power Section with SCR, source and load for checking SCR triggering circuits. Triggering circuit for MOSFET demonstrating PWM (Pulse Width Modulation), Optical Isolation and driving circuit. Power Section with MOSFET, source and load for checking MOSFET triggering circuits. Specifications: Different types of triggering circuits for latching devices like SCR are provided. Triggering circuits for voltage-controlled devices with electrical isolation is provided. Oscillator with switching frequency 5 kHz, PWM circuit and optical isolation using IC 6N 137 is provided. Analogue as well as digital implementation of gate or base drive circuit Is demonstrated. Both triggering circuit and a small rated power circuit are provided for experimentation. Power circuit of SCR working with 30 V AC supply connected to resistive load of 100 E is provided. Power circuit of MOSFET working with 20 V DC supply connected to resistive load of 100 E is provided. The kit works directly with 230 V 50 Hz AC supply and other low power supplies required for the operation are derived internally. Proper isolation between control and power circuit is provided. List of Experiments: Study of DC triggering circuit of an SCR Study of Resistance triggering circuit of an SCR Study RC triggering circuit of an SCR Study UJT triggering circuit of an SCR Study of Pulse Width Modulation technique for MOSFET/IGBT Study of electrical isolation in gate triggering circuit of MOSFET/IGBT Study of gate triggering circuit for MOSFET/IGBT	01		
2.	FORCED COMMUTATION OF SCR	Trainer for studying different types of forced commutation techniques of SCR Trainer includes: Demonstration of six different commutation methods of SCR. Built-in SMPS based DC supply with short-circuit protection. Built-in load facility with load on/off indicator. Necessary fuse provided for protection. In build load with R and L available. In build current sensing arrangement with shunt. Many more than listed experiments are possible due to flexible design. Specifications: AC Input: 230 V, 50 Hz Supply DC Input: 24 V, 4.5 A Number of Trigger source: 02 Trigger source frequency: 500 Hz Load current: < 1.0 Amp (peak)	01		

		The setup will consist of following cards: 1. Thyristor firing card: On board One ZCD transformers Carrier frequency multiplication TCA785 synchronize with ZCD TIP122Transistor 06 numbers of Pulse transformer based driver stage Gate resistor with anti-parallel diode 2. Three phase power card SCR 25TT12 (25A, 1200V) (4 Nos.) List of Experiments: Study of Class A (Load) Commutation Method. Study of Class B (Resonance) Commutation Method Study of Class C (Complementally) Commutation Method Study of Class D (Impulse) Commutation Method Study of Class E (External Pulse) Commutation Method Study of Class F (Natural) Commutation Method			
3.	R, R-C & UJT FIRING MODULE	• Separate controls are provided to vary firing angle in R, R-C & UJT firing • One SCR rated for 600V – VAK & 12A IA is provided with all terminals (G, A&K) • Terminated on the front panel • One 24V AC with ON/OFF switch • One illuminated Rocker switch for power ON/OFF • All firing pulses are terminated on front panel. • All the important test points are mounted on front panel for measure the waveform • Available through CRO • The module is enclosed by a nice cabinet • Circuit mimic diagram is screen printed on front panel. • Power supply • # Input 230V AC +10% @ 50 Hz • The waveform of Firing pulse and output of the converter should be capture on a waveform capture devise having bandwidth 50 MHz with 2 Analog channel. Maximum Sample Rate should be 1 GSa/s on all Channels • Time base accuracy is 50 ppm or higher • Memory Depth should be 200kpts or higher • Waveform update Rate should be ≥ 100,000 or higher • Vertical Resolution should be 8 Bits & Display ≥7 inch • Digital Voltmeter and Frequency Counter should available • Digital voltmeter and 5 – digit frequency counter upto scope bandwidth should be available, inbuilt array of training signals with lab guide • Instrument should be compatible with PC Interface • USB and LAN Interface using compatible software to connect and control the instrument and to build custom test sequence with the integrated test flow app to automate and visualize test result without the need for instrument programming.3 Years instrument warranty with Manufacturer own UKAS ACCREDITED Lab, ISO/IEC 17025:2017 Certified and NABL accredited calibration Lab and service center in India	01		
4.	SINGLE PHASE HALF & FULLY CONTROLLED BRIDGE RECTIFIER WITH R AND	. Single phase SCR power circuit Four thrusters and two diodes are provided SCR rating : 1200Volt @ 25 Amp The device are mounted on suitable heat sinks and placed inside a nicely designedCabinet Snubber circuit is provided to each devices All SCR and Diode points are terminated at sockets for easy wiring	01		

	RL LOAD	by patch cords Facilities are provided for switching ON/OFF, the AC supply to the converter circuit With fuse and miniature circuit Breaker protection Various circuit configurations like half and fully controlled bridge can be wired byinterconnecting the devices using patch cords. b. SCR pulse controller This module can be used to generate SCR Pulse for single phase and three phase half & fullycontrolled converter and ac regulator. * One number of Digital Controller based (dsPic) pulse controller for SCR Power circuit. * Five Number of Touch Key Provided for Mode Selection * One number of LCD provided to indicate the firing angle value etc * One Number of toggle switch provided for Pulse Enable / Disable selection * +5v 1Amp isolated dc supply provided for control circuits. * All are mounted in a nice powder coated cabinet with stickered front panel with mimicdiagram indication * 230VAC input, One number of power On/Off switch with indication * One number of 15 pin connector provided for Pulse output to external power module * 7Numbers of test points provided in the front panel for wave form *One inductive load should be provided. * 1No of (resistive) 100W/230V lamp with holder will be provided CRO/DSO to be provided by Institution			
5.	SPEED CONTROL OF SMALL MOTOR USING SINGLE PHASE HALF WAVE & FULL WAVE FULLY CONTROLLED CONVERTER	**. Single phase SCR power circuit** *Four thyristors and two diodes are provided *SCR rating : 1200Volt @ 25 Amp *The device are mounted on suitable heat sinks and placed inside a nicely designed Cabinet *Snubber circuit is provided to each devices *All SCR and Diode points are terminated at sockets for easy wiring by patch cords *Facilities are provided for switching ON/OFF, the AC supply to the converter circuit with fuse and miniature circuit Breaker protection *Various circuit configurations like half and fully controlled bridge can be wired by interconnecting the devices using patch cords. * Freewheeling diodes to be connected externally **b.SCR pulse controller** This module can be used to generate SCR Pulse for single phase and three phase half & fully controlled converter and ac regulator. * One number of Digital Controller based (dsPic) pulse controller for SCR Power circuit. * Five Number of Touch Key Provided for Mode Selection * One number of LCD provided to indicate the firing angle value etc * One Number of toggle switch provided for Pulse Enable / Disable selection * +5v 1Amp isolated dc supply provided for control circuits. * All are mounted in a nice powder coated cabinet with stickered front panel with mimic diagram indication * 230VAC input, One number of power On/Off switch with indication * One number of 15 pin connector provided for Pulse output to	01		

		external power module * 7Numbers of test points provided in the front panel for wave forms **c. 100W 48V separately excited DC motor**			

D. Advanced Power Electronics for UG Power elec. Lab

1.	SPEED CONTROL OF SINGLE-PHASE INDUCTION MOTOR USING CYCLO CONVERTER	This setup designed for open loop speed control (4 ranges only) of universal motor using single phase step-down cyclo converter. This setup consists of, a) Single phase cyclo converter firing circuit and power circuit b) Universal motor setup and isolation transformer. a. SINGLE PHASE CYCLO CONVERTER FIRING CIRCUIT & POWER CIRCUIT: 4 SCRs : rating 1200V @ 25Amp 4 synchronized firing pulses to trigger SCRs Digital firing for frequency division of 1, 2,3 & 4 Input 230V + 10%, 50Hz single phase AC + 15V DC @ 0.5A regulated output for the trigger circuits. Center tape transformer Output : 0-230Volt AC Frequency : 50/2 Hz, 50/3 Hz & 50/4 Hz 1HP Universal motor 230V AC /DC 1400 rpm Spring balance load setup with speed indication 1 nos. of 1KVA isolation transformer for power circuit input # Input Voltage: 230V AC, 50Hz # Output : 230-0-230V AC	**01**		
2.	SPEED CONTROL OF THREE PHASE SLIP RING INDUCTION MOTOR USING STATIC KRAMMER DRIVE	This setup designed for open loop speed control of 3 phase slip ring induction motor using SCR converter & inverter circuit It consists of three major parts namely a. SCR based 3 phase inverter b. SCR based 3 phase inverter firing circuit c. Slip ring induction motor setup with rotor converter circuit & L for DC filtering A. SCR 3PHASE INVERTER: It consists of 6 nos. of SCRs rated at 1200V, 50Amp with suitable heat sinks to form 3 phase fully controlled converter work as a 3 phase inverter (a> 90°). B. SCR 3PHASE INVERTER FIRING CIRCUIT: Six isolated gate signals for full bridge converter Firing angle variable from 180o to 0o through ramp & pedestal control Gated carrier source at 4KHz Test points are provided on the front panel for detailed study of circuit signals by the Student Necessary test points are terminated at sockets so that the student can monitor/ Measure / study the signals using CRO, DVM, etc. One potentiometer to vary the firing angle One ON/OFF switch with indicator provided to power the control circuitry so that The Students can monitor all the test points of the control circuitry for correct Functioning	**01**		

		C. SLIP RING MOTOR WITH DIODE BRIDGE RECTIFIER: 3 phase 1HP slip ring induction motor Make: Benn/ELMO or equivalent Volts: 400/200V, 3 phase, 50 Hz (1HP), RPM : 1440 Rotor Volts : 210Volt One no. of 'L' & 'R' provided for dc filtering Necessary test points provided for easy study Entire control circuit mounted inside a compact box Mimic circuit is drawn in the front panel Many test points are provided along with front panel A nice text-lab manual is provided POWER SUPPLY # Input 230V + 10%, 50Hz 3 phase AC supply # + 15V DC @ 0.5A regulated output for the control circuitry			
3.	SPEED CONTROL OF DC MOTOR USING 4 QUADRANT CHOPPER IGBT BASED PWM CHOPPER	a).Three phase IGBT based power module This module consists of Six Numbers of IGBT with gate driver in A Single Chip Called Smart Power Module Mini IPM & PWM isolator IC'S. The gating signals are given as an input from an external control module (optional). It can be used for high voltage Single phase / Three phase inverter, chopper, motor control application. Chopper / inverter PWM control module should be purchased separately. Features: * Six Numbers of High speed Opto - isolator provided for PWM isolation * One Number of IGBT - CIPOS-IGCM15F60GA-with suitable snubber circuit & Heat sink Provided for power circuit * Rating of device is 600V@15AMP * Isolated provided for control IC's * One number of Single phase diode rectifier (1200V, 35A) with filter capacitor provided For input ac rectification. For power circuit input with fuse protection * One number of Analog voltmeter provided for dc rail voltage measurement. * Four Number of Hall Effect current sensor provided for output current & dc current Measurement & protection * Four number of op-amp signal conditioner circuit provided for all current sensors & Output terminated in front panel for current wave measurement. * Over current Trip circuit provided for Over Load protection. * One number of Led provided to indicate TRIP Status * One number of Reset Switch provided to reset the Trip Function * Six Numbers of banana connector termination provided in power circuit Input & External load interface * One numbers of 15 pin connector provided for PWM Interface from external controller * 10 Numbers of test points provided in control section for wave form measurement in CRO * All are mounted in attractive powder coated cabinet with sticker front panel mimic Diagram indication. * 230V AC input, one number of power on / off switch with indication. SPECIFICATION: Power circuit input : 230V AC / 300V DC @ 4Amp (externally) Power Circuit Output : Suitable for AC/DC motor PWM input : 6 Numbers of PWM – 5VDC level Protection : Current setting based on the load.	**01**		

		b. Chopper PWM controller: This module provides PWM signals for SCR, IGBT / MOSFET chopper / Inverter Fed AC / DC drive with Open loop & Closed loop. Features: * One number of Digital Controller (dsPic30f4011) provided for PWM Generation. Microchip's dsPIC30F4011 16 bit digital signal controller operating at 33 nS, On chip-motor control peripherals 6 motor control PWM with programmable dead band, quadrature Encoder interface Memory (On-chip) # 48K Flash program memory # 2K RAM for data memory # 1K EEPROM memory Additional features # On chip isolated serial port # ADC input lines are protected and terminated # Bead inductances are provided at VCC & GND for EMI rejection * Five Number of Touch Key Provided for PWM Mode Selection * One number of LCD provided to indicate Motor set speed, actual speed, chopper mode etc * One Number of toggle switch provided for PWM Enable / Disable selection * +5V 1Amp isolated dc supply provided for control circuits. * All are mounted in a nice powder coated cabinet with stickered front panel mimic diagram indication * 230VAC input, one number of power On/Off switch with indication * One number of 15 pin connector provided for PWM output to external power module * One number of 9 pin connector provided for Speed sensor Interface * 7 Numbers of test points provided in the front panel for waveform measurements. c. 0.5HP DC Shunt Motor with spring balance setup			
4.	SINGLE PHASE SCR BASED DUAL CONVERTER	This trainer can be used to study the circulating and non-circulating current mode operations of Single phase dual converter with resistive load and motor load. The trainer consist of following modules i. SCR triggering module ii. Dual converter power module iii. Single phase isolation Transformer and separate field supply iv. Inter gap Reactance v. 0.5HP separately excited DC motor with load setup for open loop The details of each modules are as follows. i. SCR triggering module This module provides gate pulses for single phase Dual converter power circuit under circulating and non-circulation current mode of operation. * One number of Digital controller is provided for gate pulse generation. * Four gate signals for negative group SCR converter. * Four gate signals for positive group SCR converter. * Five number of touch keys provided for PWM mode selection and firing angle variation	01		

		* One number of LCD provided to indicate Firing angle variation, set & actual speed and mode of operation of dual converter. * +5V, 1Amp isolated DC supply provided for control circuits. * One number of 15pin D connector provided for PWM output to external module. * One number of 9pin connector is provided for speed sensor interface. * One number of Toggle switche provided for Enabling and Disabling the gate pulses. * Test points are provided on the front panel for detailed study of circuit signals by the Student using CRO. * One POWER ON/OFF switch with indicator is provided to power ON/OFF the control Circuit. Power supply # Input 230V +10%, 50Hz single phase AC # +5V, 1Amp isolated DC supply provided for control circuits. Ii .Dual converter power module * Two set of four package-type SCRs each rated at 1200V@ 25A, Each SCR is provided with RC Snubber circuit. One set for positive group and another set for negative group SCR converter. * SCRs are fixed on a bar heat sink with natural air cooling type * All 'G', 'K' terminals are terminated in front panel for student patching. * 25 pin shielded cable for providing the pulse input to power module. * One center tapped inductor (0%, 50%,100%) for power circuit with circulating current mode operation * All components are housed in a power coated metal cabinet with front panel stickering. * The SCRs mounted on suitable heat sinks and placed inside a cabinet * Facilities are provided for switching ON/OFF, the AC supply to the converter circuit with fuse and miniature circuit Breaker protection for each group of converter circuit. * Test points are provided to view the gate pulses before and after the pulse isolation section and individual gate pulses can be viewed for each SCR's. * Test points are provided for the single phase reference signals. * Two number of 15pin connectors are provided for pulse input to power module from the controller. * Required SCR points are terminated at sockets for easy wiring by patch chords for single phase Dual converter circuit. * Circuit configurations like circulating and non-circulating current mode operation of Dual converter can be performed with proper selection of program. * One number of field supply box is provided for the DC motor field excitation . iii. Single phase Isolation transformer and field supply 2 nos. of 1KVA isolation transformer for power circuit input # Input Voltage: 230V AC, 50Hz # Output : 0-230V, 0-230V AC One no. of fixed DC supply provided for DC shunt motor field circuit # Input : 230V AC, 50Hz # output: 200V DC , 1A (Uncontrolled, unregulated) iv. Inter gap Reactance The below mentioned Inductor of 4 no's for power circuit with circulating current mode.			

		120mH , 4Amp rating Single phase inductive load With 0, 12, 24,36,60,90,108, 120mH tapping's Iron core type Banana connector provided for all inputs v. 0.5 HP separately excited DC motor with load setup 0.5HP Armature voltage 180 or 220V DC Field voltage -----220V DC, 0.5Amp Speed 1500rpm *Speed sensor with speed display Mechanical spring balance load set-up			
5.	SINGLE PHASE HALF & FULLY CONTROLLED BRIDGE CONVERTER	This trainer consists of two modules can be used to study all types of single phase half & fully controlled bridge converters and single phase AC regulator. It consists of two following modules. a. Single phase SCR power circuit Four thrusters and two diodes are provided SCR rating : 1200Volt @ 25 Amp The device are mounted on suitable heat sinks and placed inside a nicely designed Cabinet Snubber circuit is provided to each devices All SCR and Diode points are terminated at sockets for easy wiring by patch cords Facilities are provided for switching ON/OFF, the AC supply to the converter circuit With fuse and miniature circuit Breaker protection Various circuit configurations like half and fully controlled bridge can be wired by interconnecting the devices using patch cords. Should be supplied with Dual scope to capture waveform and having features. Bandwidth should be 50 MHz with 2 Analog Channel Maximum Sample Rate should be 1 GSa/s on all Channels The Time Base Range should be 5ns/div to 50 sec/div & Time base accuracy50 ppm or higher Memory Depth should be 200kpts or higher Waveform update Rate should be ≥ 100,000 or higher Vertical Sensitivity should be 500µV/Div to 10 V/div Vertical Resolution should be 8 Bits & Display ≥7 inch Trigger Selection should consist Edge, pulse width, video, pattern/stateDigital Voltmeter and Frequency Counter should availableDigital voltmeter and 5 – digit frequency counter upto scope bandwidth should be available, inbuilt array of training signals with lab guideThe waveform measurement instrument should have inbuilt Function Generator of 20MHz Includes Bode Plot Features (Waveform Sine Square ramp, Pulse, DC, Noise.) Frequency Range Sine Wave (0.1Hz to 20MHz) and Square, pulse wave (0.1Hz to 10MHz) Amplitude should be 2mVpp to 20Vpp into Hi Z and 1mVpp to 10Vpp into 50Ω.With AM, FM & FSK modulation feature should be available. Automatic Measurement should available More than 30+ automatic measurement function should be available along with math function Passive Probes or lead should be provided 2 Nos.& have selectable 10:1 and 1:1 attenuation. Instrument should be compatible with PC Interface b. SCR pulse controller This module can be used to generate SCR Pulse for single phase	01		

		and three phase half & fully controlled converter and ac regulator. * One number of Digital Controller based (dsPic) pulse controller for SCR Power circuit. * Five Number of Touch Key Provided for Mode Selection * One number of LCD provided to indicate the firing angle value etc * One Number of toggle switch provided for Pulse Enable / Disable selection * +5v 1Amp isolated dc supply provided for control circuits. * All are mounted in a nice powder coated cabinet with stickered front panel with mimic diagram indication * 230VAC input, One number of power On/Off switch with indication * One number of 15 pin connector provided for Pulse output to external power module * 7Numbers of test points provided in the front panel for wave form * 1No of 100W/230V lamp with holder will be provided			
6.	SINGLE PHASE IGBT BASED PWM INVERTER	a. SINGLE PHASE IGBT MODULE This module consists of four IGBTs with gate driver. The gating signals are given as an input from an appropriate control module. FEATURES Built in power supplies for the gate driver circuitry and the power circuit ±15V @ 1A and ~30V @ 2A The power suppliers are obtained through an isolation step down transformer after rectification and filtering Gating signals are isolated using opto isolators The IR2110 gate drive IC's are used for driving the gates Over current protection is provided through the gate drive IC All terminals of the devices and 24V power supply terminals are brought out to banana sockets mounted at the front panel Various converter configurations (single, Two or four quadrant chopper, single phase inverter) can be made by properly interconnecting the devices by using patch cards The devices are CT60AM, rated at 600V, 19A Snubber circuit are provided for each of the devices to protect against high dv/dt The mimic diagram showing the terminals of all the devices is Screen printed in the front panel for easy wiring b. SINGLE PHASE PWM INVERTER CONTROL MODULE This module provides the gating signals for a single phase full bridge inverter obtained through an appropriate pulse width modulation (PWM) technique. FEATURES: *Sinusoidal PWM, trapezoidal PWM, square pulse width modulation techniques are provided *Any one of the PWM patterns can be selected through a selector switch *The inverter output voltage and fundamental frequency can be controlled *The block schematic of the generation of the gating signals is Screen printed at the front panel for easy understanding *Test points are provided to check the waveforms at various stages of the PWM circuitry *The gating signals are terminated at a nine pin connector. *Built-in power supplies for the control circuitry , ±15V & 5V	**01**		

		*The module is bought out in a sleek box c. Single Phase R Load One no.of Single Phase 100W, 230V lamp provided along with holder and terminations on banana sockets			
7.	SCR BASED DC CHOPPER CIRCUIT COMMUTATION (CHOPPER) CIRCUIT MODULE	CHOPPER FIRING CIRCUIT This module generates 2 isolated gate signals for 2 SCRs and housed in a sleek box with circuit mimic diagram Screen printed in the front panel for easy study of students. 2 Isolated gate signals for 2 SCRs Isolation through pulse transformer Provision to vary the duty cycle ratio 2 switches provided to release the gate signals to the two SCRs Circuit mimic diagram is screen printed on front panel Housed in a sleek wooden cabinet Test points are provided on the front panel for detailed study of circuit signals by the student Necessary test points are terminated at sockets so that the student can monitor/ measure / study the signals using CRO, DVM, etc. Should be supplied with Dual scope to capture waveform and having features. Bandwidth should be 50 MHz with 2 Analog Channel Maximum Sample Rate should be 1 GSa/s on all Channels The Time Base Range should be 5ns/div to 50 sec/div & Time base accuracy50 ppm or higher Memory Depth should be 200kpts or higher Waveform update Rate should be ≥ 100,000 or higher Vertical Sensitivity should be 500µV/Div to 10 V/div Vertical Resolution should be 8 Bits & Display ≥7 inch Trigger Selection should consist Edge, pulse width, video, pattern/stateDigital Voltmeter and Frequency Counter should availableDigital voltmeter and 5 – digit frequency counter upto scope bandwidth should be available, inbuilt array of training signals with lab guideThe waveform measurement instrument should have inbuilt Function Generator of 20MHz Includes Bode Plot Features (Waveform Sine Square ramp, Pulse, DC, Noise.) Frequency Range Sine Wave (0.1Hz to 20MHz) and Square, pulse wave (0.1Hz to 10MHz) Amplitude should be 2mVpp to 20Vpp into Hi Z and 1mVpp to 10Vpp into 50Ω.With AM, FM & FSK modulation feature should be available. Automatic Measurement should available More than 30+ automatic measurement function should be available along with math function Passive Probes or lead should be provided 2 Nos.& have selectable 10:1 and 1:1 attenuation. Instrument should be compatible with PC Interface POWER DEVICE CIRCUIT Two nos. of SCRs rated for 600Volts – VAK & 12Amps IA One no. of power diodes rated for 600V & 4Amps Each device is provided with RC Snubber for dv/dt protection RC Snubber for dv/dt protection Fuses to avoid overload All the G, A, K & MT terminals are terminated on connectors to use patch chords to form any Converter / Inverter circuitry. 24V DC @ 2Amp regulated output for DC Chopper LC Inductance: 120 mH @ 1Amp One commutation capacitor	01		

		Used for class B and class D commutation circuits One fixed load Resistance			
8.	SINGLE PHASE SCR FULL BRIDGE INVERTER	CONTROL CIRCUIT: Four isolated gate pulses are provided to fire the four SCRs One potentiometer provided to vary the frequency of the inverter One potentiometer provided to vary the amplitude of the inverter Gate pulses are terminated through proper connectors for patching with SCRs. POWER CIRCUIT Four SCRS rated 600v/12Aprovided Four diodes rated 600V/6A provided Commutating capacitors and inductors are also provided POWER SUPPLY: + 15v regulated DC power supply for control circuitry 24V DC regulated for inverter power circuit. All circuit components are mounted in a nice sleek cabinet	01		
9.	THREE PHASE IGBT POWER MODULE	. Dual Core dsPIC33CH Based PWM Controller The Nano - 33CH , based on Dual Core dsPIC33CH Controller, is intended and developed for advanced closed-loop control applications for Power electronics, The inbuilt intelligent peripherals of this processor lead to complicated design for the developers in the emerging electric technology. PROCESSOR: dsPIC33CH512MP508 dual core, 16bit DSP device *80-Pin Dual Core, 16-Bit Digital Signal Controllers *Master/Slave Core Operation OPERATING SPEED: 200MHz, Slave Core @ 100MIPS OPERATING SPEED: 180MHz, MasterCore @ 90MIPS PROGRAM MEMORY: 512KB Master, 72KB- Slave *4 CAPTURE INPUT SIGNALS AT 5 PIN RMC ON Board Features: *4 Numbers of Push-Button Micro Switches *4 GPIO Terminated at 5pin FRC Connector *20 x 4 Alphanumeric LCD *External Pickit3 programmer/debugger. *Opto-isolated USB PORT, Quadrature Encoder Interface *Opto-isolated USB to UART Serial Interface (COM PORT) *6 PWM Outputs and 1 Capture Units with Differential Signal Inputs are terminated at good quality connector for easy use for the students. *5 Channel ADC inputs *Six Numbers of High speed opto - isolator provided for pwm isolation *Power Circuit : One Number of IGBT based Mini IPM - IGCM15F60GA (6 IGBT- 3 Legs)-with suitable snubber circuit & Heat sink provided . *Rating of device is 600V@ 15AMP *Isolated +15vdc@1amp provided for control ic's *One number of Single phase diode rectifier (600V, 35Amp) with filter capacitor provided for input ac rectification and for power circuit input with fuse protection *Four Number of Hall Effect current sensors provided for output current & DC-Link	01		

		Current Measurement & Protection * Four number of op-amp signal conditioner circuit provided for all current sensors & output terminated in front panel for current wave form measurement. * Over current Trip circuit provided for Over Load protection. * One number of LED provided to indicate TRIP Status * One number of Reset Switch provided to reset the Trip Function * Six Numbers of banana connector termination provided in power circuit Input & external load interface			
10.	SMART POWER MODULE Three phase IGBT based power module	This module consists of Six Numbers of IGBT with gate driver in A Single Chip Called Smart Power Module Mini IPM & PWM isolator IC'S. The gating signals are given as an input from an external control module (optional). It can be used for high voltage Single phase / Three phase inverter, chopper, motor control application. Chopper / inverter PWM control module should be purchased separately. Features: * Six Numbers of High speed Opto - isolator provided for PWM isolation * One Number of IGBT - CIPOS-IGCM15F60GA-with suitable snubber circuit & Heat sink Provided for power circuit * Rating of device is 600V@15AMP * Isolated provided for control IC's * One number of Single phase diode rectifier (1200V, 35A) with filter capacitor provided For input ac rectification. For power circuit input with fuse protection * One number of Analog voltmeter provided for dc rail voltage measurement. * Four Number of Hall Effect current sensor provided for output current & dc current Measurement & protection * Four number of op-amp signal conditioner circuit provided for all current sensors & Output terminated in front panel for current wave measurement. * Over current Trip circuit provided for Over Load protection. * One number of Led provided to indicate TRIP Status * One number of Reset Switch provided to reset the Trip Function * Six Numbers of banana connector termination provided in power circuit Input & External load interface * One numbers of 15 pin connector provided for PWM Interface from external controller * 10 Numbers of test points provided in control section for wave form measurement in CRO * All are mounted in attractive powder coated cabinet with sticker front panel mimic Diagram indication. * 230V AC input, one number of power on / off switch with indication. SPECIFICATION: Power circuit input : 230V AC / 300V DC @ 4Amp (externally) Power Circuit Output : Suitable for AC/DC motor PWM input : 6 Numbers of PWM – 5VDC level Protection: Current setting based on the load.	**01**		
11.	Single phase bulb load on acrylic base with holder terminals	Single phase bulb load on acrylic base with holder terminals	**01**		
12.	Three phase bulb load on	Three phase bulb load on acrylic base with holder terminals	**01**		

	acrylic base with holder terminals				
13.	SINGLE PHASE INDUCTIVE LOAD	SINGLE PHASE INDUCTIVE LOAD 2 5Amp capacity * Variable type * Single phase input 2 Fuse provided for input protection * Banana connector provided for input	01		
14.	SINGLE PHASE LOADING RHEOSTAT	SINGLE PHASE LOADING RHEOSTAT 2 1KW rating 2 Single phase input 2 Different selector switch provided for current selection 2 Fuse provided for input protection 2 All are mounted on a moveable cabinet *Banana connector provided for load input	01		
15.	Three phase resistive load bank 3KW	SINGLE PHASE LOADING RHEOSTAT 2 1KW rating 2 Single phase input 2 Different selector switch provided for current selection 2 Fuse provided for input protection 2 All are mounted on a moveable cabinet *Banana connector provided for load input	01		
16.	Single Phase Induction Motor with drum break loading arrangemen t	Mounted on MS Frame with perforated walled steel structure kept on castor wheel trolley with fitted rheostats and 8 rotary switches to increase current and proper switchgear	01		
17.	Three Phase Induction Motor with drum break loading arrangement	Power 1HP Single phase permanent capacitor type 230V AC, 50Hz input Speed 1400 rpm Speed sensor with speed indicator Mechanical spring balance load set-up with	01		
18.	DC Shunt Motor	Power 1hp(.75kw),shunt type Armature voltage 180vdc.2.6amp Field voltage 220vdc,0.3amp Speed 1500 rpm Double side shaft extension. Speed sensor with speed indicator Mechanical spring balance load set-up with	01		

Special Terms & Condition

1. After installation of the equipment in the college campus minimum 5 day demonstration of working of equipment along with training to the laboratory officials is to be provoded in the college laboratories.
2. All practical manual must be provided for each and every equipment.
3. All required certification and technical reports must be enclosed along with technical bid, otherwise bidder himself responsible for disqualification.

कार्यालय, प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर

बोली से संबंधित सामान्य शर्ते–

(निर्देष– बोलीदाताओं को इन शर्तों को सावधानी पूर्वक पढ़ना चाहिए तथा अपनी ई–बोलियां भेजते समय इनकी पूर्ण रूपेण पालना करनी चाहिए।)

1. निविदादाताओं को निविदा में दिये गये निर्देशों के अनुसार निर्धारित प्रपत्र में उचित रूप से तकनीकी एवं वित्तीय बोली अलग–अलग निर्धारित प्रारूप में प्रस्तुत की जानी होगी। तकनीकी रूप से सफल बोलीदाताओं की ही वित्तीय बोली खोली जावेगी। तकनीकी रूप से अस्वीकृत बोली पर विचार नहीं किया जावेगा।
2. निर्धारित तिथि व समय के पश्चात प्राप्त बोली स्वीकार नहीं की जावेगी।
3. बोली शर्त रहित एवं बोली दर समस्त कर सहित देवें।
4. उक्त बोलियों को आंशिक या पूर्ण रूप से स्वीकार/अस्वीकार करने का पूर्ण अधिकार प्राचार्य, राजकीय अभियांत्रिकी गहाविद्यालय, धौलपुर को होगा।
5. बोली में आंमत्रित दरें अनुमोदित किये जाने की दिनांक से एक वर्ष की अवधि के लिये विधिमान्य होगी तथा पारस्परिक सहमति से इस अवधि को नियमानुसार बढ़ाया जा सकता है।
6. फर्म का जी.एस.टी. रजिस्ट्रेषन होना आवष्यक है। इस सन्दर्भ में बोलीदाता को बोली प्रपत्र के साथ स्वयं हस्ताक्षरित जी.एस.टी. रजिस्ट्रेषन प्रमाण–पत्र की प्रति प्रस्तुत करनी होगी।
7. बोलीदाता बोली भरने से पूर्व अपेक्षित समस्त अर्हताओं एवं दस्तावेजों को स्वयं सत्यापन कर समाधान कर ले कि वह इस बोली हेतु समस्त पात्रताएं पूर्ण करता है। किसी भी स्तर पर गलत सूचनाएं, मिथ्या दस्तावेज आदि पाए जाने पर बोली अस्वीकार कर दी जाएगी एवं बोलीदाता के विरूद्ध जो भी कार्यवाही नियमानुसार होगी, की जाएगी।
8. निविदादाता द्वारा बोली प्रपत्र शुल्क जमा की विभागीय प्रति/रसीद तकनीकी बोली लिफाफे में संलग्न करना होगा। बोली प्रपत्र शुल्क किसी भी स्थिति में नहीं लौटाया जाएगा।
9. बोलीदाता द्वारा बोली प्रतिभूति शुल्क के स्थान पर बोली प्रतिभूति घोषणा पत्र वित्त विभाग के नियमानुसार निर्धारित प्रारूप **Annexure-M** में 50/– रू. स्टाम्प एवं उस पर देय सरचार्ज सहित हस्ताक्षर कर तकनीकी बोली के साथ संलग्न करना होगी। बोलीदाता आर.टी.पी.पी. नियम 42 में वर्णित प्रावधानों केतहत भी बोली प्रतिभूति शुल्क जगा करा सकते है।
10. MSME बोलीदाता को बोली प्रतिभूति/कार्य सम्पादन प्रतिभूति राशि में छूट प्राप्त करने के लिये वित्त विभाग द्वारा जारी अधिसूचना दिनांक 19.11.2015 एवं संशोधन दिनांक 29.08.2018 के अनुसार संबंधित दस्तावेज प्रस्तुत किया जाना अनिवार्य है, अन्यथा बोली प्रतिभूति/कार्य सम्पादन प्रतिभूति राशि में छूट देय नहीं होगी।
11. सामान/वस्तु की क्रय राशि अनुमानित है। अनुबन्ध अवधि के दौरान क्रय सामग्री की कुल क्रय अनुमानित कीमत से कम/अधिक हो सकती है। सामग्री का क्रय राज. लोक. उपापन में पारदर्शिता नियम 2013 के उपनियम 73 के अनुसार किया जा सकेगा।
12. बोलीदाता/प्रदायकर्ता द्वारा निविदा में वर्णित अनुसार एक आईटम की एक ही दर एवं मेक/मॉडल प्रस्तुत करेगा।
13. बोली प्रपत्र में अंकित शर्तो के अतिरिक्त किसी प्रकार की कोई शर्त अंकित न की जावे। सशर्त बोली स्वीकार नहीं की जावेगी।
14. बोली दस्तावेजों में परिवर्तनः बोली प्रस्तुत करने के लिए अन्तिम समय सीमा से पूर्व किसी भी समय उपापन संस्था किसी कारण से चाहे स्वप्रेरणा पर या बोली लगाने वाले के द्वारा स्पष्टीकरण के लिए किसी अनुरोध के परिणाम स्वरूप धारा 23 के उपबन्धों के अनुसार युक्तिका जारी करके बोली दस्तावेजो को उपान्तरित कर सकेगी।
15. बोलीदाता को निविदा में वर्णित शर्तो के किसी भाग, स्पेषिफिकेशन आदि के आशय के बारे में कोई संशय हो तो वह ऐसे बिन्दुओं/तथ्यों के संबंध में स्वयं या अपने अधिकृत प्रतिनिधि के माध्यम से

कार्यालय में उपस्थित होकर समाधान प्राप्त कर सकेगा।

16. बोलीदाता अपनी संविदा को या किसी सारवान भाग को किसी अन्य एजेन्सी के लिए नहीं सौंपेगा या उपभाडे पर नहीं देगा अर्थात उसे सबलेट नहीं कर सकेगा।

17. बोलीदाता या उसके प्रतिनिधि की ओर से प्रत्यक्ष या अप्रत्यक्ष रूप से अपना पक्ष समर्थन करना/कराना एक प्रकार की अनर्हता होगी।

18. बोलीदाता द्वारा बोली प्रपत्र एवं शर्तो के प्रत्येक पृष्ठ पर शर्तो की स्वीकृति एवं सहमति स्वरूप हस्ताक्षर करने आवश्यक हैं अन्यथा बोली पर विचार नहीं किया जाएगा।

19. ऑनलाईन बोली अपलोड करते समय निविदा में वांछित दस्तावेज अधिकृत हस्ताक्षरकर्ता द्वारा डिजीटल हस्ताक्षर कर पीडीएफ प्रारूप में स्वीकार किये जायेगें। किसी भी दस्तावेज पर स्कैन किये गये हस्ताक्षर मान्य नहीं है। सभी दस्तावेज नीली स्याही से हस्ताक्षरित किये जाने चाहिए।

20. तकनीकी बोली लिफाफे में "Eligibility Criteria/Technical Cover Check List" अनुसार अपेक्षित समस्त दस्तावेज (हस्ताक्षरित मय मुहर) में प्रस्तुत करने होंगे एवं वित्तीय दर प्रस्ताव निर्धारित प्रारूप में पृथक से वित्तीय बोली Online BOQ Xls. में प्रस्तुत करने होंगे। तकनीकी बोली में सफल बोलीदाताओं की ही वित्तीय बोली खोली जाएगी। तकनीकी एवं वित्तीय बोली पृथक–पृथक प्रस्तुत की जानी होगी। अतः बोलीदाता से अपेक्षा है कि बोली सूचना एवं अपेक्षित दस्तावेजों का भलीभांति अध्ययन कर ले।

21. दरें वित्तीय बोली प्रपत्र Online BOQ Xls. में ही निर्दिष्ट कॉलमों में प्रस्तुत की जावेगी। प्राप्त तकनीकी बोलियो के परीक्षण उपरान्त तकनीकी रूप से सफल बोलीदाता की ही वित्तीय बोली खोली जाएगी। वित्तीय बोली अन्तर्गत जिस बोलीदाता की दरें सभी आईटम्स के लिए प्रस्तुत दरों के कुल योग अनुसार समस्त करों एवं जीएसटी सहित न्यूनतम होगी, वही बोलीदाता सफल बोलीदाता माना जावेगा अर्थात न्यूनतम बोलीदाता का निर्धारण सभी आईटम्स हेतु प्रस्तुत दरों के कुल योग की न्यूनतम दर के अनुसार किया जावेगा।

22. वित्तीय बोली में न्यूनतम बोलीदाता के सेंम्पल का परीक्षण किया जावेगा। सैंपल असफल पाये जाने की स्थिति में एल–2 को एल–1 की दरों पर कार्यादेश दिया जा सकेगा।

23. वित्तीय बोली में प्रस्तुत दरें गन्तव्य स्थान तक एफ.ओ.आर. कार्यालय प्राचार्य अभियांत्रिकी महाविद्यालय, धौलपुर पर करनी होगीं अर्थात विभाग द्वारा परिवहन संबंधी कोई राशि की पृथक से देयता नहीं होगी।

24. <u>सैम्पल/नमूनें:–</u>

1. बोलीदाता को तकनीकी बोली के साथ निविदा में वर्णित सामग्री के स्पेशिफिकेशन के अनुसार ही सैम्पल/कैटलॉग उपलब्ध करवाया जाना अनिवार्य है, जिनकी जांच तकनीकी समिति द्वारा की जायेगी। बिना कैटलॉग/नमूनें के प्रस्तुत तकनीकी बोली पर विचार नहीं किया जायेगा। प्रत्येक सैम्पल पर ना हटाये जा सकने वाली स्लिप पर बोलीदाता का नाम व आईटम का नाम मय क्रम संख्या लिखा जायेगा। सैम्पल/नमूने पर किसी भी स्थिति में मूल्य अंकित नहीं किया जायेगा। मूल्य अंकित करने की स्थिति में सैम्पल को रिजेक्ट/निरस्त समझा जावेगा।
2. बोलीदाता को प्रत्येक आईटम/उपकरण/उत्पाद की दरें सम्पूर्ण विशिष्टियों सहित देनी होगी अर्थात् उत्पाद/उपकरण का नाम/ट्रेड़मार्क/व्यापारिक नाम तथा उपनाम यदि कोई हो आदि सहित दरें प्रस्तुत करेगा तथा प्रत्येक का नमूना कार्यालय, प्राचार्य, अभियांत्रिकी महाविद्यालय, धौलपुर में प्रस्तुत करना होगा।
3. अनुमोदित सैम्पल/नमूनों को संविदा के समाप्त होने के बाद छः माह तक की अवधि तक निःषुल्क रखा जायेगा। इस अवधि में इन नमूनों को प्रतिधारित करने के दौरान उनमें परीक्षण, जांच आदि के दौरान किसी भी नुकसान/टूट–फूट हॉनि के लिए विभाग उत्तरदायी नहीं होगा। नमूनों को वापस लौटाने की व्यवस्था स्वयं बोलीदाता द्वारा की जायेगी। असफल बोलीदाताओं द्वारा प्रस्तुत नमूनों को एवं अनुमोदित फर्म द्वारा प्रदाय किये गये नमूनें को विभाग द्वारा लौटाने हेतु सूचना देनें के 2 माह के भीतर यदि प्रदायकर्ता द्वारा नमूनें वापस नहीं लिये जाते है तो उन्हें समपहृत कर लिया जायेगा।
4. प्रदाय की गई सभी वस्तुए/आईटम्स/उपकरण निविदा में निर्धारित संबंधित सामग्री की विषिष्टा, ट्रैडमार्क के पूर्णतया अनुरूप होगी तथा जहां पर वस्तुओं की आई.एस.आई/बी.आई.एस. विनिर्देष

4. प्रदाय की गई सभी वस्तुए/आईट्म्स/उपकरण निविदा में निर्धारित संबंधित सामग्री की विषिष्टा, ट्रेडमार्क के पूर्णतया अनुरूप होगी तथा जहां पर वस्तुओं की आई.एस.आई/बी.आई.एस. विनिर्देष के अनुसार अपेक्षा की गयी हो, वहां उन मदों को पूर्णरूप से उन विनिर्देषों के अनुरूप होना चाहिए।

25. **निरीक्षण एवं परीक्षण** :–

1. तकनीकी बोली के दौरान प्राप्त सामग्री के नमूनों का एवं सफल बोलीदाता द्वारा आपूर्ति की गयी सामग्री/प्रदाय का क्रय समिति/तकनीकी समिति एवं विषय विषेषज्ञों द्वारा निरीक्षण एवं परीक्षण किया जायेगा और यह सुनिष्चित किया जायेगा कि वे निविदा में वर्णित स्पेसिफिकेषन, विनिर्देषों एवं अनुमोदित नमूनों के अनुरूप है अथवा नहीं। जहां आवष्यक होगा, वहां प्राप्त प्रदाय/नमूनों का सरकारी प्रयोगषालाओं/प्रतिष्ठित परीक्षण केन्द्रों द्वारा परीक्षण एवं निरीक्षण करवाया जायेगा।
2. आपूर्ति की जाने वाली सामग्री/प्रदाय अनुमोदित नमूनों के अनुरूप नहीं होने पर सम्पूर्ण प्रदाय अथवा उसके अंष को रद्द कर दिया जायेगा। रद्द किये गये प्रदाय/सामग्री को आपूर्तिकर्ता द्वारा 15 दिवस की अवधि में प्राप्त कर सकेगा। इस दौरान विभाग किसी प्रकार की हॉनि, कमी नुकसान के लिए उत्तरदायी नहीं होगा। रद्द किये गये प्रदाय/सामग्री को प्रदायकर्ता द्वारा पुनः अनुमोदित/स्पेषिफिकेषन के अनुरूप उपलब्ध/आपूर्ति करवाये जाने के संबंध में निर्णय लेने हेतु उपापन संस्था सर्वाधिकार सुरक्षित रखती है।
3. परीक्षण प्रभार/षुल्क विभाग द्वारा वहन किया जायेगा। बोलीदाता की अभिशंषा पर प्रदाय की गयी सामग्री का परीक्षण प्रभार स्वयं बोलीदाता द्वारा वहन किया जायेगा।
4. उपापन संस्था यदि किसी कारणों से निविदा में वर्णित सामग्री से किसी सामग्री/आईटम की खरीद नहीं करती है अथवा कम मात्रा में खरीद करती है तो बोलीदाता किसी क्षतिपूर्ति का दावा करने का हकदार नहीं होगा।
5. अनुमोदित प्रदायकर्ता के लिए यह समझा जाएगा कि उसने प्रदाय किये जाने वाले माल की शर्तों, विनिर्देषों, आकार, मेक/मॉडल, रेखाचित्रों आदि की सावधानीपूर्वक जांच कर ली है। यदि उसे इन शर्तों, विनिर्देषों, आकार, मेक/मॉडल, रेखाचित्रों आदि के सम्पूर्ण/किसी भाग के आषय के बारे में सन्देह हो तो वह संविदा पर हस्ताक्षर करने से पूर्व उपापन संस्था से स्पष्टीकरण प्राप्त कर सकता है।
6. सफल बोलीदाता को क्रय आदष जारी होने की तिथी से 30 दिवस के भीतर सामग्री की आपूर्ति, स्थापना एवं कमिंषनिंग करनी होगी। आपूर्ति की जाने वाली सामग्री उचित पैकिंग में हो ताकि परिवहन के दौरान नुकसान नहीं हो। परिवहन के दौरान प्रदाय की जाने वाली सामग्री में किसी प्रकार की टूट–फूट, नुकसान, हॉनि, या रिसाव या किसी प्रकार की कमी होने के मामलें में अथवा परीक्षण/निरीक्षण के दौरान ऐसी किसी प्रकार हॉनि या कमी पाये जाने पर उसकी पूर्ति के लिए स्वयं बोलीदाता उत्तरदायी होगा।

26. **करार का निष्पादनः–**

1. कोई उपापन संविदा, ऐसी तारीख से प्रवृत्त होगी, जिसको स्वीकृति पत्र या आशय पत्र बोली लगाने वाले को प्रेषित किया जाता है।
2. सफल बोली लगाने वाले को 7 दिवस के भीतर, जिस पर सफल बोली लगाने वाले को स्वीकृति पत्र या आशय पत्र प्रेषित किया जाता है, उपापन संविदा पर हस्ताक्षर करने होंगे।
3. यदि बोली लगाने वाला, जिसकी बोली स्वीकृत की जा चुकी है, विनिर्दिष्ट कालावधि में लिखित उपापन संविदा पर हस्ताक्षर करने में विफल रहताहै या अपेक्षित कार्य सम्पादन प्रतिभूति देने मे विफल रहता है तो उपापन संस्था, सफल बोली लगाने वाले के विरूद्ध अधिनियम या इन नियमों के उपबंधों के अनुसार कार्रवाई करेगी। उपापन संस्था, ऐसे मामलो में उपापन प्रक्रिया रद्द कर सकेगी या यदि वह उचित समझे तो, बोली दस्तावेज में उपवर्णित कसौटी और प्रक्रियाओं के अनुसार, न्यूनतम या सर्वाधिक लाभप्रद दरों पर अगले न्यूनतम या सर्वाधिक लाभप्रद दर की बोली लगाने वाले को, स्वीकृति का प्रस्ताव दे सकेगी।

4. बोली लगाने वाले को, उसके खर्चे पर, विनिर्दिष्ट मूल्य 500/– रू. के नोन ज्युडिशियल स्टाम्प पर राजस्थान लोक उपापन में पारदर्षिता अधिनियम, 2012 तथा नियम 2013 के प्रावधान अनुसार करार निष्पादित करना होगा तथा विभाग को मूल करार पत्र उपलब्ध कराना होगा।

27. <u>कार्य सम्पादन प्रतिभूतिः–</u>

1. सफल बोलीदाता को जिन सामानों (स्टोर्स)/उपकरणों/कार्य/सेवा आपूर्ति के लिये बोलियां स्वीकार की गई है उनके बोली मूल्य की 5 प्रतिशत राशि अनुबंध निष्पादन के समय कार्य सम्पादन प्रतिभूति के रूप में जमा करानी होगी।
2. कार्य सम्पादन प्रतिभूति पर विभाग द्वारा ब्याज का भुगतान नही किया जायेगा।
3. कार्य सम्पादन प्रतिभूति हेतु बैंक ड्राफ्ट/बैंकर्स चेक प्राचार्य, अभियात्रिकी महाविद्यालय, धौलपुर के नाम स्वीकार किये जाएंगे।
4. कार्यादेश अनुसार संतोषप्रद रूप से कार्य करने पर एवं इससे संतुष्ट हो जाने पर कि बोलीदाता के विरूद्ध कोई राशि बकाया नही हैं, प्रतिभूति राशि का प्रतिदाय किया जाएगा।
5. कार्य सम्पादन प्रतिभूति की अभ्यर्थना राज्य सरकारके विभागों और ऐसे उपक्रमों, निगमों, स्वायत्त निकायों, रजिस्ट्रीकृत सोसाइटियों, सहकारीसोसाइटियों जो राज्य सरकार के स्वामित्व या नियंत्रण या प्रबंध में हों और केन्द्रीयसरकार के उपक्रमों के सिवाय समस्त सफल बोली लगाने वालों से की जायेगी। तथापि उनसे एक कार्य सम्पादन प्रतिभूति घोषणा ली जायेगी। राज्य सरकार किसी विशिष्ट उपापन या उपापन के किसी प्रवर्ग के मामले मे कार्य सम्पादन प्रतिभूति के उपबंध को शिथिल कर सकेगी।

28. <u>कार्य सम्पादन प्रतिभूति निक्षेप का समपहरणः–</u>प्रतिभूति की राशि को पूर्ण या आंशिक रूप से निम्नलिखित मामलों में समपृहत किया जा सकेगा :–

1. जब संविदा के किन्हीं निबंधनों और शर्तो का उल्लंघन किया गया हो।
2. जब बोलीदाता कार्य सन्तोषजनक ढंग से करने में असफल रहा हो।
3. प्रतिभूति निक्षेप को समपृहत करने के मामले में युक्तियुक्त समय पूर्व नोटिस दिया जाएगा। इस संबंध में उपापन संस्था का निर्णय अन्तिम होगा।

29. <u>भुगतान</u> :–

1. भुगतान बोलीदाता द्वारा उचित प्रारूप में सामान्य वित्तीय एवं लेखा नियमों के अनुसार बिल प्रस्तुत करने पर किया जाएगा तथा सभी प्रेषण प्रभार बोलीदाता द्वारा वहन किये जाएंगे।
2. विवादास्पद मदों के संबंध में, नियमानुसार राशि को रोका जाएगा तथा उस विवाद का निपटारा हो जाने पर उसका भुगतान कर दिया जाएगा।
3. उन मामलों के संबंध में जिनमें परीक्षण करने की जरूरत है भुगतान तभी किया जाएगा जब वे परीक्षण कर लिए जाएंगे तथा प्राप्त परीक्षण परिणाम विहित विनिर्देशों के अनुरूप होंगे।
4. फर्म के बिलों से भुगतान के समय नियमानुसार करो की कटौती की जाएगी।

30. <u>परिसमापित नुकसानी</u> :– परिसमापित नुकसानी के साथ सेवा आपूर्ति अवधि में वृद्धि करने के मामले में, वसूली निम्नलिखित प्रतिशतता के आधार पर उन कार्यो के मूल्यों के लिए की जाएगी जिनका बोलीदाता कार्य करने में असफल रहा है (इस संबंध में यदि कोई हो तो बोली प्रपत्र में अंकित की गई शर्ते लागू होगी)

1. विहित अवधि की एक चौथाई अवधि तक के लिए विलम्ब के लिए 2.5 प्रतिशत
2. एक चौथाई अवधि से अधिक किन्तु विहित अवधि की आधी अवधि से अनधिक के लिए 5 प्रतिशत
3. आधी अवधि से अधिक किन्तु विहित अवधि के तीन चौथाई से अनधिक अवधि के लिए 7.5 प्रतिशत
4. विहित अवधि की तीन चौथाई से अधिक के विलम्ब के लिए 10 प्रतिशत
5. कार्य में विलम्ब की अवधि की गणना करते समय आधे दिन से कम भाग को छोड दिया जाएगा।
6. परिसमापितनुकसानी कटौतिराषि अधिकतम 10 प्रतिशत होगी।
7. यदि बोलीदाता, किन्हीं बाधाओं के कारण संविदान्तर्गत कार्य को पूरा करने के लिए समय में वृद्धि कराना चाहता है, तो वह लिखित में उस प्राधिकारी को आवेदन करेगा, जिसने कार्य हेतु आदेश

9. परिसमापित राशि की कटौती फर्म के लम्बित भुगतान राशि के पेटे जमा राशि में से की जावेगी।

31. **गारंटी** :– बोलीदाता यह गारन्टी देगा कि आपूर्ति की गयी सामग्री/उपकरण सुपुर्दगी एवं स्थापित करने की दिनांक से 3 वर्ष अवधि तक यथा निविदा में विनिर्दिष्ट विवरणानुसार व गुणवत्ता के अनुरूप बनी रहेगी। सुपुर्दगी पश्चात् निर्दिष्ट गारंटी अवधि में यदि आपूर्ति सामग्री गुणवत्ता के अनुरूप नहीं पायी गयी तो उपापन संस्था ऐसी सम्पूर्ण/आंषिक सामग्री या उपकरण को रद्द करने का हकदार होगा। ऐसी रद्द की गयी सामग्री प्रदायकर्ता की जोखिम पर होगी तथा रद्द की गयी सामग्री/उपकरण को प्रदायकर्ता द्वारा बदला जायेगा अन्यथा प्रदायकर्ता से ऐसी हॉनि/कमी के परिणामस्वरूप हुए नुकसान की वसूली उसे देय राषि अथवा विभाग में जमा प्रतिभूति निक्षेप में से की जायेगी। यदि वसूली किया जाना सम्भव नहीं हो तो राजस्थान पीडीआर एक्ट या प्रवृत अन्य कानून के अन्तर्गत कार्रवाई की जाएगी। कोई भी सामग्री में विनिर्माण से संबंधित डिफेक्ट नहीं होना चाहिए अन्यथा सामग्री स्वीकार नहीं की जायेगी।

32. यदि कार्य की तात्कालिक आवश्यकता के कारण प्रदाय सामग्री/उपकरण को पूर्ण या आंषिक रूप में बदलना साध्य नहीं समझा जाए तो उपापन संस्था द्वारा बोलीदाता को सुनवाई किये जाने का एक उचित अवसर देकर, ऐसे कारणों से जो अभिलिखित किये जायेगें, अनुमोदित दरों में से उपयुक्त राषि की कटौती की जायगी जो कि अन्तिम होगी।

33. **वसूलियाँ** :–परिसमापित नुकसानी, कम प्रदाय, टूट–फूट, रद्द की गयी सामग्री अथवा निविदा में वर्णित किसी अन्य शर्त के तहत हुए नुकसान की वसूली साधारण तौर पर बिल में से कटौती करके की जाएगी। उपापन संस्था राशि को तब तक रोके रखेगी जब तक कि कार्य संतोषजनक रूप से नहीं कर दिया जाता है। यदि बोलीदाता ऐसा नही करता है तो राशि की वसूली उसको देय बकायों मे से कर ली जाएगी। यदि कोई कार्य शेष रहे तो उसकी मांग बोलीदाता से की जाएगी तथा जब वसूली संभव न हो, तो उपापन संस्था प्रवृत्त विधि का सहारा लेगी।

34. उपापन संस्था न्यूनतम दर को स्वीकार करने के लिए बाध्य नही है। उपापन संस्था किसी भी बोली को स्वीकार करने/स्वीकार न करने/निरस्त करने या उसके किसी भी भाग को बिना कोई कारण बताए रद्द करने का सम्पूर्ण अधिकार अपने पास सुरक्षित रखती है। उपापन संस्था का निर्णय वैधानिक तौर से सर्वोत्तम निर्णय माना जाएगा तथा सभी पक्षकारों के लिए मानने के लिए बाध्यकारी रहेगा।

35. यदि बोलीदाता इस बात से व्यथित है कि उपापन संस्था का कोई निर्णय, कार्यवाही या लोप इस अधिनियम या इसके अधीन जारी नियमों या मार्गदर्शनों के उपबंधों के उल्लंघन में है तो वह राजस्थान लोक उपापन में पारदर्शिता अधिनियम 2012 की धारा 40 के अध्यधीन रहते हुए उपापन संस्था द्वारा जारी आदेश के विरूद्ध प्रथम अपील निर्धारित प्रक्रिया व फीस का भुगतान करने के पश्चात कर सकेगा।

36. समस्त विधिक कार्यवाहियां यदि संस्थित किया जाना आवश्यक हो, किसी भी पक्ष (सरकार या ठेकेदार) द्वारा धोलपुर न्यायिक क्षेत्र पर अधिकारिता रखने वाले न्यायालयों में ही की जाएगी, अन्यत्र नहीं की जाएगी।

37. कार्यादेश जारी करने के उपरान्त प्राप्त सामग्री की जांच क्रय/तकनीकी समिति द्वारा की जाएगी एवं अपेक्षित विनिर्देशों अनुसार सामग्री प्राप्त होने की समिति द्वारा रिपोर्ट प्राप्त होने के उपरान्त ही बोलीदाता को भुगतान किया जाएगा। बोलीदाता द्वारा कार्यादेश जारी होने के उपरान्त विभाग में आपूर्ति की गयी सामग्री की जांच समिति से कराए जाने हेतु प्रतिनिधि को सामग्री सहित भिजवाया जाना अनिवार्य होगा।

38. उपरोक्त शर्तो के अतिरिक्त जहां आवश्यक हो, सामान्य वित्तीय एवं लेखा नियमों, सामान्य वित्तीय एवं लेखा नियमों के फार्म एसआर–14, 15, 16 एवं 17, राजस्थान लोक उपापन में पारदर्शिता अधिनियम 2012 एवं राजस्थान लोक उपापन में पारदर्शिता नियमों, 2013 तथा इनमें समय समय पर किए गए संशोधन प्रभावी होंगें।

मैं/हम प्राचार्य अभियांत्रिकी महाविद्यालय,धौलपुर द्वारा जारी की गई खुली बोली सूचना में वर्णित समस्त शर्तो तथा संलग्न पत्रों (जिसके समस्त पृष्ठों पर हमने उसमें वर्णित शर्तो की स्वीकृति के

प्रमाण स्वरूप हस्ताक्षर कर दिए हैं) में दी गई समस्त शर्तो से बाध्य होना स्वीकार करते हैं साथ ही इस बात पर भी सहमति देते हैं कि मेरे/हमारे द्वारा बोली के साथ संलग्न किए गए समस्त दस्तावेजों की प्रमाणिकता की जांच मेरे/हमारे द्वारा अपने स्तर पर कर ली गई है। सभी दस्तावेज विधिक/प्रक्रियात्मक/मौलिक रूप से सही है। यदि बोली प्रक्रिया या बोली प्रक्रिया के पश्चात किसी भी स्तर पर उक्त दस्तावेजों की प्रमाणिकता असिद्ध होती है तो इसके लिए मैं/हम पूर्ण रूपेण उत्तरदायी रहूंगा/रहेंगें एवं इसके लिए विभाग किसी भी स्तर पर किसी भी समय बिना नोटिस दिए हमारी बोली/अनुबंध को निरस्त करने/हमारे विरूद्ध कानून/विधिसम्मत दण्डात्मक कार्यवाही करने के लिए सक्षम होगा।

हस्ताक्षर बोलीदाता मय मुहर

Annexure- A: Compliance with the Code of Integrity and No Conflict of Interest

Any person participating in a procurement process shall-

a) Not offer any bribe, reward of gift or any material benefit either directly or indirectly in exchange for an unfair advantage in procurement process or to otherwise influence the procurement process;

b) Not misrepresent or omit misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation;

c) Not indulge in any collusion, Bid rigging or anti competitive behavior to impair the transparency, fairness and progress of the procurement process;

d) Not misuse any information shared between the procuring entity and the bidders with an intent to gain unfair advantage in the procurement process;

e) Not indulge in any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any part or to its property to influence the procurement process;

f) Not obstruct any investigation or audit of procurement process,

g) Disclose conflict of interest, if any, and

h) Disclose any previous transgression with any entity in India or any other country during the last three years or any debarment by any other procuring entity.

CONFLICT OF INTEREST:

The bidder participating in a bidding process must not have a conflict of interest. A conflict of interest is considered to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.

1. A Bidder may be considered to be in conflict of interest with one or more parties in bidding process if, including but not limited to:

a. Have controlling partners/shareholders in common; or

b. Receive or have received any direct or indirect subsidy from any of them; or

c. Have the same legal representative for purposes of the Bid; or

d. Have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another bidder, or influence the decision of the procuring entity regarding the bidding process; or

e. The bidder participates in more than one Bid in a bidding process. Participation by a bidder in more than one Bid will result in the disqualification of all Bids in which the bidder is involved. However, this does not limit the inclusion of the same subcontractor, not otherwise participating as a bidder, in more than one Bid; or

f. The bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the goods, works or services that are the subject of the Bid; or

g. The bidder or any of its affiliates has been hired (or is proposed to be hired by the Procuring Entity as engineer-in charge/consultant for the contract.

Date:

Signature of Bidder with Seal
Name:

Designation:

Address:

Annexure- B: Declaration by the Bidder regarding Qualifications

DECLARATION BY THE BIDDER

In relation to my/our Bid submitted to .....for procurement of .....M/s..... In response to their notice inviting Bids No.....Dated .....I/we hereby declare under Section 7 of Rajasthan Transparency in Public Procurement Act, 2012, that:

1. I/we possess the necessary professional, technical, financial and managerial resources and competence required by the bidding Document issued by the procuring entity;

2. I/we have fulfilled my/our obligation to pay such of the taxes payable to the Union and the State Government or any local authority as specified in the bidding document;

3. I/we are not insolvent, in receivership bankrupt or being would up, not have my/our affairs administered by a court or a judicial officer, not have my/our business activities suspended and not the subject of legal proceedings for any of the foregoing reasons;

4. I/we do not have, and our directors and officers not have been convicted of any criminal offence related to my/our professional conduct or the making of false statements of misrepresentations as to my/our qualifications to enter into a procurement contract within a period of three years preceding the commencement of this procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;

5. I/we do not have a conflict of interest as specified in the Act, Rules and the bidding document, which materially affects fair competition.

Signature of Bidder with Seal

Date:

Name:

Place:

Designation:

Address:

Annexure- C: Grievance Redressal during Procurement process

The designation and address of the First Appellate is .....

The designation and address of the Second Appellate Authority is .....

1. Filling an appeal:-

If any bidder or prospective bidder is aggrieved that any decision, action or omission of the procuring entity is in contravention to the provisions of the Act or the Rules or the Guidelines issued there under, he may file an appeal to First Appellate Authority, as specified in the bidding document within a period of ten days, from the date of such decision or action, omission, as the case may be, clearly giving the specific ground or ground on which he feels aggrieved:

Provided that after the declaration of a bidder as successful the appeal may be filed only by a bidder who has participated in procurement proceedings:

Provided further that in case a procuring entity evaluates the technical bids before the opening of the financial Bids, and appeal related to the matter of financial Bids may be filed only by a bidder whose technical Bid is found to be acceptable.

2. The officer to whom an appeal is filed under Para (1) will deal with the appeal as expeditiously as possible and will Endeavour to dispose it off within thirty days from the date of the appeal.

3. If the officer designated under Para (1) fails to dispose of the appeal filed within the period specified in Para (2), or if the bidder or prospective bidder or the procuring entity is aggrieved by the order passed by the First Appellate Authority, the bidder or prospective bidder or the procuring entity, as the case may be may file a second appeal to second Appellate Authority specified in the bidding document in this behalf within fifteen days from the expiry of the period specified in Para (2) or of the date of receipt of the order passed by the First Appellate Authority, as the case may be.

4. Appeal not to lie in certain cases:-

No appeal will lie against any decision of the procuring entity relating to the following matters, namely:-

(a) Determination of need of procurement;

(b) Provision limiting participating of bidders in the Bid process;

(c) The decision of whether or not to enter into negotiations;

(d) Cancellation of procurement process;

(e) Applicability of the provisions of confidentiality

5. Form of Appeal:-

Brajesh

Nilesh Chauhan

(a) An appeal under Para (1) or (3) above will be in the annexed Form along with many copies as there are respondents in the appeal.

(b) Every appeal will be accompanied by an order appealed against, if any affidavit verifying the facts stated in the appeal and proof of payment of fee.

(c) Every appeal may be presented to First Appellate Authority or Second Appellate Authority, as the case maybe, in person or through registered post or authorized representative.

6. Fee for filling appeal

(a) Fee for first appeal will be rupees two thousand five hundred and for second appeal will be rupees ten thousand, which will non-refundable.

(b) The fee will be paid in the form of bank demand draft or banker's cheque of Scheduled Bank in India payable in the name of Appellate Authority concerned.

7. Procedure for disposal of appeal:-

(a) The First Appellate Authority or Second Appellate Authority, as the case maybe, upon filing of appeal, will issue notice accompanied by copy of appeal, affidavit and documents, if any, to the respondents and fix date of hearing.

(b) On the date fixed for hearing, the First Appellate Authority or Second Appellate Authority, as the case may be, will,-

(i) Hear all the parties to appeal present before him; and

(ii) Peruse or inspect documents, relevant records or copies thereof relating to the matter.

(c) After hearing the parties, perusal or inspection of documents and relevant records or copies thereof relating to the matter, the Appellate Authority concerned will pass an order in writing and provide the copy of order to the parties free of cost.

(d) The order passed under sub-clause © above will be place on the State Public Procurement Portal.

Date:

Place

Signature of Bidder with Seal

Name:

Designation:

Address:

Annexure- D: Additional Conditions of Contract

1. Correction of Arithmetic Errors:-

Provided that a financial Bid is substantially responsive, the procuring entity will correct arithmetical errors during evaluation of financial Bids on the following basis:

(i) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the total price will be corrected, unless in the opinion of the procuring entity there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted will govern and the unit price will be corrected;

(ii) If there is an error in a total corresponding to the addition or subtraction of subtotals, the sub totals will prevail and the total will be corrected; and

(iii) If there is a discrepancy between words and figures, the amount in words will prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures will prevail subject to clause (i) and (ii) above.

If the bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid will be disqualified and its Bid security will be forfeited or its Bid securing declaration will be executed.

2. Procuring Entity's Right to Vary Quantities

The quantity mentioned in the Bid is the minimum approximate quantity that the bidder will have to compulsorily supply to specified destination.

(a) At the time of award of contract, the quantity of Goods, works or service originally specified in the Bidding Document may be increased or decreased by a specified percentage, but such increase or decrease shall not exceed twenty percent, of the quantity specified in the Bidding Document. It shall be without any change in the unit process or other terms and conditions of the Bid and the conditions of contract.

(b) If the procuring Entity does not procure any subject matter of procurement or procure less than the quantity specified in the Bidding Document due to change in circumstances, the Bidder shall not be entitled for any claim or compensation except otherwise provided in the conditions of contract.

(c) In case of procurement of Goods or services, additional quantity may be procured by placing a repeat order on the rates and conditions of the original order. However, the additional quantity will not be more than 50% of the value of Goods of the original contract and shall be within one month from the date of expiry of last supply. If the supplier fails to do so, the Procuring Entity will be free to arrange for the balance supply by limited bidding or otherwise and the extra cost incurred will be recovered from the supplier.

Date:
Place:

Signature of Bidder with Seal
Name:
Designation:
Address:

Annexure- E: Annual Turnover Statement

The annual turnover of M/s. ....

.....for the past three years are given below and certified that the statement is true and correct.

Sr. No.	Financial Year	Turnover in Rs.
1.	2023-24	_____
2.	2024-25	_____
3.	2025-26	_____
	Total -	Rs._____

Three Year Annual Average turnovers per annum - Rs. _____

Date:

Place:

Signature of Auditor/Seal

Charted Accountant

(Name & Address)

Membership No. :

Tel. No. :

Mob. No.:

Annexure- F: Statement of Past Work Experience and Performance

We .....(name of firm) do hereby undertake that we have supplied specified items as per details given below:-

Financial Year	Order Placed by (Full address of purchaser with telephone & Fax no.	Order No. and Date & Value of Order	Description of Work	Date of completion of delivery		Remarks indicating reasons for late delivery, if any	Has the Specified Service been supplied satisfactory
				As per contract	Actual		
1	2	3	4	5	6	7	8
2022-23							
2023-24							
2024-25							
2025-26							

Note:

1. It shall be notarized and submitted with technical Bid in original.
2. The above information may be verified from relevant documents of bidder.
3. The bidder shall provide & append copies of work order and submit certificates regarding successful completion of above said work

Date:

Place:

Signature of Bidder with Seal

Name & Address

Annexure- G: Declaration regarding acceptance of Terms & Condition of Bid

(On Rs. 100/- non judicial stamp paper duly attested by Notary Public to be submitted in original also)

Bidder Name.....

I/We confirm that I/We are authorized to submit Bid on behalf of the firm participating in the Bid and have perused the entire Tender/Bid document including all its amendments till date.

Having perused the subject Bid with all amendments (wherever applicable). I/We hereby confirm unconditional acceptance and compliance to abide by all its terms & conditions as mentioned in Tender/Bid document including technical particulars, detailed technical specifications of the product, special terms & conditions and general terms & conditions wherever indicated, offer validity, terms of delivery without any deviations whatsoever:

I/We also confirm acceptance of the all general terms & conditions of Bid document.

I/We certify that the prices quoted against the Bid are competitive and without adopting any unfair/unethical means in including cartelization.

I/we certified that tendering firm has not been black listed/banned/Debared by any Government Department of the State /PSU from business dealings.

I/We also certified that the information given above is factually correct, true and nothing material has been concealed.

Date:
Place:

Signature of Bidder with Seal
Name & Address

Annexure- H: Manufacturer's Authorization Form (MAF)

To be filled by the OEM (indicative format)

To

Principal,

Engineering College,

Dholpur (Raj.)

Subject: Issue of the Manufacturer's Authorization Form (MAF) Reference: NIB/ RFP Ref. No. _____ dated _____

Sir,

We {name and address of the OEM} who are established and reputed original equipment manufacturers (OEMs) having factories at {addresses of manufacturing location} do hereby authorize {M/s _____} who is our {Distributor/ Channel Partner/ Retailer/ Others <please specify>} to bid, negotiate and conclude the contract with you against the aforementioned reference for the following Items manufactured by us: -

{OEM will mention the details of all the proposed product(s) with their make/ model.}

We undertake to provide OEM Warranty & support as mentioned in Bid for the offered Lab equipments as mentioned in technical specification from the date mentioned in work order.

We hereby confirm that the offered Lab equipmentsis not declared as End-of-Sale on the last date of bid submission.

We hereby confirm that the offered Lab Equipments is not likely to be declared as End-of-Service/ Support within next 5 years from the date of this letter.

Yours faithfully,

For and on behalf of M/s (Name of the manufacturer)

(Authorized Signatory with seal)

Name, Designation & Contact No.:

Address: _____

Annexure-I: Bidder's Authorization Certificate

Authorization letter of a person who is signing the tender documents on behalf of Bidder

(To be filled by bidder)

To,

Principal,

Govt. Engineering College,

Dholpur (Raj.)

I/We ..... (Name/Designation) hereby declare/certify that ..... (Name/Designation) is hereby authorized to sign relevant documents on behalf of the company/firm in dealing with Tender.

She/he is also authorized to attend meetings & submit technical & commercial information/clarifications as may be required by you in the course of processing the Bid. For the Purpose of validation, his/her verified signatures are as under.

Thanking you.

Name of Bidder: **Verified Signature**

Authorized Signatory:

Seal of the Organization:

Date: .....

Place: .....

Annexure-J:

ब्लेक लिस्ट/अयोग्य न होने तथा अन्य सक्षमताएं पूरी करने का प्रमाण पत्र

(on 50/- Non Judicial stamp paper, Noterized to be submitted in original also)

मैं/हम घोषणा करता हूँ/करते हैं कि :–

1. हमारी फर्म को किसी भी राजकीय विभाग/राजकीय संस्थान/निगम/बोर्ड आदि के द्वारा **किसी प्रकार की Electrical Engineering Department Lab सामग्री आदि** की आपूर्ति संतोषप्रद रूप से पूर्ण नहीं करने के लिए कोई शास्ति आरोपित नहीं की गई है एवं न ही ब्लेक लिस्ट/अयोग्य घोषित किया गया है।
2. यह कि इस बोली हेतु हमारी फर्म आवश्यक वृत्तिक, तकनीकी, वित्तीय और प्रबंधकीय स्त्रोत तथा उपापन संस्था द्वारा जारी किये गये बोली दस्तावेजों द्वारा अपेक्षित सक्षमता धारित करती हैं।
3. यह कि हमारी फर्म द्वारा केन्द्र सरकार अथवा राज्य सरकार अथवा यथास्थिति किसी स्थानीय प्राधिकारी को संदेय समस्त करो का भुगतान किया जा चुका हैं और कोई भी कर बकाया नहीं हैं।
4. यह कि हमारी फर्म दिवालिया, रिसीवर के अधीन, शोधन अक्षम नहीं हैं, न ही किसी न्यायालय या किसी न्यायिक अधिकारी द्वारा प्रशासित कार्यकलाप रखती हैं न ही फर्म का कार्यकलाप निलंबित हैं और न पूर्वगामी कारणों मे से किसी के लिये भी विधिक कार्यवाहियों के अध्यधीन हैं।
5. यह कि हमारे वृतिक आचरण या उपापन प्रक्रिया के प्रारम्भ के पूर्ववर्ती 3 वर्ष की किसी कालावधि के भीतर कोई उपापन संविदा किये जाने के लिये अपनी अहर्ताओं के बारे में मिथ्या कथन करने या दुर्व्यपदेशन संबंधी किसी दांडिक अपराध के संबंध में हमारी फर्म अथवा फर्म के निदेशक और अधिकारी दोष सिद्ध नहीं हुए हैं ना ही विवर्जन कार्यवाहियों के अनुसरण में अन्यथा निरर्हित हुए हैं।

यदि यह घोषणा असत्य पाई जाए तो किसी भी अन्य कार्यवाही, जो की जा सकती है, पर प्रतिकूल प्रभाव डाले बिना, मेरी/हमारी प्रतिभूति को पूर्ण रूप में समपहृत किया जा सकेगा तथा बोली को, जिस सीमा तक उसे स्वीकार किया गया है, रद्द किया जा सकेगा।

बोलीदाता के हस्ताक्षर मय मुहर

Brijesh

Milesh Chaudhary

Annexure-K: Certificate of Conformity/No Deviation

(To be filed by the bidder)

To,

_____ (Raj.)

CERTIFICATE

This is to certify that, the specifications of Items which I! We have mentioned in the Technical bid, and which I! We shall supply if I! We am! are awarded with the work, are in conformity with the minimum technical specifications of the bidding document and that there are no deviations of any kind from the requirement specifications.

Also, I! we have thoroughly read the bidding document and by signing this certificate, we hereby submit our token of unconditional acceptance to all the terms & conditions of the bidding document without any deviations and assumptions.

I! We also certify that the price I! we have quoted is inclusive of all the cost factors involved in the end-to-end implementation and execution of the project, to meet the desired Standards set out in the bidding Document

Name of Bidder: **Verified Signature**

Authorized Signatory:

Seal of the Organization:

Date: .....

Place: .....

Annexure-L: UNDERTAKING ON AUTHENTICITY OF EQUIPMENTS

(On Rs. 50/- non judicial stamp paper duly attested by Notary Public to be submitted in original also)

To

....

....

Reference: NIB No. : ____ Dated: __________

This has reference to the items being supplied/quoted to you vide bid ref. No--------- dated-----------

We hereby undertake that all the components/parts/assembly used in the equipment shall be genuine, original and new components /parts/assembly from respective OEMs of the products and that no refurbished/duplicate/ second hand components/ parts/ assembly are being used or shall be used. In respect of licensed, we undertake that the same shall be supplied along with the authorized license certificate with our name/logo. Also, that it shall be sourced from the authorized source for use in India.

In case, we are found not complying with above at the time of delivery or during installation, for the equipment already billed, we agree to take back the equipment already supplied at our cost and return any amount paid to us by you in this regard and that you will have the right to forfeit our Bid Security/ SD/ PSD for this bid or debar/ black list us or take suitable action against us.

Name of Bidder: **Verified Signature**

Authorized Signatory:

Seal of the Organization:

Date: ....

Place: ....

Annexure-M:

Form of Bid-Securing Declaration

Date :
Bid No. :
Alternative No. :

To :

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we are required to pay the bid security amount specified in the Term and Condition of Bid, in the following cases, namely :-

(a) when we withdraw or modify our bid after opening of bids;
(b) when we do not execute the agreement, if any, after placement of supply/work order within the specified period;
(c) when we fail to commence the supply of the goods or service or execute work as per supply/work order within the time specified;
(d) when we do not deposit the performance security within specified period after the supply/work order is placed;and
(e) if we breach any provision of code of integrity prescribed for bidding specified in the Act and Chapter VI of these rules.

In addition to above, the State Government shall debar us from participating in any procurement process undertaken for a period not exceeding three years in case where the entire bid security or any part thereof is required to be forfeited by procuring entity.

We understand this Bid Securing Declaration shall expire if :-

(i) we are not the successful Bidder;
(ii) the execution of agreement for procurement and performance security is furnished by us in case we are successful bidder;
(iii) thirty days after the expiration of our Bid.
(iv) the cancellation of the procurement process; or
(v) the withdrawal of bid prior to the deadline for presenting bids, unless the bidding documents stipulate that no such withdrawal is permitted.

Signed :--
Name :--
In the capacity of :------------------------------
Duly authorized to sign the bid for and on behalf of :

Dated on day of
Corporate Seal ------------------------------------

[Note: In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid.]

नोट – राजस्थान स्टाम्प अधिनियम, 1988 की धारा सपठित अनुसूची के अनुच्छेद 4 के अनुसार घोषणा–पत्र पर 50/– रूपये स्टाम्प ड्यूटी देय है तथा इस स्टाम्प ड्यूटी की राषि पर नियमानुसार 30 प्रतिषत सरचार्ज देय है। उक्त घोषणा–पत्र वित्त (जी.एफ.एण्ड ए.आर.) विभाग द्वारा जारी परिपत्र दिनांक 23.12.2020 के अनुसरण में बोलीदाता द्वारा प्रस्तुत किया जावेगा।

Milesh Chauhan

(Dr. Rahul Srivastav)