




BID EVALUATION REPORT

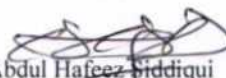
1. Name of Procuring Agency: Dawood University of Engineering & Technology (DUET)
2. Tender Reference: INF/KRY/1447/15 & INF/KRY/1723/15
3. Tender Description: Procurement of Lab Equipment's for Electronics
Engineering Department
4. Method of Procurement: Single Stage- Two Envelope
5. Tender Published: Dated on 17-04-2015 in Daily Awami Awaz/Sindhi,
Jang/Urdu & Dawn/English Newspapers & on SPPRA
Website with Sr No. 23691, hoisted on 16-04-15.
Corrigendum issued on 05-05-2015 in The News/English,
Jang/Urdu & Awami Awaz/Sindhi with Information No:
INF/KRY/1723/15
6. Total Bid documents Sold; 12 (Ten)
7. Total Bids Received: 05 (Five)
8. Technical Bid Opening date: (if applicable) 12-05-2015
9. No. of Bid technically qualified (if applicable): 02 (Two)
10. Bid(s) Rejected: 01 (One)
11. Financial Bid Opening date: 25-05-2015

12. Bid Evaluation Report:

S No	Name of Firm or Bidder	Cost offered by the Bidder	Ranking in terms of cost	Comparison with Estimated cost	Reasons for acceptance/rejection	Remarks
0	1	2	3	4	5	6
1	M/S PAKTECH INSTRUMENTS	1,353,832	2nd Lowest for only 01 item at Serial No. 16	Open rate	Rejected due to high rates & submitted bid security amount is less than the required amount	
2	M/S RASTEK TECHNOLOGIES	15,293,208	1 st Lowest (For all items From Sr. No. 01 to 16)	Open rate	Substantially Responsive & Best Evaluated & Lowest	


M Asif Mughal
Procurement Officer
DUET, Karachi
Member/Secretary


S. M. Shabbir
Director Finance
DUET, Karachi
Member


Abdul Hafeez Siddiqui
Deputy Director (Proc)
QUEST, Nawabshah
External Member


Muhammad Hashim
Director (P&D)
QUEST, Nawabshah
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Shahab Afroz Khan
Director QLC
DUET, Karachi
Member/Convener

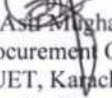



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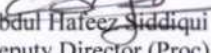
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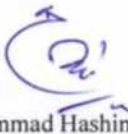
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DUET, Karachi
Member/Secretary


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Director Finance
DUET, Karachi
Member


Abdul Hafeez Siddiqui
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QUEST, Nawabshah
External Member


Muhammad Hashim
Director (P&D)
QUEST, Nawabshah
External Member


Shahab Afroz Khan
Director QEC
DUET, Karachi
Member/Convener



Date: 25-05-2015

**PROCUREMENT COMMITTEE ATTENDANCE SHEET ON FINANCIAL
OPENING**

Date of Opening: 25-05-2015

Tender Ref: INF/KRY/1447/ & INF/KRY/1723/15

SPPRA SERIAL NO: 23691

Title: Procurement of Lab Equipments for Electronics Engineering Department, DUET

Venue: DUET, Karachi

S No.	Name	Designation	Signature	Remarks
01	Mr. Shahab Afroz,	Director QEC DUET, Karachi		Convener
02	Mr. S. M. Shabbir	Director Finance DUET, Karachi		Member
03	Mr. Muhammad Hashim	Director (P&D) QUEST, Nawabshah		External Member
04	Mr. Abdul Hafeez Siddiqui	Deputy Director Procurement QUEST, Nawabshah		External Member
05	Mr. M Asif Mughal	Procurement Officer, DUET, Karachi		Member/Secretary



Date: 25-05-2015

BIDDERS ATTENDANCE ON OPENING OF FINANCIAL ENVELOPES

Date of Opening: 25-05-2015

Tender Ref: INF/KRY/1447/ & INF/KRY/1723/15

SPPRA SERIAL NO: 23691

Title: Procurement of Lab Equipments for Electronics Engineering Department, DUET

Venue: DUET, Karachi.

S No.	Name of Company	Signature	NIC	Remarks & Contact No.
1	PAKTECH INSTRUMENTS Co.		42201-9588139-3	03333126558
2.	RASTEK TRACT		42201-9540501	03018264045

M Asif Iqbal
Procurement Officer
DUET, Karachi
Member/Secretary

S. M. Shabbir
Director Finance
DUET, Karachi
Member

Abdul Hafeez Siddiqui
Deputy Director (Proc)
QUEST, Nawabshah
External Member

Muhammad Hashim
Director (P&D)
QUEST, Nawabshah
External Member

Shahab Afroz Khan
Director QEC
DUET, Karachi
Member/Convener



Date: 12-05-2015

Bidders Attendance Sheet Tender Opening of Technical Envelopes

Method of Procurement: Single Stage Two Envelope

Date Tender Technical Envelopes Opening: **12-05-2015**

Tender Reference No: INF/KRY/1447/15 & INF/KRY/1723/15

SPPRA Serial No: 23691

Title: Procurement of Laboratory Equipment's for Electronics Engineering Dept.

Venue: DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY (DUET),
KARACHI

S No.	Name of Bidder	Signature	NIC NO.	Remarks / Contact No.
1	Rasheed Technics		42301-9521685-1	02018264005
2	National Scientific Corporation		42501-0857773-9	0321-4683012
3	PARTECH INSTRUMENTS Co.		42201-5588139-3	03333126558
4	Regviand Company		421015541919-3	0300/8232768
5	M/S Intelconask Pkter		42201-5291436-7	0332 3162494.
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Muhammad Asif
Procurement Officer
DUET, Karachi
Member/Secretary

S. M. Shabbir
Director Finance
DUET, Karachi
Member

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Director (P&D)
QUEST, Nawabshah,
External Member

Shuhab Afroz
Director QEC,
DUET, Karachi
Convener



Date: 12-05-2015

Procurement Committee Members Attendance Sheet
On Tender Opening of Technical Envelopes

Method of Procurement: Single Stage Two Envelope

Date of Opening: 12-05-2015

SPPRA Serial No: 23691

Title: Procurement of Laboratory Equipment's for Electronics Engineering Dept.

Venue: DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY (DUET),
KARACHI

S No.	Procurement Committee Members	Designation	Signature	Remarks
1	Shahab Afroz Convener	DEAN Faculty of Engineering, DUET, Karachi		
2	S. M. Shabbir, Member	Director Finance, DUET, Karachi	 12/5/15	
3	Muhammad Asif, Member/Secretary	Procurement Officer, Directorate of Finance, DUET, Karachi	 12/5/15	
4	Mr. Muhammad Hashim, External Member	Director (P & D) Directorate of Planning Quaid-e-Awam University of Engineering, Science & Technology (QUEST), Nawabshah	 12/5/15 ✓	
5	Abdul Hafeez Siddiqi, External Member	Deputy Director Procurement, Directorate of Finance, Quaid-e-Awam University of Engineering, Science & Technology (QUEST), Nawabshah		



No: DUET/REG/PC/2014-15/33

Dated: 15-04-2015

NOTIFICATION

The Vice Chancellor Dawood University of Engineering & Technology (DUET), Karachi has been pleased to constitute the following Procurement committee for the procurement of Laboratory Equipment's for the Department of Electronics Engineering at DUET, Karachi in accordance with SPPRA Rules 2010 (amended 2013)

S No.	Name of the officials	Designation	Status	Remarks
1	Mr. Shuhab Afroz	Director QEC, DUET	Convener	
2	Mr. S. M. Shabbir	Director Finance, DUET	Member	
3	Mr. Muhammad Hashim	Director (P&D), QUEST, Nawabshah	External Member	
4	Mr. Abdul Hafeez Siddiqui	Deputy Director Procurement Directorate of Finance, QUEST, Nawabshah	External Member	
5	Mr. M. Asif Mughal	Procurement Officer DUET	Member/Secretary	

Function & Responsibilities of Procurement Committee:-

- (1) Preparing Bidding Documents
- (2) Carrying out technical as well as financial evaluation of the bids;
- (3) Preparing evaluation report as provided in Rule 45 of SPPRA
- (4) Perform any other function ancillary and incidental to the above.


REGISTRAR

C.C to:

1. PS to Vice Chancellor, DUET, Karachi
2. PS to Vice Chancellor, QUEST, Nawabshah.
3. All members of the committee
4. For Office Record

Date: 12-05-2015

**TECHNICAL MINUTES OF THE MEETING HELD AT DUET REGARDING
PROCUREMENT OF LABORATORY EQUIPMENTS OF ELECTRONICS
ENGINEERING DEPARTMENT FOR DUET**

1. Meeting of the Procurement Committee of this Department was held on **12-05-2015** at the conference room of VC Secretariat in order to undertake the Technical Proposal of the bids submitted against the DUET Notice Inviting Tenders (NIT) regarding "Procurement of Laboratory Equipment's of Electronics Engineering Department" published in Daily Dawn, Jang & Awami Awaz on 17-04-2015 vide advertisement No. INF/KRY/1447/15 & hoisted the same on SPPRA website with Sr. No. 23691. A Corrigendum was also issued into three different leading newspapers i.e. The News/English, Jang/Urdu and daily Awami Awaz/Sindhi with the respective language of the newspapers vides advertisement No. INF/KRY/1723/15, dated: 05-05-2015
2. The Following Members of Procurement Committee were present at the time of opening of Technical Proposals / Bids:
 - Mr. Shahab Afroz,
Director QEC, DUET, Karachi **Convener**
 - Mr. S. M. Shabbir,
Director Finance, DUET, Karachi **Member**
 - Mr. Muhammad Hashim,
Director (P&D), QUEST, Nawabshah **Member**
 - Mr. Abdul Hafeez Siddiqui,
Deputy Director Procurement, QUEST, Nawabshah **Member**
 - Mr. M. Asif Mughal,
Procurement Officer, DUET, Karachi **Member/Secretary**
3. In response to the Tender advertisement, the following Bidders submitted their Bids within the deadline of submissions of Bids & were present at the time of opening of the Technical Proposals.
 1. M/S RASTEK TECHNOLOGIES
 2. M/S NATIONAL SCIENTIFIC CORPORATION
 3. M/S PAKTECH INSTRUMENTS
 4. M/S RIZVI AND COMPANY
 5. M/S INTERMARK (PVT) LTD
4. The bids were opened at 01:00 pm in the presence of the above mentioned participants. All the members of the Procurement Committee signed each sealed envelopes of the Technical Bids and also Technical Documents.
5. The Committee proceeded as per the procedure prescribed in rule-46 (2) of SPPRA Rules 2010 (amended 2013). Initially only the envelopes marked as "Technical Proposals" were






opened in presence of Bidders and the envelopes marked as Financial Proposals retained in the custody of Procurement Committee without being opened.


6. The Procurement Committee than examined all the Technical Bids / Proposals without reference to the Prices as per the Preliminary Requirements & Eligibility Criteria provided in the Bidding Documents & verified the documents submitted by the bidders on the basis of Technical Specification, Schedule of Requirements & as per ITB Clause 13.3 d , 24 & 25 mentioned in Bidding Documents.
7. After detailed evaluation & examined the specifications provided by the above mentioned Bidders the following Bidders were found not qualified technically as per the specifications provided/mentioned in the "TECHNICAL SPECIFICATIONS & SCHEDULE OF REQUIREMENTS" & per criteria, other terms & conditions mentioned in the bidding documents.
 1. **M/S NATIONAL SCIENTIFIC CORPORATION**
 2. **M/S RIZVI & COMPANY**
8. The following Bidder was disqualified being non-Complaint for not producing evidences as specified in the tender documents.
 1. **M/S INTERMARK (PVT) LTD.**
9. The following Bidders were qualified in Technical Evaluation after detailed evaluation (sheet attached)
 1. **M/S PAKTECH INSTRUMENTS COMPANY**
 2. **M/S RASTEK TECHNOLOGIES**
10. On the basis of Technical Evaluation Procurement Committee proposed to open the Financial Proposal of **M/S PAKTECH INSTRUMENTS COMPANY & M/S RASTEK TECHNOLOGIES.**


The meeting ended with the vote of thanks to and from the chair.


M Asif Mughal
Procurement Officer
DUET, Karachi
Member/Secretary


Abdul Hafiz Siddiqui
Deputy Director (Proc)
QUEST, Nawabshah
External Member


Muhammad Hashim
Director (P&D)
QUEST, Nawabshah
External Member


S. M. Shabbir
Director Finance,
DUET, Karachi
Member


Shahab Afroz Khan
Director QEC,
DUET, Karachi
Member/Convener

Date: 25-05-2015

**MINUTES OF BID MEETING FOR OPENING OF FINANCIAL PROPOSAL HELD ON
May 25, 2015 REGARDING PROCUREMENT OF LABORATORY EQUIPMENTS OF
ELECTRONICS ENGINEERING DEPARTMENT, DUET**

Meeting of the procurement committee of this department was held on **25-05-2015** in the conference room of VC Secretariat in order to undertake the Financial Appraisals of M/S PAKTECH INSTRUMENTS and M/S RASTEK TECHNOLOGIES who were qualified in Technical Proposal, against the DUET NIT "Procurement of Laboratory Equipments of Electronics Engineering Department" published in Daily Dawn/English, Jang/Urdu & Awami Awaz/Sindhi on 17-04-2015 vide advertisement No. INF/KRY/1447/15 & hoisted the same on SPPRA website with Sr. No. 23691 & DUET own website i.e. www.duet.edu.pk. A Corrigendum was also issued into three different leading newspapers i.e. The News/English, Jang/Urdu and daily Awami Awaz/Sindhi with the respective language of the newspapers vides advertisement No. INF/KRY/1723/15)

The following members of the procurement committee were present at the time of opening of Financial Bids:

- Mr. Shahab Afroz, Director QEC, DUET, Karachi **Convener**
- Mr. S. M. Shabbir, Director Finance, DUET, Karachi **Member**
- Mr. Muhammad Hashim, Director (P&D)
QUEST, Nawabshah **Member**
- Mr. Abdul Hafeez Siddiqui, Deputy Director-Procurements
QUEST, Nawabshah **Member**
- Mr. M. Asif Mughal, Procurement Officer
Directorate of Finance, DUET, Karachi **Member/Secretary**

2. The following bidders were present at the time of opening of Financial Proposals:

- 1) M/S PAKTECH INSTRUMENTS
- 2) M/S RASTEK TECHNOLOGIES

3. The bids were opened at (01:00 pm) in the presence of the above mentioned participants and the rates quoted by bidders were read aloud and encircled by Chairman of the Procurement Committee. All the members of the procurement committee signed each and every page of financial proposal/ bids. The bids do not contain any over-writing or cutting.






Following is the details of bids announced:


S. No.	Name of Bidder	Offered Price (PKR)	Amount of Bid Security	Pay Order No./ Date	Remarks
1	M/S PAKTECH INSTRUMENTS	1,353,832	75,000	11963172	Quoted Rate for 01 item on Sr. 16 as per the schedule of requirements & technical specifications
2	M/S RASTEK TECHNOLOGIES	15,293,208	1,521,000	011907	Quoted Rates for the items i.e. from Sr. 1 to 16 of schedule of requirements

- The above statement illustrated that **M/S PAKTECH INSTRUMENTS** Quoted Rates only for 01 item (i.e. on Sr. No. 16) as per the Technical Specifications & Schedule of Requirements whereas **M/S RASTEK TECHNOLOGIES** quoted the rates for all items (i.e. From Sr. No. 01 to 16) as per Technical Specifications & as per schedule of requirements
- The committee shall examine all the bids as per the criteria provided in the bidding documents, arithmetical checks and verify the documents and bid security submitted by the bidders.

The meeting ended with the vote of thanks to and from the chair.


M Asif Mughal
Procurement Officer
DUET, Karachi
Member/Secretary


S. M. Shabbir
Director Finance
DUET, Karachi
Member


Abdul Hafeez Siddiqui
Deputy Director (Proc)
QUEST, Nawabshah
External Member


Muhammad Hashim
Director (P&D)
QUEST, Nawabshah
External Member



Shahab Afroz Khan
Director QEC
DUET, Karachi
Member/Convener


TECHNICAL EVALUATION
Passing Marks minimum 50%

Technical Evaluation (TE) for Procurement of Lab Equipment's of Electronics Engineering Department			Paktech Instruments Company	Rizvi & Company	Raztek Technologies	National Scientific Corporation
1	Technical Specifications (As per specified in Tender Documents)		I	II	III	IV
	100% as per technical specification	20			15	
	50% ≥ 100 % as per technical specification	10	7	8		7
2	Delivery (as per Schedule of Requirements in Tender Documents)	20				
	45 Days (7 weeks)	20			13	
	More than 7 Weeks	10	5	3		3
3	Warranty Provided (as per tender document & as per ITB Clause 15.1 & 15.2 i.e. 12 Months minimum)	10				
	Provided by bidder	10	10	10	10	10
	Not Provided by bidder	0				
4	Manufacturer Authorization Certificate Mentioned in Tender Documents	10				
	Provided	10	10	10	10	10
	Not Provided	0				
5	Subject to no of experiments required per module as per technical specs	5				
	100%	5	4		5	4
	less than 100% above 75%	3		3		
6	Training of Procuring Agency Personnel on Equipment as per ITB Clause 13.1 e	10				
	Mentioned by bidder	10			5	
	Not Mentioned by bidder	0				
7	Make/Manufacturer	5				
	U.S.A	5			3	
	Japan / Korea / Taiwan/Europe	3	3	3		2
	China & local	2				


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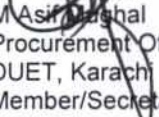

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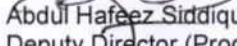

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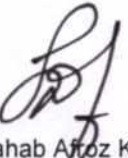
8	Relevant Experience in Academia (minimum 10 years as mentioned)						
	10 or More Years	5	5	3	3	5	5
	Less than 10 Years	2					
9	Installation		5				
	(a) Free of Cost	5		5	5	5	-
	(b) On cost basis	2					
10	Fulfillments of requirements		10	4	4	10	4
	Total Marks for Technical Evaluation		100	51	49	81	45
	Remarks			Qualified	Not Qualified	Qualified	Not Qualified


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DUET, Karachi
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Date: 25-05-2015

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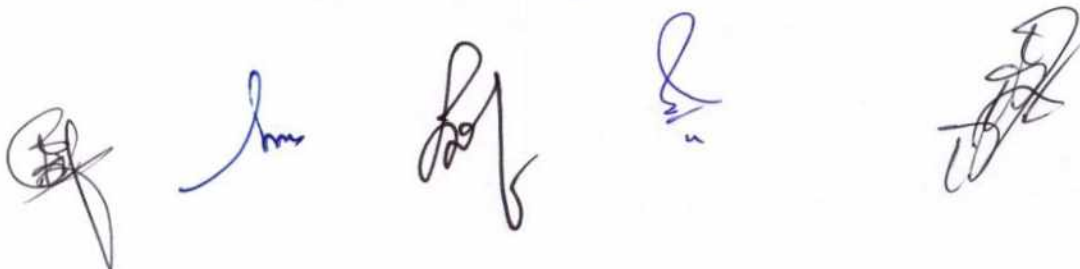
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- | | |
|--|-------------------------|
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| • Mr. Muhammad Hashim, Director (P&D)
QUEST, Nawabshah | Member |
| • Mr. Abdul Hafeez Siddiqui, Deputy Director-Procurements
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| • Mr. M. Asif Mughal, Procurement Officer
Directorate of Finance, DUET, Karachi | Member/Secretary |

2. The following bidders were present at the time of opening of Financial Proposals:

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


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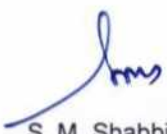
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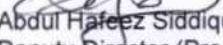
The meeting ended with the vote of thanks to and from the chair.




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QUEST, Nawabshah
External Member



Shahab Afroz Khan
Director QEC
DUET, Karachi
Member/Convener

COMPARATIVE STATEMENT

Procurement of Lab Equipments for Electronics Engineering Department

S No.	Name of Item	QTY	M/S RASTEK TECHNOLOGIES		M/S PAKTECH INSTRUMENTS	
			Unit Price PKR	Total Price PKR	Unit Price PKR	Total Price PKR
1	<u>Power Supply Board</u> Computer based Test & Measurement Academic Platform (Include Oscilloscope, Function generator, Digital multimeter, Arbitrary waveform generator, Bode analyzer, 2-wire current voltage analyzer, 3-wire current voltage analyzer, Dynamic signal analyzer, Impedance analyzer, Digital reader, Digital writer, Variable power supply	10	396,550	3,965,500	Not Quoted	Not Quoted
2	<u>Microprocessor Board</u> 8086 microprocessor operating in minimum mode, with 16-bit data and 20-bit address bus. Two 82258 (32K x8)(256KB)SRAM for 16-RAM plus. Two 28C256(32K x 8)(256KB)EEPROM, 48-bit parallel I/O with FRC connector, RS-232 DB9 (9-pin subminiature D) serial port, PS/2 keyboard, 8-bit ADC, 8-bit DAC, dip switches for special purpose addressing, 16-bit of timer and counter. Liquid crystal, 240 x 64 (30 x 8 characters) with backlight. 1.5 in x5.25 in readout Input: 100 to 240VAC/50 or 60Hz Output DC: +5v, +12v and -12V and maximum current draw: 2A, Host transfer software for MS windows. External interfacing modules/cards for DC motor control or other applications	4	46,968	187,872	Not Quoted	Not Quoted
3	<u>8051 MICROCONTROLLER, PIC & AVR DEVELOPMENT & Training System</u> 1. Support MCU Writer Tool 2. LED and PUSH, and Toggle Switch 3. DOT Matrix (32x16Dots) 4. Graphic LCD (128x64Dots) 5. Text LCD (16x2Line) 6. 7-Segment 7. Volume, CDS, Thermo meter, Hygrometer 8. Serial EEPROM 9. Stepping Motor 10. DC Motor 11. DA Converter 12. DS1302 (Trickle Charge Timekeeping Chip) 13. DS1620 (Digital Thermometer) 14. Melody IC 15. 4X4 Keypad 16. IrDA 17. Relay 18. Hexa Rotary Switch 19. Optical Communication 20. USB Interface	10	154,500	1,596,500	Not Quoted	Not Quoted
4	<u>Digital Electronic Board</u> Basic Digital Logic Circuit Board for ELVIS with following accessories Advance Digital Logic Circuit Board for ELVIS or 16 Modules covers , advance Electronics system will cover and comprising On FPGA Design Board for Elevis Or Equivalent	10	44,393	443,930	Not Quoted	Not Quoted
5	<u>Digital-Analog Training System</u> Digital-Analog Training System is a platform equipped with built-in power supply (fixed and variable) and function generator (sine, triangle, square, TTL) as well as various common Input/output components, such as data switches, 7-segment display, LED indicators, speaker, etc.	10	35,329	353,290	Not Quoted	Not Quoted
6	<u>Industrial electronics</u> Experiment Boards Includes Temperature & light control board, DC motor Control Board ,Sensor Measurement board, Industrial & Power Electronic board	2	453,200	906,400	Not Quoted	Not Quoted
7	<u>Virtual Instrumentation Trainer & LCR Meter</u> Virtual Instrumentation Trainer Consist of: Oscilloscope Digital Multi meter Function Generator Power Supply 3 LCR Measurement Functions 1% Basic Accuracy Test Frequency 120 Hz/1kHz and equivalent circuit depends on selected measuring function & range High Resolution: 0.1uH, 0.1pF and 1mΩ Dissipation Factor Measurement Zero Adjustment	8	80,340	642,720	Not Quoted	Not Quoted

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			Unit Price PKR	Total Price PKR	Unit Price PKR	Total Price PKR
8	<u>Analog Communication</u> <u>Digital Communication</u> Computer based Test & Measurement Academic Platform (Include Oscilloscope, Function generator, Digital multimeter, Arbitrary waveform generator, Bobe analyzer, 2-wire current voltage analyzer, 3-wire current voltage analyzer, Dynamic signal analyzer, Impedance analyzer, Digital reader, Digital writer, Variable power supply includes following: Computer based 50 MHz Logic Analyzer and Pattern includes following: Analog Communications & Digital Communications TOPIC coverage Analog to digital experiment Digital to analog experiment PWM modulator experiment And AM/FM/TDM/FDM Modulator/Demodulator, PWM demodulator experiment, FSK modulator experiment, FSK demodulator experiment, ASK modulator / demodulator, PLL Frequency Synth, . PSK / QPSK modulator / demodulator DSb-Sc/SSB Modulator/Demodulator, PCM Modulator,RF Oscillator Experiment . PSK / QPSK modulator / demodulator DSb-Sc/SSB Modulator/Demodulator, PCM Modulator,RF Oscillator Experiment	10		1,004,250	Not Quoted	Not Quoted
9	<u>Digital Storage Oscilloscope</u> 200 MHZ Digital Dual Channel Oscilloscope & Analog Oscilloscope 30MHz	4	39,037	156,148	Not Quoted	Not Quoted
10	<u>MATLAB CAMPUS</u> License with tools Communication, control system, embedded System Signal Processing, Image Processing, RF and Simulink	1	3,193,000	3,193,000	Not Quoted	Not Quoted
11	<u>Nexys™3 Spartan-6</u> FPGA Board Or Equivalent Xilinx Spartan®-6 FPGA Intended for use with ISE, Web pack, or EDK Diligent USB2 port providing board power, programming, & data transfers 16MB Micron Cellular RAM, 16MB Micron Parallel PCM, 16MB Micron Quad-mode SPI PCM	3	33,990	101,970	Not Quoted	Not Quoted
12	<u>Basys™2 Spartan-3E</u> FPGA Board Or Equivalent Xilinx Spartan 3E FPGA (100K or 250K gates) Intended for use with ISE or Web pack Diligent USB2 port providing board power, programming, and data transfers VGA & PS/2 connectors	2	9,064	18,128	Not Quoted	Not Quoted
13	<u>Control System Engineering</u> Or Equivalent NI VTOL 1DOF Helicopter Board for NI ELVIS (Acad Only) -	2	324,450	648,900	Not Quoted	Not Quoted
14	<u>Industrial Control</u> Or Equivalent NI Rotary Inverted Pendulum Bd for NI ELVIS (Acad Only) -	2	324,450	648,900	Not Quoted	Not Quoted
15	ACS Trainer Or Equivalent Analog Control Trainer must cover following topics/experiments; 1.Closed loop DC servo motor speed / position control with PID controller experiment 2. Inner-loop feedback control experiment 3. Phase lead compensators experiment (1) Root locus technique 4. Phase lead compensators experiment (2) Frequency domain design 5. Phase lag compensators experiment (1) Root locus technique 6. Phase lag compensators experiment (2) Frequency domain design 7. Phase lead-lag compensators experiment (1) Root locus technique 8. Phase lead-lag compensators experiment (2) Root locus technique 9. Phase lead-lag compensators experiment (3) Frequency domain design 10. Pole-zero cancellation experiment. 11. State feedback pole assignment experiment 12.PID Control system 13. Laplace Transform Experiment 14 .System and Steady state, Simulation. 15 .Second order 16 .Derivate control system ICS: 7400,7401,555,7402,7476,7414,7478,7406,7410,7412, Resistor: 0.1 Ohms to 10 MH Capacitor: different value	2	100,000	200,000	Not Quoted	Not Quoted


COMPARATIVE STATEMENT

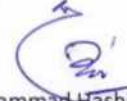
Procurement of Lab Equipments for Electronics Engineering Department

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			Unit Price PKR	Total Price PKR	Unit Price PKR	Total Price PKR
16	<u>Electrical Machine Lab 0.2Kw</u> <u>Or Equivalent</u> Electric machines laboratories: 0.2 kW, Each laboratory is composed of: - Basic autonomous benches with power supplies capable of providing all voltages, in AC or DC, fixed and variable and stabilized in order to develop a course on electrical measurements and electrical machines; - Universal bases to assemble the machines and to couple them to the other machines of the laboratory; - Motors, generators, transformers, brakes, RLC loads, instrumentation and accessories to perform any test on electrical machines. Each electric machine is equipped with a comprehensive training manual showing all tests that can be performed at no-load and load conditions 1-Single Phase Transformer, 2- Squirrel cage motor, 3- Star delta Switch Unit 4- Three Phase Synchronous Machine, 5- Paraallel Board, 6- Compound excitation Motor, 7- Starting Rheostat, 8- Excitation Rheostat, 9- DC Dynomo meter, 10-Resistive Load, 11- Capacitive Load, 12-Inductive Load, 13- Power Supply for Brake, 14- Ammeter, Voltmeter 2 each and 1 power Meter, 15. Power Meter / Technometer, 16. Universal base, 17- Power Supply for Motor, 18. Connecting Leads, 19- Capacitor Motor 3 Phase, 20- Universal Motor, 21- Techo Meter	2	612,850	1,225,700	1,353,832	2,707,664
Total				15,293,208		2,707,664
Remarks			Quoted rates for all items		Quoted Rate for 01 item only (i.e. on Serial No. 16)	

Procurement Committee recommends "M/S RASTEK TECHNOLOGIES" for Award of Contract to the Competent Authority


 M Asif Waqhal
 Procurement Officer
 DUET, Karachi
 Member/Secretary


 Abdul Hafiz Siddiqui
 Deputy Director (Proc)
 QUEST, Nawabshah
 External Member


 Muhammad Hashim
 Director (P&D)
 QUEST, Nawabshah
 External Member


 S. M Shabbir
 Director Finance
 DUET, Karachi
 Member


 Shahab Afroz
 Director QEC
 DUET, Karachi
 Convener