عطاء رقم ٧٣/ل ف/٢٠٢٦
توريد وتركيب وتشغيل اجهزة مخبرية/ كلية العلوم

السادة ..... **يرجى موافاتنا بأسعار المواد** المبين تفاصيلها بالكشوفات المرفقة المكون من (١٠) صفحات، وتسليمها الى وحدة اللوازم/ دائرة المشتريات في موقع جامعة مؤتة/ الكرك- المجمع الإداري بالظرف المختوم مكتوب عليه اسم المناقصة ورقمها واسم المتعهد ورقم التلفون والفاكس الخاص بالمتعهد على أن يلتزم المتعهد بما يلي:

توقيع رئيس اللجنة:

١- أخر موعد لتسليم العروض يوم الاثنين تاريخ ٢٣ / ١١ /٢٠٢٦، قبل الساعة الثانية عشرة ظهراً.

٢- ثمن نسخة العطاء (٥٠) دينار غير مستردة، وتشترى عن طريق مكتب ارتباط الجامعة/ عمان أو عن طريق وحدة اللوازم/ جامعة مؤتة – المجمع الإداري. اخر موعد للبيع الساعة الحادية عشر صباح يوم الاثنين تاريخ ٢٠٢٦/١١/٢٣

٣- ارفاق رخصة مهن وشهادة تسجيل على ان يكون المتعهد مشترك بنظام الفوترة الالكتروني.

٤- تقديم العرض (نسخة أصلية، نسخة إلكترونية "Excel أو Word").

٥- تقديم كفالة بنكية او شيك مصدق كدخول للمناقصة بنسبة ٣% من قيمة العرض، وكفالة بنكية او شيك مصدق كحسن تنفيذ بنسبة 10% من قيمة الإحالة في حالة تمت الإحالة.

٦- تدفع الطوابع القانونية وأية رسوم تترتب على قرار الإحالة خلال ١٠ أيام من تاريخ التبليغ بالإحالة.

٧- تقديم الأسعار شامله الضريبة العامة على المبيعات شاملة الرسوم الجمركية.

٨- تفرض غرامة تأخير كما يلي:

*١٠٠٠ واحد بالإلف من قيمة اللوازم عن كل يوم تأخير للفترة من ١ يوم إلى ٤٥ يوم.

*٢٠٠٠ اثنان بالإلف من قيمة اللوازم عن كل يوم تأخير للفترة من ٤٦ يوم إلى ٦٠ يوم.

*٣٠٠٠ ثلاثة بالإلف من قيمة اللوازم عن كل يوم تأخير للفترة من٦٠ فما فوق.

* على أن لا تتجاوز قيمة مجموع الغرامات نسبة ال ١٥% من قيمة اللوازم في قرار الإحالة.

٩- عرض الأسعار المقدم من المناقص جزء لا يتجزأ من قرار الإحالة.

١٠- المواد المطلوبة قابلة للزيادة او النقصان بنسبة ٢٥% و قابلة للتجزئة.

١١- صلاحية العرض (٩٠) يوم على الأقل.

١٢- للجامعة الحق بإلغاء المناقصة دون ذكر الأسباب.

١٣- فتح العروض المقدمة بعد ربع ساعة من وقت الاغلاق المبين أعلاه.

١٤- تعتبر شروط نظام المشتريات الحكومية رقم ٨ لعام ٢٠٢٢ وملحقاته والتعليمات الصادرة بموجبه جزء لا يتجزأ من شروط المناقصة وتكون شروطه هي المرجحة إذا تعارض أي منها مع الشروط الواردة أعلاه (علماً بأن شروط النظام المشار اليه أعلاه على موقع الجامعة (العطاءات).

اسم المناقص: **رقم الهاتف:** **التوقيع:**

مناقصة رقم ٧٣ /ل ف/٢٠٢٦
توريد وتركيب وتشغيل اجهزة مخبرية/كلية العلوم

Required Equipment

Item	Equipment	Qty.
1	UV-Vis Spectrophotometer with Integrating Sphere	1
2	Total Organic Carbon (TOC) Analyzer for Aqueous Samples	1
3	Ion Chromatography System (Anion Analysis; Optional Cation Analysis)	1
4	Controlled Atmosphere Tube Furnace with Included Gas System	1
5	Digital Mass Flow Controller – Argon	1
6	Digital Mass Flow Controller – Low-Flow H_2/Ar	1
7	Digital Mass Flow Controller – Low-Flow CO_2/Ar	1

Specifications

Item 1 — UV-Vis Spectrophotometer with Integrating Sphere

Technical parameter	Minimum required specification
General	Double-beam UV-Visible spectrophotometer suitable for absorbance, transmittance and reflectance measurements of liquid and solid samples.
	The system shall be suitable for routine laboratory analysis as well as research and material characterization applications.
	The system shall be supplied complete with an integrating sphere accessory for diffuse/specular reflectance and transmittance measurements.
Optical System	Optical configuration: Double-beam.
	Monochromator: Czerny-Turner or equivalent high-performance monochromator.
	Optical system shall provide high optical throughput and low stray light.
	Low-stray-light diffraction grating or equivalent technology.
Light sources shall include	Deuterium lamp,
	halogen lamp.
	Automatic light-source switching and positioning shall be provided.
Wavelength	Wavelength range of the spectrophotometer: at least 185–850 nm.
	With the supplied integrating sphere: at least 220–1400 nm.
	Wavelength setting resolution: 0.1 nm or better.
Wavelength accuracy	±0.15 nm or better .
	Wavelength repeatability: ±0.025 nm or better.
The instrument shall provide selectable spectral bandwidths of	0.1, 0.2, 0.5, 1, 2 and 5 nm, or equivalent selectable bandwidths covering this range.
Photometric Performance	Photometric measurement range: at least −4.5 to +4.5 Abs.
	Photometric accuracy and repeatability shall be suitable for quantitative UV-Vis measurements.
	±0.0008 Abs or less.
Integrating Sphere	The system shall be supplied with an integrating sphere attachment suitable for measurement of:
	Diffuse reflectance.
	Specular reflectance.
	Total transmittance.
	Diffuse transmittance.
	Solid and film samples.
Integrating sphere requirements	Integrating sphere internal diameter: approximately 60 mm or larger.
	Measurement wavelength range: 220–1400 nm.
	The integrating sphere shall incorporate suitable detector covering the UV-Visible and near-infrared regions.

Technical parameter	Minimum required specification
	The system shall permit reflectance measurements at 0° and/or 8° incidence, or equivalent recognized geometry.
Software	Software for complete control of the spectrophotometer and integrating sphere, including measurement, data processing, analysis, storage, and reporting.
Installation & Training	Installation, commissioning, training and application support shall be included.
Included research accessories	Supply powder and solid/film holders, a certified or calibrated reflectance reference, solution cell holder and two 10 mm quartz cuvettes.
	A sipper unit is included; quote temperature-controlled sampling separately together with the required thermostat (if applicable).
General	**The bidder must be the authorized local distributor of the offered instrument for at least five (5) years.**

Item 2 — Total Organic Carbon Analyzer for Aqueous Samples

Technical parameter	Minimum required specification
General	Total Organic Carbon (TOC) Analyzer for analysis of aqueous samples.
	The instrument shall be suitable for purified water, pharmaceutical water, environmental water and general laboratory samples.
	The analyzer shall provide automatic measurement of Total Carbon (TC), Inorganic Carbon (IC), Total Organic Carbon (TOC) and Non-Purgeable Organic Carbon (NPOC).
	System must support operation with high purity air.
Measurement Principle	Oxidation technique: high-temperature catalytic combustion oxidation.
	Oxidation temperature: 670 °C or higher
	Detection: Non-Dispersive Infrared (NDIR) .
	The system shall provide automatic conversion of the oxidized carbon to a measurable CO_2 signal.
Measurement Range	TC: 0–29,000 mg/L or better.
	IC: 0–33,000 mg/L or better.
	TOC: calculated automatically from TC and IC.
	NPOC: suitable for low-level TOC measurements.
	Detection limit: ≤4 µg/L (ppb) as carbon.
Automatic Dilution	Built-in automatic dilution shall be provided for high-concentration samples.
	Dilution range should cover at least 2× to 45× or higher.
	The system shall automatically apply the dilution factor to the reported concentration.
The system shall	TC

Technical parameter	**Minimum required specification**
provide	IC
	TOC
	NPOC
	TOC shall be calculated automatically from TC and IC where applicable.
Measurement Time	Typical measurement time for TC should be approximately 3.5 minutes or less, depending on sample concentration and measurement conditions.
The software shall provide	Instrument control.
	Method creation and storage.
	Calibration.
	Automatic sample sequencing.
	TC/IC/TOC/NPOC calculation.
	Automatic dilution calculations.
	Real-time monitoring of measurement signals.
	Data export.
	Report generation.
	User access control.
Installation & Training	Installation, commissioning, training and application support shall be included.
Included supplies and application requirements	Supply initial calibration/QC standards and operating consumables, along with required carrier-gas connection/regulator accessories.
Included supplies and application requirements	The bidder shall state the allowable salt and particulate content and sample-preparation requirements.
General	**The bidder must be the authorized local distributor of the offered instrument for at least five (5) years.**

Item 3 — Ion Chromatography System

Technical parameter	Minimum required specification
System Type	High-performance ion chromatography system for inorganic anion analysis and optional cation analysis.
Detection	Suppressed conductivity detector with high sensitivity and temperature-controlled conductivity cell.
Suppressor	Integrated electrolytic suppressor with automatic regeneration.
Pump	High-pressure, low-pulsation pump with flow range of at least 0.001–5.0 mL/min or better.
Maximum Pressure	At least 20 MPa.
Flow Accuracy	$\leq \pm 1.0\%$.
Flow Precision	$\leq 0.07\%$ RSD or less
Eluent Delivery	Isocratic.
Degasser	Integrated online degasser.
Autosampler	Automatic sample injector with capacity for at least 50 samples.
Injection Volume	Programmable from at least 0.1–200 µL.
Column Oven	Temperature-controlled column compartment, minimum range 10–80 °C.
Anion Column	Suitable analytical anion-exchange column and guard column shall be included.
Calibration	Multi-point calibration with automatic calibration curve generation and quantitative calculation.
Software	Dedicated chromatography software for instrument control, data acquisition, processing and reporting.
Data Processing	Peak identification, integration, calibration, quantitative analysis and customized reports.
Optional Cation Accessories	Cation analytical column, guard column and required accessories to be quoted separately as optional items.
General	PC& Printer must be supplied with the instrument.
Installation & Training	Installation, commissioning, training and application support shall be included.
General	**The bidder must be the authorized local distributor of the offered instrument for at least five (5) years.**
Method scope and separately priced option	Mandatory anion method coverage: fluoride, chloride, nitrite, bromide, nitrate, phosphate and sulfate.
Method scope and separately priced option	Quote anion-only system as the base offer. Quote complete cation capability (Li^+, Na^+, NH_4^+, K^+, Mg^{2+}, Ca^{2+}) as an optional priced addition, including all columns, suppressors, modules and accessories required.
Method scope and separately priced option	Supply analytical and guard columns, calibration standards, initial consumables and compatible vials. Declare whether dual-channel analysis, if quoted, is simultaneous or sequential.

Item 4 Controlled Atmosphere Tube Furnace with Included Gas System

Technical parameter	Minimum required specification
Application	Application: Calcination and heat treatment of photocatalysts and other materials used in materials chemistry, in air or under controlled inert/reducing atmospheres, at process temperatures up to 1100 °C.
Quotation alternatives	Supply with two options. Each option shall be ONE COMPLETE FURNACE SYSTEM, including its gas system, accessories, installation and commissioning, at one total inclusive price. The options are alternatives for one furnace.
Option 1 — gas channels	Option 1: Furnace with two non-flammable gas channels, nitrogen and helium, plus one flammable gas channel, hydrogen, and its complete safety system.
Option 2 — gas channels	Option 2: Furnace with two non-flammable gas channels, nitrogen and helium.
Furnace configuration	Horizontal laboratory tube furnace for powder batches up to approximately 5 g. Split-tube construction is preferred. The complete supplied system shall support continuous operation up to 1100 °C; state rated maximum temperature and any gas-dependent limits.
Heated zone	Heated length: at least 500 mm; usable uniform sample zone: at least 150 mm. State guaranteed temperature uniformity inside the work tube.
Temperature controller	Programmable ramp/dwell temperature controller with stored programs and downloadable temperature/time records. Include a protected sample-zone thermocouple, independent over-temperature protection and sensor-failure shutdown.
Work tube	Include one installed gas-tight alumina tube of at least 99.7% Al2O3 purity and one matching spare. Clear internal diameter: at least 40 mm. State internal/outer diameters and length.
End flanges and cooling	Include compatible gas-tight end flanges, seals, tube supports, radiation shields/insulation plugs, inlet/outlet connections, loading tools and a closed-loop cooling unit with flow interlock if cooling is required.
Alumina boats	Include three small alumina boats, approximately 2–5 mL each, and three larger boats, approximately 20–35 mL each, of at least 99.7% purity. Confirm passage through the tube/flange opening and placement within the uniform zone.
Gas system	For both options, include two calibrated gas-flow controllers covering approximately 10–500 sccm per channel, suitable pressure regulators, gauges, valves, non-return protection, manifold, tubing and fittings. Include a clean-air connection or approved changeover arrangement for oxidative runs.
Atmosphere/pressure safety	Provide controlled gas flow near atmospheric pressure, automatic gas switching/purging, pressure indication, overpressure protection and a safe exhaust connection. This is a flowing-atmosphere system, not a high-pressure reactor.

Technical parameter	Minimum required specification
Hydrogen channel — Option 1	Option 1 additionally includes a third hydrogen flow controller and a manufacturer-approved safety system suitable for hydrogen treatment from room temperature through the declared operating range, including below 750 °C. State permitted concentration; support for up to 100% H2 is required.
Hydrogen safety — Option 1	Option 1 includes automatic inert pre/post-purging, an independent emergency inert-purge reserve, fail-safe hydrogen isolation, gas/pressure and leak monitoring, emergency stop and required cooling/ventilation interlocks. Include a monitored burn-off unit or approved equivalent exhaust treatment and prevent direct hydrogen/air changeover without inert purging.
Accessories and commissioning	Include initial spare seals, heat-resistant handling tools/gloves, installation, leak testing, temperature verification, commissioning and training. Provide utility requirements and manufacturer confirmation of suitability for the stated materials application.

Item 5 — Digital Gas Mass Flow Controller (Argon)

No.	Technical parameter	Minimum required specification
1	Instrument type	Digital thermal gas mass flow controller (MFC), including flow sensor and integrated automatic control valve.
2	Gas and application	Pure argon (Ar), calibrated for argon, for dilution and GC calibration.
3	Calibrated full-scale flow	0–50 SCCM (standard cm^3/min), equal to 0–50 standard mL/min; optional alternative quotation for 0–100 SCCM.
4	Controllable operating range	At least 5–100% of calibrated full scale.
5	Accuracy	±1.0% of full scale or better, under stated calibration conditions.
6	Repeatability	±0.25% of full scale or better.
7	Response time	Nominally 2 seconds or less to settle within ±2% of the final setpoint, or supplier to declare.
8	Ambient operating temperature	At least 0–50 °C.
9	Pressure rating	Maximum allowable operating pressure of at least 10 bar(g); supplier shall specify required inlet–outlet differential pressure.
10	Wetted materials	Stainless steel or suitably treated metal flow body, with gas-compatible sensor and seals.
11	Flow setting and readout	Adjustable setpoint with digital indication of actual flow, locally or via included interface.
12	Communications	RS-232, RS-485, USB, or equivalent digital computer interface.
13	Electrical supply	Compatible power supply included, e.g. regulated 24 V DC.
14	Process connections	Leak-tight laboratory gas fittings, with compatible mating connectors included.

No.	Technical parameter	Minimum required specification
15	Calibration	Factory argon calibration with traceable certificate stating reference temperature and pressure.
16	Accessories/documentation	Power supply, cables, operating/control software if required, fittings, manual and technical datasheet.
17	Warranty	Minimum 12 months.

Item 6 — Digital Gas Mass Flow Controller (Low-Flow Hydrogen/Argon)

No.	Technical parameter	Minimum required specification
1	Instrument type	Digital thermal gas mass flow controller with integrated automatic control valve, suitable for precise low-flow settings.
2	Gas and application	Certified H_2/Ar mixtures for preparation of ppm-level and higher-concentration hydrogen calibration standards.
3	Calibrated full-scale flow	0–10 SCCM (standard cm^3/min), equal to 0–10 standard mL/min.
4	Controllable operating range	At least 5–100% of full scale; wider usable range, preferably down to 2% FS, is desirable.
5	Accuracy	±1.0% of full scale or better under stated conditions.
6	Repeatability	±0.2% of full scale or better.
7	Low-flow performance	Supplier shall state minimum stable setpoint and flow uncertainty at 0.2, 0.5, 1, 2, 5 and 10 SCCM, where applicable.
8	Response time	Nominally 2 seconds or less to settle within ±2% of final setpoint, or supplier to declare.
9	Ambient operating temperature	At least 0–50 °C.
10	Pressure rating	Maximum allowable operating pressure of at least 10 bar(g); supplier shall state minimum required differential pressure.
11	Wetted materials	Hydrogen-compatible wetted components and seals; stainless-steel wetted components preferred.
12	Gas-specific calibration	Calibration for declared certified H_2/Ar composition or manufacturer-validated correction with documented accuracy.
13	Flow setting and readout	Digitally adjustable setpoint and actual flow indication, locally or through included interface.
14	Communications	RS-232, RS-485, USB or equivalent digital computer interface.
15	Electrical supply	Appropriate power supply included, e.g. regulated 24 V DC.
16	Process connections	Leak-tight fittings suitable for hydrogen-containing laboratory gas mixtures.
17	Calibration documentation	Traceable calibration certificate stating calibrated gas, range, reference temperature and pressure.
18	Accessories/documentation	Power supply, control cables, software if required, fittings, operating manual and technical datasheet.
19	Warranty	Minimum 12 months.

Item 7 — Digital Gas Mass Flow Controller (Low-Flow Carbon Dioxide/Argon)

No.	Technical parameter	Minimum required specification
1	Instrument type	Digital thermal gas mass flow controller with integrated automatic control valve, suitable for precise low-flow gas settings.
2	Gas and application	Certified CO_2/Ar calibration gas mixture or carbon dioxide (CO_2), as declared at procurement, for dynamic preparation of ppm-level and higher CO_2 standards for GC analysis.
3	Calibrated full-scale flow	0–10 SCCM (standard cm^3/min), equivalent to 0–10 standard mL/min under the stated reference conditions.
4	Controllable operating range	At least 5–100% of full scale; a wider usable control range, preferably down to 2% FS, is desirable.
5	Accuracy	±1.0% of full scale or better under declared calibration and operating conditions.
6	Repeatability	±0.2% of full scale or better.
7	Low-flow performance	Supplier shall declare minimum stable setpoint and expected uncertainty at 0.2, 0.5, 1, 2, 5 and 10 SCCM, where applicable.
8	Response time	Nominally 2 seconds or less to settle within ±2% of final setpoint, or supplier shall declare.
9	Ambient operating temperature	At least 0–50 °C.
10	Pressure rating	Maximum allowable operating pressure of at least 10 bar(g); supplier shall state inlet and outlet pressure limits and minimum differential pressure.
11	Wetted materials	CO_2-compatible wetted components and seals; stainless-steel wetted components preferred.
12	Gas-specific calibration	Calibration for the declared CO_2/Ar mixture or manufacturer-validated gas correction with documented uncertainty; pure-CO_2 calibration alone is not assumed equivalent to a diluted gas mixture.
13	Flow setting and readout	Digitally adjustable flow setpoint and actual-flow indication, locally or through an included interface.
14	Communications	RS-232, RS-485, USB or equivalent digital computer interface.
15	Electrical supply	Appropriate compatible power supply included, e.g. regulated 24 V DC.
16	Process connections	Leak-tight laboratory gas fittings with mating connectors suitable for the selected gases.
17	Calibration documentation	Traceable calibration certificate stating calibrated gas or gas composition, range, reference temperature and pressure.
18	Accessories/documentation	Power supply, control cables, software if required, fittings, operating manual and technical datasheet.
19	Warranty	Minimum 12 months.

Common Mass Flow Controller Requirements and Optional Quotations

- Supplier shall declare the calibration reference temperature/pressure used for SCCM, all gas compatibility conditions, maximum working pressure, and minimum required differential pressure.
- The quotation shall include all essential accessories needed to operate all three MFCs; a compatible digital control interface or software solution is acceptable instead of an integral display.
- Bidder shall supply original manufacturer datasheets, model/ordering codes, certificate details, lead time, warranty, and an itemized list of included accessories.
- The arrangement shall support controlled dilution of either H_2/Ar or CO_2/Ar with pure argon, using the three MFCs independently or as configured; external regulators, isolation valves, mixing components, safe venting and GC-compatible sampling accessories shall be quoted separately if not included.
- Equivalent or superior products from any manufacturer shall be acceptable if all mandatory requirements are met.
- Higher-accuracy or broader low-flow-range versions of Item 2, with separate price.
- An alternative 0–100 SCCM range for Item 1, with separate price.
- Optional three-channel monitoring/control software, local display modules, gas mixing fittings and gas pressure-control accessories.
- Academic pricing, training, installation and recalibration service.
- Technical note: Calibration quality at low ppm levels depends on certified source-gas composition, MFC uncertainty at selected low-flow setpoints, adequate mixing, and validated GC measurement procedures. A 0–10 SCCM MFC does not independently guarantee ppm-level standard accuracy. Supplier shall confirm gas-specific performance for both H_2/Ar and CO_2/Ar mixtures.
- The MFCs must be suitable for a safe gas dilution arrangement upstream of the GC sampling interface; gas-flow controllers shall not be regarded as substitutes for pressure regulators or overpressure protection.

Tender Evaluation and Award – General Provision

مع مراعاة أحكام التشريعات والأنظمة والتعليمات النافذة وشروط وثائق الشراء، تحتفظ الجامعة بحقها في التحقق من المطابقة الفنية الفعلية للعروض المقدمة ومدى ملاءمتها للأغراض التعليمية والبحثية المحددة، بما في ذلك دقة القياس، ومدى الأداء، والتوافق التشغيلي، والسلامة، والخدمات الفنية والصيانة والضمان، وذلك وفق المتطلبات ومعايير التقييم المعلنة مسبقًا في وثائق العطاء .وتتم الإحالة على العرض المستوفي للشروط وفق الأسس والإجراءات القانونية الواجبة التطبيق، ولا يُعتد بانخفاض السعر وحده مبررًا لقبول عرض غير مطابق فنيًا أو غير محقق للاحتياجات الأساسية .مع احتفاظ الجامعة بحقها في عدم الإحالة أو إلغاء العطاء أو إعادة طرحه بناءً على تقييم اللجان الفنية المشكلة لهذا العطاء