EGAC Policy on Implementation and use of Proficiency Testing
PB14G

Prepared by:	EGAC Quality General Manager
	Ashraf Saif
Reviewed	EGAC Accreditation Director
andAythorized by:	Mohamed Osman

Table of Modification

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1.1/Feb 2019	Q G.M	8/26	Clause 8.1
1.2/Mar 2019	Q G.M	4/26, 11/26, 12/26 & 13/26	- Adding some definitions - Adding general policy for FSP laboratories
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EGAC Policy on implementation and use of Proficiency Testing

1. SCOPE

This document defines the policy for EGAC's implementation of Proficiency Testing, It is applied for the assessment of all accredited testing, calibration, medical laboratories and forensic service providers.

Note: According to ISO/IEC 17025:2017,

The laboratory shall monitor its performance by comparison with results of other laboratories, where available and appropriate. This monitoring shall be planned and reviewed and shall include, but not be limited to, either or both of the following:
a) participation in proficiency testing;
b) participation in interlaboratory comparisons other than proficiency testing.

2. Definitions

2.1. **Proficiency Testing (PT):**
The determination of the calibration or testing performance of a laboratory, or the testing performance of an inspection body against pre-established criteria by means of inter-laboratory comparison.

Note: In Medical Laboratories, PT is often referred to as EQA (External Quality Assurance)

2.2. Proficiency Testing Scheme:
Proficiency testing designed and operated in one or more rounds for a specific area of testing, measurement, calibration or inspection.

2.3. Inter-laboratory Comparison (ILC):
Organization, performance and evaluation of measurements or tests on the same or similar items by two or more laboratories in accordance with predetermined conditions.

3. POLICY

EGAC considers proficiency testing as an important tool in the review of the performance of laboratories. It provides a basis for improving the quality of testing and calibration.

EGAC requires its applicant(s) / accredited laboratories to develop a plan for "four years" participation in Proficiency Testing schemes, relevant to their scope. EGAC will review this plan and its implementation by the Laboratory.

It is EGAC's policy to encourage Laboratories to participate in PT schemes that are being operated in their areas, also encouraging the formation of new proficiency testing schemes where

considered necessary and cost effective for the laboratories.

Regionally, EGAC also encourage its accredited laboratories for achieving some proficiency testing schemes by subscribing this CAB's in the frame work of cooperation with the regional accreditation bodies (AFRAC, ARAC, APLAC, ……) in the fields of calibration , testing and medical laboratories, EGAC nominates the required number of required accredited CABs and send the nomination to the region and then receives the samples to be distributed on the selected CABs, EGAC follow the process for the participated CABs until it is completed with its results.

4. Types of accepted proficiency testing:

For accreditation; the acceptable types of proficiency testing in the following order according to availability are:

1. Accredited Proficiency testing schemes according to (ISO/IEC 17043:2010).
2. Unaccredited PT schemes.
3. Inter laboratory Comparison designed primarily for other purposes ,
4. Measurement audit , in case of impossibility implementing with any of the above .

5.1 PT requirements for applicant Lab.

Applicant Lab shall provide proficiency testing, at least one PT in each Discipline according to EGAC scope of accreditation demonstrated at (Annex I) for the (testing / calibration) laboratory.

Applicant also shall provide a plan of proficiency testing cover the rest of CAB accredited scope (testing / calibration) according to EGAC Sub-Discipline activities to implement it during its accreditation cycle (four years)

The required frequency of participation in the proficiency testing should be relevant to the technical scope as will be assessed by EGAC, however it should not in any case be less than the frequent time explained in clause (9) below (within the period between two subsequent reassessments) for each sub discipline of the laboratory's scope of accreditation.

disciplines may need to be divided into more sub disciplines to clarify its PT schemes; this will be advised by EGAC assessors / experts. disciplines and sub disciplines as illustrated in Annex I and are published on EGAC's website.

5.2 PT requirements during the Document review and preliminary assessment

The quality and extent of the accompanying documentation allow for a correct evaluation of the proficiency testing already carried out.

Assessors shall check the following before starting the assessment:

- The plan for the participation of the laboratory in the PT schemes, along with its justifications.
- The successful execution of this plan, according to the laboratory's success report.
- The results achieved in proficiency tests are adequately documented in the laboratories before

they can be considered as part of an accreditation procedure.

- Accredited laboratories are maintaining their own records of performance in all types of proficiency testing, including the outcomes of investigations of any unsatisfactory results and any subsequent corrective actions.
- The period for keeping the records of proficiency testing results and other documentation is at least (Previous and Current) accreditation cycle, to establish the competence and stability of the accredited laboratory.
- Accredited laboratories shall have a written procedure covering participation in proficiency testing, including how the performance in proficiency testing is used to demonstrate the laboratory's competence and procedures followed in the event of unsatisfactory performance.
- Assessors shall check the conformity of the frequency and regularity of the laboratory's participation in the proficiency testing with regard to EGAC policy.

5.3 PT requirements during the assessment process

During the assessment, the assessment team will obtain the laboratory's plan for participation in the proficiency testing schemes and a report on the participation of the laboratory in proficiency tests. This report of proficiency tests shall always be part of the documentation of the laboratory's accreditation or sequential assessment procedure. Such a report should contain:

- Plan for the participation of the laboratory in the PT schemes.
- Success reporting of this plan.
- Dates of proficiency tests already carried out.
- Organizer of PT scheme.
- Test materials, measured quantities, parameters, artifacts, calibration equipment.
- Matrices (where applicable).
- Acceptability criteria.
- Results (satisfactory/questionable/unsatisfactory)
- Corrective actions and follow ups, where required.

If the laboratory submits a greater number of proficiency tests, then the assessment team should limit its assessment to a sufficient number chosen in a representative way. From the survey on proficiency tests and considering the above mentioned main points, proficiency tests that are to be checked on-site are to be selected by the assessment team

The laboratory shall be prepared to justify non-participation in readily available proficiency testing schemes, where one or more appropriate schemes exist.

6. Corrective actions and additional measures

According to ISO/IEC 17025:2017
Data from monitoring activities shall be analysed, used to control and, if applicable, improve the laboratory's activities. If the results of the analysis of data from monitoring activities are found to be outside pre-defined criteria, appropriate action shall be taken to prevent incorrect results from being reported.

CAB should make analysis for PT report results (Satisfactory/ questionable / Unsatisfactory), EGAC will accept the PT provider's acceptance criteria if available based on Laboratory analysis, otherwise it will set one according to the PT results presented to the laboratory.

The laboratories (Testing / Calibration) are required to make the results available to be analyzed by EGAC. These results should be adequately documented in the laboratories before they can be considered as part of an accreditation process.

The laboratories are required to demonstrate their ability to take the necessary corrective action when appropriate.

Records of proficiency testing results should be analyzed and kept, to establish the competence and stability of the accredited laboratory.

The general conclusions that have been drawn by the laboratory from the participation in proficiency tests concerning their work and, if necessary, where corrective actions have been taken, shall be studied by the assessment team.

If the laboratory doesn't have satisfactory results then, the explanations and corrective actions shall be checked for sufficiency and suitability. The assessment team shall study these actions to gain information about a laboratory's competence. These actions may include the following internal and/or external quality measures:

- Calibration of measuring devices.
- Use of quality control charts.
- Performance of duplicate/multiple determinations/measurements and appropriate statistical methods.
- Use of standard methods for calibration/ testing.
- **For testing (including medical laboratories):**
  - Regular use of certified reference materials, where appropriate or use of purchasable or in-house calibration and control materials.
  - Introduction of "blind" test materials into the laboratory (e.g. by the Quality Manager).
- **For calibration:**
  Regular use of cross checks methods, where appropriate and the use of higher level calibrations.
- All kinds of proficiency tests already carried out on the laboratory's own initiative.

In any case, if there are doubts concerning the competence after studying the corrective actions, the technical assessor should find out - in agreement with the laboratory - whether interlaboratory comparisons with other laboratories or the participation in existing interlaboratory comparison schemes should be performed. The extent, selected type, the way of performing and evaluating the proficiency tests shall be explained to the laboratory by the assessment. Other internal as well as external quality measures may be considered, e.g.:

- To repeat the PT.
- To check internal quality assurance measures.
- To ask for detailed report on corrective actions.
- To make an on-site surveillance

7. Additional proficiency tests may be required when:

a. A significant Changes of personnel / main used std. operating in the accredited scope, which may affect the technical competence of the laboratory,
b. External quality measures taken for the test methods/types of tests applied in the scope of accreditation are not sufficient, regarding, e.g.:

   - Number of proficiency tests performed in specific scopes
   - Extension of the scope of accreditation
   - Insufficiently validated and documented in-house methods
   - Procedural steps deviating from the test standard

c. A significant ratio result of the proficiency tests submitted by the laboratory is unsatisfactory as defined by the acceptability criteria.
d. The conclusions drawn and the necessary corrective actions of the laboratory have not been carried out or documented, or are in-sufficient

e. Assistance in detecting systematic errors in the laboratory is needed and if the laboratory has no other means to provide evidence of its technical competence and quality of measurement.

8. Determination of acceptability criteria

8.1General rules

Generally the assessment team should use the criteria stated by the organizer of the proficiency testing scheme.
If the organizer of inter-laboratory comparisons does not provide any criteria for acceptance of results (e.g. inter-laboratory comparisons for validation of procedures and/or certification of reference substances), then the laboratory, under assessment, shall define its own acceptance limits. The assessment team will verify the criteria in use (defined either by PTP or by the laboratory) for suitability.

8.2 Regulatory authorities' criteria

If the laboratory is active in a mandatory area, the assessment team should use the criteria set by the regulatory authority.

If the laboratory is not active in a mandatory area, but is taking part in the proficiency testing scheme established by regulatory authority for purposes of internal quality assurance, then the assessment team should use the criteria defined for the intended use by the laboratory, after checking the ability of the laboratory to set criteria and their suitability.

Note: The criteria set by the authority or customer should normally have precedence over the criteria given by the accreditation body

9. Proficiency Testing frequency

- For Calibration laboratories fields:
EGAC accept PT for its calibration laboratories activities according to each of its and Sub-discipline to be renewed each accreditation cycle (four years) unless there is no change at the laboratory scope. (back to 6.a :6e).

- For Testing laboratories fields:
a) EGAC accept PT for its testing laboratories activities according to its each Sub-discipline:
- As defined in Annex I.

to be renewed each accreditation cycle unless there is no change at the lab. (back to 6.a :6e).

b) For critical sub-discipline (field/s) :
- Biological Testing.
- Environmental Tests.
- Food Tests.

to be renewed each (2 years/Cycle) unless there is no change at the lab. (back to 6.a :6e).

- For Medical laboratories fields
For Medical laboratories discipline , it's frequency is committed by its related PT provider scheme.

10. Results for un participating on a successful Proficiency testing

If the laboratory did not participate or has unsatisfactory results (for more than two successive participations) , then:
- In the initial or reassessment process its accreditation will not be completed.
- For the laboratory which is already accredited It will be partially suspended, reduced of its scope or withdrawn according to EGAC's procedures and regulations.

11. PT requirements for Medical Laboratories

Due to the special nature of the Medical Laboratories, EGAC emphasizes the following requirements:

- The applicant Medical Laboratory shall prepare plans for participation in PT schemes, these plans shall be relevant to its scope of tests and matched with the PT programs provided by accredited or EGAC trusted PT providers (providers that meet requirements of ISO/IEC 17043).
- For special scopes that include preparation and interpretation processes (e.g. pathology,

cytogenetic, etc.) the lab shall participate in PT program(s) that cover(s) preparation and interpretation processes (where applicable).

- The Medical Laboratory shall treat the PT samples in the same manner as the patient samples and as mentioned in the PT scheme protocol.
- The applicant Medical Laboratory shall successfully deliver reports that prove successful participation.

Successful participation required to submit for application/extension:

- The lab shall pass at least 75% of a whole PT cycle.
- If the PT cycle is not yet complete, the lab shall pass samples that represent at least 75% of the whole cycle.

A 'No result/Late result' will be considered as failed unless the lab justifies the condition.

In case the lab replaces an only equipment item in certain discipline/sub-discipline/analyte, the lab will have a suspension in this discipline/sub-discipline/analyte for six months at most, the period during which the lab shall show successful participation in PT by passing 80% of the samples in this 6 month period.

To retain accreditation for discipline/sub-discipline/analyte:

- The lab shall maintain the continuous participation.
- The lab shall send reports of all PT results through the past 6 months.
- The lab shall pass at least 50% of the 6 month results such that the Lab successfully passes at least 75% of the whole cycle.
- The lab shall send self-assessment report that includes the lab performance through the past six months and the root causes and corrective actions/justifications for **failed** or **unreported/Late** test results.

- **Refusing to regularly send the above-mentioned reports will result in suspension of the lab scope in this particular discipline/sub-discipline/analyte for three months.**

Unsuccessful participation occurs in one of the following cases:

1- Failure to regularly participate in PT programs.

2- Unsatisfactory performance for the same discipline/sub-discipline/analyte during the 6 month period (at least 50%) or the whole cycle (at least 75%).

i. Failure of z score/SDI will be considered as unsatisfactory.

ii. A 'No result/Late result' will be considered as unsatisfactory unless the lab justifies the condition.

- If a laboratory has unsatisfactory results or 'unjustifiable No result/Late result' for a discipline/sub-discipline/analyte, the lab will have a suspension in this discipline/sub-discipline/analyte for six months at most, where the laboratory has to send evidence of successful participation as mentioned under that for application/extension, before re-instatement of accreditation in this discipline/sub-discipline/analyte.

- If the lab fails to show evidence of successful participation during the suspension period, a **reduction of scope/withdrawal of accreditation** will be done for this discipline/sub-discipline/analyte.

12. General policy for Forensic Services Provider Laboratories

12.1. On Application for Accreditation

12.1.1 All applicant for forensic testing laboratories and inspection body are required to participate in appropriate proficiency testing or Inter-laboratory comparisons for the scope of accreditation required and provide EGAC with the relevant proof on application of participation and satisfactory performance.

'Appropriate' participation can be described as that level of participation which will result in an acceptable level of risk, i.e. risk that the laboratory may issue reports with results falling outside of the specified measurement uncertainty stated on the report. The EGAC policy requires that laboratories undertake proficiency testing or ILC's for all items or parameters listed on their proposed schedule of accreditation covering examination and post examination report.

12.1.2. Proficiency Testing:

Forensic testing laboratories and inspection body shall perform proficiency testing in order to verify the laboratory's performance. The frequency of proficiency testing shall be at least annually and at least one of these proficiency one of these PT should be from a recognized PT provider external to laboratory.

Proficiency –test samples should be representative of the laboratory's normal casework.

Methodology required to perform proficiency tests should be in concert with the normally practiced in the laboratory.

12.1.3. Proficiency testing activities may include:

i) An external proficiency testing scheme, preferably operated in accordance with ISO/IEC 17043;
ii) An Inter-laboratory comparison scheme (where two or more laboratories are used);
iii) Suitable alternative to PT/ILC, as agreed to by EGAC, where PT schemes are not available or are not practical.

12.1.4. To Maintenance the Accreditation

12.1.4.1. All accredited forensic service laboratories must preferably participate in proficiency testing schemes at least once annually that have been independently shown to comply with the requirements of ISO/IEC 17043. The laboratory shall satisfy itself on the competence of the PT providers whose schemes it voluntarily participates in.

12.1.4.2. Where available and appropriate, agencies are expected to select PT providers accredited to ISO/IEC 17043 by EGAC if available or another accreditation body that is a signatory of the ILAC, APLAC, AFRAC, ARAC.

12.1.4.3. The Forensic testing laboratories and inspection body shall review their own performance and investigate all measurement results that fail to meet the minimum acceptance criteria, including where there is evidence of consistent poor performance, and record the root cause analysis conducted and all corrective and preventative action(s) taken.

12.1.5. PT/ILC Activity Plan

12.1.5.1. All accredited Forensic service provider shall have available PT / ILC plans for at least 2 years, i.e. The activity schedule for the past years (where possible) and the plan for the subsequent years.

12.1.5.2. The plan shall cover all activities as specified above and shall be accomplished in a period not exceeding 1 accreditation cycle.

Note: The frequency and extent of participation shall be justified by the laboratory to EGAC for each accredited method and shall be at least once annually and included in the plan.

12.1.5.3. The PT / ILC plan shall be subject to review in response to changes in staff, methodology or instrumentation, revision and approval as described.

12.1.5.4. Forensic testing laboratories and inspection body may incorporate in the plan participation in any other organized PT or other comparison programs organized nationally, regionally or internationally.

12.1.5.5. Where no formal PT is practical or available, the Forensic testing laboratories and inspection body shall indicate suitable alternative means by which performance will be assessed and monitored. These may include activities such as intra laboratory comparisons, the use of reference materials or other comparisons. EGAC will consider these alternative arrangements as part of the laboratory's planned activities. It is the responsibility of CABs to provide the details of the plan and its justification to obtain approval from EGAC.

12.1.5.6. The PT activity plan should address:

- The parameters for which PT is conducted;
- Proficiency testing type (Inter-laboratory comparison; Intra-laboratory comparison; Use of a Reference material, PT scheme);
- Identification and number of participants, and/or potential participants for ILC;
- The name/s and or identification of the PT schemes which the laboratory intends to participate;
- The minimum acceptance criteria;
- Any issues experienced with participating in PT;
- Frequency of participation per time period justified by the laboratory.

12.1.6. During an Assessment

12.1.6.1. Failure of Forensic testing laboratories and inspection body to show effective participation, or that the use of alternatives to PT has been agreed on by EGAC, could result in suspension of the tests concerned.

12.1.6.2. Forensic testing laboratories and inspection body shall make available to the assessment team all proficiency testing scheme and ILC reports.

12.1.6.3. Proficiency testing / ILC reports shall be clear and comprehensive and include at least the following minimum information:

- Identification of the participants;
- Measurement protocol;
- Measurement results;
- The reference value/s and how these were established;
- Evaluation of the measurement results;
- An indication of the performance of individual participants;
- Minimum acceptance criteria;
- Conclusion.

12.1.6.4. The effectiveness of corrective and preventative action taken will be evaluated during the assessment, and taken into consideration during the decision making process.

13. REFERENCES

ILAC-P9:06 :2014
ISO/IEC 17043 : 2010
ISO/IEC 17011: 2017
ISO/IEC 17025 :2017
ISO 15189 :2012
IAF/ILAC-A2
ISO 5725
EA-4/18 INF:2010
ASTM Designation E2327-151

Annex (I) EGAC scope of accreditation for (Testing/Calibration / Medical)

No	Field	Discipline		Sub- Discipline	
		Code	Name	Code	Name
1	Calibration Laboratories	A	Electrical quantities /DC and Low Frequency (< = 1 MHz) quantities	1	Voltage AC & DC
				2	Current AC & DC
				3	Voltage Ratio
				4	AC/DC transfer (voltage and current)
				5	Power and Energy
				6	Resistance
				7	Capacitance
				8	Inductance
				9	Dissipation Factor
				10	Oscilloscope Functions
				11	Process calibrators
				12	Logic State Analysis
				13	High Voltage quantities
		B	Electrical quantities /Microwave & High Frequency (> 1 MHz) quantities	1	Modulation (AM, FM, PM)
				2	Impedance (reflection coefficient)
				3	Power
				4	Attenuation
				5	Adaptors
				6	Antennas
				7	Function Generation
				8	Spectrum Analysis
				9	S-parameters
				10	Noise
				11	Electric/Magnetic Field quantities
		C	Magnetic quantities	1	Magnetic Flux Density
				2	Magnetic Material properties
		D	Time and Frequency	1	Time Interval
				2	Frequency
				3	Rise/Fall Time
				4	Phase Angle
		E	External Dimensional Quantities	1	Length Measurements:
				1.a	Laser Wavelength
				1.b	Length Gages
				1.c	Line Scales & Distances
				1.d	Length Measuring Instruments
				1.e	Diameter
				4	External Micrometer
			Roughness	1.g	Roughness
				1.k	Work Pieces
				1.i	Coordinate Measuring Machines
				1.j	Machine Tools
			Angle Gauges	2	angle measurements:
				2.a	Angle Gages

No	Field	Discipline		Sub- Discipline	
		Code	Name	Code	Name
				2.b	Index Tables
				2.c	Clinometers
			Dimensional Gauges	3	Gauge Block
				14	Surface plate
				15	Gauge Block Compartor
			External Dimensional Quantities	5	External Micrometer
				6	Caliper
				7	Ruler
				8	Dial Indicator
				9	Internal Thread
				10	External Thread
				11	Tape
				12	Depth gage
				13	Height gage
				15	Steel Square angle
				16	Profile projector
				17	Round test
				18	Microscope
				19	Linear scale
				20	Contracer
				21	Surftest
				22	Formtracer
			Dimensional Equipment	23	Laser scan micrometer
				24	Dial Gauge tester
		F	**Force**	1	Load Cell
				2	Strain Gauge
				3	Load cell Machine
			Mass		Standared Mass Set
					Balances
					Mass Compartor
			Pressure	4	Pressure Transducer Hydraulic
				5	Pressure Gauge – Hydraulic
				6	Pressure & Vacuum quantities pneumatic
				7	Pressure Safety valve
			Torque	8	Torque cell
				9	Torque wrench
				10	Acceleration, Speed, & Vibration;
		G	**Acoustical quantities**	1	Microphones
				2	Sound Level
				3	Artificial Mastoids
				4	Noise Dosimeters
		H	**Fluid quantities**	1	Gas and Liquid Flow Rate
				2	Volume of Flowing Gases and Liquids
				3	Velocity of Gases

No	Field	Discipline		Sub- Discipline	
		Code	Name	Code	Name
				4	Mass, Volume, & Density of Gases/Liquids
				5	Viscosity
		I	Optical quantities	1	Quantities of Optical Radiation
				2	Photometric quantities
				3	Optical System properties
				4	Lasers
				5	Fiber Optics
				6	Spectrophotometer
		J	Resistance Thermometer	1	Platinum resistance thermometers
				2	Thermocouples
				3	RTD
			Glass thermometer	4	Liquid-In-Glass Thermometers
			Radiation Thermometer	5	Radiation Thermometers
				10	Infrared thermometers
			Humidity	6	Humidity
				7	Thermo-hygrometer devices
				8	wood and grain moisture meters
			Teprature sources	9	Temperature indicator and simulator
				10	Dry blocks
				11	Incubator
				12	Baths freezer and refrigerator
				13	Climatic chambers
				14	Oven
		K	Medical Equipment	1	Airway/Low/High Pressure
				2	Volume (Low/High) Flow, Air Flow Speed
				3	Heart Rate, Synchronization, External Non-Invasive Pacer
				4	Respiration, Oxygen Concentration
				5	Pulse Amplitude/ Rate/ Width, & A -V Interval
				6	Function generation
				7	R-wave Detection
				8	Temperature, Relative Humidity
				9	Electrical properties: (Voltage, Earthlings, Leakage …)
		L	Environmental Equipment	1	Particle size/counter devices
				2	Air content analyzers
				3	Water content analyzers
				4	Noise
				5	Dust
				6	Lux meter
				7	Gas analyzers

No	Field	Discipline		Sub- Discipline	
		Code	Name	Code	Name
2	Testing Laboratories (Not including medicine and forensic science)	**Testing Technology:**			
		A	**Chemical**	**1**	Wet Chemistry
				2	Spectroscopy
				3	Chromatography
				4	Surface Analysis Techniques
				5	Electrochemical
				6	Thermal Analysis
				7	Combustion
				8	Corrosion
		B	**Physical Properties**	**1**	Density
				2	Particle size
				3	Porosity
				4	Colligative properties
		C	**Mechanical Quantities**	**1**	Tensile
				2	Compression
				3	Shear
				4	Torsion
				5	Fracture
				6	Impact Resistance
				7	Hardness
				8	Material properties
				9	Metallography
				10	Machines: (such as Impact Testing Machines, Tensile Machines …)
		D	**Electromagnetic properties**	**1**	Electrical Resistance
				2	Electrical Current
				3	Electrical Voltage
				4	Electromagnetic Compatibility EMC
		E	**Environmental Tests**	**1**	Potable Water (organisms, organic …)
				2	Non-potable (Sea Water, Irrigation …)
				3	Waste Water (industrial, agricultural…)
				4	Water Sediments & Mussels
				5	Radiochemistry
				6	Solid/Hazardous Waste
				7	Lead
				8	Asbestos
				9	Air [Chemical (content, contamination …) & Physical (particles, color, density …)]
		F	**Biological Testing**	**1**	Plant Virology
					Human Virology
				2	Bacteriology
				3	Biology
				4	Microbiology
		G	**Others**	**1**	Sensory testing

No	Field	Discipline		Sub- Discipline	
		Code	Name	Code	Name
				2	Thermodynamics
		Products Testing:			
		H	**Construction Material**	1	Concrete
				2	Cement
				3	Masonry
				4	Bituminous Materials
				5	Asphalts, Road Oils, & Tars
				6	Lime and Limestone
				7	Marble
				8	Soils
				9	Doors & windows (Frames, Locks …)
		I	**General Materials**	1	Adhesives and sealants
				2	Fasteners
				3	Agricultural
				4	Animal Products
				5	Foods (animal & vegetal food, dietary, beverages, ...)
				6	Animal Feeds
				7	Additives & Supplements
				8	Fertilizers
				9	Residues in food and agricultural products
				10	Herbicides, Insecticides, & Pesticides
				11	Mineral Water
				12	Seeds & Grains
				13	Soil and Plant Analysis
				14	Fuels: (Gaseous, Liquid, Solid)
				15	Petroleum Products
				16	Coal
				17	Lubricants
				18	Oil & Soap
				19	Drugs
				20	Ferrous Metals
				21	Non Ferrous Metals
				22	Plastics & Polymers
				23	Rubber & rubber products
				24	Leather
				25	Paint
				26	Textile
				27	Carpet & Floor Covering
				28	Pharmaceutics
				29	Paper
				30	Cigarettes & Tobacco
				31	Wood
				32	Glass

No	Field	Discipline		Sub- Discipline	
		Code	Name	Code	Name
				33	Ceramics
				34	Leather
				35	Coating
				36	Electrical Cables & Insulations
				37	Car Spare parts
				38	Home Appliances
				39	Fire Protection Equipment
				40	Telecommunication Equipment (TV & Radio)
				41	Air Conditioners
				42	Lighting
				43	Foam & Packing Materials

Proficiency Testing Participation
Acceptance number and period with References
Medical Labs:

Discipline		Sub- Discipline		No. of PT	Renewal Period	Reference
Code	**Name**	**Code**	**Name**			
A	**General chemistry**	**1.**	Routine Chemistry (Analytes in general use in cardiac, liver function, …etc)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Blood gases and electrolytes	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
B	**Special chemistry**	**1.**	Special chemistry (Hormones, Vitamin assays, Iron studies. Drug assay, Protein electrophoresis, etc)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Clinical toxicology and toxic metals	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
C	**Hematology**	**1.**	General Hematology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Special Hematology (Coagulation studies, platelet function, hemoglobin electrophoresis, bone marrow examination,film examination for haemoparasites.etc)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Immunohematology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Flow cytometry	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's	PT provider's scheme

Discipline		Sub- Discipline		No. of PT	Renewal Period	Reference
Code	Name	Code	Name			
					scheme	
D	**Diagnostic Immunology**	**1.**	General Immunology (Immunoglobulin and complement assay, autoantibodies assay, cellular function, tumor markers, serology (syphilis,..), immunofixation electrophoresis, etc.)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Immunophenotyping	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Tissue typing	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
E	**Anatomic Pathology /Histopathology**	**1.**	Anatomic Pathology Processing (routine histopathology of biopsy material .,etc)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Intraoperative Consultation	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Autopsy Pathology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Molecular Anatomic Pathology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
F	**Anatomic Pathology /Cytopathology**	**1.**	Effusion cytology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme

Discipline		Sub- Discipline		No. of PT	Renewal Period	Reference
Code	Name	Code	Name			
		2.	Gynecologic Cytopathology (other than cervical)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Non-Gynecologic Cytopathology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Fine needle aspiration cytology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
G	**Anatomic Pathology/ Immunohisto chemistry**	**1.**	Immunohistochemistry	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
H	**Microbiology**	**1.**	Bacteriology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Mycology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Mycobacteriology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Virology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Parasitology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		6.	Molecular Microbiology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		7.	Miscellaneous tests	Continuous programs	According to the PT	PT provider's

Discipline		Sub- Discipline		No. of PT	Renewal Period	Reference
Code	Name	Code	Name			
				(Cycles)	provider's scheme	scheme
I	Serology	1.	Serology for infectious diseases	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
J	Clinical Cytogenetics and Molecular Pathology /Biochemical genetics	1.	Metabolite analysis	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Enzymology	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Newborn screening	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Long-term storage of tissue cultures	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Tissue culture and long-term storage	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		6.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
K	Clinical Cytogenetics and Molecular Pathology /Cytogenetics	1.	Blood	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Bone marrow	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Amniotic fluid	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme

Discipline		Sub- Discipline		No. of PT	Renewal Period	Reference
Code	Name	Code	Name			
		4.	Chorionic villus tissue	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Other tissues - non malignant	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		6.	Other tissues – malignant	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		7.	Conventional Cytogenetics	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		8.	Fluorescent In-Situ Hybridisation	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		9.	Molecular karotyping by microarray analysis	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		10	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
L	**Clinical Cytogenetics and Molecular Pathology /Molecular Pathology**	**1.**	DNA sequencing	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Prenatal genetic testing	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Pre-imschemetation genetic testing	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Genetic testing for constitutional gene variants (diagnostic and carrier testing)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Predictive genetic testing	Continuous programs	According to the PT	PT provider's

Discipline		Sub- Discipline		No. of PT	Renewal Period	Reference
Code	Name	Code	Name			
				(Cycles)	provider's scheme	scheme
		6.	Pharmacogenetic testing (results influence drug prescribing decisions)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		7.	Genetic testing for mosaic gene variants (cancer and somatic mosaicism)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		8.	Screening for an unknown mutation	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		9.	Assay for a defined mutation or polymorphism	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		10	Assaying heterozygous loci	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		11	Calculated estimate of risk of inheritance of an unknown mutation (Bayesian and linkage calculations)	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		12	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider' s scheme
M	**Blood Bank and Transfusion Medicine**	**1.**	Tests for blood transmitted diseases	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Hematopoietic Progenitor Cell Services	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Immunohematology**((** ABO group&Rh type),Antibody Detection (transfusion),Antibody Detection (Non transfusion),Antibody Identification,Compatibility testing)**)**	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme

Discipline		Sub- Discipline		No. of PT	Renewal Period	Reference
Code	**Name**	**Code**	**Name**			
		4.	Miscellaneous tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
N	**Others**	**1.**	Assisted reproduction procedures tests	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		2.	Point-of-Care Testing	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		3.	Urinalysis	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		4.	Semen analysis	Continuous programs (Cycles)	According to the PT provider's scheme	PT provider's scheme
		5.	Miscellaneous			
	Other please Specify					