TOLC-PSI syllabus

Reading Comprehesion

The questions in the Reading Comprehesion section are meant to test the language profeciency regarding the comprehension and in the relation of different types of use. The extracts can be an essay, a journalistic or scientific text.

The questions, on and from them, will test the basic grammatic competencies (morpholigical and syntactic), the possession of a sufficiently wide-ranging vocabulary, the inferetial skills, the ability in understanding hierarchical relationships and establishing formal and semantic relationships among its component parts, as well as sensitivity to decoding the implicit and the presupposed. Non-fiction and journalistic texts may concern phenomena, events, and problems that arise from the study of the humanities and social sciences (e.g., history and philosophical thought) and in current events.

Basic mathematics

The questions in this section will cover the following topics from the Basic Maths programs typically taught in high school.

- **Set theory**
  Sets and main set operations (union, intersection, difference, complement and Cartesian product)
- **Numerical sets**
  Numeric sets and their properties, simple operations, sorting and comparison. Absolute value. Prime numbers, decomposition into prime factors. Greatest common divisor and least common multiple. Powers and roots
- **Algebraic expressions**
  Basic Algebra. Algebraic expressions. Operations with monomials and polynomials, remarkable products, decomposition of a polynomial into factors
- **Equations and inequalities**
  First degree equations and inequalities. Notions on second degree equations and inequalities and on systems of linear equations.
- **Functions**
  Definition of function. Qualitative graphs of elementary functions. Fundamental properties of functions: monotone, limited, periodic. Invertible

functions and reverse function. Notion on the following topics: Domain, image and counter-image of an element; function composition; exponential and logarithm

- **Plane geometry**
  Most common plane figures and their fundamental properties. Pythagorean theorem. Properties of similar triangles. Criteria for the congruence of triangles. Perimeter and area of the main plane figures (triangles, quadrilateral, regular polygons and the circle). Incidence, parallelism and perpendicularity between straight lines in a plane

- **Analytical geometry**
  Cartesian coordinates in the plane. Distance between two points and midpoint of a segment. The equation of straight lines. Angular coefficient. Equation of a straight line given one point and the angular coefficient. Equation of a straight line given two points. Conditions of parallelism and perpendicularity. Straight, parallel and coincident lines.

Verbal reasoning

Verbal reasoning (or "logic") questions intend to highlight the ability to solve problems that require the partecipants to connect data and notions in non immediate ways and to give logical reasonings of some complexity. For example, the participant may be asked to determine if a certain statement, or its negation, is a logical consequence of other statements, in which the terms *-if, -then, -all, -none, -some, -at least, -one* are used.

The proposed problems may also require to identify a rule or a principle and apply it to the problem solution. The questions want to examine: the ability by which, starting from certain conditions, a correct outcome is obtained and the wrong ones are rejected; the capacity to identify a rule or a priciple and apply it to a problem.

The questions may regard the concept of a necessary and sufficient condition. In a given circumastance and according certain data, it could be asked to establish if a statement is true or false.

Numerical reasoning

The questions in this sections are meant to test the candidates' ttitude in the understanding and processing the numerical, symbolic and formal information rather than check the knowledge in Mathematics achieved in high school.

The questions intend to assess the competences of making calculations for getting the correct answer, deduct a solution in numerical expressions, identify a rule explaining a specific progression of numbers, understanding the relationships among numbers, reasoning with numbers, organizing numerical relationships.

Generally, these questions assess the candidate's ability to manage numerical concepts and to reason with numbers.

Biology

The questions in this section will cover the following topics from the Biology programs typically taught in high school.

- **Chemical composition of living organisms**
  Bioelements. Properties of water. Molecules of biological interest: glucides, lipids, amino acids and nucleotides. Structure and functions of macromolecules of biological interest: polysaccharides, nucleic acids and proteins
- **Cell biology**
  Cellular organization. Morpho-functional characteristics of prokaryotic cells. Main cellular constituents: cell membranes, cytoplasm, mitochondria, ribosomes, endoplasmic reticulum, Golgi apparatus, lysosomes, nucleus
- **Cell cycle, reproduction, heredity**
  Cell reproduction: mitosis and meiosis. Chromosome complement. Reproduction and heredity. Mendelian genetics. Classical genetics: chromosomal theory of inheritance; sexual chromosomes. Molecular genetics: DNA and genes; genetic code and its translation; The chromosome of eukaryotes. Human genetics: transmission of mono- and polygenic traits; hereditary diseases. Mutation
- **Basics of human anatomy and physiology**
  Human orgnism: function of support or movement, nutrion, breathing, circulation, excretion; immune, endocrine and nervous functions. The central nervous system: structural and functional basis.

English section

Depending on the result obtained in the test, the grid below shows the initial preparation level and how to improve your results, if necessary.

POINTS	RECOMMENDED ENGLISH COURSE
≤ 6	Take a beginner English course (A1)
7 – 16	Take a first level English course (A2)
17 – 23	Take an intermediate English course (B1)
24 – 30	Take the B1 level English exam with no need to take a course