Ministry of University and Research — Annex A

Programs relating to the admission test questions for single-cycle master's degree courses in Medicine and Surgery (LM-41), Dentistry and Dental Prosthetics (LM-46), and Veterinary Medicine (LM-42) in English.

1. READING COMPREHENSION & KNOWLEDGE ACQUIRED IN STUDIES

The ability to understand written English texts of various kinds and communicative purposes is required, as all questions are formulated in English.

- Understanding abstract, uncommon, or specialized vocabulary in real contexts.
- Identifying phenomena of textual cohesion and coherence.
- Extracting and inferring specific information from scientific essays, classic/contemporary narrative, or generalist newspapers.
- Orienting oneself in space and time regarding historical-cultural phenomena.
- Knowledge of major national and international institutions.
- Understanding legal, economic, and citizenship-related phenomena.

2. LOGICAL REASONING AND PROBLEMS

Questions test the ability to logically complete a line of reasoning consistent with stated symbolic or verbal premises, addressing abstract cases requiring distinct forms of logical analysis.

3. BIOLOGY

- **Chemistry of living things:** Weak interactions, organic molecules, and biological roles of enzymes.
- **Cell biology:** Cell theory, cell dimensions, prokaryotic and eukaryotic cells, plant and animal cells, viruses.
- **Membranes & Organelles:** Membrane structure, transport mechanisms, organelle functions.
- **Cell Division:** Cell cycle, mitosis, meiosis, chromosome maps.
- **Genetics:** Mendelian laws, chromosomal theory of inheritance, molecular genetics (DNA duplication, genetic code, protein synthesis).
- **Human Genetics:** Transmission of mono- and polyfactorial traits, autosomal and X-linked inherited disorders.
- **Evolution & Biotechnology:** Mutations, natural selection, recombinant DNA technology.
- **Human Anatomy & Physiology:** Animal tissues, body systems, homeostasis, ATP bioenergetics, photosynthesis, glycolysis, respiration, fermentation.

4. CHEMISTRY

- **Constitution of Matter:** States of aggregation, homogeneous/heterogeneous systems, ideal gas laws.
- **Atomic Structure:** Subatomic particles, atomic number, isotopes, electron configuration.
- **Periodic Table:** Groups, periods, periodic properties (atomic radius, ionization energy, electron affinity).
- **Chemical Bonding:** Ionic, covalent, metallic bonds, electronegativity, intermolecular forces.
- **Inorganic Chemistry:** Nomenclature and properties of oxides, hydroxides, acids, and salts.
- **Stoichiometry:** Atomic mass, Avogadro's number, mole concepts, balancing reactions.
- **Solutions & Equilibria:** Solubility, concentrations, aqueous equilibria, pH, buffers.
- **Organic Chemistry:** Isomerism, aliphatic/aromatic hydrocarbons, functional groups (alcohols, ethers, amines, aldehydes, ketones, carboxylic acids, esters, amides).

5. MATHEMATICS

- **Algebra & Number Sets:** Integers, real numbers, scientific notation, logarithms, polynomials, first/second-degree equations and inequalities.
- **Functions:** Domain, codomain, elementary functions (exponential, logarithmic, trigonometric), composite/inverse functions.
- **Geometry:** Polygons, circles, area/volume measurements, Cartesian coordinate plane, lines, conic sections (parabola, hyperbola, ellipse).
- **Probability & Statistics:** Frequency distributions, random events, basic probability theory.

6. PHYSICS

- **Measurements & Vectors:** SI units, scalar/vector quantities, vector operations.
- **Kinematics:** Velocity, acceleration, uniform/circulate/harmonic motion.
- **Dynamics:** Newton's 3 laws of motion, momentum, work, kinetic/potential energy, power.
- **Fluid Mechanics:** Pressure, Pascal/Archimedes/Stevin principles, continuity equation, Bernoulli equation.
- **Thermodynamics:** Temperature, specific heat, latent heat, ideal gas laws, 1st and 2nd laws of thermodynamics.
- **Electromagnetism:** Coulomb's law, electric field/potential, capacitors, Ohm's law, Kirchhoff's laws, magnetic fields, induction.