

M.SC. FORENSIC SCIENCE PROGRAMME, MES KALLADI COLLEGE MANNARKKAD(AUTONOMOUS)

Instructions for M.Sc. Forensic Science Entrance Examination

The M.Sc. Forensic Science programme offered by MES Kalladi College, Mannarkkad is a multidisciplinary course. It covers diverse areas such as **forensic biology, forensic chemistry, forensic physics, molecular biology, and digital and cyber forensics.**

Applicants seeking admission to this programme are expected to have a basic understanding of the above-mentioned subjects. Accordingly, the entrance examination will be conducted in the form of *Multiple-Choice Questions* (MCQs) with a duration of **2 hours**.

The question paper will be based on fundamental concepts from the following degree subjects:

- Zoology – 25 MCQs
- Chemistry – 25 MCQs
- Physics – 25 MCQs
- Forensic Science – 25 MCQs
 - (15 MCQs from various fields of forensic science and 10 MCQs from digital/cyber forensics)

In total, the examination will consist of 100 MCQs. Each question will have four options, with only one correct answer. Each correct answer carries 1 mark, and there is **no negative marking** for incorrect answers.

**MES KALLADI COLLEGE(AUTONOMOUS)
MANNARKKAD**

Accredited by NAAC with A++Grade (Fourth Cycle)

Palakkad District, Kerala-678583, India- www.meskc.ac.in

MSC FORENSIC SCIENCE

ENTRANCE EXAMINATION SYLLABUS



MES KALLADI COLLEGE MANNARKKAD (AUTONOMOUS)

MSc. FORENSIC SCIENCE

ENTRANCE EXAM SYLLABUS

Zoology

- **Animal Diversity and Classification:** Non-Chordates: Porifera to Echinodermata, Chordates: Proto chordate & Vertebrates, General characters of major phyla/classes
- **Cell Biology and Genetics:** Cell structure & organelles, Cell division (mitosis, meiosis), Mendelian genetics (laws, crosses), DNA structure and replication.
- **Physiology:** Digestive, respiratory, circulatory, excretory systems, Nervous & endocrine regulation, Reproduction (gametogenesis, fertilization)
- **Ecology And Environment:** Ecosystem concepts, Food chains/webs & trophic levels, Biogeochemical cycles, Biodiversity & conservation principles, Environmental pollution.
- **Applied Zoology:** Apiculture and Sericulture, Economic importance of animals.
- **Basic Botany:** Cell structure and cell organelles, Morphology of flowering plants, plant anatomy poisonous plants, medicinal plants.

Chemistry

- **Physical Chemistry:** Atomic Structure (Bohr's theory, quantum numbers), Solutions Thermodynamics, Chemical Kinetics (rates, order), Electrochemistry, Equilibrium, Solid State, Gaseous state, Surface chemistry,
- **Organic Chemistry:** Structure and Bonding (hybridization), Hydrocarbons, Functional Groups (Alcohols, Phenols, Ethers, Aldehydes, Ketones, Carboxylic Acids), Amines, Biomolecules (amino acids, proteins, nucleic acids), Polymers, Chromatography, Chemistry in Everyday Life.
- **Inorganic Chemistry:** Periodic Table Trends, s-block and p-block elements, Coordination Compounds, Transition Elements (d and f block), Shape of polyatomic molecules, Theories in bonding of di/polyatomic molecules, Bio-inorganic chemistry

Physics

- **Mechanics & Properties of Matter:** Laws of motion, Work, energy, and power, Momentum and collisions, Rotational motion (basic concepts), Gravitation, Elasticity, viscosity, and surface tension, Simple harmonic motion.
- **Heat, Thermodynamics & Waves:** Heat and temperature, Laws of thermodynamics, Heat transfer (conduction, convection, radiation), Kinetic theory of gases (basic idea), Wave motion, Sound waves, Doppler effect, Ultrasonic (basic idea)
- **Electricity, Magnetism & Basic Electronics:** Electrostatics (Coulomb's law, electric field), Current electricity (Ohm's law, Kirchhoff's laws), Capacitance, Magnetic effects of current, Electromagnetic induction, Semiconductor basics (diode, transistor), Logic gates (basic digital electronics)
- **Modern Physics & Nuclear Physics:** Photoelectric effect, atomic models (Bohr model), X-rays (production and properties), Radioactivity (alpha, beta, gamma decay), Nuclear reactions (basic idea), Radiation detection (GM counter – principle)

Forensic Science

- **Fundamentals of Forensic Science:** Principles of forensic science, types of evidence, BNS, BNSS, BSA, NDPS Act, IT Act.
- **Criminology & Forensic Psychology:** Crime theories, victimology, criminal justice system, forensic psychology, interrogation techniques.
- **Instrumental Techniques:** UV-Vis, IR, Raman, GC, HPLC, Mass Spectrometry, Electrophoresis, Microscopy.
- **Quality management and statistics:** ISO /NABL standards, Error Analysis, Mean, Median, Mode, Standard deviation, significant figures, precision, accuracy. regression, correlation.
- **Fingerprints & Questioned Documents:** Fingerprint classification and development, handwriting analysis, forgery detection.
- **Forensic Physics & Ballistics:** Glass, paint, soil, tool marks, firearms, ammunition, gunshot residue, wound ballistics.
- **Forensic Chemistry & Toxicology:** Arson, explosives, petroleum products, NDPS drugs, alcohol, poisons, toxicological analysis.
- **Cyber: Fundamentals of computers (hardware, software, memory, CPU), Operating systems basics, Overview of IT Act 2000, Cyber crimes**
- **Forensic Biology & DNA:** Hair examination, serology, blood grouping, PCR, DNA profiling, medico-legal investigation.
- **Forensic Medicine: Thanatology,** types, modes and signs of death, post-mortem changes, Types of injuries, Sexual offences.