Shri Vile Parle Kelavani Mandal's
MITHIBAI COLLEGE OF ARTS, CHAUHAN INSTITUTE OF SCIENCE &
AMRUTBEN JIVANLAL COLLEGE OF COMMERCE AND ECONOMICS
(AUTONOMOUS – Affiliated to University of Mumbai)
NAAC Reaccredited 'A' Grade, CGPA:3.57 (February 2016 to December 2023)
Best College (2016–17), University of Mumbai

Date : 26th March, 2024

Entrance Test for PG Admissions (M.A. & M.Sc.)
For the Academic year 2024-2025

SVKM'S Mithibai College will be conducting an Entrance Test for Post-Graduate Admissions to their PG Programme for UG-Third Year appeared / Passed Candidates.

Candidates will be required to attempt a Computer Based Test at Mithibai College for **100 questions (1 mark each) in a time duration of 100 minutes.**

The candidate has to ensure that they have read all the instructions & eligibility criteria before registering. Registration for filing up the Common Entrance Test online Admission form for the Mithibai College (Autonomous) website homepage (www.mithibai.ac.in) or https://sdcappscs.svkm.ac.in:44300/irj/portal

Following are the Programmes for which admission will be based on Mithibai Entrance Test.

1. Masters of Science in Biochemistry
2. Masters of Science in Biotechnology
3. Masters of Science in Botany
4. Master of Science in Chemistry-:
    - Analytical Chemistry
    - Organic Chemistry
    - General Chemistry
5. Master of Science in Computer Science
6. Master of Science in Mathematics
7. Master of Science in Microbiology
8. Master of Science in Physics
9. Master of Science in Statistics
10. Master of Science in Zoology
11. Master of Arts in Economics
12. Master of Arts in English
13. Master of Arts in Psychology

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DATES FOR THE REGISTRATION AND EXMINATION:

Sr. No.	Particular	Dates
1	Online registration	15th April, 2024 To 31st May, 2024
2	Conduct of Online Computer-based test at Mithibai College	From 14th June, 2024 onwards. Detailed time table will be displayed on 11th June, 2024
3	Date of Interviews	On the date of Online Examination

Basis of Merit list generation	
Entrance Exam Score	60%
Interview Score	20%
Degree Marks- Total of Semester I to Semester VI **OR** Semester I to V **(if Semester VI result not yet declared)**	20%

PROVISON FOR PHYSICALLY CHALLENGED CANDIDATES:

The candidates must upload their Disability Certificate at the time of online registration (Recent) and complete the payment.

This will be reviewed, approved and confirmed to the candidate so that appropriate assistance will be made available at the test center.

THERE WILL BE NO PROVISION FOR LEARNING DISABILITY CANDIATES.

ONLINE REGISTRATION FEES:

Sr. No.	Test	Examination Fees
1	Mithibai Entrance Test	Rs. 1000/-

Note: If a candidate is applying for more than 1(one) program, for example Organic Chemistry, Analytical Chemistry & General Chemistry then they have to pay additional amount of Rs. 100/-for the additional program of Analytical Chemistry & Rs.100 for General Chemistry.

Prof. Krutika B. Desai
Principal

ELIGIBILITY FOR POSTGRADUATE PROGRAMS

PROGRAM	ELIGIBILITY
Master of Science (M.Sc.) Degree Course -Botany, Organic Chemistry, Microbiology, Physics, Zoology [Aided] -General Chemistry, Analytical Chemistry, Organic Chemistry Mathematics, Statistics [Unaided]	A learner for being eligible to apply for admission to the M.Sc. degree course by papers in the branches other than those of Computer Science, Biochemistry, Biotechnology, must have passed, the B.Sc. degree examination of this university or degree of any other university recognized as equivalent thereto with minimum 46 credits or its equivalent (i.e, the minimum credits required for majoring in a subject and excluding the credits for optional courses) of the subject which he/ she wants to offer for the M.Sc. degree course by papers.
M.Sc. (Biochemistry) [Unaided]	A learner who has either passed bachelor's degree examination of University of Mumbai in Science or equivalent degree of any other university recognized as equivalent thereto with one of the following as major subject. (i) With Biochemistry as a main / major / principal subject at the B.Sc. Degree examination of this University or equivalent degree of other University. **OR** (ii) With Chemistry as a main / major / principal subject at the B.Sc. Degree examination of this University or equivalent degree of other University. **OR** (iii) With 3 Units of Biochemistry at T.Y.B.Sc. in combination with any other subject with 3 units at T.Y.B.Sc. **OR** (iv) With Biochemistry and Chemistry at T.Y.B.Sc. and any of the Biological sciences as ancillary subjects.
M.Sc. (Biotechnology) [Unaided]	A learner being eligible for admission to the M.Sc. degree course in Biotechnology must have passed. (a) The B.Sc. (three year integrated course) degree examination of this University or any other University recognized as equivalent thereto with the major subject Biotechnology. **OR** (b) With three units in Biotechnology at T.Y.B.Sc. in combination with three units of any other major subject at the T.Y.B.Sc.

VILE PARLE (WEST), MUMBAI – 400 056. TEL.: 4233 9000 / 4233 9001
Website: www.mithibai.ac.in • E-mail Id: principal@mithibai.ac.in

<table>
<tr><th>PROGRAM</th><th>ELIGIBILITY</th></tr>
<tr><td>M.Sc. (Computer Sciences) [Unaided]</td><td>A learner who has either passed bachelor's degree examination of University of Mumbai in Science or equivalent degree of any other university recognized as equivalent thereto with one of the following as major subject
<table>
<tr><th>Major</th><th>Ancillary</th></tr>
<tr><td>Mathematics</td><td>-</td></tr>
<tr><td>Physics</td><td>Mathematics</td></tr>
<tr><td>Statistics</td><td>Mathematics</td></tr>
</table>
OR
The Bachelor of Engineering (B.E.) degree examination
OR
The B.Sc. (Computer Science)/ BCS / B.Sc. (I.T.) Degree Examination</td></tr>
<tr><td>M.Sc. (Data Science and Artificial Intelligence) [Unaided]</td><td>A learner who has either passed bachelor's degree examination of University of Mumbai in Science or equivalent degree of any other recognized university as equivalent thereto with one of the following as major subject.
<table>
<tr><th>Major</th><th>Ancillary</th></tr>
<tr><td>Mathematics</td><td>-</td></tr>
<tr><td>Physics</td><td>Mathematics</td></tr>
<tr><td>Statistics</td><td>Mathematics</td></tr>
</table>
OR
The Bachelor of Engineering (B.E.)/B.Tech. degree examination or equivalent
OR
The B.Sc. (Computer Science)/B.Sc. (Computer Application)/BCS/B.Sc. (Information Technology)/B.Sc. (Data Science)/ B.Sc. (Data Analytics)/ B.Sc. (Artificial Intelligence)/ B.Sc. (Data Science & Artificial Intelligence) Degree Examination or equivalent.</td></tr>
<tr><td>Master of Commerce (M. Com.) (Advanced Accountancy) [Unaided]</td><td>A learner for being eligible for admission to Master of Commerce, shall have passed the examination for the degree of Bachelor of Commerce (three years/Six Semester integrated course) or the degree B. Com. (Old Course) or the other Semester based Programmes i.e. Bachelor of Commerce (Banking & Insurance) or Bachelor of Commerce (Accounting & Finance) or Bachelor of Commerce (Financial Markets) or Bachelor of Management Studies (B.M.S.) of this University, or an examination of any other University recognized as equivalent thereto.</td></tr>
<tr><td>Master of Commerce (M.Com.) (Business Management) [Unaided]</td><td>A learner for being eligible for admission to Master of Commerce, shall have passed the examination for the degree of Bachelor of Commerce (three years/Six Semester integrated course) or the degree B. Com. (Old Course) or the other Semester based programmes i.e., Bachelor of Commerce (Banking & Insurance) or Bachelor of Commerce (Accounting & Finance) or Bachelor of Commerce (Financial Markets) or Bachelor of Management Studies (B.M.S.) of this University, or an examination of any other University recognized as equivalent thereto.</td></tr>
</table>

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PROGRAM	ELIGIBILITY
M. A. (Economics) [Unaided]	A learner for being eligible for admission to Master of Arts in Economics at SVKM's Mithibai College (Autonomous) will have to appear for an entrance exam, which will be conducted in the Computer Lab of Mithibai College. The learner will also have to appear for a Personal Interview as a part of the eligibility process. Admission is subject to merit.
M.A. (English) [Unaided]	A learner Graduation in any stream like B.A., B.Sc., B.Com. or any other degree from recognized University will be eligibility for Master of Arts in English. Admission will be based on scores of Online Entrance Examination & Personal Interview conducted by Mithibai College & Graduation Marks.
M.A. (Psychology) [Unaided]	A learner for being eligible for admission to Master of Arts in Psychology shall have passed B. A. with Psychology from University of Mumbai with Psychology (Minimum 3 papers of 300 Marks) and other than University of Mumbai B.A. with Psychology (Minimum 3 papers of 300 Marks) at their V and VI Semester are eligible to apply for the programme.

Dr. Krutika B. Desai
Principal

VILE PARLE (WEST), MUMBAI – 400 056. TEL.: 4233 9000 / 4233 9001
Website: www.mithibai.ac.in • E-mail Id: principal@mithibai.ac.in

Syllabus for M.Sc. (Biochemistry) Entrance Test (2024-25)

S. No.	Topic	Sub-topics
1.	Biomolecules	Carbohydrates + Amino acids + proteins + Lipids + Nucleic acid
2.	Basic genetics	Mendel + Non Mendel + Chromosomal structure
3.	Physiology	Digestion & Absorption + Excretion + Respiration + Nervous system + Muscular system + Endocrinology
4.	Biotechnology & Microbiology	Prokaryotic cellular structure + Fermentation + Bioremediation + Immobilization + ATC/ PTC
5.	Molecular Biology, RDT and Cell biology	Replication + Transcription + Translation + RDT + Cell cycle
6.	Immunology, Pathophysiology	Basics of immunology + Blood + Antibody + Virology + In born errors + Aging
7.	Biostatistics & Bioinformatics	Central tendency + Partition values + dispersion + Bioinformatics basics
8.	Analytical techniques	Centrifugation + Electrophoresis + Microscopy + Chromatography + Spectrophotometry
9.	Metabolism and Enzymology	Carbohydrates + Lipid + protein + Bioenergetics + Basics of enzymology
10.	Chemistry	Basics of organic chemistry
11.	Pharmacology	Pharmacokinetics + Pharmacodynamics + Routes and dosage form
12.	Nutrition & Dietetics	Major & minor nutrients + Balanced diet
13.	Transport + Membrane + Oncology	Transport mechanisms + Oncology
14.	Environmental science + ecology	Air, water, soil, noise pollution, energy, sustainable development+ ecology
15.	Introduction to microbiology + cell biology+ Cell division	Basic microbiology + Eukaryotic cell organelles + mitosis +meiosis
16.	General basic maths	

Rawalgaonkar 20.03.2024

Dr. Swati Rawalgaonkar
Head, Biochemistry Department

Syllabus for M.Sc. (Biotechnology) Entrance Test 2024- 2025

Sr. No.	Topics
1.	Molecular Biology: Nucleic acids types, structure, genomes, DNA replication, central dogma, molecular mechanisms involved in transcription, translation and protein synthesis, mutations and repair, genes, transposons, operons
2.	Microbiology: micro organisms, types, cell structure, characteristic features, growth, nutrition, multiplication, interactions, pathogenic and non pathogenic microbes, microbe - human interactions; Fundamentals of Medical microbiology.
	Cytology: Ultra structure of prokaryotic and eukaryotic cells, enzymes and their activities in the cell, cell dynamics, cellular communication and transport, techniques, cancer biology.
3.	Biochemistry: Carbohydrate, protein and lipid metabolism, basic biochemical pathways in the cell, enzymes, vitamins and hormones.
4.	Genetics & Heredity, Human Genetics, laws of heredity, Population genetics
5.	Fermentation, Industrial Biotechnology, Food Biotechnology, Dairy Biotechnology, Role of Biotechnology in Health care and Pharmaceuticals. Vaccine technology
6.	Recombinant DNA Technology: Gene Cloning, enzymes and vectors in cloning, PCR, genome manipulation, DNA typing, molecular diagnostics, gene therapy, genetic counselling, Human Genome Project,
7.	Immunology: Cells of immune system, over view of immune response, mediators of immune system, antigens and immunogens, immunological methods and applications, disorders.
8.	Bioinformatics, Biostatistics, Biophysics, Analytical Instrumentation for Biotechnology
9.	Applications of Biotechnology in various fields: Animal Tissue Culture, Plant Tissue Culture, Transgenic organisms, Genetic Engineering, Environmental Biotechnology
10.	Basic English language and mathematical ability

Dr. Shubhada Walvekar
Head, Assistant Professor
Department of Biotechnology

Syllabus for M.Sc. Botany Entrance Test 2024 – 2025

Sr. No.	Topics
1.	**Algae** – General characters of Chlorophyceae; *Nostoc, Spirogyra, Ulothrix, Chlamydomonas, Vaucheria, Batrachospermum, Polysiphonia,*
2.	**Fungi** – Economic importance of fungi, *Rhizopus, Albugo, Erysiphe*
3.	Plant pathology – Causal organisms of different plant pathogen and its Control measures
4.	**Lichens** – Types of lichens, Economic importance
5.	**Bryophyta** – *Riccia*, Marchantia, Economic importance of Bryophyta
6.	**Pteridophyta** – *Nephrolepis, Adiantum, Selaginella, Lycopodium, Marselia*
7.	**Paleobotany** – *Asteroxylon, Calamites, Pentoxylon, Lyginopteris, Lepidodendron*, Birbal Sahni Research Institutes
8.	**Gymnosperms** – *Pinus, Gnetum*, Economic importance of Gymnosperms
9.	**Angiosperms-** Types of inflorescence, Morphology of flowers and fruit, Families, Herbarium, Botanical gardens, BSI,
10.	**Cell biology** – Prokaryotic and Eukaryotic cells, Chloroplast, Nucleus, mitochondria, endoplasmic reticulum
11.	**Ecology**- Primary productivity, Different types of ecosystem, soil, Phytoremediation, Biological and chemicals
12.	**Anatomy** – Different types of tissues, mechanical tissues, vascular bundles, Secondary growth
13.	**Physiology** – Photosynthesis and photophosphorylation, Florien, vernalization, plant and water relations
14.	**Medicinal plants** – Uses and active constituents of common medicinal plants
15.	**Instrumentation** – Chromatography, Calorimeter, Spectrophotometry, Microscopy
16.	**Genetics** – chromosomes, mitosis, meiosis, mutation, DNA, RNA
17.	**Economic importance of plants** – spices, condiments,
18.	**Horticulture** – Branches of horticulture, garden features
19.	**Biostatistics** – Standard deviation, Anova, t-test, Chi–square, Correlation coefficient
20.	**Ethnobotany** – Branches of ethnobotany and plants of ethnobotanical importance
21.	**Herbal cosmetics** – Antioxidants, Plants used in different herbal preparation

Dr. Ulka Chodankar

Head of Botany Department

Syllabus for MSc Chemistry

Entrance TEST 2024-2025

Sr. no	Topic
1.	**Physical chemistry** Thermodynamics, Phase rule, Nuclear chemistry, Electrochemistry, Chemical kinetics, Solid state chemistry, Spectroscopy, Quantum chemistry, , Polymers, Catalysis and Chemical calculations.
2.	**Organic chemistry** Organic spectroscopy, Organic reactions, Stereochemistry, Organic synthesis, Industrial Chemistry, Fats and oils, Hybridization, Organic reactive intermediates, Heterocyclic chemistry, IUPAC, Pericyclic chemistry, Polymer chemistry, Biomolecules and Natural products.
3.	**Inorganic chemistry** Acid base theories, Periodic table and periodicity of elements, Atomic structure, Qualitative analysis, Chemistry of transition and inner elements, Chemistry of p block elements, Chemical Bonding, Coordination Chemistry, Superconductors, Organometallic chemistry, Nanotechnology, Bioinorganic Chemistry, Oxidation and reduction and Molecular symmetry
4.	**Analytical chemistry** Electroanalytical technique, Ion selective electrode, Polarography, Amperometry titration, Redox titration, Chromatography, Treatment of Analytical data, Sampling, Quality management, GLP and ISO.

21/3/24

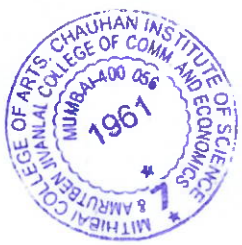
Dr. Sajid Mansoori
Head of department, chemistry

Syllabus For

M.Sc Computer Science

Entrance Examination (2024-25)

Sr. No.	Topics
1.	Logical Reasoning and Analytical Skills
2.	**Programming in Python :** Basic Commands, Variables, Data Types, Control Structure, Loops, Function
3.	**Computer Networks:** network benefits and its types OSI, TCP/IP models, Address classes, classless addresses, network parameters, Types of Topologies.
4.	**Operating System:** Structure of OS, PCB, types of OS, Process management, Memory Management, File management, Linux Commands
5.	**Data Structure:** Algorithm Complexity, Stack, Queue, Linked List, Tree, Graphs, Sorting - Insertion, Selection, Bubble, Merge, Quick
6.	**Database:** Mysql queries (DML , DDL statements) , ER diagram, normalization (1NF,2NF and 3NF) , PL/SQL - Variables, Cursor, Concurrent Transactions
7.	**Computer Organization and Digital Electronics:** numbers system, Combinational and sequential circuits, memory organization, cache memory, Adders, MUX and DEMUX, CPU concepts.
8.	**Software Engineering:** SDLC, software vs hardware, process of software, Basic SDLC Models, UML and Basic Testing concepts.
9.	**C Programming:** Variables, Data Types, Control Structure, Loops, Function, Array, Pointers
10.	**Statistics:** Basic Concepts, Distributions, Probability, Hypothesis Testing
11.	**Linear Algebra:** Basic Concepts, Matrix Operations, Equation solving



Head of the Computer Science

Subject: Mathematics

Topics to be covered for PG Entrance Exam.

1. Natural Numbers, Integers and Divisibility
2. Congruence Relation, Euler Phi function, Wilson Theorem, Fermat little Theorem, Polynomials with real coefficients.
3. Equivalence relations, Equivalence Classes, partition, Functions and Binary Operations
4. Counting Techniques, combination with repetition, pigeon hole, Bell number, Sterling number
5. System of linear equations and Matrices.
6. Vector spaces
7. Linear Transformations
8. Matrix associated with Linear Transformation and Determinant.
9. Eigenvalues, Eigenvectors and Diagonalization.
10. Inner Product Spaces
11. Quotient Spaces and Orthogonal Linear Transformations
12. Groups and Subgroups
13. Normal subgroup, Cosets, Quotient Group, Group Homomorphism, Isomorphism.
14. Ring, Integral domain, Field, types of Ideals, Prime Ideal, Maximal Ideal
15. Principal Ideal domain, Euclidean domain, Unique Factorization domain
16. Real Number System
17. Sequences and sub sequences in $\mathbb{R}$
18. Limits, Continuity, Uniform Continuity, Differentiation
19. Differentiation of Scalar field and vector field.
20. Differentiation of vector fields and Applications of Differential calculus, gradient, directional derivative.
21. Double and Triple Integral
22. Line Integral, Green's Theorem
23. Surface Integral, Stokes' Theorem, Gauss' Divergence Theorem
24. Metric spaces, Sequences in Metric Spaces, Continuous Functions in metric spaces
25. Sequence and Series of Functions, Power Series, Fourier Series
26. Connected Metric Spaces
27. Compact Metric Spaces
28. Complex numbers
29. Complex differentiation, Integration and Complex Power series
30. Riemann Integration
31. Application of Riemann Integration and Improper integral
32. First order First Degree Differential equations, Wronskian and its properties
33. Higher order Linear Differential Equations with constant coefficient.
34. Standard Linear Differential Equations with variable coefficient

Dr. Prabhat Dwivedi
Head, Department of Mathematics

SYLLABUS IN MICROBIOLOGY FOR THE ENTRANCE TEST FOR POST-GRADUATE ADMISSIONS, 2024-'25

The following topics will be covered at the entrance exam for post-graduate admissions.

1.	Basic microbiology- History of Microbiology, size, shape, arrangement, ultrastructure of bacteria, structure of a eukaryotic cell,
2.	Microscopy – Parts of compound microscope with function, Types of Microscopy- fluorescence, electron, phase contrast.
3.	Staining- Theory of staining, various types of stains, Simple staining, differential staining, special staining.
4.	Groups of microorganisms-various groups of microbes with characteristics habitats and significance.
5.	Growth, Cultivation and Enumeration - Theory of microbial growth, methods to measure growth, enumeration techniques
6.	Instrumentation – pH meter, colorimeter, UV-visible spectrophotometer, NMR, centrifuge, chromatographic methods.
7.	Environmental microbiology- Air, water, sewage, marine microbiology, methods and techniques used in environmental microbiology.
8.	Food microbiology-Food as a substrate for growth of microbes, intrinsic and extrinsic factors affecting growth, microbial spoilage of food, food pathogens, food preservation, methods to detect and enumerate microbes in food.
9.	Immunology- Types of immunity, types of immune cells, humoral and cell mediated immunity, types of antibodies, antigen-antibody reactions, complement system, immunological techniques, MHC complex and MHC molecules, vaccines.
10.	Medical microbiology- Various diseases caused by microbes, epidemiology, pathogenesis and treatment, chemotherapeutic agents,
11.	Microbial Genetics –DNA replication, gene transfer mechanisms in bacteria, mutation and repair
12.	Molecular biology- rDNA technology and its applications
13.	Cell biology- structure of eukaryotic cell, Cell cycle, Regulation of cell cycle progression, Mitosis and meiosis , Cell signaling, Apoptosis

14.	Industrial microbiology-Primary and secondary screening of microbes for various metabolites, Types of fermentation, Media, Inoculum development, scales-up, Design of a Fermenter, Fermentation process for obtaining microbial products- beverages, antibiotics, vitamins, vinegar, mushroom production, SCP, downstream processing, effluent treatment.
15.	Microbial biochemistry-Biomolecules- carbohydrates, lipids, amino acids, proteins, thermodynamics with respect to biological systems, transcription and translation processes, carbohydrate metabolism of prokaryotes.
16.	Virology- Classification of viruses, structure of bacteriophages, types of bacteriophages, cultivation of viruses, methods for detection and enumeration of viral particles, prions and viroids.
17.	Microbial Taxonomy- classification of micro-organisms, methods for identification of bacteria, numerical taxonomy, phylogenetic classification.
18.	Enzymology – Enzymes-function, properties, units, classification, enzyme kinetics, kinetics of multi-substrate reactions, enzyme inhibition, enzyme regulation.
19.	Intellectual property and patenting- Types of IPR, Patents- pre-requisites, process of filing a patent, types of patents, Patenting Of Microbes, Plant Breeder's Right.
20.	Biotechnology- Electrophoretic techniques,DNA sequencing methods: Maxam and Gilbert, Chain termination and automated sequencing, hybridization techniques, Biologicals fuels: ethanol, methane and hydrogen production. Microbially Enhanced Oil Recovery (MEOR),Genetically modified organisms in environment. Bioremediation, Bioleaching, biofertilizers, biopesticides, basics of plant and animal tissue culture techniques, bioethics, products obtained by recombinant DNA technology.
21.	Research methodology – definition of research, general characteristics, objective, classification, writing a research abstract, report and research paper.

Dr. Geeta Narayan

Syllabus for MSc Physics
Entrance Test-2023-24

Sr. No.	Topics
1	Basic Mechanics- Newton's laws of motion and applications, Velocity and acceleration in Cartesian, polar and cylindrical coordinate systems
2	Waves and Oscillation- Superposition of two or more simple harmonic oscillators. Damped and forced oscillators, resonance. Wave equation, traveling and standing waves in one-dimension. Energy density and energy transmission in waves.
3	Modern Physics- Blackbody radiation, photoelectric, Compton effect, Bohr's atomic model, X-rays. Duality, Uncertainty principle, the superposition principle
4	Electricity and Magnetism- Coulomb's law, Gauss's law. Electric field and potential. Electrostatic boundary conditions, Solution of Laplace's equation for simple cases. Conductors, capacitors, dielectrics, dielectric polarization, volume and surface charges, electrostatic energy. Biot-Savart law, Ampere's law, Faraday's law of electromagnetic induction, Self and mutual inductance. Alternating currents.
5	Thermodynamics- Elements of Kinetic theory of gases. Velocity distribution and Equipartition of energy. Specific heat of Mono-, di- and tri-atomic gases. Ideal gas, van-der-Waals gas and equation of state. Mean free path. Laws of thermodynamics.
6	Optics- Interference, Diffraction, Polarization, Interferometry, Optical Instruments
7	Analog and Digital Electronics-Basic Electronics, Diode, Transistor, OPAMP, Digital Electronics, Timers and counters.
8	Special Theory of Relativity- Postulates of special relativity. Lorentz transformations. Length contraction, time dilation. Relativistic velocity addition theorem, mass energy equivalence
9	Atomic and Molecular Physics-Hydrogen atom, Angular Momentum, Spin Orbit Coupling, Molecular Spectra and Interaction with Photons.
10	Quantum Mechanics- Formalism, Schrodinger equation and its application to bounded and unbounded system.
11	Classical Mechanics- . Rigid body motion, fixed axis rotations, rotation and translation, moments of Inertia and products of Inertia, parallel and perpendicular axes theorem. Principal moments and axes. Kinematics of moving fluids, equation of continuity, Euler's equation, Bernoulli's theorem
12	Electrodynamics- Displacement current, Maxwell's equations and plane electromagnetic waves, Poynting's theorem, reflection and refraction at a dielectric interface, transmission and reflection coefficients. Lorentz Force and motion of charged particles in electric and magnetic fields
13	Solid State Physics-Crystal Physics, Electrical and Magnetic Properties, Band theory , Superconductivity, Semiconductors.
14	Nuclear Physics-Radioactive Decay, Properties of Nucleus, Nuclear Models, Nuclear Energy, Detectors and Accelerators.
15	General Mathematical Aptitude

Head : Department of Physics
Mithibai College,
Vile [illegible] (W),
Mumbai - 400056.

Syllabus for PG Entrance Examination in Statistics for AY 2024- 2025.

Descriptive Statistics, Exploratory Data Analysis, Elementary Correlation and Regression.

Sample space, Discrete Probability, Independent Events, Bayes theorem.
Random variables and distribution functions (univariate and multivariate); expectation and moments.
Independent random variables, marginal and conditional distributions.
Standard discrete and continuous univariate distributions. sampling distributions, standard errors and asymptotic distributions, distribution of order statistics and range.
Generating Functions and their properties. Characteristic functions.
Probability inequalities (Tchebyshef, Markov, Jensen).
Modes of convergence, weak and strong laws of large numbers, Central Limit theorems (i.i.d. case).

Methods of estimation, properties of estimators, confidence intervals. Elementary Bayesian inference.
Tests of hypotheses: most powerful and uniformly most powerful tests, likelihood ratio tests.
Analysis of discrete data and chi-square test of goodness of fit.
Large sample tests, Small Sample tests, Non parametric tests for one and two sample problems, rank correlation and test for independence.

Gauss-Markov models, estimability of parameters, best linear unbiased estimators, confidence intervals, tests for linear hypotheses. Analysis of variance and covariance.
Fixed, random and mixed effects models. Simple and multiple linear regression.
Simple random sampling, stratified sampling and systematic sampling.
Ratio and regression methods.

Completely randomized designs, randomized block designs and Latin-square designs.
Connectedness and orthogonality of block designs, BIBD.
2^K factorial experiments

Hazard function and failure rates, censoring and life testing, series and parallel systems.

Statistical Quality Control: Control Charts, Acceptance Sampling.

Linear programming problem, simplex methods, duality. Transportation Problem, Assignment problem, Sequencing, Inventory Control Models, Replacement Theory, Simulation, Decision Theory and Theory of Games, Information Theory.

Elementary queuing models. Markov chains with finite and countable state space, classification of states, limiting behaviour of n-step transition probabilities, stationary distribution, Poisson and birth-and- death processes. Steady-state solutions of Markovian queuing models: M/M/1, M/M/1 with limited waiting space, M/M/C, M/M/C with limited waiting space, M/G/1.

Elementary R for Statistics.
Mathematics upto S.Y.B.Sc.

Amrit Sudhakar Rajwadkar.
Head, Department of Statistics

Syllabus for M.Sc. (Zoology) Entrance Test 2024- 2025

Sr. No.	Topics
1.	Comparative Study: Nutrition, Excretion, Respiration, Circulation, Nervous system and Reproduction, Integumentary system
2.	Laboratory safety and Units of Measurement, Biotechnology, Instrumentation
3.	Ecosystem, Biodiversity, National parks and sanctuaries, Population Ecology, Pollution and its Effect on Organisms, Environment and Wildlife Management
4.	Genetics & Heredity, Evolution and Forensic Entomology, Zoogeography
5.	Incredible Animal World, Ethology
6.	Haematology, Human Genome Project, Immunology, Mammalian Histology, Basic Toxicology, General Pathology, Human Osteology, Limb Muscles
7.	Entrepreneurial Zoology, Applied Zoology (Apiculture, Sericulture, Vermiculture, Poultry, Cattle Farming), Fishery Biology
8.	Developmental Biology of Chick, Comparative Embryology
9.	Cytology & Biomolecules, Enzymology, Homeostasis, Endocrinology, Animal Tissue Culture, Molecular Biology, Genetic Engineering, Human Genetics
10.	Scientific Writing, Biostatistics, Bioinformatics

20.03.2024

Dr. Meghana Talpade
Head, Associate Professor
Department of Zoology

Syllabus for M.A. (ECONOMICS) Entrance Test 2024-25

Sr. No.	Topics
1.	Microeconomics-Consumer's & Producer' Behaviour, Market Structures, General Equilibrium and Welfare analysis
2.	Macroeconomics- Classical & Modern Theories of Employment, Business cycle, Inflation, AD & AS Model, IS & LM Model, Money.
3.	International Trade – Classical & modern theories, Balance of Payments, Foreign exchange market and Determination of exchange rate
4.	Indian economy- Structure of Indian economy, Indian monetary and financial systems.
5.	Economics of Growth and Development
6.	Public Economics- Sources of Public revenue, Theories of Taxation, Public Expenditure, Public Borrowing & different concepts of Deficits.
7.	Quantitative tools for Economics-Statistics, Mathematics and Econometrics

Mrs. Bidisha Sarkar
Head, Associate Professor
Department of Economics

Dr. Prakash Salvi
Coordinator-MA
Department of Economics

M.A. English Entrance Examination for Academic Year 2024-25

Topics to be covered while preparing for the M.A. English entrance examination:

Literature:

- Chaucer to Shakespeare
- Romantic Period
- Victorian Period
- Modern Period
- Contemporary Period
- History of English Language
- English Language Teaching
- Indian Writing in English
- Indian Literature in English Translation
- Contemporary British literature
- Modern British Literature
- American and other non-British English Literature
- Contemporary Theory
- Literary Theory and Criticism

Language:

- Parts of speech Tenses
- Modals
- Active and passive voice
- Direct and indirect speech
- Types of sentences and their structuring
- Subject-verb agreement
- Articles
- Synonyms and antonyms
- Idioms and phrases
- Comprehension passages and questions based on them

Shripad A. Samant
Head, Dept. of Engl & Foreign Lang.

DEPARTMENT OF PSYCHOLOGY

SYLLABUS FOR M.A. PSYCHOLOGY ENTRANCE EXAMINATION 2024-25

The questions for the M.A. Psychology entrance examination would be from the following subjects,

Fundamental/ Basics of Psychology

Social Psychology

Developmental Psychology

Stress Management/ Health Psychology

Psychological Testing and Statistics

Abnormal Psychology

Industrial Psychology

Cognitive Psychology

Research Methodology

Counselling Psychology

Forensic Psychology

Psychology of Addiction

Psychology and Human Rights

Educational Psychology

Neuropsychology

Ms. Suchitra Roy Chowdhury

Head, Department of Psychology

Shri Vile Parle Kelavani Mandal's
MITHIBAI COLLEGE OF ARTS, CHAUHAN INSTITUTE OF SCIENCE & AMRUTBEN JIVANLAL COLLEGE OF COMMERCE AND ECONOMICS
(AUTONOMOUS – Affiliated to University of Mumbai)
NAAC Reaccredited 'A' Grade, CGPA:3.57 (February 2016 to December 2023)
Best College (2016–17), University of Mumbai

Date: 19th March, 2024

NOTICE
POST-GRADUATE ENTRANCE EXAMINATION
Academic Year- 2024-2025

The admission for the following First Year Post-Graduate Degree Programs will be through **ONLINE Entrance Examination and Personal Interview.** The details for the same will be displayed shortly.

1. Master of Arts in English
2. Master of Arts in Economics
3. Master of Arts in Psychology
4. Master of Science in Biochemistry
5. Master of Science in Biotechnology
6. Master of Science in Botany
7. Master of Science in Organic Chemistry
8. Master of Science in General Chemistry
9. Master of Science in Analytical Chemistry
10. Master of Science in Computer Science
11. Master of Science in Mathematics
12. Master of Science in Statistics
13. Master of Science in Microbiology
14. Master of Science in Physics
15. Master of Science in Zoology

Entrance Examination in Chemistry will be common, however Specialization will be offered after Entrance Examination & Personal Interview as per demand availability of the Seats.

The admission for the following First Year Post-graduate Degree Programs as given below will be based on **Under-graduate Marks only.**

1. Master of Commerce in Advanced Accountancy
2. Master of Commerce in Business Management
3. Master of Science in Data Science & Artificial Intelligence

Prof. Krutika B. Desai
Principal