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MEER SIR ACADEMY

J CAT Entrance Test Syllabus

Academic Session 2027–28

Admission to Postgraduate Computer Science Programmes

Programme	Admission Test
Master of Computer Applications	J-CAT
M.Sc. Artificial Intelligence and Machine Learning	J-CAT
M.Sc. Bioinformatics	J-CAT with Molecular Biology component
Postgraduate Diploma in Computer Applications	J-CAT

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Entrance Test Overview

The Jamia Computing Aptitude Test is the common entrance test for admission to MCA, M.Sc. Artificial Intelligence and Machine Learning, M.Sc. Bioinformatics and PGDCA. The question paper consists of multiple-choice questions with approximately equal distribution among the prescribed components.

Item	Details
Test name	J-CAT Jamia Computing Aptitude Test
Question format	Multiple-choice questions
Distribution	Approximately equal distribution across all components
Approved for	MCA, M.Sc. AI and ML, M.Sc. Bioinformatics and PGDCA



Item	Details
Programme choice	Eligible candidates may apply for more than one programme by indicating priority and paying the prescribed fee

Quantitative Aptitude

Unit	Topics
Number concepts	Number systems, positional systems, LCM and HCF
Commercial arithmetic	Percentage, profit and loss, simple interest and compound interest
Rate and work	Time, speed and distance; time and work
Ratio and averages	Ratios, averages, mixtures and allegation
Counting and uncertainty	Permutation and combination; probability
Data interpretation	Tables, bar charts, pie charts and line graphs

Logical Reasoning and English Comprehension

Logical Reasoning

- Blood relations
- Coding and decoding
- Alphanumeric series
- Syllogisms and inequalities
- Puzzles and seating arrangements
- Direction sense
- Clocks and calendars
- Analogy and pattern recognition

English Comprehension and Verbal Ability

- Vocabulary
- Synonyms and antonyms
- Reading comprehension
- English grammar
- Cloze test
- Idioms and phrases



Computer Fundamentals

Area	Detailed Syllabus
Computer systems	Computer hardware and peripheral devices; software, firmware and computer organisation
Instruction execution	Well-defined operations, operands and instruction execution
Problem solving	Algorithms, flowcharts, pseudocode, programs, software and apps
Programming languages	Programming languages and their types
Software categories	System software, application software and end-user software
Operating systems	Windows basics; operating-system functions, facilities and types
Memory and files	Storage and memory hierarchy; file systems and concurrency
Office application	Microsoft Excel
Data representation	Binary, decimal and hexadecimal number-system conversions
Algorithms	Searching and sorting algorithms
Connectivity	Basics of computer networks and the Internet

Mathematics at NCERT Class 10 Level

- Number systems and real numbers
- Coordinate geometry
- Linear equations in two variables
- Euclid's geometry, lines and angles
- Triangles and quadrilaterals
- Areas of parallelograms and triangles
- Polynomials and quadratic equations
- Arithmetic progressions
- Introduction to trigonometry and applications
- Circles and areas related to circles
- Surface areas and volumes
- Probability and statistics



Mathematics at NCERT Class 12 Level

Domain	Topics
Sets and functions	Sets, relations, functions and trigonometric functions
Algebra I	Complex numbers, quadratic equations, linear inequalities, permutations and combinations, binomial theorem, sequences and series
Coordinate geometry	Straight lines and conic sections
Introductory calculus	Limits and derivatives
Functions	Inverse trigonometric functions
Algebra II	Matrices and determinants
Calculus	Continuity and differentiability, applications of derivatives, integrals, applications of integrals and differential equations
Vectors	Vectors and related applications
Probability	Probability concepts and applications

Molecular Biology Component

Applicable to M.Sc. Bioinformatics applicants. Candidates applying for M.Sc. Bioinformatics will attempt the Molecular Biology component in place of the Mathematics option prescribed for the other relevant programme route.

Unit	Topics
Foundations of biology	Concepts in biology; characteristics of living organisms; structure of cells; energy flow; nutrition and metabolism
Information storage and expression	Information storage and gene expression
Central dogma	DNA structure; prokaryotic and eukaryotic replication; transcription; genetic code; translation; protein-synthesis machinery
Gene structure and regulation	Gene concept; lac and trp operons; positive and negative regulation; enhancers and silencers; epigenetics and methylation
Nucleic acids and proteins	DNA and RNA structure; protein folding; post-translational modifications; protein complexes; DNA-repair mechanisms



Unit	Topics
Cell biology linkages	Cell cycle and mitosis; cell signalling; intracellular transport; cytoskeleton; differences between prokaryotic and eukaryotic cells
Genetics	Mendelian genetics; genetic recombination; gene mapping; genetic disorders; Hardy-Weinberg principle

Important Notes

1. Eligible candidates may apply for multiple programmes by providing a priority number and paying the prescribed fee.
2. Separate merit lists will be prepared for each programme on the basis of valid J-CAT scores.
3. Candidates applying for the M.Sc. Bioinformatics programme will attempt the Molecular Biology component.

Programme Wise Component Guide

Programme	Common Components	Programme Specific Component
MCA	Quantitative Aptitude; Logical Reasoning and English; Computer Fundamentals	Mathematics at the prescribed NCERT levels
M.Sc. AI and ML	Quantitative Aptitude; Logical Reasoning and English; Computer Fundamentals	Mathematics at the prescribed NCERT levels
PGDCA	Quantitative Aptitude; Logical Reasoning and English; Computer Fundamentals	Mathematics as applicable under the official eligibility and paper instructions
M.Sc. Bioinformatics	Quantitative Aptitude; Logical Reasoning and English; Computer Fundamentals	Molecular Biology