Somaiya Entrance Test – MCA (SET-MCA 2020)

Syllabus for Somaiya Entrance Test – MCA (SET – MCA 2020)

1	**Mathematics and Statistics (30 Questions)** **Algebra:** Real numbers, polynomials, Linear equations in algebra, quadratic equations, Expansion, factorization, logarithms, arithmetic, geometric and harmonic progressions, binomial theorem, permutations and combinations **Probability and Statistics:** Basic concepts of probability theory, descriptive statistics, measures of dispersions and skewness, Binomial, Poisson, normal distributions correlation and regression **Arithmetic:** Ratios and proportions, problems on time-work, distance-speed, percentage **Basic Set Theory and Functions:** Set, relations and mappings **Mensuration:** Areas, triangles and quadrilaterals, area and circumference of circles, volumes and surface areas of simple solids such as cubes, spheres, cylinders and cones. **Application of Trigonometry**: Introduction and heights and distances. **References:** 1. MCA entrance examination book by J.V. Subramanyam 2. Arihant MCA Entrance Test by Amit M. Agarwal 3. Excel With Objective Book for NIMCET by J.B Dixit, Ruchi Sharma and Ashish Mangal 4. Numerical Ability and Mathematical Aptitude by Dr. A.B. Rao 5. MCA Test by Anil Kumar Garg 6. Barron's Military Flight Aptitude Tests by Terry L. Duran 7. Mathematics by R.S.Agarwal
2	**Logical Reasoning (30 Questions)** Number Series Verbal Classification Analogy Matching Definitions Verbal Reasoning Reference: 65 Logical Reasoning Questions and Answers for Fresher's
3	**English Comprehension and Verbal Ability (20 Questions)** Questions in this section will be designed to test the candidates' general understanding of the English language. There will be questions on the following topics: • Comprehension, • Vocabulary, • Basic English Grammar (like usage of correct forms of verbs, prepositions and articles)

- Word power,
- Synonyms and Antonyms,
- Meanings of words and phrases,
- Technical writing.

Reference:
 Wren and Martin English Grammar

4	**Computer and IT Concepts (20 Questions)**

Computer Fundamentals
Computer Basics : Organization of a computer, Central Processing Unit (CPU), Structure of instructions in CPU, input / output devices, computer memory, memory organization, back-up devices
Data Representation: Representation of characters, integers, and fractions, binary and hexadecimal representations, Binary Arithmetic: Addition, subtraction, division, multiplication, 1's and 2's complement arithmetic, floating point representation of numbers.

References:
1. Computer Organization and Architecture, V.Rajaraman, T.Radhakrishnan, PHI.
2. Computer Organization and Architecture, William Stallings, Pearson.

Computer Network and Database Management System
Computer Networks: Network Topologies, Protocols, Modes of communication, Transmission media, ISO - OSI model, TCP/IP
Database System Concepts: Database Architecture, Database Users, Data models, Data Independence, Entity relationship Diagram, Key Constraints

References:
1. Korth, Silberchatz, Sudarshan, "Database system Concepts", McGraw Hill
2. Elmasari and Navathe, Benjamin Cummins ,"Fundamental of Database System", Pearson Education
3. Forouzan B A, Data Communications and Networking, 4th edition, Tata McGraw-Hill
4. Tanenbaum A S, Computer Networks, 4th edition, Pearson Education

Operating System Fundamentals
Operating system introduction: what is operating system, times sharing systems, personal computer systems, computer system operation
Process: Threads, process, process scheduling
CPU Scheduling: Scheduling algorithm, scheduling criteria, multiprocess scheduling
Memory Management: Logical address versus physical address, pagin, segmentation, contiguous allocation
Virtual Memory: Page replacement, demand paging, page replacement algorithms

References:
1. Silberchatz and Galvin, Operating System Concepts, 6th Edition, John Wiley & Sons, Inc., 2004
2. Milinkovic M., Operating System Concepts and Design, 2nd Edition, McGraw Hill, 1992

3. P.C.Bhatt, An Introduction to Operating Systems-Concepts and Practice, Prentice Hall Of India, 2004

Programming Concepts

Programming in c: history, elements of C- tokens, identifiers, data types, operators in C. control statements in c, sequence, selection, and iterations, structured data types in C arrays, struct, union, string, and pointers.

Programming in C++: history, elements of C++- tokens, identifiers, variables, constants, data types, operators. control statements in c++,sequence, selection, and iterations, class and objects, functions.sss

References:
1. C: The Complete Reference, Schildt Herbert, McGraw Hill
2. Programming in ANSI C, E. Balagurusamy, McGraw Hill Education
3. Object-Oriented Programming with C++, E. Balagurusamy, McGraw Hill Education, C++: The Complete Reference, Schildt Herbert 4th Edition, McGraw Hill