MCA (MASTER OF COMPUTER APPLICATLIONS)

Syllabus details & sample question paper of MCA Entrance examinations conducted by IDOL, University of Mumbai Scheme of entrance examination.

The MCA ENTRANCE 2015 examination comprises of one paper (Objective type) of 120 minutes duration without negative marking.

Syllabus

The questions in this paper will cover: logical reasoning, quantitative reasoning, high school mathematics, vocabulary, English comprehension and verbal ability.

General Aptitude:
The main objective of this section is to assess the general aptitude of the candidate to pursue a computer applications and software profession.

Algebra :
Fundamental operations in Algebra, Expansion, factorization, Quadratic equations, indices, logarithms, arithmetic, geometric and harmonic progressions, binomial theorem, permutations and combinations.

Probability and Statistics:
Basic concepts of probability theory, Averages, frequency distributions, and measures of dispersions and skewness Binomial, Poisson, normal distributions, curve fitting, and principle of least squares, 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.

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.

Computer Architecture:
Block structure of computers, communication between processor and I / O devices, interrupts.

Computer Language:

Assembly language and high level language, Multiprogramming and time sharing operating systems, Computer Programming in C.

Operating System basics:

Multiprogramming and timesharing operating systems.

Programming in C :

Data types, Control Structures, Arrays, functions, pointers.

Database Management Systems:

Data Models, Structured Query Language, E-R Diagrams, Normalization, primary key foreign key, RDBMS

Sample Questions

1. Remote computing services involve the use of timesharing and _____
   a) Multiprocessing
   b) Interactive processing
   c) Batch processing
   d) Real time processing

2. Which of the following is not a part of the operating system
   a) Supervisor
   b) Job-control program
   c) Performance monitor
   d) Input/ output program

3. Which of the following will determine your choice of systems software for your computer?
   a) Is the applications software you want to use compatible with it?
   b) Is it expensive?
   c) Is it compatible with your hardware?
   d) (a) and (c)

4. A six faced die is so biased that it is twice as likely to show an even number as an odd number when thrown. It is thrown twice. what is the probability that the sum of the two numbers thrown is even
   a) 5/9
   b) 9/5
   c) 14/9
   d) 4/9

5. A bag contains 6 white and 4 black balls one of the bag is chosen as random and a draw of 2 balls is made from it. find the probability that one is white and the other is black
   a) 84/165
   b) 165/84
   c) 42/ 75
   d) none of the above

6. In order to use DBMS, It is important to understand
   a) The physical schema
   b) All sub schema that system supports
   c) one subschema
   d) Both (a) and (b)

7. In SQL which command(s) is (are) used to enable/ disable a database trigger?
   a) MODIFY USER
   b) CHANGE USER
   c) ALTER USER
   d) NONE OF ABOVE
   e) ALL OF ABOVE

8. Who developed the E-R Model?
    a) Codd
    b) Date
    c) Chen
    d) Bachman

9. What are the components of an E-R Model?
    a) Entities.
    b) Attributes
    c) Relationships
    d) All of the above

10. Let the sets A, B,C and U be as U= all students at a university, A= day students, B=mathematics major, C= graduate students. Let #U = 16,000 ; #A = 9,000 ; #B = 300 and #C = 1,000. Also assume that tne number of day students who are majors is 250, 50 out of which are graduate students, and that total number of day graduate students is 700. Determine the number of students who are :

    a) evening students
    b) non-mathematical majors
    c) undergraduates(day or evening)
    d) day graduate non-mathematics majors.
    e) Evening graduate students
    f) Evening graduate mathematics majors
    g) Evening undergraduate non-mathematics majors.

11. Which of the following in false?
    a) Data stored in an array can be accessed faster that data stored in a disk file.
    b) Data stored in an array needs to be entered only once, typically at the beginning of the program.
    c) Array allows the programmer to store information in the computers internal memory.
    d) When using arrays, you will have fewer variables names to remember.
    e) None of the proceeding statements are false.

12. Elements in an array are identified by a unique ____
    a) Data type
    b) Order
    c) Subscript
    d) Symbol

13. Which of the following alphabetical input sequences will minimize the data
    Stored by the program?
    1) Class Within Department Within Division
    2) Division Within Department Within Class
    3) Employee Within Department Within Division
    4) Employee Within Class Within Division

14. Richard is a terrible driver. He has had at least five traffic violations in the past year. Which of the following can be said about the above claim?

   (A) This is an example of an argument that is directed against the source of the claim rather than the claim itself.
   (B) The statement is fallacious because it contains an illegitimate appeal to authority.
   (C) The above argument obtains its strength from a similarity of two Compared situations.
   (D) The argument is built upon an assumption that is not stated but rather is concealed.
   (E) In the above statement; there is a shifting in the meaning of terms; Casing a fallacy of ambiguity.

Analysis of the sentences indicates the presence of an assumption that anyone who has had at least five traffic violations in a year is a terrible driver. This assumption is understood but is not stated. Rather, it is a hidden assumption, making (D) the appropriate answer. Alternative (A)is incorrect because there is on attack on the source of the claim.(B)is wrong because there is no appeal to authority _illegitimate or not.(C)is not the correct answer because there is no comparison of two similar situations in the statement.(E)is incorrect because there is no term with a confusing or double meaning.

15. Which is the largest fraction?
   (a) $\frac{3}{4}$ (b) $\frac{7}{8}$ (c) $\frac{4}{5}$ (d) $\frac{7}{9}$