University of Mumbai
Institute of Distance and Open Learning

MCA Entrance Examination – 2021

Pattern and Syllabus for the entrance examination.

Type of examination: Objective (Multiple Choice Questions)
Duration of Examination: 90 Minutes (Revised).
Total Questions: 100
Each question will carry 1 mark. Total Marks: 100
There will be No negative marking

Syllabus: -
a) Mathematics & Statistics:

The questions will cover the following topics of high school mathematics (up to the 12th standard)

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

➢ Co-ordinate Geometry: Rectangular Cartesian co-ordinates, equations of a line, mid point, intersections etc., equations of a circle, distance formulae, pair of straight lines, parabola, ellipse and hyperbola, simple geometric transformations such as translation, rotation, scaling.

➢ Differential Equations: Differential equations of first order and their solutions, linear differential equations with constant coefficients, homogenous linear differential equations.

➢ Trigonometry: Simple identities, trigonometric equations, properties of triangles, solution of triangles, height and distance, inverse function.

➢ Probability and Statistics: Basic concepts of probability theory, Averages, Dependent and independent events, frequency distributions, and measures of dispersions, skewness and kurtosis, random variable and distribution functions, mathematical expectations, 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, etc.

➢ 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.

b) Logical / Abstract Reasoning

This shall include the questions to measures how quickly and logically you can think. This section will cover logical situations and questions based on the facts given in the passage. This test shall check the problem solving capability of the candidate.

c) English comprehension and verbal ability

Questions in this section will be designed to test the candidate's general understanding of the English language. There will be questions on the topics such as Basic English grammar, vocabulary, comprehension, synonyms, antonyms, sentence correction, word & phrases, jumbled paragraph.

d) Computer Concepts

➢ 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, signed arithmetic and two's complement arithmetic, floating point representation of numbers, normalized floating point representation, Boolean algebra, truth tables, Venn diagrams.
➢ Computer Architecture: Block structure of computers, communication between processor and I / O devices, interrupts.
➢ Computer Language: Assembly language and high level language, Computer Programming in C.
➢ System basics

Please note that this is the Entrance Examination. Your Admission to MCA Course at IDOL is subjected to your Score in this Entrance Examination Provided you satisfy the Eligibility Criteria set for IDOL MCA.

Sample Question

1) If $(1111)_2 = (15)_{10}$ then $(111111)_2 = ($ $)_{10}$

   a)63   b)31   c)127 d) none the them

2) The age of Ram and Shyam is in the ration 5:6 and after 4 years their ration is 7:8 then what is the present age of Shyam?
   a) 12 yrs   b)33 yrs   c)15 yrs   d)54 yrs

3) Pick the odd man out: Touch Pad, Keyboard, Mouse, Printer

   a) Touch Pad b) Keyboard   c) Mouse   d) Printer

4) #include

   void func()

   {

   int x=0;
   static int y=0;
   x++;y++;
   printf("%d - -%d \n"x,y);

   }

```
int main

{

func();

func();
return 0;
}
```

What will the code above print when it is executed?
a) 1- -1
   1- -1

b) 1- -1

   2- -1

c) 1- -1

   2- -2

d) 1- -1

   1- -2

5) You have asked your boss for permission to proceed with your project. He sends a SMS "HPBIFBE". What would you do now?

    a) Go ahead   b) on hold   c) cannot proceed   d) All the best

Thanks and we wish you all the best!