

DEPARTMENT OF COMPUTER SCIENCE

SAMPLE QUESTIONS

Mathematical aptitude

- 1) How many 4's immediately preceded by 5 but not immediately followed by 1 are there in the following series of numbers?

5,4,8,1,4,9,5,4,1,1,4,5,5,4,6,5,4,7,5,4,7,3,2,4,7

- a) 2 b) 3 c) 4 d) 5

- 2) $16 \times 85 = 8651$, what is 73×42 ?

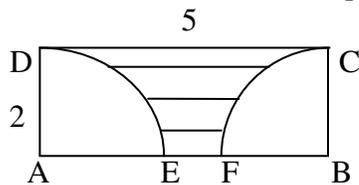
- a) 4372 b) 3723 c) 4327 d) 4732

- 3) Find the wrong term in the following series

3,4,10,32,136,685,4116

- a) 136 b) 10 c) 4116 d) 32

- 4) In the figure below, ABCD is a rectangle, and DE and CF are arcs of circles centered at A and B. What is the area of the striped region?



- a) $10 - \pi$ b) $2(5 - \pi)$ c) $2(5 - 2\pi)$ d) $5(2 - \pi)$

- 5) Find the value of $(1/10 + 1)^{10}$.

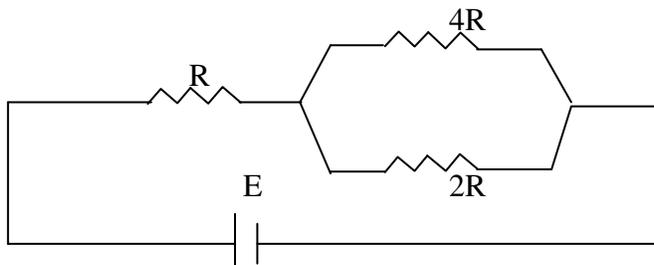
- 6) In a small get together there are total 28 handshakes exchanged. Find number of guests in the party.

Physics

- 7) A solid cylinder of mass M rolls without slipping on an inclined plane inclined at angle θ . Find the linear acceleration of the cylinder.

- 8) Implement the Boolean function $f(A,B,C)=AB+BC+AC$ using NAND gate only.

- 9) Find the current flow across $2R$ resistance.



Mathematics

10) Show that $\begin{vmatrix} a^2 + 10 & ab & ac \\ ab & b^2 + 10 & bc \\ ac & bc & c^2 + 10 \end{vmatrix}$ is divisible by 100.

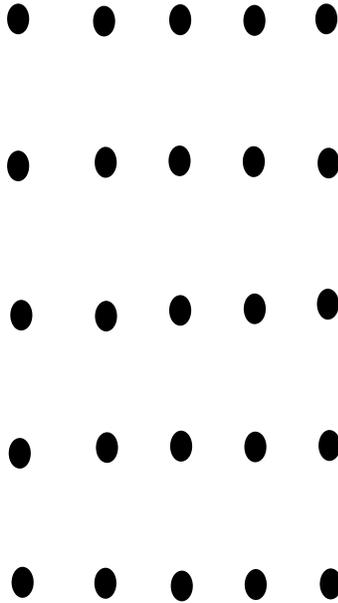
11) Solve: $x^y = y^x$ and $x=2y$.

12) 17. Let X is a set containing K elements and let Y be a set containing N elements. How many functions are there from X to Y ? How many one to one functions from X to Y are there?

Mathematical Puzzle

13) There is a number, the second digit of which is smaller than its first digit by 4 and if the number is divided by the digit sum, the quotient will be 7. Can you find the number?

14) Twenty five dots are arranged in a square formation in 5 rows and 5 columns as shown in sketch.



Can you connect 12 of these dots with straight lines to form a perfect cross which has five dots inside and 8 dots outside?