

**(II) SYLLABI AND MODEL QUESTIONS FOR : M.Tech. in Industrial
Mathematics and Computer Application of Kuvempu University / M.Tech. (
Computer Science and Technology / Computer Cognition Technology) of
Mysore University.**

MATHEMATICS AND COMPUTER SCIENCE

Mathematics :

Analytical Geometry of 2-d – Lines, Curves, Analytical Geometry of 3-d – Lines, Planes and Conics, Differential Calculus – Derivatives of any order, Derivatives of functions, curves, Polar coordinates, Partial differentiation, Integral Calculus – Integrals of standard functions, Reduction formulae, Applications, Differential equations – Up to second order homogeneous equations, Solutions using Laplace transforms

Probability – Events, Sample space, Basic Theorems, conditional probability, Independence, Statistics – Frequency tables, Histograms, Measures of averages and dispersion, Combinatorial analysis – Permutations & Combinations, Linear and Non-Linear equations – Solution, Application, Set theory – Basic concepts, Operations on sets, Venn diagrams, De Morgan's law, Power sets, Relations – Composite, Equivalence, Recurrence, Number system – Binary, Ternary and others, Logic – Operators, Truth tables, Tautologies, Algebraic structures- Groups, Rings, Sequences and Series- Convergence

Computer Science:

Fundamentals of Computers, Office Automation, Basics of Internet

'C' Computer Language :

Basic Data types, Fundamentals of C programming, Control structures, Bit wise operators, Storage classes, Functions, Arrays, Pointers.

MATHEMATICS AND COMPUTER SCIENCE

PART – I

Each question carries One Mark

50 x 1 = Marks

- 1) The dual of each Boolean equation $a(a + b) = ab$
a) $a + a + b = a + b$ b) $a + ab = a + b$ c) $a + ab = a' + b$
d) None of the above
- 2) The number of distinct linear function's $f(x)$ which map $[-1, 1]$ onto $[0,2]$ is
a) none b) exactly one c) exactly two d) infinitely many
- 3) "INI" extension refers usually to what kind of the file
a) Image file b) System file
c) Hyper text related file d) None of the above
- 4) What does SSL Stand for
a) Secure socket layer b) System socket layer
c) Superuser System Login d) None None of the above
- 5) The default values in memory which is allocated by calloc contains

- a) 0 b) 1 c) Garbage Value d) None of the above

PART – II

Each question carries two Marks

25 x 2 = 50 Marks

- 1) In how many ways can four mathematics books, three history books, three chemistry books and two sociology books be arranged on a shelf so that all books of the same object are together
a) 36200 b) 41472 c) 40278 d) None of the above
- 2) The mid – points of the sides of triangle are (1,6), (2, -1) and (6,4). The centroid of the triangle is
a) (3,2) b) (2,3) c) 3,3 d) (-3,3)
- 3) The best way to accurately align large amounts of information on a page is to use
a) Tabs b) Tables c) Horizontal ruler d) Vertical ruler

- 4) One of the advantages of email address book is
- a) You must carry it around with you
 - b) You can only send e-mail to one person at time
 - c) You can create groups of contacts for mailing lists
 - d) E-mail software does not have address books.

5) `int x = 0;`
`for (x = 1; x < 4; x++);`
`printf("x = %d" , x);`
What will be printed when the sample code is executed

- a) 0
- b) 2
- c) 4
- d) 5