RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

Syllabus For B.Sc. Computer Science General

For the session 2010-12

Semester-III (July - November)

Paper – *CMSG301 (Theory)*

MARKS: 50

Database Management System: (Marks: 25)
Overview: Files and database. Data independence. 3-level DBMS architecture, Data Dictionary, Database Languages.

Relational Model: Definition and properties, Relational data model

Relational Algebra: Operations – select, project, cross product, join, set.

Query Language: SQL – basic concepts.

Design: ER diagram to relational scheme; Normalization (up to 3NF).

File Organizations, Indexing.

Computer Organization: (Marks: 25)
Introduction to basic building blocks of computer: Von Neumann Architecture , Basic structure of ALU.

ALU: Integer Representation - unsigned, signed magnitude, 1's complement, 2's complement, biased, floating point representation – single and double precision IEEE format. Algorithms for integer and floating point addition, multiplication/division; range, precision and accuracy. Basic structure of an ALU.

CPU: Addressing modes, instruction formats. Handling of interrupts and subroutines, Instruction pipe lining, CISC and RISC processor.

Control Unit: Instruction and Execution Cycle; Control of sequence, jump and branch instruction; shift instruction.

References:

1. Database System Concepts by Avi Silberschatz, Henry F. Korth & S. Sudarshan. TMH.
2. Fundamentals of Database Systems by R. Elmasri & S.B. Navathe. TMH.
3. Computer system architecture by M. Morris Mano. PHI.
4. Computer Organization and Architecture by William Stallings.

Continued …

Paper – *CMSG302 (Practical)*

MARKS: 25

Database Lab :

The student should be familiar with at least one standard commercial RDBMS software under desktop or multiuser environment. Topic of works should include :

- *Database Design:* Data types, creating databases, adding records, edit, browse, delete, save.
- *SQL:* Constructs; insert, delete, update, view, temporary tables; nested queries.

References:

1. SQL, PL/SQL by Ivan Bayross.