

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. THIRD SEMESTER EXAMINATION, DECEMBER 2013

SECOND YEAR

COMPUTER SCIENCE (General)

Date : 20/12/2013

Time : 11 am – 1 pm

Paper : III

Full Marks : 50

[Use a separate answer book for each group]

Group - A

Answer **any one** question from the following :

1. Draw an E-R diagram for a Company database system. [5]
2. What are the major tasks performed by DBA? [5]

Answer **any two** questions from the following :

3. a) Describe ANSI-SPARC architecture for database system. [5]
b) Differentiate between logical data independence and Physical data independence. Which one between them is stricter to achieve and why? [3+2]
4. a) State advantage of DBMS over Traditional file processing system. [4]
b) Explain DDL, DML & DCL of DBMS. [4]
c) What are the different aggregate function of SQL? [2]
5. a) What do you mean by "Normalizing a Relation"? What are the drawbacks of Normalization? [2+2]
b) List the candidate key of the relation schema $R(A,B,C,D,E)$ for the following set of functional dependency $F = \{A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A\}$. Find the minimal cover for F . [2+4]
6. a) Differentiate between sparse index & dense index. [3]
b) Why sparse index is always preferred than dense index? [2]
c) "3NF is stronger than 2NF" —Justify the statement. [5]

Group - B

Answer **any one** question from the following :

7. Explain different phases of Instruction Cycle. [5]
8. Differentiate between two types of write policies in Cache memory. [5]

Answer **any two** questions from the following :

9. a) Describe IEEE standard for single precision format floating point number representation. What is fixed point number representation? [4+2]
b) Distinguish between CISC and RISC processor. [4]
10. a) Describe the idea of direct and indirect addressing mode. [4]
b) Explain the block structure of a Micro-programmed Control unit. [6]
11. a) Distinguish between SRAM and DRAM. [4]
b) What are the limitations of Programmed I/O? [3]
c) Establish a formula for disk access time. [3]
12. a) Explain the concept of Von-Neumann Architecture with proper diagram. [5]
b) Illustrate how DMA data transfer takes place. [5]

