

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FIFTH SEMESTER EXAMINATION, DECEMBER 2018

THIRD YEAR [BATCH 2016-19]

COMPUTER SCIENCE [Honours]

Date : 17/12/2018

Time : 11 am – 1 pm

Paper : V [Gr –A]

Full Marks : 40

Answer **any four** questions of the following : [4 × 10]

1. a) What do you mean by DDL & DML. (1 + 1)
b) What do you mean by schema? Give an example. (2)
c) What do you mean by left and full outer join? Give an example. (3 + 3)
2. a) What do you mean by derived attribute? (2)
b) Briefly explain the following Relational algebraic operations with example.
i) Cartesian Product
ii) Select Operation (3 + 3)
c) What is specialization? (2)
3. a) What do you mean by functional dependency? (2)
b) What is candidate key? Give example. (2)
c) Consider the relation
R (ABCDEF)
F = {A → B, B → C, C → D, E → F}
Decomposed into D = R₁(AB), R₂(BCD) and R₃(DEF) . Find whether D is lossless or lossy? (6)
4. a) Is BCNF is better than 3NF? Comment critically. (2)
b) What do you mean by dependency preservation? (2)
c) Decompose the following relation R till BCNF. R(ABDLPT). FD: {B → PT, T → L, A → D} (6)
5. a) Consider the following scheme
employee (employee_name, street, city)
works (employee_name, company_name, salary)
company (company_name, city)
manages (employee_name, manager_name). Answer the following SQL queries.
i) Find all employees in the database who earn more than each employee of “SBC”.
ii) Find the company that has the most employees.
iii) Find those companies whose employees earn a higher salary on average, than the average salary of “FBC”. (3 × 2)
b) What do you mean tuple relational calculus? (2)
c) What is aggregation? (2)
6. a) What is transaction in DBMS? (2)
b) What is ACID property? (5)
c) What do you mean by dense and sparse index? (3)

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