

2019

B.Sc. (Hons.)

4th Semester Examination

STATISTICS

Paper—SEC2T

Data Base Management System

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

1. Answer any five questions : 5×2=10
- (a) What is data model ?
 - (b) Who first developed the general purpose DBMS?
 - (c) What is data definition language (DDL) ?
 - (d) Give an example of weak entity ?
 - (e) Give examples on relational schema.
 - (f) Why null values might be introduced into the database ?

[Turn Over]

(g) What is SQL ?

(h) What is subquery in SQL ?

2. Answer any *four* questions : 4×5=20

(a) Describe one-to-many and many-to-many relationship with examples.

(b) What are the advantages of database system for storing data over file based system.

(c) Explain the difference between external conceptual and physical schema.

(d) Distinguish between superkey, candidate key and primary key. Give examples.

(e) What are "Inner Join", "Right Join" and "Left Join" in SQL.

(f) Suppose that we have a relation marks (ID, Score) and we wish to assign grades to students based on the score as follows :

grade F if score < 40. grade C if $40 \leq \text{score} < 60$, grade B if $60 \leq \text{score} < 80$ and grade A if score ≥ 80

Write SQL queries to do the following :

(3)

(i) Display the grade for each student based on the marks relation.

(ii) Find the number of students with each grade.

3. Answer any one questions : 1×10-10

(a) consider the following insurance database where the primary keys are underlined.

Person (driver_id, name, address)

Car (license, model, year)

accident (report_number, date, location)

owns (driver_id, license)

participated (report_number, license, driver_id, damage_amount)

Construct the following SQL queries for this relational database :

(i) Find the total number of people who owned cars that were involved in accidents in 2009.

(ii) Add a new accident to the database ; assume any values for required attributes.

(iii) Find the number of accidents in which the cars belonging to "john smith" were involved.

[Turn Over]

- (b) (i) Define entities, relationship and attributes.
- (ii) Design and draw ER diagram for the following data about an university
- (a) Professor have an SSN, a name, an age, a rank and a reserach specialization.
 - (b) Projects have project number, a starting date, a ending date and budget.
 - (c) Each project is managed by one professor.
 - (d) Professor can manage multiple project.
 - (e) Departments have department number, departments name and main office.
 - (f) Professors work in one or more departments.