

2019

B.Sc. (Hons)

4th Semester Examination

COMPUTER SCIENCE

Paper - C10T

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.*

Group-A

1. Answer any five questions : 5×2=10

- (a) Define DBMS.
- (b) What is the objective of normalization ?
- (c) Differentiate between Schema and Instance.
- (d) What do you mean by data inconsistency and data redundancy ?
- (e) How Referential Integrity differs with Key Integrity ?

[Turn Over]

(f) How a foreign key, primary key and partial participation of an entity in a relationship is shown in ER diagram ?

(g) Describe lossless join decomposition.

(h) Why concurrency control is required in the database management system ?

2. Answer any *four* of the following : 4×5=20

(a) Draw and explain three tier architecture.

(b) Explain insertion, deletion and modification anomalies with suitable example.

(c) What do you mean by Functional Dependency ? How does it help to obtain Normalization ?

(d) Consider the following relational database schema :

Employer (ecode, ename, eaddress, esalary)

Project (pcode, pname, pduration)

Works for (ecode, pcode, duration)

Perform the following queries using SQL and relational algebra :

(i) Find the name of the employees whose salary is less than 5 lacs per annum.

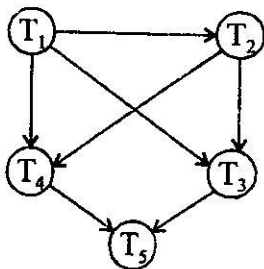
(ii) Find the details of the employees working on the project "Clusters".

(e) What is NULL ? What is its importance ? How are these values handled in relational model.

3. Answer any *one* questions : 1×10

(a) Design ER diagram of Hospital Management System. 10

(b) (i) Consider the precedence graph of a schedule given below. Is the schedule conflict serializable ?



(ii) What do you understand by the term "closure of any relation" ? How is closure used to determine key of relation ? Explain with an example. 5+5