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F.Y. B.Sc. (Computer Science)

CS 112: DATABASE MANAGEMENT SYSTEM

(CBCS 2019 Pattern) Semester-I

[Time: 2 Hours] [Max Marks: 35]

Instructions to the candidates:

- *All questions are compulsory.*
- *Figures to the right indicate full marks.*
- *Assume suitable data if necessary.*

Q.1 Attempt any EIGHT of the following **[8x1=8]**

a) List two functions of DBMS.
b) Define weak entity.
c) What do you mean by foreign key?
d) What is DML?
e) State the use of group by clause in SQL.
f) What is right outer join?
h) Define third normal form.
i) What is decomposition?
j) What is the use of WHERE clause?

Q.2 Attempt any FOUR of the following **[4x2=8]**

a) List advantages of DBMS.
b) What is aggregation?
c) What is ternary relationship?
d) What is DDL? Give example.
e) List various anomalies that may arise if you redundant data.

Q.3 Attempt any TWO of the following **[2x4=8]**

a) Explain DBMS structure with neat diagram.
b) What is integrity constraint? How are they classified?
c) Explain functional dependency with the help of example.

P.T.O.

Q.4 Attempt any TWO of the following **[2x4=8]**

a) Consider the following relations:

Loan(lno, lamount, lperiod)
Customer(cno, cname, ccity)
Borrower(lno, cno, date)
Write SQL statements for each of the following queries.

i) Find customers having loan amount is above 10 lakh
ii) Find customers staying in 'Nashik' city
iii) List all details of customers along with loan detail
iv) Find out customers not having loan

b) Consider the following relations:

Doctor (dno, dname, dcity)
Patient (pno, pname, disease)
Doctor and Patient are many to many relationships. Create a relational database in 3NF and solve the following queries in SQL.

i) Find number of patients visited by 'Dr.Ram'
ii) Display doctor name who treats to the patient 'Mr.Manoj'

c) Consider the relation

R(A,B,C,D,E,F) and set of FD's on R as

F={B→C, A→BC, DE→F, C→D, A→F}

Compute closure of F i.e.F+.

Q.5 Attempt any ONE of the following **[1x3=3]**

a) Draw the E-R diagram for following scenario.

CMCS college has many classrooms. College runs various courses. Each course has many classes – FY,SY,TY etc. Each classroom has different capacity. Each classroom is allotted to particular class.

b) Draw the E-R diagram for the following scenario.

IT industry is developing several projects on various domains such as banking, education and inventory. The projects are of various clients. Many IT professionals are working on one project and one IT professional can work on many projects.

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