5. Attempt ***all*** :

(a) Write the role of database administrator. 2½

(b) Differentiate between weak and strong entity set with example. 2½

(c) Consider the following relation :

employee (e_no, e_name, address)

write query to arrange records in ascending order by employee number. 2½

(d) Write short note on Partial Functional Dependency. 2½

TKN/KS/16/6005

Bachelor of Science (B.Sc.) (I.T.) Semester—II
(C.B.S.) Examination

DATABASE MANAGEMENT SYSTEM

Paper—V

Time : Three Hours] [Maximum Marks : 50

Note :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw neat and labelled diagrams wherever necessary.

EITHER

1. (a) What is hierarchical data model ? Compare hierarchical data model with network data model. 5

(b) Explain Three-level Architecture and Data Independency. 5

OR

(c) Explain DBMS System Environment. 5

(d) State and explain primary objectives of DBMS. 5

EITHER

2. (a) Explain super, candidate and primary key with example. 5

(b) What is an Entity-Relationship (E-R) diagram ? What is the purpose for developing this type of diagram ? 5

OR

(c) Explain relationships with suitable example. 5

(d) Draw E-R diagram of 'Student Registration System'. 5

EITHER

3. (a) Let following tables exist :

EMP (EMPNO, ENAME, JOB, JOINDATE, SALARY, DEPTNO)

BONUS (EMPNO, COMM)

DEPT (DEPTNO, DEPTNAME)

Write SQL query to :

(i) Find the total amount paid as salary to the employees belonging.

(ii) List all the employes whose COMM is greater than their SALARY. 5

(b) Discuss structure of Relational Database. 5

OR

(c) What do you mean by extended relational Algebraic operations ? Explain :

(i) Generalized Projection

(ii) Outer Join. 5

(d) What are aggregate functions ? Explain with example. 5

EITHER

4. (a) Let following relation schema exists :

EMPLOYEE (EMP_ID, EMP_NAME, DEPT, GRADE, SALARY, AGE, ADDRESS).

Find functional dependencies in the EMPLOYEE relation and give its graphical representation. 5

(b) Explain 4NF with example. 5

OR

(c) Explain multivalued functional dependency with example. 5

(d) Let there be a relation :

R(Supplier, Part, Supcity, Qty)

with key as (Supplier, Part)

Let Part $\rightarrow$ Qty

Supplier $\rightarrow$ Supcity

Supplier $\rightarrow$ Qty

Identify normal form of R with proper justification. 5