Bachelor of Science (B.Sc.) Semester—V (C.B.S.) Examination

DATABASE MANAGEMENT SYSTEM

(Computer Science)

Paper—2

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **All** questions are compulsory and carry equal marks.

(2) Draw neat and labelled diagram wherever necessary.

EITHER

1. (a) What problems are associated with traditional file system ? 5

(b) Give three layer architecture of DBMS. Explain function of each layer. 5

OR

(c) What do you mean by Database ? Discuss the types of database users. 5

(d) Discuss primary objectives of DBMS. 5

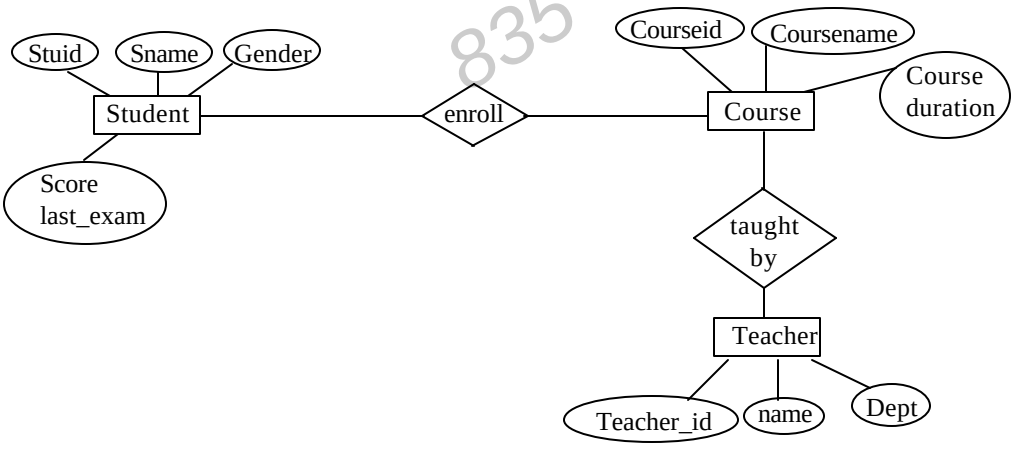
EITHER

2. (a) What do you mean by entity ? Explain strong entity and weak entity. 5

(b) Explain generalization and specialization with example. 5

OR

(c) Give table representation of following E-R diagram :



5

(d) What is Mapping ? Explain data mapping with suitable examples. 5

EITHER

3. (a) Consider the following relation :

STUD (Roll_no, S_name, Class, Inst_id)

INSTRUCTOR (Inst_id, I_name, I_status)

Construct query to find name of all students taught by Instructor "XYZ". 5

(b) Explain select and project operations with example. 5

OR

(c) Explain natural join operation with example. 5

(d) Write a short note on : Union Operation Intersection Operation. 5

EITHER

4. (a) Explain 3rd normal (3NF) form in detail. 5

(b) Explain the following :

(i) Partial dependency

(ii) Fully functional dependency with suitable example. 5

OR

(c) Find functional dependencies among fields in the given relation "EMPLOYEE" and draw functional dependency diagram.

EMPLOYEE

EMP_Code	E_name	Salary	Project_no	Comp_date
001	A	100000	PR01	5/9/17
002	B	50000	PR02	6/9/17
003	C	45000	PR03	5/9/17
004	D	25000	PR01	5/9/17
005	E	50000	PR04	18/9/17
006	F	100000	PR03	5/9/17

5

(d) Explain 2NF. Discuss problems arising in three basic operations insert, delete and update when relation is in 2 NF. 5

5. Attempt **all** :

(a) What is data model ? List different types of data models. 2½

(b) List different types of attributes. Explain any one. 2½

(c) Explain aggregate function with example. 2½

(d) What is Normalization ? Why is normalization needed ? 2½