SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CAT – I   Fall Semester 2018 -2019

CSE 2004 – Database Management Systems

Course Name: B. Tech   Slot: D2   Max. Marks: 50

Answer ALL Questions (5 * 10 = 50)

1 a. Brief about the advantages of Database Management System?   [5]

   b. Describe the three levels of data abstraction with a neat diagram   [5]

2 a. Why do we need mapping between schema levels in three schema architecture?   [4]

   b. Explain the functionalities of the following terms: [6]

    i.   DDL Compiler
    ii. Query Compiler
    iii. DML Compiler
    iv. Host Language Compiler
    v.   Runtime Database Processor
    vi. Stored Data Manager

definit"

manipulat"

3 a. Convert the below given ER diagram to relational schema.   [6]
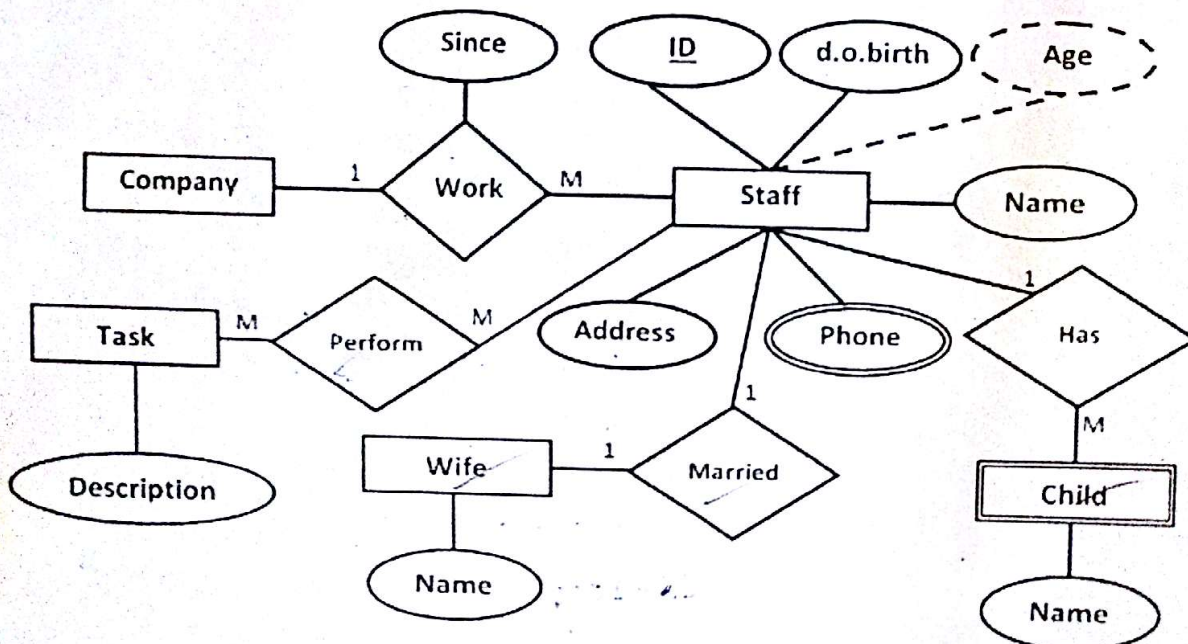
b. In a bank, each customer is given a unique identification number, cid. All the current account holders have different (Firstname, Lastname) pair. (Some of them may have same first names, or same lastnames.) As per the RBI regulations, the bank also collects everyone's Adhaar Card number. The company's database stores the following fields: [4]
(cid, firstname, lastname, age, adhaar)

Which of the following row in the given table do not contain wrong information?

No.	Candidate Keys	Super Keys	Primary Keys	
1	(cid), (adhaar)	(cid), (adhaar, age) (cid, adhaar)	(cid), (adhaar)	α
2	(adhaar)	(cid), (firstname, lastname)	(cid)	✓
3	(cid), (adhaar)	(cid, firstname), (adhaar, firstname)	(adhaar)	α
4	(firstname, lastname), (adhaar)	(cid, adhaar), (adhaar, firstname, lastname)	(cid)	✓

Note:
  _ Each key is a tuple, enclosed by round brackets.
  _ Each cell may contain multiple keys, but does not list all possible values.

4 a. Describe how strong entity is different from weak entity with a suitable example [4]

  b. Compare and explain with a suitable example
  i.   Composite attribute and complex attribute. [3]
  ii. Entity integrity constraint and domain constraint. [3]

5. Compare primary key, candidate key, super key, alternate key and minimal super key. From the below tables identify primary key, candidate key, super key, alternate key and minimal super key and justify. [10]

STUDENT

STUD_NO	STUD_NAME	STUD_PHONE	STUD_STATE	STUD_COUNTRY	STUD_AGE
1	RAM	9716271721	Haryana	India	20
2	RAM	9898291281	Punjab	India	19
3	SUJIT	7898291981	Rajsthan	India	18
4	SURESH		Punjab	India	21

Table 1

STUDENT_COURSE

STUD NO	COURSE NO	COURSE NAME
1	C1	DBMS
2	C2	Computer Networks
1	C2	Computer Networks

Table 2

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