Unit 2 · Database Management System

WORKSHEET

Full marks 38

Name _____ Class _____ Roll no. ____ Date _____ Marks _____ / 38

1 Key words [4]

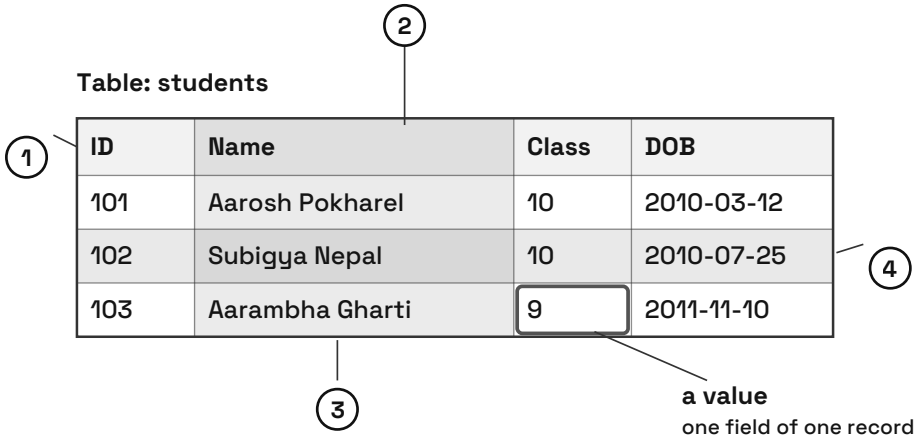
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

%	constraint	data	DBMS	field	foreign key	information	record	TRUNCATE	tuple

Raw facts and figures are called _____; when they are processed into something meaningful, they become _____. Software that creates a database and stores, finds and protects its data is a _____. In a table, a column is also called a _____, and a row, all the data about one entity, is a _____. A _____ holds the primary key of another table and links the two tables. A rule set on a column, such as NOT NULL or CHECK, is called a _____. In a LIKE pattern, the wildcard _____ stands for any number of characters.

2 Label the diagram [2]

The diagram shows the parts of a table. Write the name of the part in place of 1 to 4. Each carries 0.5 mark.



1. _____ 2. _____

3. _____ 4. _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Which SQL command is used to change data that is already in a table? [1]

a. SELECT **b.** UPDATE

c. INSERT **d.** DELETE

ii. Which SQL data type stores only a date (such as YYYY-MM-DD)? [1]

a. TIME **b.** DATETIME

c. TIMESTAMP **d.** DATE

iii. A DBMS refuses to save a student's mark of 130 in a test out of 100. Which feature of a DBMS is this? [1]

a. data redundancy control
b. backup and recovery
c. data integrity
d. data retrieval

iv. A table of the books in your school library has the fields BookID, Title, Author and Price, and holds 1,250 books. How many **records** does it have? [1]

a. 4
b. 1,250
c. 1,254
d. 5,000

v. Which pattern finds every name that **ends** in "ika", such as Radhika and Kanika? [1]

a. `'ika%'`
b. `'%ika'`
c. `'_ika'`
d. `'%ika%'`

4 Match the columns [2]

Match each SQL command with what it does. One job in the right column is not needed.

Column A		Column B
1. CREATE	☐	**a.** gives a user permission to use a table
2. ALTER	☐	**b.** removes the rows that match a condition
3. DROP	☐	**c.** adds, deletes or changes a column of a table
4. DELETE	☐	**d.** makes a new table or database
		e. deletes a whole table, structure and all

5 Short answers [6]

Write short answers to the following questions.

a. Write any two differences between a primary key and a foreign key. [2]

b. Choose the most suitable data type for each column, from INT, DECIMAL, VARCHAR, DATE and BOOLEAN: i. a student's date of birth; ii. the monthly fee, in rupees and paisa; iii. a mobile number such as 9841234567; iv. whether the fee has been paid. [2]

c. Each student of a school belongs to one house, and each house has many students. What type of relationship is this? In which table does the foreign key go? [2]

6 What does it show? [6]

Read the table and the queries, then answer.

Table: students

ID	Name	Class	Address
1	Dikshya Pokhrel	10	Bhaktapur
2	Binay Adhikari	10	Thimi
3	Nabin Dahal	10	Banepa
4	Aashish Shah	9	Bhaktapur
5	Ashna Rimal	9	Kathmandu
6	Avinash Thapa	10	Lalitpur
7	Aman Gurung	9	Bhaktapur
8	Sabin Chapagain	9	Thimi

i. Write the result of this query.

```
SELECT Name, Class FROM students
WHERE Address = 'Bhaktapur' AND Class = 9;
```

```
OUTPUT
```

ii. Write the result of this query. (_ stands for exactly one character.)

```
SELECT ID, Name FROM students
WHERE Name LIKE '_a%';
```

```
OUTPUT
```

iii. These three statements run one after another on the table above. Write the result of the last one.

```
UPDATE students SET Class = 10 WHERE ID = 5;
DELETE FROM students WHERE Address = 'Thimi';
SELECT Class, COUNT(*) FROM students GROUP BY Class;
```

```
OUTPUT
```

7 Find and fix the errors [3]

Read the SQL, then answer.

These statements should make a table of books, add one book, and then change the price of book 1 only. There is one mistake in each statement.

```
1  CREATE TABLE books (
2    BookID INT PRIMARY KEY,
3    Title VARCHAR(60) NOT NULL,
4    Price DECIMAL(6,2),
5  );
6  INSERT INTO books VALUES (1, Muna Madan, 150);
7  UPDATE books SET Price = 200;
```

Write each mistake and the corrected line.

8 Write SQL queries [4]

Write an SQL statement for each task. Any statement that does the job gets the mark.

A school library keeps its members in a table **members** with the fields MemberID (a whole number), Name (text up to 50 characters), Class (a whole number) and Phone (text of 10 characters).

i. Create the table, with MemberID as the primary key and Name compulsory.
ii. Add the member 1, Sita Rai, Class 10, phone 9841000001.
iii. Show the names of the members in Class 10, in alphabetical order.
iv. Delete the member whose MemberID is 2.

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9 Long answer [4]

Write a long answer to the following question.

Define DBMS, with its advantages.

10 Think [2]

Think, then answer.

A student can take many courses, and each course has many students. Why can't one foreign key column in the students table hold this, and how is it stored instead?

11 Activity: Queries on a real database (not marked)

At a computer, open the unit's page (the QR code) and find the playground **Pick rows with WHERE.** Write each query, run it, and fill in the table.

What I asked for	My query	How many rows came back
every student in Class 9		
the students whose address is Thimi		
the students whose name starts with A		
the students in Class 10 who live in Banepa		