WORKSHEET
DATABASE

1 Observe the following table TEACHER and TASK carefully and write the names of the RDBMS operation out of (i) EQUI JOIN (ii) NATURAL JOIN (iii) SELECTION (iv) CARTESIAN PRODUCT, which has been used to product the output as shown below. Also find the Degree and Cardinality of final RESULT.

TABLE: TEACHER

TEACHER_CODE	TEACHER_NAME	SUBJECT
T001	AMIT	BIOLOGY
T002	ANAND	HINDI
T003	MOHAN	PHYSICS

TABLE: TASK

TASKNAME	COMPLETION_DATE
SBSB	30-04-2020
EBSB	31-05-2020
GANGA_QUEST	30-04-2020

FINAL RESULT

TEACHER_CODE	TEACHER NAME	SUBJECT	TASKNAME	COMPLETION_DATE
T001	AMIT	BIOLOGY	SBSB	30-04-2020
T001	AMIT	BIOLOGY	EBSB	31-05-2020
T001	AMIT	BIOLOGY	GANGA_QUEST	30-04-2020
T002	ANAND	HINDI	SBSB	30-04-2020
T002	ANAND	HINDI	EBSB	31-05-2020
T002	ANAND	HINDI	GANGA_QUEST	30-04-2020
T003	MOHAN	PHYSICS	SBSB	30-04-2020
T003	MOHAN	PHYSICS	EBSB	31-05-2020
T003	MOHAN	PHYSICS	GANGA_QUEST	30-04-2020

Ans. CARTESIAN PRODUCT
DEGREE = 5
CARDINALITY=9

2 Observe the following table and answer the question (i) , (ii) and (iii)

TABLE: VISITOR

VisitiorID	VisitorName	ContactNumber
V001	ANAND	9898989898
V002	AMIT	9797979797
V003	SHYAM	9696969696
V004	MOHAN	9595959595

(i) Write the name of most appropriate columns which can be considered as Candidate keys
(ii) Out of selected candidate keys, which one will be the best to choose as Primary Key?
(iii) What is the degree and cardinality of the table

Ans.
(i) As per data all 3 columns can be candidate key, but practically VisitorID and ContactNumber are the best for candidate key
(ii) VisitorID
(iii) Degree = 3 , Cardinality = 4

3 What do you understand by the term Foreign key? How many foreign keys can be added to

	any table?
Ans.	Foreign key is a non-key attribute of any table whose value is derived from primary key column of another table. Foreign key column can accept only those values which exists in primary key column of related table. A table can have any number of foreign key in a table (<=Degree of table)
4	What is Primary Key? How many primary key can be added to any table?
Ans.	Primary key is used to uniquely identify the records of table. It distinguish one row of table with another. Primary Key possesses 2 properties: 1) Unique Value 2) Not NULL A table can have maximum one primary key.
5	What are the main restrictions enforces by Primary Key if applied on any column?
Ans.	1. Unique values to be entered 2. Not NULL (mandatory to fill information)
6	Write short notes on following relational terms: a. Tuple b. Attribute c. Relation d. Domain
Ans.	a. Tuple is horizontal subset of table. It is also known as record. b. Attribute is a vertical subset of table. Commonly known as Field or column c. Relation is a set of rows and columns. Commonly known as Table d. Is a set of values from which value is picked for any column
7	What is referential Integrity? How it is implemented in any table?
Ans.	Referential Integrity means any column of table is referring to the value of another table's primary key. The column which is looking to primary key of another table is foreign key and table will be child table whereas table containing primary key will be referred as master table. It is implemented by applying foreign key.
8	Expand the term: RDBMS
Ans.	Relational Database Management System
9	RDBMS is a collection of: a. Fields b. Tables c. Columns d. Keys
Ans.	Tables
10	The term attribute refers to _____ of a table: a. Record b. Key c. Tuple d. Column
Ans.	a. Column
11	"Address" field of a table cannot be a part of Primary key as it is likely to? a. Dependent b. Changed c. Too Long d. Not Changed
Ans.	b. Changed
12	In RDBMS referential integrity can be specified with the help of _____ a. Primary Key b. Secondary Key

c. Foreign Key
d. None of these

Ans. c. Foreign Key

13 From the following Tables (EMP) AND (JOB) answer the question (i) and (ii)

TABLE: EMP

EMPNO	ENAME	JOB	SALARY	DEPTNO
E001	PETER	ADMIN	4500	10
E002	SCOTT	SALESMAN	3500	20
E003	ALBERT	CLERK	2800	10
E004	RUSSEL	CLERK	2900	40

TABLE:JOB

DEPTNO	DNAME	DLOCATION	DHEAD
10	PETER	ADMIN	4500
20	SCOTT	SALESMAN	3500
30	ALBERT	CLERK	2800
40	RUSSEL	CLERK	2900

(i) Identify Primary Key from both the tables
(ii) Identify the foreign key column in the table EMP
(iii) Can we delete the record of PETER from table JOB?
(iv) If not give reason

Ans.
(i) EMP = EMPNO
JOB = DEPTNO
(ii) DEPTNO
(iii) NO
(iv) The reason is that the dependent or child record exists in Child table EMP

14 Table T1 contains 10 Rows and 4 Columns; Table T2 contains 20 Rows and 3 Columns. After performing Cartesian product of T1 and T2, What will be the degree and cardinality of Resultant output?

Ans. Degree = 7
Cardinality = 200

15 What is the difference between Primary Key and Candidate Key?

Ans. Candidate keys are those columns in a table which are able to uniquely identify the record of table. There can be more than one candidate key in a Table. Among these candidates key one column is selected as Primary Key. Only one primary key be applied in a table. Primary key is also one the candidate key

16 What is alternate Key?

Ans. Among several candidate keys one will be selected as primary key and remaining will be known as alternate key. We can say Alternate key is a candidate key which is not a primary key.

17 Give any 2 advantages of using Database?

Ans
1. Sharing of Data
2. Consistency of Data
3. Eliminate Redundancy of data
4. Security of Data

18 Horizontal subset of table is known as _____
a. Attribute
b. Doman
c. Tuple
d. Keys

Ans. c.Tuple

19 For each attribute of a relation, there is a set of permitted values, called the _____ of that

<table>
<tr><td></td><td>attribute.
a. Dictionaries
b. Domain
c. Directory
d. Relation</td></tr>
<tr><td>Ans.</td><td>b. Domain</td></tr>
<tr><td>20</td><td>_____ in a table represent relationship among a set of values.
a. Column
b. Keys
c. Row
d. Entry</td></tr>
<tr><td>Ans.</td><td>Row</td></tr>
<tr><td>21</td><td>Tuples of a table can be of _____ order
a. Any
b. Same
c. Sorted
d. Constant</td></tr>
<tr><td>Ans.</td><td>a. Any</td></tr>
<tr><td>22</td><td>Write any 2 characteristics of a Relation</td></tr>
<tr><td>Ans.</td><td>1. All column name must be Unique
2. All row of a table must be distinct
3. Order of column or row is immaterial
4. Column must be atomic</td></tr>
<tr><td>23</td><td>Who invented the term “Relational Database”?
a. Blaise Pascal
b. Dr. E. F. Codd.
c. Charles Babbage
d. Tim Berners Lee</td></tr>
<tr><td>Ans.</td><td>b. Dr. E. F. Codd.</td></tr>
<tr><td>24</td><td>Column names of any table must be:
a. Must be numeric type
b. Must be unique
c. Must be in sorted order
d. Must not be greater than 40 characters</td></tr>
<tr><td>Ans.</td><td>c. Must be unique</td></tr>
<tr><td>25</td><td>Based on the given table “SALE” answer the question (i) and (ii)
<table>
<tr><td>PRODID</td><td>QTY</td><td>RATE</td><td>AMOUNT</td></tr>
<tr><td>1</td><td>10</td><td>100</td><td>1000</td></tr>
<tr><td>2</td><td>5</td><td>50</td><td>250</td></tr>
<tr><td>3</td><td>10</td><td>20</td><td>200</td></tr>
<tr><td>4</td><td>20</td><td>100</td><td>2000</td></tr>
</table>
(i) Can we take QTY column of the above table as Primary Key? If no give reason
(ii) Which column is best suitable for applying Primary Key?</td></tr>
<tr><td>Ans.</td><td>(i) NO, it contains duplicate value
(ii) PRODID</td></tr>
</table>