1	B	A	

Consider the schema

Sailors(sid, sname, rating, age, city) with the following data

SID	SNAME	RATING	AGE	CITY
22	Dustin	7	45	Agra
29	Borg	1	33	Prayag
31	Pathy	8	55	Agra
32	Robert	8	25	Prayag
58	Raghu	10	17	Prayag
64	Herald	7	35	Varanasi
71	Vishnu	10	16	Agra
74	King	9	35	Varanasi
85	Archer	3	26	Varanasi
84	Bob	3	64	Prayag
96	Flinch	3	17	Agra

For the Following query:

SELECT S.rating, AVG(S.age) AS avgage FROM Sailors S Where

S.age >= 18GROUP BY S.rating,s.city HAVING 1 < (SELECT COUNT(*)

FROM Sailors S2 where S.rating = S2.rating and S.city<>S2.city)

The number of rows returned is/are

(A) 2
(B) 3
(C) 4
(D) 1

2 C B

Consider the schema

Sailors(sid, sname, rating, age, city) with the following data

SID	SNAME	RATING	AGE	CITY
22	Dustin	7	45	Agra
29	Borg	1	33	Prayag
31	Pathy	8	55	Agra
32	Robert	8	25	Prayag
58	Raghu	10	17	Prayag
64	Herald	7	35	Varanasi
71	Vishnu	10	16	Agra
74	King	9	35	Varanasi
85	Archer	3	26	Varanasi
84	Bob	3	64	Prayag
96	Flinch	3	17	Agra

For the Following query:

select count(*) from (select SNAME, RATING, CITY from Sailors where SNAME like '%a%') S natural join

(select AGE, RATING, CITY from Sailors where AGE>17) T

The number of rows returned

(A) 1
(B) 2
(C) 3
(D) 4

3	C	D	

Consider a Patient table with attributes patientid (primary key), patientname, city, dateofbirth and phone. Except patientid no columns are unique. The table has three indexes as follows:

IDX1 - patientid

IDX2 - patientname, dateofbirth

IDX3 - dateofbirth, phone

Which of the following queries will result in INDEX RANGE SCAN?

A) WHERE city ='Mumbai' AND dateofbirth > '30-Mar-1995'

B) WHERE patientid = 'P1007' AND dateofbirth = '30-Mar-1995'

C)WHERE patientname = 'Sam' AND Extract(year from dateofbirth) =1995

D) WHERE phone=1234567890 and patientname='ABHI'

4	C	C	✔

Consider the following relational schemas. The underlined attributes are the respective primary keys.

Schema I: Registration (rollno, courseid, email)

rollno, courseid → email

email → rollno

Schema II: Registration (rollno, courseid, marks, grade)

rollno, courseid, → marks, grade

marks → grade

Schema III: Registration (rollno, courseid, credit)

rollno, courseid → credit

courseid → credit

Which one of the relational schemas is violating 2NF?

A. Schema I and Schema III
B. Schema II and Schema III
C. Schema III only
D. None

5	B	B	✔

Find the total number of rows return by the following query for the given database EMP.

EMPNO	ENAME	JOB	SAL	DEPTNO
7839	KING	PRESIDENT	5000	10
7698	BLAKE	MANAGER	2850	30
7782	CLARK	MANAGER	2450	10
7566	JONES	MANAGER	2975	20
7788	SCOTT	ANALYST	3000	20
7902	FORD	ANALYST	3000	20
7369	SMITH	CLERK	800	20
7499	ALLEN	SALESMAN	1600	30
7521	WARD	SALESMAN	1250	30
7654	MARTIN	SALESMAN	1250	30
7844	TURNER	SALESMAN	1500	30
7876	ADAMS	CLERK	1100	20
7900	JAMES	CLERK	950	30
7934	MILLER	CLERK	1300	10

Select distinct E1.EMPNO, E1.ENAME from emp E1 inner join emp E2 on E1.JOB=E2.JOBand E1.DEPTNO >E2.DEPTNO

where E1.SAL>1000

A) 2

B) 3

C) 4

D) 5

6	A	B	

Identify the statements that will be true after executing the following statements on an empty MongoDB collection (Multiple Answer Question).

```
db.fruit.insert([{_id:501,Fruitname:"Pineapple",Season:"Summer",Price:45},
{_id:502,Fruitname:"Water melon",Season:"Winter",Price:40},
{_id:503,Fruitname:"Custard apple",Season:"Summer",Price:40},
{_id:504,Fruitname:"Banana",Season:"Winter",Price:25},
{_id:505,Fruitname:"Mosambi",Season:"Winter",Price:25},
{_id:506,Fruitname:"Musk melon",Season:"Summer",Price:35},
db.fruit.update({$or: [{Fruitname:"Water melon'}, {Price:40}]},{$set:{Price:35}});
db.fruit.update({_id: 503}, {$set:{Price:25}});
db.fruit.update({_id: 506}, {Season:"Winter"});
db.fruit.remove({Price:{$gt:40}});
```

A. Two fruits will have a name ending with “melon”

B. The fruit collection will have 4 “Winter” seasons

C. Two fruits will have price as 35

D. None

7	C	C	✔

A database of research articles in a journal uses the following schema.

(VOLUME, NUMBER, STARTPAGE, ENDPAGE, TITLE, YEAR, PRICE)

The primary key is (VOLUME, NUMBER, STARTPAGE, ENDPAGE) and the following functional dependencies exist in the schema.

(VOLUME, NUMBER, STARTPAGE, ENDPAGE) → TITLE
(VOLUME, NUMBER) → YEAR
(VOLUME, NUMBER, STARTPAGE, ENDPAGE) → PRICE

The database is redesigned to use the following schemas.

(VOLUME, NUMBER, STARTPAGE, ENDPAGE, TITLE, PRICE)
(VOLUME, NUMBER, YEAR)

Which is the weakest normal form that the new database satisfies, but the old one does not

A. Un-normalized Form
B. 1NF
C. 2NF
D. 3NF

8	B	B	✔

How many rows will return for the given dataset of salesinformation table.

Consider the table **salesinformation** given below:

Table: salesinformation

region	salesman	sales
North	James	800000
West	Alan	760000
West	David	350000
East	John	124000
North	Nolan	590000
South	Nick	235000
East	Nicholas	145000

Select * from salesinformation where (LOWER(region)LIKE '%t' AND(UPPER(Salesman) LIKE '%N' OR UPPER(Salesman) LIKE 'N%'))
Intersect
Select * from salesinformation where (LOWER(region)LIKE '%th' OR (UPPER(Salesman) LIKE '%N' AND UPPER(Salesman) LIKE 'N%'))

A) 2
B) 3
C) 4
D) 5

9	D	D	✔

The following statements are executed on an empty MongoDB Collection

```
db.product.insert ([{_id:1001, Productname:"CCTV Camera", Type:"Exterior", Price: 4500},
{_id:1002, Productname:"Washing  Machine", Type:"Interior", Price: 4000},
{_id:1003, Productname:"Car", Type:"Exterior", Price: 4000},
{_id:1004, Productname:"Blender", Type:"Interior", Price: 2500},
{_id:1005, Productname:"Microwave", Type:"Interior", Price: 2500},
{_id:1006, Productname:"Gardening  Machine", Type:"Exterior", Price: 3500}]);

db.product.update  ({$or: [{Productname:" Washing Machine'}, {Price: 4000}]}, {$set: {Price: 3500}});

db.product.update  ({_id: 1003}, {$set: {Price: 2500}});

db.product.update  ({_id: 1006}, {Type:"Interior"});

db.product.remove ({Price: {$gt: 4000}});
```

Find the set of statements which will be correct after executing the above statements,
S1: Three products will have price as 2500
S2: Two products will have price as 3500
S3: The collection will have four "Interior" types of product
S4: Two products will have a name ending with "Machine"

A)S1 and S4

B)S2 and S3

C)S2 and S4

D)S1 and S3