`L` is a non-empty list of distinct positive integers. That is:

- `L` has at least one element
- No two elements of `L` are the same

If the following snippet of code terminates without any error after a finite number of iterations of the while loop, what is the output produced by it?

Hint: `L.remove(x)` removes the leftmost occurrence of `x` in `L`.

```
# L is a non-empty list of distinct positive integers
# L has already been defined
val = 0
for x in L:
    val += x

while L != [ ]:
    for y in range(1, 11,2):
        if y in L:
            L.remove(y)
        else:
            L.append(y)

print(val)
```

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

25

DBMS

Section Id :	64065339070
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	18
Number of Questions to be attempted :	18
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	64065382577
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 67 Question Id : 640653577818 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL : DATABASE MANAGEMENT SYSTEMS (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406531929532. ✔ YES

6406531929533. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	64065382578

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 68 Question Id : 640653577819 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

The lowest level of data abstraction is

Options :

6406531929534. ✔ physical level

6406531929535. ✖ logical level

6406531929536. ✖ view level

6406531929537. ✖ application level

Question Number : 69 Question Id : 640653577820 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Suppose a company wants to determine whether the 'price' of the commodity will be an attribute in the shopping database or not. Which of the following holds good about this?

Options :

6406531929538. ✖ This is a physical-level decision.

6406531929539. ✔ This is a logical level decision.

6406531929540. ✖ This is an application-level decision.

6406531929541. ✖ This is a view-level decision.

Question Number : 70 Question Id : 640653577825 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Consider the following scenario:

The Reserve Bank of India (RBI) has issued guidelines declaring that the Rs. 2000 note will no longer be considered legal tender, starting from a specific date. The RBI wants to update its database to reflect this change and ensure that transactions involving the Rs. 2000 note are flagged as invalid.

Which DBMS concept would be most relevant for the RBI to update its database and flag transactions involving the Rs. 2000 note as invalid after the specified date?

Options :

6406531929555. ✖ CASCADE

6406531929556. ✖ Data Definition Language (DDL)

6406531929557. ✔ Triggers

6406531929558. ✖ Indexing

Question Number : 71 Question Id : 640653577829 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Consider the schema given below :

Emp (*eid*, *ename*, *age*, *salary*)
Works (*eid*, *did*, *pct_time*)
Dept (*did*, *budget*, *managerid*)

Identify the correct SQL command to create a view named, EMPLOYEE, by selecting attributes like *eid*, *salary*, *and managerid*. Select those employees whose *salary* is greater than 1,00,000 and are atleast 45 years old.

Options :

6406531929565. ✖

```
SELECT E.eid, E.salary, D.managerid
FROM Emp E, Works W, Dept D
WHERE E.eid = W.eid AND W.did = D.did
AND E.salary > 100000 AND E.age > = 45 AS VIEW
```

6406531929566. ✖

```
CREATE TABLE EMPLOYEE (emp_id, salary, managerid)
ON  SELECT E.eid, E.salary, D.managerid
FROM Emp E, Works W, Dept D
WHERE E.eid = W.eid AND W.did = D.did
AND E.salary > = 100000 AND E.age > 45 AS VIEW
```

6406531929567. ✖

```
CREATE VIEW EMPLOYEE (emp_id, salary, managerid)
ON SELECT E.eid, E.salary, D.managerid
FROM Emp E, Works W, Dept D
WHERE E.eid = W.eid AND W.did = D.did
AND E.salary > 100000 AND E.age > 45
```

6406531929568. ✔

```
CREATE VIEW EMPLOYEE (emp_id, salary, managerid)
AS SELECT E.eid, E.salary, D.managerid
FROM Emp E, Works W, Dept D
WHERE E.eid = W.eid AND W.did = D.did
AND E.salary > 100000 AND E.age > = 45
```

Question Number : 72 Question Id : 640653577830 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

An instance of the relation **students** is given below.

sid	name	age	gpa
53831	Madayan	11	1.8
53832	Guldu	12	2
53666	Jones	18	3.4
53688	Smith	19	3.2
53650	Smith	19	3.8

Figure 3: Relation students

Which of the following query executed on relation **students** would result in the output given below ?

sid	name	age	gpa
53832	Guldu	12	2
53666	Jones	18	3.4
53831	Madayan	11	1.8
53650	Smith	19	3.8
53688	Smith	19	3.2

Figure 4: Output

Options :

6406531929569. ✖ `SELECT * FROM students`

6406531929570. ✖ `SELECT * FROM students ORDER BY name`

6406531929571. ✔ `SELECT * FROM students ORDER BY name, sid`

6406531929572. ✖ `SELECT * FROM students ORDER BY name, sid desc`

Sub-Section Number : 3

Sub-Section Id : 64065382579

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 73 Question Id : 640653577821 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Consider two relations R and S as shown below.

A	B	C
1	2	3
2	4	6
3	7	3
4	3	4

Table 1: R

B	C	D
7	3	4
2	3	5
3	7	6
2	3	7

Table 2: S

The number of tuples in R ⟕ S are : [Note : ⟕ denotes left outer join.]

Options :

6406531929542. ✖ 3

6406531929543. ✖ 4

6406531929544. ✔ 5

6406531929545. ✖ 16

Question Number : 74 Question Id : 640653577822 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the relation schema **company**(*name, area, city*) and **project**(*pid, budget, location*). The domain of attributes *city* and *location* is the same i.e. Indian cities. Which of the following relational algebra expression would list all cities that are common in company and project?

Options :

6406531929546. ✖ $\Pi_{city}(\mathbf{company}) \cup \Pi_{location}(\mathbf{project})$

6406531929547. ✖ $\Pi_{city}(\mathbf{company})$ - $\Pi_{location}(\mathbf{project})$

6406531929548. ✖ $\Pi_{city}(\mathbf{company}) \bowtie \Pi_{location}(\mathbf{project})$

6406531929549. ✔ $\Pi_{city}(\mathbf{company})$ - $(\Pi_{city}(\mathbf{company})$ - $\Pi_{location}(\mathbf{project}))$

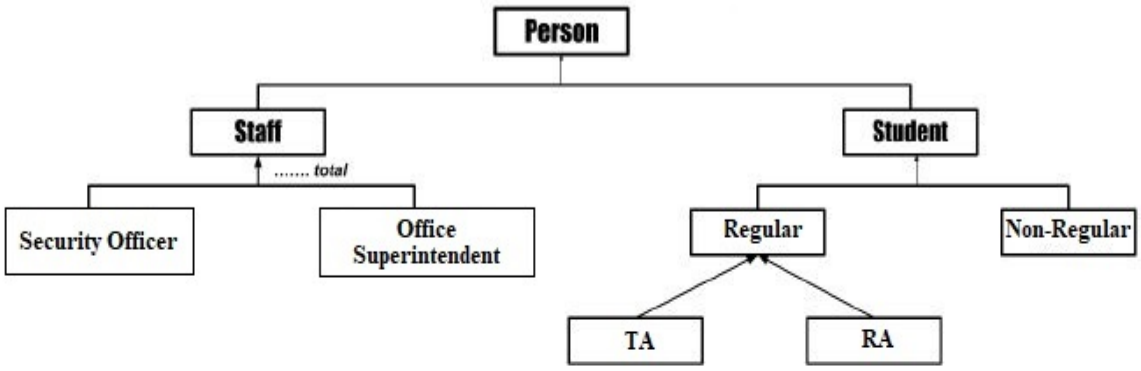
Sub-Section Number :	4
Sub-Section Id :	64065382580
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 75 Question Id : 640653577835 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

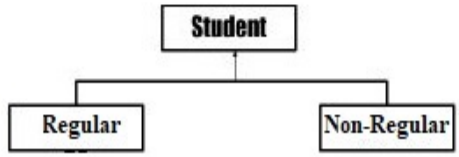
Consider the ER Diagram given below. Identify the correct statements from the ER diagram.



a A Student is a person.

b A TA student can be an RA as well.

c A staff can either be a Security Officer or Office Superintendent but not both.

d 

is partial and disjoint

Options :

6406531929583. ✖ Only a and b are correct

6406531929584. ✖ Only b, c, and d are correct

6406531929585. ✖ Only a, c and d are correct

6406531929586. ✔ All a, b, c, d are correct

Sub-Section Number :	5
Sub-Section Id :	64065382581
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 76 Question Id : 640653577823 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the relation G20(*country_name*, *foreign_minister_name*, *events*, *date*, *venue*)
Questions:
1. Find the name of foreign ministers whose names start with 'j' and have at least 5 characters.
2. Find out the number of events taking place in venue 'GIFT City'.
3. Find out the venue name and number of events taking place in each venue

SQL queries:

```
a. Select foreign_minister_name from G20
where foreign_minister_name like 'j____'

b. Select foreign_minister_name from G20
where foreign_minister_name like 'j____%'

c. Select count(events) from G20 where venue = 'GIFT City'

d. Select count(events) from G20 where venue = 'GIFT City'
   Group By venue

e. Select venue, count(events) from G20
   Group By venue

f. Select venue, count(events) from G20
```

Match the correct SQL queries with the corresponding Questions.

Options :

6406531929550. ✖ 1-a, 2-c, 3-f

6406531929551. ✔ 1-b, 2-c, 3-e

6406531929552. ✖ 1-a, 2-d, 3-f

6406531929553. ✔ 1-b, 2-d, 3-e

Question Number : 77 Question Id : 640653577827 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the relation **product**(*p_id, name, price*). Assume that no two **product** have the same price.
Choose the appropriate query/queries to find the names of three most expensive product.

Options :

6406531929560. ✗

```
SELECT name  FROM product
ORDER BY price
FETCH FIRST 3 ROWS ONLY
```

6406531929561. ✓

```
SELECT name  FROM product
ORDER BY price DESC
FETCH FIRST 3 ROWS ONLY
```

6406531929562. ✓

```
SELECT name FROM product a
WHERE
(SELECT COUNT(price)
FROM product b
WHERE b.price>a.price) < 3
```

6406531929563. ✗

```
SELECT name FROM product a
WHERE
(SELECT COUNT(price)
FROM product b
WHERE b.price>a.price) > 3
```

Question Number : 78 Question Id : 640653577834 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the schema given below.
Customer(*Cid,Cname,Area,Phone*)
Orders(*Cid,Iid*)
Item(*Iid,Iname,cuisine*)

Which of the following is/are correct TRC to find the names of customers who have ordered an item 'Indian' cuisine ?

Options :

6406531929579. ✖ $\{ \exists P \mid C \in Customer, O \in Orders, I \in Item(O.Iid = P.Cid \wedge I.Iid = O.Iid \wedge I.cuisine = \text{'Indian'} \wedge P.Cname = C.Cname)\}$

6406531929580. ✔ $\{ P \mid \exists C \in Customer\ \exists O \in Orders(O.cid = C.cid \wedge P.Cname = C.Cname \wedge \exists I \in Item(I.Iid = O.Iid \wedge I.cuisine = \text{'Indian'}))\}$

6406531929581. ✖ $\{ P \mid \exists C \in Customer\ \exists O \in Orders(O.cid = C.cid \wedge P.Cname = C.Cname\ ) \wedge (\exists I \in Item \wedge I.cuisine = \text{'Indian'})\}$

6406531929582. ✔ $\{ P \mid \exists C \in Customer\ \exists O \in Orders\ \exists I \in Item(O.Cid = C.Cid \wedge I.Iid = O.Iid \wedge I.cuisine = \text{'Indian'} \wedge P.Cname = C.Cname)\}$

Sub-Section Number : 6

Sub-Section Id : 64065382582

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 79 Question Id : 640653577833 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the **student** relation given below. Select the correct query/queries to obtain the *last name* of students whose *age* is more than 25.

Student

Fname	Lname	Age	Course
David	Sharma	27	DBMS
Aaron	Lilly	17	JAVA
Sahil	Khan	19	Python
Sachin	Rao	20	DBMS
Varun	George	23	JAVA
Simi	Verma	22	JAVA

Options :

6406531929575. ✔ $\{ t.Lname \mid Student(t) \wedge t.Age > 25\}$

6406531929576. ✖ $\sigma_{Lname}(\Pi_{Age>25}(Student))$

6406531929577. ✔ $\Pi_{Lname}(\sigma_{Age>25}(Student))$

6406531929578. ✔ $\{ t \mid \exists s \in Student(s.Age > 25 \wedge t.Lname = s.Lname)\}$

Sub-Section Number : 7

Sub-Section Id : 64065382583

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 80 Question Id : 640653577824 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

Consider the two relations R and S.

A	B	C
0	9	0
2	2	2
1	1	1

A	B	C
0	Cat	0
2	Dog	2
1	Lion	1

Figure 1: R and S

Let 'X' be the number of columns and 'Y' be the number of rows of the $(R \bowtie S)$ relations.
What is the value of $(X + Y)$?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

Question Number : 81 Question Id : 640653577832 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

Consider the relation **student** shown in Table 3

Roll_no	Name	marks
1	Ram	50
2	Rakesh	65
3	Ram	45
4	Pranav	89
5	Rakesh	99
6	Emily	99
7	Grace	100
8	Lily	95

Table 3: **student**

What is the number of tuples returned by the following relational algebra expression $\prod_{name}(\sigma_{marks>50}(student))$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

5

Sub-Section Number : 8

Sub-Section Id : 64065382584

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 82 Question Id : 640653577826 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Short Answer Question

Consider the following table which has four attributes: *A, B, C,* and *D* where *A* is the primary key and *C* is the foreign key referencing to *A*.

A	B	C	D
1	1	5	6
2	2	5	7
8	4	7	4
3	1	5	8
4	2	4	9
5	2	4	1
6	1	1	2
7	4	1	3

How many tuples will be left in the table if the tuple (1,1,5,6) is deleted and ON DELETE CASCADE construct is applied over the table?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Question Number : 83 Question Id : 640653577828 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Short Answer Question

Consider the relational schema given in Figure 2.

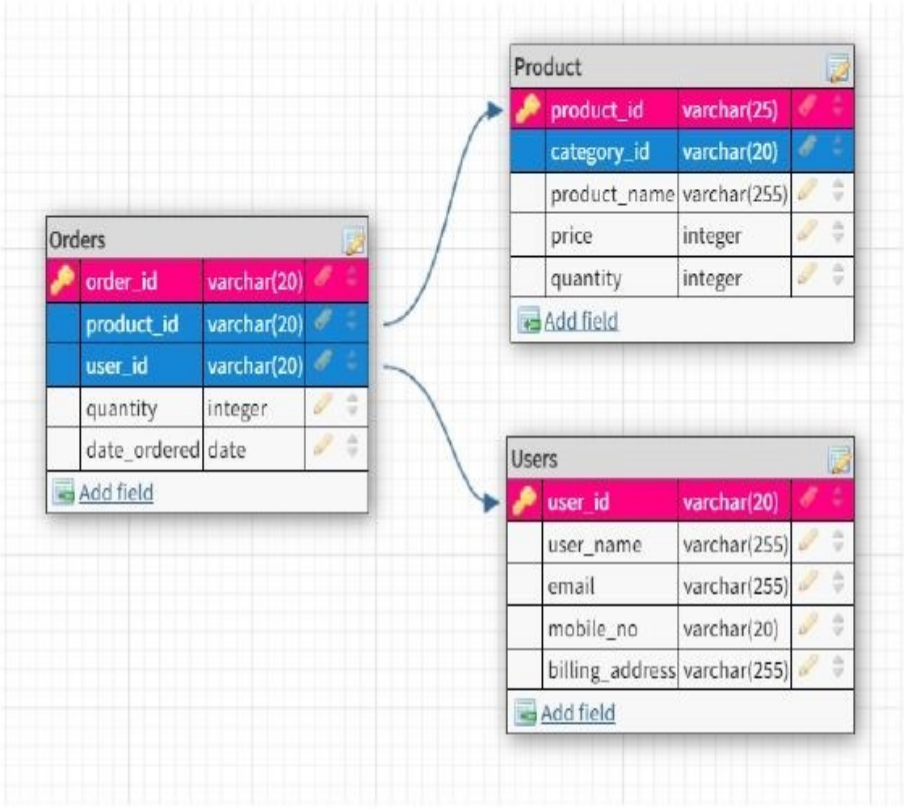


Figure 2: eshop Schema

If the relations **Orders**, **Product** and **Users** have 10, 6, 8 rows respectively, what is the maximum number of rows returned by the following query?
(Note: Consider all the attributes are having NOT NULL constraint.)

```
SELECT * FROM Orders RIGHT OUTER JOIN Users
ON orders.user_id = Users.user_id;
```

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

17

Question Number : 84 Question Id : 640653577831 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Short Answer Question

Consider the E-R diagram in Figure 5.

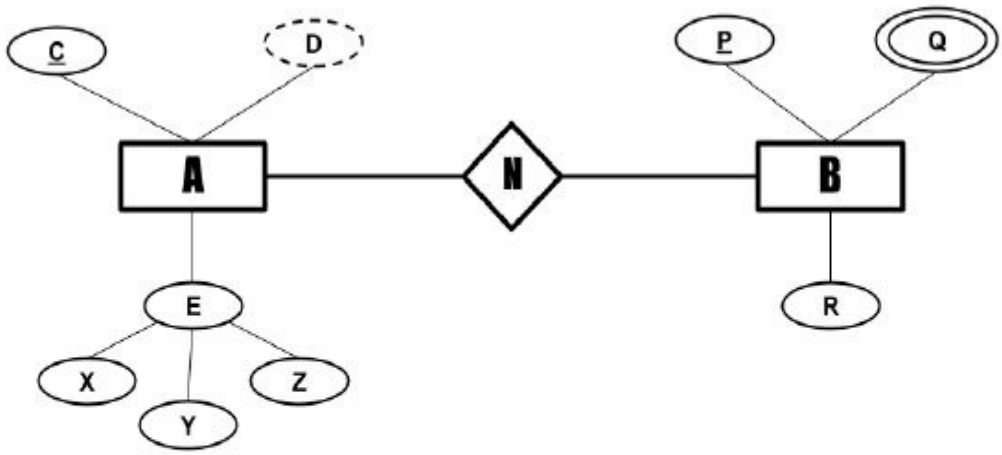


Figure 5: ERD

Consider the following assumptions :

a : denotes the number of attributes in entity set **A**

b : denotes the minimum number of table(s) required to represent this E-R diagram?

What is the value of a + b ?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

8

PDSA

Section Id :	64065339071
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory