

```

1  nSub = {}
2  while(Table 1 has more rows){
3      Read the first row X from Table 1
4      count = 0
5      if(member(M, X.SeqNo)){
6          count = count + 1
7      }
8      if(member(P, X.SeqNo)){
9          count = count + 1
10     }
11     if(member(C, X.SeqNo)){
12         count = count + 1
13     }
14     if(count >= 2){
15         nSub[SeqNo] = True
16     }
17     Move X to Table 2
18 }

```

```

1  nSub = {}
2  while(Table 1 has more rows){
3      Read the first row X from Table 1
4      count = 0
5      if(member(M, X.SeqNo)){
6          count = count + 1
7      }
8      if(member(P, X.SeqNo)){
9          count = count + 1
10     }
11     if(member(C, X.SeqNo)){
12         count = count + 1
13     }
14     nSub[X.SeqNo] = count
15     Move X to Table 2
16 }

```

6406531165887. ✖

## DBMS

Section Id :

64065322134

Section Number :

4

<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	16
<b>Number of Questions to be attempted :</b>	16
<b>Section Marks :</b>	50
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065350380
<b>Question Shuffling Allowed :</b>	No

**Question Number : 64 Question Id : 640653351286 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 " [DATABASE MANAGEMENT SYSTEMS](#)"**

**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 :**

6406531165888.  Yes

6406531165889.  No

<b>Sub-Section Number :</b>	2
<b>Sub-Section Id :</b>	64065350381
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 65 Question Id : 640653351291 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 statements.

**Statement 1:** Minimum arity of a node is defined as the arity of the tree.

**Statement 2:** Arity of the Binary Search Tree is 1.

**Options :**

6406531165906. ✖ Statement 1 is correct, statement 2 is wrong.

6406531165907. ✖ Statement 1 is wrong, statement 2 is correct.

6406531165908. ✖ Both the statements are correct.

6406531165909. ✔ Both the statements are wrong.

**Question Number : 66 Question Id : 640653351297 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 relation **EmployeeReview** is defined as **EmployeeReview**(*EmpID*, *Name*, *HireDate*, *Reviewer*, *Grade*) with the functional dependencies set

$$\mathcal{F} = \{EmpID \rightarrow HireDate, Name, Reviewer \rightarrow Grade, EmpID \rightarrow Grade\}$$

According to which of the following rules,  $EmpID \rightarrow \{HireDate, Name, Grade\}$  holds?

**Options :**

6406531165920. ✖ Decomposition

6406531165921. ✔ Union

6406531165922. ✖ Pseudo-transitivity

6406531165923. ✖ Augmentation

**Question Number : 67 Question Id : 640653351303 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 statements:

- 1. HyperText Transfer Protocol (HTTP) is used for communication with the Web server
- 2. HTTP provides formatting, hypertext link, and image display features.
- 3. The HTTP protocol is connectionless.

Choose the correct option.

**Options :**

- 6406531165944. ✖ Statements 1 & 2 are correct.
- 6406531165945. ✖ Statements 2 & 3 are correct.
- 6406531165946. ✔ Statements 1 & 3 are correct.
- 6406531165947. ✖ All the statements are correct.

<b>Sub-Section Number :</b>	3
<b>Sub-Section Id :</b>	64065350382
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 68 Question Id : 640653351288 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 tables **Name** and **Rule** shown in the Table 2 and Table 3 respectively.

Name
1. Augmentation
2. Complementation
3. Replication
4. Transitivity

Table 2: **Name**

Rule
A. If $X \rightarrow Y$ and $Z \subseteq W$ , then $WX \rightarrow YZ$ .
B. If $X \rightarrow Y$ and $Y \rightarrow Z$ , then $X \rightarrow (Z - Y)$
C. If $X \rightarrow Y$ , then $X \rightarrow (R - (X \cup Y))$ .
D. If $X \rightarrow Y$ , then $X \rightarrow Y$ but the reverse is not true

Table 3: **Rule**

Which among the following is the correct matching of **Name** and **Rule**?

**Options :**

6406531165894. ✖ 1-A, 2-D, 3-C, 4-B

6406531165895. ✖ 1-B, 2-A, 3-D, 4-C

6406531165896. ✔ 1-A, 2-C, 3-D, 4-B

6406531165897. ✖ 1-A, 2-C, 3-B, 4-D

**Question Number : 69 Question Id : 640653351290 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 a relational schema **Faculty** (*fid*, *fname*, *address*, *experience*, *designation*, *salary*), where the domains of all the attributes consist of atomic values. Consider the following functional dependencies for the relation **Faculty**.

$$\mathcal{F} = \{$$
$$fid \rightarrow fname, address, experience, designation,$$
$$designation \rightarrow salary,$$
$$experience \rightarrow designation$$
$$\}$$

What is the highest normal form of the above relational schema **Faculty**?

**Options :**

6406531165902. ✖ 1NF

6406531165903. ✔ 2NF

6406531165904. ✖ 3NF

6406531165905. ✖ BCNF

**Question Number : 70 Question Id : 640653351300 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 **CAR**(*LicenseNo*, *EngineSerialNo*, *Model*, *Year*) and the following functional dependencies set

$$\mathcal{F} = \{LicenseNo, EngineSerialNo \rightarrow Model,$$
$$EngineSerialNo \rightarrow Year$$
$$Model, Year \rightarrow EngineSerialNo\}$$

If the relation **CAR** is decomposed into two relations **C1** and **C2**, which of the following is a lossless decomposition?

**Options :**

6406531165932. ✖ C1(*LicenseNo*, *EngineSerialNo*, *Model*), C2(*Model*, *Year*)

6406531165933. ✔ C1(*LicenseNo*, *EngineSerialNo*, *Model*), C2(*EngineSerialNo*, *Year*)

6406531165934. ✖  $C1(\text{LicenseNo}, \text{EngineSerialNo}), C2(\text{Model}, \text{Year})$

6406531165935. ✖  $C1(\text{LicenseNo}, \text{EngineSerialNo}, \text{Year}), C2(\text{LicenseNo}, \text{Year})$

**Question Number : 71 Question Id : 640653351301 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 a relation  $R(A, B, C, D, E)$  with the following functional dependency sets

$$\mathcal{F} = \{A \rightarrow BCD, CD \rightarrow E, BC \rightarrow AE\}$$

Which of the following is the correct canonical cover of the set of functional dependencies  $\mathcal{F}$  that occur in the relation  $R$ ?

**Options :**

6406531165936. ✖  $A \rightarrow BD, CD \rightarrow E, BC \rightarrow AE$

6406531165937. ✖  $A \rightarrow D, CD \rightarrow E, BC \rightarrow E$

6406531165938. ✖  $A \rightarrow C, D \rightarrow E, BC \rightarrow AE$

6406531165939. ✔  $A \rightarrow BCD, CD \rightarrow E, BC \rightarrow A$

**Question Number : 72 Question Id : 640653351304 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 table profile shown in table 5:

Name	Salary
Data Engg	55000
Data Sci.	75000
Data Arch.	75000
App Dev	40000
JAVA Dev	30000
Programmer	60000

Table 5: profile

Choose the correct output table when the following query is executed.

```
UPDATE profile
SET salary = salary + 5000
WHERE name LIKE 'Data%' or 'X' = 'X'
```

Options :

Name	Salary
Data Engg	55000
Data Sci.	75000
Data Arch.	75000
App Dev	45000
JAVA Dev	35000
Programmer	65000

6406531165948. ✖

Name	Salary
Data Engg	55000
Data Sci.	75000
Data Arch.	75000
App Dev	40000
JAVA Dev	30000
Programmer	60000

6406531165949. ✖

Name	Salary
Data Engg	60000
Data Sci.	80000
Data Arch.	80000
App Dev	45000
JAVA Dev	35000
Programmer	65000

6406531165950. ✔



Name	Salary
Data Engg	60000
Data Sci.	80000
Data Arch.	80000
App Dev	40000
JAVA Dev	30000
Programmer	60000

6406531165951. ✖

**Sub-Section Number :** 4  
**Sub-Section Id :** 64065350383  
**Question Shuffling Allowed :** Yes

**Question Number : 73 Question Id : 640653351302 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 table **employee** inside the database **organization**. Table **employee** has the data as shown in table 4:

eid	eddept	ename	esalary
5	Acc	Abhijeet	720000
6	Mar	Shahid	608000
7	Sales	Shab	200000
8	Mar	Meenakshi	336000
9	Sales	Dj	528000
10	Mar	Sashi	432000
11	Acc	Rekha	3080000
12	HR	Joseph	1822504
13	HR	Arif	3037504

Table 4: employee

How many rows will be fetched and display by the Python code given below?

```

import os
import sys
import psycopg2

conn = None
try:
    conn = psycopg2.connect(database = 'organization', user = 'postgres',
        password = 'passwd',host = 'localhost',port = '5432')

    cur=conn.cursor()
    cur.execute('select * from employee where esalary > 500000')
    result = cur.fetchmany()
    for i in result:
        print(i)
    cur.close()
except (Exception, psycopg2.DatabaseError) as error:
    print(error)
finally:
    if conn is not None:
        conn.close()

```

### Options :

6406531165940. ✓ 1

6406531165941. ✖ 2

6406531165942. ✖ 3

6406531165943. ✖ 4

**Sub-Section Number :** 5

**Sub-Section Id :** 64065350384

**Question Shuffling Allowed :** Yes

**Question Number : 74 Question Id : 640653351298 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

**Question Label : Multiple Select Question**

Consider a **CourseSection** relation having the attributes (*Course, Section, Instructor, RoomNo, Time*) with the following set of FDs:

$$\mathcal{F} = \{ \text{Course, Section, Time} \rightarrow \text{RoomNo, Instructor} \\ \text{Course, Section, Instructor} \rightarrow \text{RoomNo, Time} \}$$

Which among the following is/are candidate key for the relation **CourseSection**?

**Options :**

6406531165924. ✓ {*Course, Section, Time*}

6406531165925. ✓ {*Course, Section, Instructor*}

6406531165926. ✗ {*Instructor, RoomNo*}

6406531165927. ✗ {*Course, Section, Time, Instructor*}

**Sub-Section Number :**

6

**Sub-Section Id :**

64065350385

**Question Shuffling Allowed :**

Yes

**Question Number : 75 Question Id : 640653351287 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

Consider the table **R** shown in the Table 1

X	Y	Z
a	b	d
a	c	e
a	c	d
a	b	e

Table 1: **R**

Which among the following holds true for the given table?

**Options :**

6406531165890. ✗  $X \rightarrow Y$

6406531165891. ✓  $X \rightarrow \rightarrow Y$

6406531165892. ✓ X → → Z

6406531165893. ✗ Y → Z

**Question Number : 76 Question Id : 640653351289 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

Consider a relational schema **BankAccount**(*Name, AadharNo, AccountNo, ContactNo*) with the following functional dependencies:

$$\mathcal{F} = \{$$

*Name* → *AadharNo*,  
*AadharNo* → *AccountNo*,  
*AccountNo* → *ContactNo*,  
*ContactNo* → *Name*

$$\}$$

Above relation **BankAccount** is decomposed into three smaller relations. **BankAccount1**( *Name, AadharNo*), **BankAccount2**(*AadharNo, AccountNo*) and **BankAccount3**(*AccountNo, ContactNo*).

Based on the given information, which among the following is incorrect?

**Options :**

6406531165898. ✗ The number of super keys for relation **BankAccount** are 15.

6406531165899. ✓ The decomposition of **BankAccount** is lossy.

6406531165900. ✗ *AccountNo* → *ContactNo* is preserved in the decomposed relations.

6406531165901. ✓ *ContactNo* → *Name* is not preserved in the decomposed relations.

**Question Number : 77 Question Id : 640653351299 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

Consider the relation  $R \{P, Q, R, S, T\}$  with the following set of FDs:

$X = \{P \rightarrow R, T \rightarrow S, PQ \rightarrow R, R \rightarrow QS\}$

$Y = \{P \rightarrow QR, T \rightarrow S, R \rightarrow Q, Q \rightarrow S\}$

Which of the following statement(s) is/are correct?

**Options :**

6406531165928. ✖ Both X covers Y and Y covers X

6406531165929. ✖ X covers Y

6406531165930. ✔ Y covers X

6406531165931. ✖ Neither X covers Y nor Y covers X

**Sub-Section Number :** 7

**Sub-Section Id :** 64065350386

**Question Shuffling Allowed :** Yes

**Question Number : 78 Question Id : 640653351292 Question Type : SA Calculator : None**

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

**Correct Marks : 3**

Question Label : Short Answer Question

If the maximum level of a complete binary search tree is 5, then what is the maximum number of nodes?

**NOTE:** Enter your answer to the nearest integer.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

63

**Sub-Section Number :** 8

**Sub-Section Id :** 64065350387

**Question Shuffling Allowed :**

No

**Question Id : 640653351293 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (79 to 81)**

Question Label : Comprehension

Answer the given subquestions on the basis of the following data.

Consider a magnetic disk with 8 platters, 2 surfaces/platter, 1024 tracks/surface, 2048 sectors/track, and 512 bytes/sector. The disk rotates with 6000 revolutions per minute.

**Sub questions**

**Question Number : 79 Question Id : 640653351294 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

What is the capacity of the disk?

**Options :**

6406531165911. ✓ 16 GB

6406531165912. ✖ 32 GB

6406531165913. ✖ 32 MB

6406531165914. ✖ 16 MB

**Question Number : 80 Question Id : 640653351295 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Short Answer Question

What is the minimum number of bits required for addressing all the sectors?



**NOTE:** Enter your answer to the nearest integer.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

25

**Question Number :** 81 **Question Id :** 640653351296 **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

Given that the rotational speed of the disk is 6000 revolutions per minute. Consider the seek time is 3ms. What will be the rotational latency?

**Options :**

6406531165916. ✖ 10 sec

6406531165917. ✖ 5 sec

6406531165918. ✖ 10 ms

6406531165919. ✔ 5 ms

## PDSA

<b>Section Id :</b>	64065322135
<b>Section Number :</b>	5
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	15
<b>Number of Questions to be attempted :</b>	15