

Question Label : Short Answer Question

Using Central limit theorem, find the approximate probability that there are more than 53 errors in a certain data file. Enter the answer correct to two decimal places.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

0.30 to 0.36

DBMS

Section Id :	64065348504
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	13
Number of Questions to be attempted :	13
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 :	640653100817
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 80 Question Id : 640653689489 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 :

6406532306546. ✓ YES

6406532306547. ✗ NO

Sub-Section Number :	2
Sub-Section Id :	640653100818
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 81 Question Id : 640653689493 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 following table:

PlayerID	PlayerName	Team	Runs
001	Virat	India	100
002	Rohit	India	100
003	Smith	Australia	70
004	Jason	England	60
005	Rohit	Bangladesh	65
006	Asif	Pakistan	50
007	Smith	Newzealand	70

Table 1: Players

Which of the following functional dependencies hold in the **Players** table? [MSQ]

Options :

6406532306556. ✓ $PlayerID \rightarrow PlayerName$

6406532306557. ✗ $PlayerName \rightarrow Runs$

6406532306558. ✗ $PlayerName \rightarrow Team$

6406532306559. ✗ $Runs \rightarrow PlayerID$

Sub-Section Number :

3

Sub-Section Id :

640653100819

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 82 Question Id : 640653689494 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 $R(A, B, C, D, E, F, G, H)$, where each attribute is atomic and the following functional dependencies hold:

$\mathcal{F} = \{AB \rightarrow CDE, D \rightarrow F, F \rightarrow GH, E \rightarrow AB\}$

The highest normal form for this relation is _____

Options :

6406532306560. ✓ 2 NF

6406532306561. ✗ 1 NF

6406532306562. ✗ 3 NF

6406532306563. ✗ BCNF

Question Number : 83 Question Id : 640653689500 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 magnetic disk with 4 platters, 2 surfaces per platter, 1024 tracks per surface, and 2048 sectors per track, with a disk capacity of 8 GB. Find the capacity of one sector.

Options :

6406532306574. ✗ 2048 bytes per sector

6406532306575. ✗ 1024 bytes per sector

6406532306576. ✓ 512 bytes per sector

6406532306577. ✗ 256 bytes per sector

Question Number : 84 Question Id : 640653689502 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 3:

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

Table 3: **profile**

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

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

Options :

Name	Salary
Data Engg	55000
Data Sci.	75000
Data Arch.	75000
App Dev	45000
JAVA Dev	30000
Programmer	60000

6406532306582. ✖

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

6406532306583. ✖

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

6406532306584. ✔

Name	Salary
Data Engg	60000
Data Sci.	80000
Data Arch.	80000
App Dev	45000
JAVA Dev	30000
Programmer	60000

6406532306585. ✖

Sub-Section Number : 4

Sub-Section Id : 640653100820

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 85 Question Id : 640653689501 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 table **instructor** in the **university** database as shown in Table 2.

id	name	dept_name	salary
10101	Srinivasan	Comp. Sci.	60000
12121	Wu	Finance	70000
15151	Mozart	Music	60000
32343	El Said	History	50000
33456	Gold	Physics	47000
76766	Crick	Biology	32000
98345	Kim	Elec. Eng.	20000

Table 2: **instructor**

Based on the given **instructor** table, what will be the output of the Python code given below?

```
import psycopg2
def connectDb(dbname, username, pwd, address, portnum):
    try:
        connection = psycopg2.connect(database = dbname,
                                       user = username,
                                       password = pwd,
                                       host = address,
                                       port = portnum)

        cursor = connection.cursor()
        query = '''SELECT id FROM instructor a WHERE
        (SELECT COUNT(salary) FROM instructor b WHERE
        b.salary>a.salary) < 2'''
        cursor.execute(query)
        result = cursor.fetchall()
        for row in result:
            d=row[0]
            print(d)

        cursor.close()

    except (Exception, psycopg2.DatabaseError) as error:
        print(error)
    finally:
        connection.close()
connectDb("university", "postgres", "root", "127.0.0.1", "5432")
```

Options :

10101
12121
15151

6406532306578. ✓

6406532306579. ✗

76766
98345

6406532306580. ✖

10101
12121

6406532306581. ✖ None of these

Question Number : 86 Question Id : 640653689506 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

The G20 is a global forum that brings together the world's major economies to discuss and cooperate on international economic and financial issues. The organizers of the G20 event have designed a database to store information about the participants, their countries, and the issues discussed.

The original database is

G20Participants (*Participant_ID, Participant_Name, Participant_Email, Participant_Country, Country_Leader_Name, Country_GDP, Issue_Discussed*)

The functional dependencies are:

$F = \{Participant_ID \rightarrow Participant_Name, Participant_Email$
 $Participant_Country \rightarrow Country_Leader_Name, Country_GDP$
 $Participant_ID \rightarrow Participant_Country\}$

The initial design of the database is as follows:

Table 1:

Participants (*Participant_ID, Participant_Name, Participant_Email*)

Table 2:

Country (*Participant_Country, Country_Leader_Name, Country_GDP, Issue_Discussed*)

The database designers have identified that this design violates the third normal form (3NF) of database normalization.

Which of the following changes would bring the database design into 3NF?

Options :

6406532306594. ✖ Split the **Country** table into two tables, one for the issue discussed and merge with **Participants**.

6406532306595. ✖ Remove *Issue_Discussed* and add *Participant_ID* in **Country** table. And create a new table for the issues discussed and link it to the **Participants**.

6406532306596. ✖ Remove *Issue_Discussed* from **Country** and create a new table for the issues discussed and link it to the **Participants** tables using a foreign key.

6406532306597. ✔ Remove *Issue_Discussed* from **Country** and create a new table for the issues discussed and link it to the **Participants** and **Country** tables using a foreign key.

Sub-Section Number :	5
Sub-Section Id :	640653100821
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 87 Question Id : 640653689507 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 **players**(Name, Team, Coach, Runs) with the data:

Name	Team	Coach	Runs
Sharma	CSK	Steven	99
Sharma	MI	Mahela	50
Sharma	MI	Mahela	99
Sharma	CSK	Steven	50
Kumar	CSK	Steven	49
Kumar	MI	Mahela	100
Kumar	MI	Mahela	49
Kumar	CSK	Steven	100

Table 4: **players**

Check whether the relation **players** is in 4NF or not. If not, then decomposed it into 4NF.

Choose the correct option.

Options :

6406532306598. ✖ The relation **players** is in 4NF.

Name	Runs
Sharma	99
Sharma	50
Kumar	49
Kumar	100

Table 5: **players1**

6406532306599. ✔

Name	Team	Coach
Sharma	CSK	Steven
Sharma	MI	Mahela
Kumar	CSK	Steven
Kumar	MI	Mahela

Table 6: **players2**

Name	Team	Runs
Sharma	CSK	99
Sharma	MI	50
Kumar	CSK	49
Kumar	MI	100

Table 7: **players1**

6406532306600. ✖

Team	Coach
CSK	Steven
MI	Mahela

Table 8: **players2**

6406532306601. ✖

Name	Team	Runs
Sharma	CSK	99
Sharma	MI	50
Kumar	CSK	49
Kumar	MI	100

Table 9: players1

Name	Coach	Runs
Sharma	Steven	99
Sharma	Mahela	50
Kumar	Steven	49
Kumar	Mahela	100

Table 10: players2

Sub-Section Number : 6
Sub-Section Id : 640653100822
Question Shuffling Allowed : No
Is Section Default? : null

Question Id : 640653689490 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (88 to 89)

Question Label : Comprehension

Consider the relation schema and the set of functional dependencies, and answer the sub questions.

$R(A, B, C, D, E, F, G)$
 $\mathcal{F} = \{A \rightarrow B, C \rightarrow E, D \rightarrow EF, B \rightarrow D, F \rightarrow G\}$

Sub questions

Question Number : 88 Question Id : 640653689491 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

What is the total number of superkeys present in relation **R**?

Options :

6406532306549. ✓ 32

6406532306550. ✖ 29

6406532306551. ✖ 33

Question Number : 89 Question Id : 640653689492 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 R to be decomposed into the following decompositions:

$$D_1 = (A, B), (A, C, D, E), (E, F, G)$$
$$D_2 = (A, B, C, D, E), (D, E, F), (F, G)$$

Choose the correct option(s).

Options :

6406532306552. ✖ D_1 is lossy but dependency preserving

6406532306553. ✖ D_2 is lossless but not dependency preserving

6406532306554. ✓ D_1 is lossy but not dependency preserving

6406532306555. ✓ D_2 is lossless but dependency preserving

Question Id : 640653689495 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Question Numbers : (90 to 91)

Question Label : Comprehension

The Indian Space Research Organization (ISRO) has decided to maintain a database of all the employees and projects that come under the Chandrayaan mission. Below is the original database structure designed by ISRO:

Chandrayaan(*Emp_ID*, *Scientist_Name*, *Technician_Name*, *Project_ID*, *Project_Name*, *Budget*)

The functional dependencies applicable to Chandrayaan are:

$$F = \{Emp_ID \rightarrow Scientist_Name, Technician_Name, \\ Project_ID \rightarrow Project_Name, \\ Project_Name \rightarrow Budget\}$$

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 90 Question Id : 640653689496 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

The current table is in which normal form?

Options :

6406532306564. ✔ 1 NF

6406532306565. ✖ 2 NF

6406532306566. ✖ 3 NF

6406532306567. ✖ BCNF

Question Number : 91 Question Id : 640653689497 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

Which of the following decompositions will help to achieve BCNF?

Options :

6406532306568. ✓
Table 1: Scientists (*Emp_ID*, *Scientist_Name*)
Table 2: Technicians (*Emp_ID*, *Technician_Name*)
Table 3: Projects (*Project_ID*, *Project_Name*)
Table 4: Finances (*Project_Name*, *Budget*)

6406532306569. ✖
Table 1: Scientists (*Emp_ID*, *Scientist_Name*, *Project_ID*)
Table 2: Technicians (*Emp_ID*, *Technician_Name*)
Table 3: Projects (*Project_ID*, *Project_Name*, *Budget*)

6406532306570. ✖
Table 1: Scientists (*Emp_ID*, *Scientist_Name*)
Table 2: Technicians (*Emp_ID*, *Technician_Name*, *Project_Name*, *Budget*)
Table 3: Projects (*Project_ID*, *Project_Name*)

6406532306571. ✖
Table 1: Scientists (*Emp_ID*, *Scientist_Name*)
Table 2: Technicians (*Emp_ID*, *Technician_Name*)
Table 3: Projects (*Project_ID*, *Project_Name*, *Budget*)
Table 4: Finances (*Project_Name*, *Budget*)

Sub-Section Number :	7
Sub-Section Id :	640653100823
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653689503 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Question Numbers : (92 to 93)

Question Label : Comprehension

Consider the relation **CAR**(*LicenseNo*, *EngineSerialNo*, *Model*, *Year*) and the following functional dependencies set

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

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 92 Question Id : 640653689504 Question Type : MSQ Is Question

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

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following is/are candidate keys for relation **CAR**?

Options :

6406532306586. ✓ (LicenseNo, EngineSerialNo)

6406532306587. ✗ (LicenseNo, EngineSerialNo, Year)

6406532306588. ✓ (LicenseNo, Model, Year)

6406532306589. ✗ (LicenseNo)

Question Number : 93 Question Id : 640653689505 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

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

Options :

6406532306590. ✗ **C1**(LicenseNo, EngineSerialNo, Model), **C2**(Model, Year)

6406532306591. ✔ C1(LicenseNo, EngineSerialNo, Model), C2(EngineSerialNo, Year)

6406532306592. ✖ C1(LicenseNo, EngineSerialNo), C2(Model, Year)

6406532306593. ✖ C1(LicenseNo, EngineSerialNo, Year), C2(LicenseNo, Year)

Sub-Section Number : 8
Sub-Section Id : 640653100824
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 94 Question Id : 640653689498 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 a string of pending block references in the order given: 4, 6, 4, 1, 3, 2, 4, 1, 4, 2. The system has a buffer with 4 slots. Assume that initially, the buffer is empty. If LRU buffer replacement policy is used, then what will be the value of the following expression?

Number of misses – Number of hits

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes

Answers Type : Equal
Text Areas : PlainText

Possible Answers :

0

Sub-Section Number : 9
Sub-Section Id : 640653100825
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 95 Question Id : 640653689499 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

Consider a binary search tree consisting of 15 elements. Let m be the maximum height possible for a given binary search tree, and n be the minimum height possible for a given binary search tree.

What will be the value of $m - n$?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

11

PDSA

Section Id :	64065348505
Section Number :	7
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	17
Number of Questions to be attempted :	17
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes