Sub questions

Question Number : 205 Question Id : 640653903772 Question Type : MCQ Calculator : Yes Correct Marks : 2

Question Label : Multiple Choice Question

Which hypothesis test should the researcher use to compare the effectiveness of the two teaching methods?

Options :

6406533043329. ✱ One-sample t-test

6406533043330. ✱ Two-sample t-test

6406533043331. ✔ Two-sample z-test

6406533043332. ✱ One-sample z-test

6406533043333. ✱ Chi-squared test

6406533043334. ✱ F test

Question Number : 206 Question Id : 640653903773 Question Type : SA Calculator : None Correct Marks : 3

Question Label : Short Answer Question

If the P-value of the test is 0.05, find the value of n. Round off your answer to the next greatest integer.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

20

DBMS

Section Id :	64065364120
Section Number :	7
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	21
Number of Questions to be attempted :	21
Section Marks :	50
Display Number Panel :	Yes
Section Negative Marks :	0
Group All Questions :	No
Enable Mark as Answered Mark for Review and	No

Clear Response :

Maximum Instruction Time :   0

Sub-Section Number :   1

Sub-Section Id :   640653134016

Question Shuffling Allowed :   No

Question Number : 207 Question Id : 640653903774 Question Type : MCQ Calculator : Yes 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 :

6406533043336. ✔ YES

6406533043337. ✖ NO

Sub-Section Number :   2

Sub-Section Id :   640653134017

Question Shuffling Allowed :   Yes

Question Number : 208 Question Id : 640653903775 Question Type : MCQ Calculator : Yes Correct Marks : 2

Question Label : Multiple Choice Question

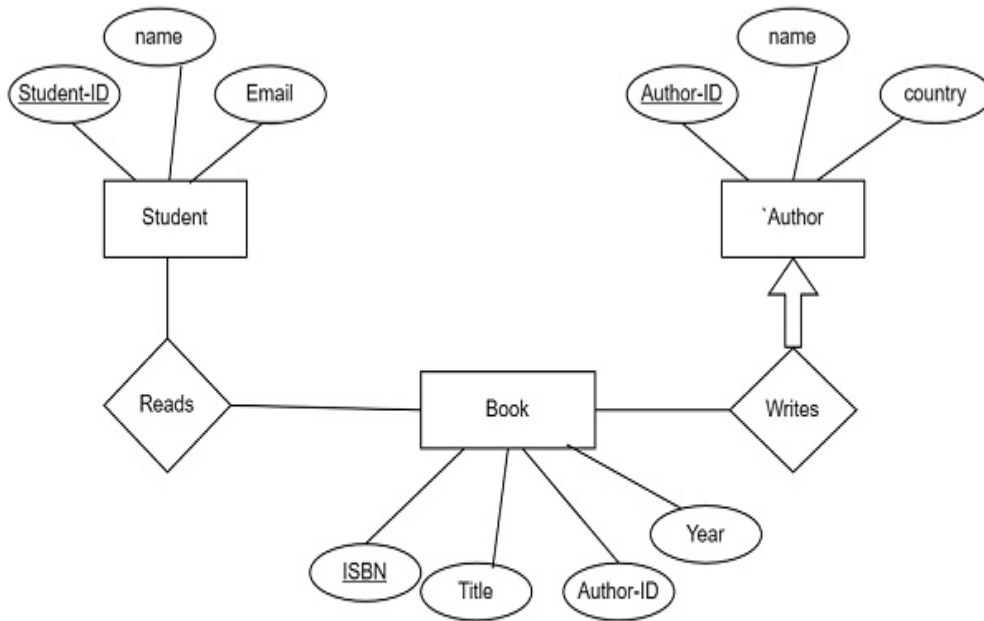Consider the ER Diagram as shown below:

Figure 1: **Library**

How many tables are required to convert the given ER Diagram into the relational schema?

Options :

6406533043338. ✷ 3

6406533043339. ✷ 4

6406533043340. ✔ 5

6406533043341. ✷ 6

Question Number : 209 Question Id : 640653903776 Question Type : MCQ Calculator : Yes

Correct Marks : 2

Question Label : Multiple Choice Question

Let $S(Y, U, V)$ be a relation. Let $R(P, W, X, Y, Z)$ be another relation with the following functional dependencies:

$$\mathcal{F} = \{X \rightarrow ZW, Y \rightarrow X, W \rightarrow P\}$$

R contains 250 tuples and S contains 300 tuples. What is the maximum number of tuples possible as output of $R \bowtie S$?

Options :

6406533043342. ✷ 75000

6406533043343. ✷ 250

6406533043344. ✔ 300

6406533043345. ✷ 50

Question Number : 210 Question Id : 640653903780 Question Type : MCQ Calculator : Yes

Correct Marks : 2

Question Label : Multiple Choice Question

Consider the following monthly backup schedule used by a company:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1/ Full	2/ Incremental	3/ Incremental	4/ Incremental	5/ Incremental	6/ Incremental	7/ Differential
8/ Incremental	9/ Incremental	10/ Incremental	11/ Incremental	12/ Differential	13/ Incremental	14/ Incremental
15/ Incremental	16/ Incremental	17/ Differential	18/ Incremental	19/ Incremental	20/ Incremental	21/ Incremental
22/ Differential	23/ Incremental	24/ Incremental	25/ Incremental	26/ Incremental	27/ Incremental	28/ Incremental
29/ Incremental	30/ Incremental					

If a failure occurs on the 15th day of the month after the backup has been completed, how many backup sets have to be loaded for a full recovery?

Options :

6406533043358. ✔ 5

6406533043359. ✖ 4

6406533043360. ✖ 7

6406533043361. ✖ 6

Question Number : 211 Question Id : 640653903781 Question Type : MCQ Calculator : Yes

Correct Marks : 2

Question Label : Multiple Choice Question

Given below are four statements. Match each of them with the corresponding property in the set of ACID properties.

Statement 1 : Any data written to the database must be valid according to all the defined rules like the check and key constraints and triggers.
Statement 2 : Every completed transaction is saved into the secondary storage.
Statement 3 : During money transfer, either the amount debited from the source account must be credited to the destination account or the money should not be debited from the source account at all.
Statement 4 : If multiple transactions are being executed concurrently, then the final result should be the same irrespective of the sequence in which the transactions were executed.

Let A denote Atomicity, C denote Consistency, I denote Isolation and D denote Durability. From among the given options, find the correct match.

Options :

6406533043362. ✖ 1 - A, 2 - C, 3 - I, 4 - D

6406533043363. ✔ 1 - C, 2 - D, 3 - A, 4 - I

6406533043364. ✱ 1 - C, 2 - D, 3 - I, 4 - A

6406533043365. ✱ 1 - A, 2 - I, 3 - D, 4 - C

Question Number : 212 Question Id : 640653903783 Question Type : MCQ Calculator : Yes

Correct Marks : 2

Question Label : Multiple Choice Question

Consider the table **Players** as given below.Two separate bitmap indices are created based on Gender and Level attributes.

PID	name	gender	level
001	Percy	Male	International
002	Jason	Male	District
003	Hazel	Female	National
004	Leo	Male	National
005	Rayna	Female	District
006	Annabeth	Female	National
007	Frank	Male	International
008	Piper	Female	District

Table 2: **Players**

Let us create two different bitmap indices, one on the *gender* attribute and the other on the *level* attribute. Which of the following options will give the correct result if we want to find all males who are playing in 'International' level.

Note: Options are in the form of **gender (operation) level**

Options :

6406533043370. ✱ 00101101 AND 10000010

6406533043371. ✱ 00101101 OR 00110100

6406533043372. ✔ 11010010 AND 10000010

6406533043373. ✱ 11010010 OR 00110100

Sub-Section Number :   3

Sub-Section Id :   640653134018

Question Shuffling Allowed :   Yes

Question Number : 213 Question Id : 640653903777 Question Type : MCQ Calculator : Yes

Correct Marks : 3

Question Label : Multiple Choice Question

Consider a schedule S given below where $W_i(a)$ means that transaction T_i is performing a write operation on data item (a) and similarly $R_i(a)$ means that transaction T_i is performing a read operation on data item (a).

$$S : R_1(B), R_4(A), W_2(A), W_3(C), R_1(B), W_2(A), W_3(A), W_4(D), R_2(D), R_1(D)$$

Identify the appropriate time stamp ordering for transactions T_1, T_2, T_3 and T_4 that allows to execute the given schedule S using the time stamp protocol.

Options :

6406533043346. ✖ 21, 26, 31, 16

6406533043347. ✔ 21, 31, 26, 16

6406533043348. ✖ 16, 21, 26, 31

6406533043349. ✖ 21, 26, 16, 31

Question Number : 214 Question Id : 640653903778 Question Type : MCQ Calculator : Yes Correct Marks : 3

Question Label : Multiple Choice Question

Choose the correct output obtained on running the given SQL statements on Table Employee.

EID	EName
E01	Arthur
E02	Raina
E03	Meena
E04	Arthur
E06	Joey

Table **Employee**

```
SQL> SAVEPOINT SP1;
SQL> UPDATE Employee SET EName='Jainie'
        WHERE EID='E06';
SQL> SAVEPOINT SP2;
SQL> DELETE FROM Employee WHERE EID='E02';
SQL> COMMIT;
SQL> SAVEPOINT SP3;
SQL> UPDATE Employee SET EName='Raina'
        WHERE EID='E04';
SQL> ROLLBACK TO SP2;
```

Options :

6406533043350. ✖

EID	EName
E01	Arthur
E02	Raina
E03	Meena
E04	Arthur
E06	Jainie

6406533043351. ✔

EID	EName
E01	Arthur
E03	Meena
E04	Arthur
E06	Jainie

6406533043352. ✖

EID	EName
E01	Arthur
E03	Meena
E04	Raina
E06	Jainie

EID	EName
E01	Arthur
E02	Raina
E03	Meena
E04	Arthur
E06	Joey

6406533043353. ✖

Question Number : 215 Question Id : 640653903779 Question Type : MCQ Calculator : Yes Correct Marks : 3

Question Label : Multiple Choice Question

Consider the given log records at an instance of time:

Table 1: Log records

$< T_0$ start $>$
$< T_0, A, 100, 200 >$
$< T_1$ start $>$
$< T_1, B, 400, 300 >$
$< T_0, C, 500, 600 >$
$< T_2$ start $>$
$< T_2, D, 800, 700 >$
$< Commit\ T_1 >$
$< Checkpoint\ L >$
$< T_2, C, 500, 1000 >$
$< Commit\ T_2 >$
$< T_0, B, 400, 500 >$

Suppose there is a system crash after the last log record. What would be the value of A, B, C, and D stored on disk at that point?

Options :

6406533043354. ✖ $A = 100, B = 400, C = 1000, D = 700$

6406533043355. ✔ $A = 100, B = 300, C = 1000, D = 700$

6406533043356. ✖ $A = 200, B = 300, C = 1000, D = 700$

6406533043357. ✖ $A = 200, B = 400, C = 500, D = 800$

Question Number : 216 Question Id : 640653903782 Question Type : MCQ Calculator : Yes

Correct Marks : 3

Question Label : Multiple Choice Question

The following key values are inserted into a B^+ tree of order 4 in a given sequence. The tree is initially empty.

25,8,13,59,3,31,60,11,43

Which of the following values appear only once in the tree?

Options :

6406533043366. ✱ 59

6406533043367. ✱ 25

6406533043368. ✔ 60

6406533043369. ✱ 11

Sub-Section Number :	4
Sub-Section Id :	640653134019
Question Shuffling Allowed :	Yes

Question Number : 217 Question Id : 640653903784 Question Type : MSQ Calculator : Yes

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Let $A(T,U,V,W)$ be a relational schema with the following functional dependencies:

$\mathcal{F} = \{W \to UT, UV \to W, V \to T, W \to U\}$

We want to decompose the relation A into 3NF. We asked ChatGPT to decompose the relation into 3NF and below shown is the response from ChatGPT: The decomposed schema in 3NF is:

1. $R1(W,U,T)$
2. $R2(V,T)$
3. $R3(U,V,W)$

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

Options :

6406533043374. ✱ The decomposition **R1, R2, R3** are in 3NF but all the dependencies are not getting preserved.

6406533043375. ✱ The decomposition **R1, R2, R3** are in BCNF.

6406533043376. ✔ In the decomposition, **R1** and **R2** are in BCNF and **R3** is in 3NF.

6406533043377. ✔ In the decomposition, **R2** is not required. As **R1** and **R3** is sufficient decomposition in 3NF but all the dependencies will not get preserved.

Question Number : 218 Question Id : 640653903785 Question Type : MSQ Calculator : Yes

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Given relation **student_info**(roll_no, name, subject, marks) with (roll_no, subject) as candidate key. Which of the following functional dependencies violates the Third normal form(3NF)?

Options :

6406533043378. ✖ $roll\_no, subject \to marks$

6406533043379. ✖ $roll\_no, subject \to name$

6406533043380. ✔ $name \to marks$

6406533043381. ✔ $marks \to name$

Question Number : 219 Question Id : 640653903786 Question Type : MSQ Calculator : Yes
Correct Marks : 3 Max. Selectable Options : 0
Question Label : Multiple Select Question

Consider the following schema:
Customers($C\_id, C\_name, address$)
Items(Itm_id, Itm_name)
Orders($ord\_id, C\_id, Itm\_id, cost$)

Which of the following relational algebra expressions return the name of customers who have not purchased sugar?

Options :

6406533043382. ✖ $\Pi_{C\_name}(\Pi_{Itm\_id}(\sigma_{Itm\_name<>'sugar'} Items) \bowtie Orders)$

6406533043383. ✔ $\Pi_{C\_name}(\Pi_{C\_id}(\Pi_{Itm\_id}(\sigma_{Itm\_name<>'sugar'} Items) \bowtie Orders) \bowtie Customers)$

6406533043384. ✖ $\Pi_{C\_name}(\sigma_{Itm\_name<>'sugar'} Items \bowtie Customers)$

6406533043385. ✔ $\Pi_{C\_name}((\sigma_{Itm\_name<>'sugar'} Items) \bowtie Orders \bowtie Customers)$

Question Number : 220 Question Id : 640653903788 Question Type : MSQ Calculator : Yes
Correct Marks : 3 Max. Selectable Options : 0
Question Label : Multiple Select Question

Consider the following schema:
Students($\underline{StudentID}$, Name, Department)
Hostels($\underline{HostelID}$, H_name)
Hostel_Allocation($\underline{StudentID, HostelID}$, RoomNumber)

Which of the following queries returns the *StudentID* and *name* of students to whom Krishna Hostel is not alloted?

Options :

6406533043390. ✓
```
SELECT Students.StudentID, Students.Name FROM Students
JOIN Hostel_Allocation ON Students.StudentID = Hostel_Allocation.StudentID
JOIN Hostels ON Hostel_Allocation.HostelID = Hostels.HostelID
WHERE Hostels.H_Name <> 'Krishna';
```

6406533043391. ✗
```
SELECT StudentID, Name FROM Students WHERE StudentID IN
(SELECT HostelID from Hostels WHERE Hostels.H_Name <> 'Krishna');
```

6406533043392. ✗
```
SELECT Students.StudentID, Students.Name FROM Students
JOIN Hostel_Allocation ON Students.StudentID = Hostel_Allocation.StudentID
WHERE Hostels.H_Name <> 'Krishna';
```

6406533043393. ✓
```
SELECT StudentID, Name FROM Students WHERE StudentID IN
(SELECT StudentID from Hostel_Allocation WHERE HostelID =
(SELECT HostelID from Hostels WHERE Hostels.H_Name <> 'Krishna'));
```

Question Number : 221 Question Id : 640653903789 Question Type : MSQ Calculator : Yes Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Imagine you're designing a database for an employee management system where employees are categorized based on their departments, job roles, and joining dates. The schema includes a relation **Employees**($EmpID, EmpName, Dept, JobRole, JoiningDate$) to store information about the employees.

Choose the correct sets of functional dependencies for the relation
Employees($EmpID, EmpName, Dept, JobRole, JoiningDate$) under which Employees is in 2NF but not in 3NF:

Options :

6406533043394. ✗ $\{EmpID \rightarrow (EmpName, Dept, JobRole, JoiningDate)\}$

6406533043395. ✓ $\{EmpID \rightarrow (EmpName, Dept, JobRole, JoiningDate), EmpName \rightarrow JoiningDate\}$

6406533043396. ✔ $\{EmpID \rightarrow (EmpName, Dept), Dept \rightarrow (JobRole, joiningDate)\}$

6406533043397. ✖ $\{(EmpID, EmpName) \rightarrow (Dept, JobRole), EmpName \rightarrow JoiningDate\}$

Question Number : 222 Question Id : 640653903792 Question Type : MSQ Calculator : Yes
Correct Marks : 3 Max. Selectable Options : 0
Question Label : Multiple Select Question

Consider the following schedule **S**.

$S_1 : R_1(A), R_3(C), W_2(B), R_2(A), W_1(B), W_3(C), Com_1, Com_2, Com_3$

Which of the following options is/are correct?

Options :
6406533043406. ✖ Schedule **S** can not be two-phase lockable.
6406533043407. ✔ Schedule **S** can be two-phase lockable.
6406533043408. ✖ Schedule **S** can be strict two-phase lockable.
6406533043409. ✔ Schedule **S** is conflict serializable.

Sub-Section Number :	5
Sub-Section Id :	640653134020
Question Shuffling Allowed :	Yes

Question Number : 223 Question Id : 640653903787 Question Type : MSQ Calculator : Yes
Correct Marks : 2 Max. Selectable Options : 0
Question Label : Multiple Select Question

Consider the relational schema $R(A, B, C, D, E, F, G)$ with the given list of functional dependencies: $\mathcal{F} = \{C \rightarrow AB, G \rightarrow E, CD \rightarrow F\}$
Which of the following is/are a super key for **R**?

Options :
6406533043386. ✖ $\{BDE\}$

6406533043387. ✖ $\{CG\}$

6406533043388. ✔ $\{CDG\}$

6406533043389. ✖ $\{BDG\}$

Question Number : 224 Question Id : 640653903791 Question Type : MSQ Calculator : Yes

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the following schedule S:

T1	T2
r(A)	
	r(b)
w(A)	
	r(A)
	w(A)
	w(B)
r(B)	
w(B)	

Table 3: schedule: S

Which of the following is true for schedule S?

Options :

6406533043402. ✖ Schedule **S** is Conflict serializable

6406533043403. ✖ Schedule **S** is View serializable

6406533043404. ✔ Schedule **S** is not Conflict Serializable

6406533043405. ✔ Schedule **S** is not View Serializable

Sub-Section Number :	6
Sub-Section Id :	640653134021
Question Shuffling Allowed :	Yes

Question Number : 225 Question Id : 640653903790 Question Type : MSQ Calculator : Yes

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

Choose the correct statement(s):

Options :

6406533043398. ✔ In an ordered index, index entries are stored sorted on the search key value

6406533043399. ✔ Primary index is also called clustering index

6406533043400. ✔ Secondary index is an index whose search key specifies an order different from the sequential order of the file

6406533043401. ✖ An index-sequential file is an unordered file

Sub-Section Number :	7
Sub-Section Id :	640653134022
Question Shuffling Allowed :	Yes

Question Number : 226 Question Id : 640653903793 Question Type : SA Calculator : None

Correct Marks : 2

Question Label : Short Answer Question

The following numbers are inserted into an empty binary search tree in the given order: 27, 43, 33, 49, 81, 92, 73, 10, 78. What is the height of the resulting binary search tree?

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 :	640653134023
Question Shuffling Allowed :	Yes

Question Number : 227 Question Id : 640653903794 Question Type : SA Calculator : None

Correct Marks : 3

Question Label : Short Answer Question

Consider a **Block nested loop join** for the two relations, **instructor** and **department**. Assuming the worst-case memory availability and **instructor** as the outer relation, the provided details are as follows:

• Total number of block transfers: 30500
• Total number of seeks required: 2000
• Number of block in the outer relation: 500

What is the number of blocks in the inner relations?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

30

PDSA

Section Id :	64065364121
Section Number :	8
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25