Text Areas : PlainText

Possible Answers :

2

Question Number : 107 Question Id : 640653902391 Question Type : SA Calculator : None Correct Marks : 1

Question Label : Short Answer Question

Enter the value of z.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

DBMS

Section Id :	64065364074
Section Number :	6
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 Clear Response :	No
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	640653133683
Question Shuffling Allowed :	No

Question Number : 108 Question Id : 640653902396 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 :

6406533039250. ✔ YES

6406533039251. ✖ NO

Sub-Section Number : 2

Sub-Section Id : 640653133684

Question Shuffling Allowed : Yes

Question Number : 109 Question Id : 640653902397 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 ⋈ S?

Options :

6406533039252. ✖ 75000

6406533039253. ✖ 250

6406533039254. ✔ 300

6406533039255. ✖ 50

Question Number : 110 Question Id : 640653902398 Question Type : MCQ Calculator : Yes
Correct Marks : 2

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> SAVEPOINT SP3;
SQL> UPDATE Employee SET EName='Raina'
     WHERE EID='E04';
SQL> ROLLBACK TO SP2;
```

Options :

6406533039256. ✔

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

6406533039257. ✖

EID	EName
E01	Arthur
E03	Meena
E04	Arthur
E06	Jainie

6406533039258. ✖

EID	EName
E01	Arthur
E03	Meena
E04	Raina
E06	Jainie

6406533039259. ✖

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

Question Number : 111 Question Id : 640653902399 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 :

6406533039260. ✖ 1 - A, 2 - C, 3 - I, 4 - D

6406533039261. ✔ 1 - C, 2 - D, 3 - A, 4 - I

6406533039262. ✖ 1 - C, 2 - D, 3 - I, 4 - A

6406533039263. ✖ 1 - I, 2 - A, 3 - D, 4 - C

Question Number : 112 Question Id : 640653902400 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 27th day of the month before the backup for the day has been completed, how many backup sets have to be loaded for a full recovery?

Options :

6406533039264. ✖ 4

6406533039265. ✖ 5

6406533039266. ✔ 6

6406533039267. ✖ 7

Question Number : 113 Question Id : 640653902403 Question Type : MCQ Calculator : Yes Correct Marks : 2

Question Label : Multiple Choice Question

Consider the table **Players** as given below:

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 1: **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 females who are playing in the 'District' level.
Note: Options are in the form of **gender (operation) level**

Options :

6406533039276. ✔ 00101101 AND 01001001

6406533039277. ✖ 00101101 OR 00110100

6406533039278. ✖ 11010010 AND 01001001

6406533039279. ✖ 11010010 OR 00110100

Sub-Section Number : 3

Sub-Section Id : 640653133685

Question Shuffling Allowed : Yes

Question Number : 114 Question Id : 640653902401 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 :

6406533039268. ✖ 20, 30, 25, 15

6406533039269. ✖ 15, 20, 25, 30

6406533039270. ✔ 20, 25, 30, 15

6406533039271. ✖ 20, 25, 15, 30

Question Number : 115 Question Id : 640653902402 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

How many node splits will be required to perform these insertions?

Options :

6406533039272. ✖ 5

6406533039273. ✖ 4

6406533039274. ✖ 6

6406533039275. ✔ 3

Question Number : 116 Question Id : 640653902404 Question Type : MCQ Calculator : Yes Correct Marks : 3

Question Label : Multiple Choice 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 3NF:

Options :

6406533039280. ✔ $\{EmpID \rightarrow (EmpName, Dept, JobRole, JoiningDate)\}$

6406533039281. ✖ $\{EmpID \rightarrow (EmpName, Dept, JobRole, JoiningDate), EmpName \rightarrow JoiningDate\}$

6406533039282. ✖ $\{EmpID \rightarrow (EmpName, Dept), Dept \rightarrow (JobRole, joiningDate)\}$

6406533039283. ✖ $\{EmpID \rightarrow EmpName, EmpName \rightarrow (Dept, JobRole, JoiningDate)\}$

Sub-Section Number :	4
Sub-Section Id :	640653133686
Question Shuffling Allowed :	Yes

Question Number : 117 Question Id : 640653902406 Question Type : MSQ Calculator : Yes Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

Choose the correct statement(s):

Options :

6406533039288. ✔ In a dense index, index record appears for every search-key value in the file.

6406533039289. ✔ Secondary index is also called non-clustering index

6406533039290. ✔ Sparse index is contains index records for only some search-key values.

6406533039291. ✔ In an ordered index, index entries are stored sorted on the search key value.

Sub-Section Number : 5

Sub-Section Id : 640653133687

Question Shuffling Allowed : Yes

Question Number : 118 Question Id : 640653902405 Question Type : MSQ Calculator : Yes Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Let $\mathrm{A}(T,U,V,W)$ be a relational schema with the following functional dependencies:
$\mathcal{F} = \{W \rightarrow UT, UV \rightarrow W, V \rightarrow T, W \rightarrow U\}$
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. $\mathrm{R1}(W,U,T)$
2. $\mathrm{R2}(V,T)$
3. $\mathrm{R3}(U,V,W)$

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

Options :

6406533039284. ✔ The decomposition **R1, R2, R3** are in 3NF and all the dependencies are getting preserved.

6406533039285. ✖ In the decomposition, **R2** is not required. As **R1 and R3** is sufficient decomposition in 3NF and all the dependencies are getting preserved.

6406533039286. ✖ In the decomposition, **R1** is not required. As **R2 and R3** is sufficient decomposition in 3NF and all the dependencies are getting preserved.

6406533039287. ✔ 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 : 119 Question Id : 640653902407 Question Type : MSQ Calculator : Yes Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the following schedule S.

$$\mathrm{S}: R_1(A), R_2(B), W_1(C), Com_1, R_3(B), R_3(C), W_2(B), W_3(A), Com_2, Com_3$$

Which of the following options is/are correct?

Options :

6406533039292. ✖ Schedule **S** can not be two-phase lockable.

6406533039293. ✔ Schedule **S** can be two-phase lockable.

6406533039294. ✔ Schedule **S** can be strict two-phase lockable.

6406533039295. ✔ Schedule **S** is conflict serializable.

Question Number : 120 Question Id : 640653902408 Question Type : MSQ Calculator : Yes Correct Marks : 3 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 2: schedule: S

Which of the following is true for schedule S?

Options :

6406533039296. ✖ Schedule **S** is Conflict serializable

6406533039297. ✖ Schedule **S** is View serializable

6406533039298. ✔ Schedule **S** is not Conflict Serializable

6406533039299. ✔ Schedule **S** is not View Serializable

Question Number : 121 Question Id : 640653902409 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 :

6406533039300. ✖ $roll\_no, subject \rightarrow marks$

6406533039301. ✖ $roll\_no, subject \rightarrow name$

6406533039302. ✔ $name \rightarrow marks$

6406533039303. ✔ $marks \rightarrow name$

Question Number : 122 Question Id : 640653902410 Question Type : MSQ Calculator : Yes Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the following schema
Customers($\underline{C\_id}, C\_name, address$)
Items($\underline{Itm\_id}, Itm\_name$)
Orders($\underline{ord\_id, C\_id, Itm\_id}, cost$)

Which of the following relational algebra expressions returns the name of customers who purchased biscuits?

Options :

6406533039304. ✗ $\Pi_{C\_name}(\sigma_{Itm\_name='biscuits'} Items \bowtie Orders)$

6406533039305. ✓ $\Pi_{C\_name}(\Pi_{C\_id}(\Pi_{Itm\_id}(\sigma_{Itm\_name='biscuits'} Items) \bowtie Orders) \bowtie Customers)$

6406533039306. ✗ $\Pi_{C\_name}(\sigma_{Itm\_name='biscuits'} Items \bowtie Customers)$

6406533039307. ✓ $\Pi_{C\_name}((\sigma_{Itm\_name='biscuits'} Items) \bowtie Orders \bowtie Customers)$

Question Number : 123 Question Id : 640653902412 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 Narmada hostel is allotted?

Options :

6406533039312. ✓
```
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 = 'Narmada';
```

6406533039313. ✗
```
SELECT StudentID, Name FROM Students WHERE StudentID IN
(SELECT HostelID from Hostels WHERE Hostels.H_Name = 'Narmada');
```

6406533039314. ✖

```
SELECT Students.StudentID, Students.Name FROM Students
JOIN Hostel_Allocation ON Students.StudentID = Hostel_Allocation.StudentID
WHERE Hostels.H_Name = 'Narmada';
```

6406533039315. ✔

```
SELECT StudentID, Name FROM Students WHERE StudentID IN
(SELECT StudentID from Hostel_Allocation WHERE HostelID =
(SELECT HostelID from Hostels WHERE Hostels.H_Name = 'Narmada'));
```

Sub-Section Number : 6
Sub-Section Id : 640653133688
Question Shuffling Allowed : Yes

Question Number : 124 Question Id : 640653902414 Question Type : SA Calculator : None Correct Marks : 3

Question Label : Short Answer Question

The following numbers are inserted into an empty binary search tree in the given order: 27, 23, 33, 49, 51, 92, 83, 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 :

6

Question Number : 125 Question Id : 640653902415 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: 20500
- Total number of seeks required: 1000
- 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 :

40

Sub-Section Number : 7

Sub-Section Id : 640653133689

Question Shuffling Allowed : Yes

Question Number : 126 Question Id : 640653902416 Question Type : SA Calculator : None Correct Marks : 2

Question Label : Short Answer Question

Consider the given log records at an instance of time:

Table 3: 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 will be the value of the expression (B+C)-(A+D), based on the values stored on the disk at that point:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

500

Sub-Section Number : 8

Sub-Section Id : 640653133690

Question Shuffling Allowed : Yes

Question Number : 127 Question Id : 640653902411 Question Type : MSQ Calculator : Yes Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

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

Options :

6406533039308. ✔ $\{BDE\}$

6406533039309. ✖ $\{DE\}$

6406533039310. ✖ $\{CD\}$

6406533039311. ✖ $\{BGE\}$

Question Number : 128 Question Id : 640653902413 Question Type : MSQ Calculator : Yes Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the ER Diagram as shown below:

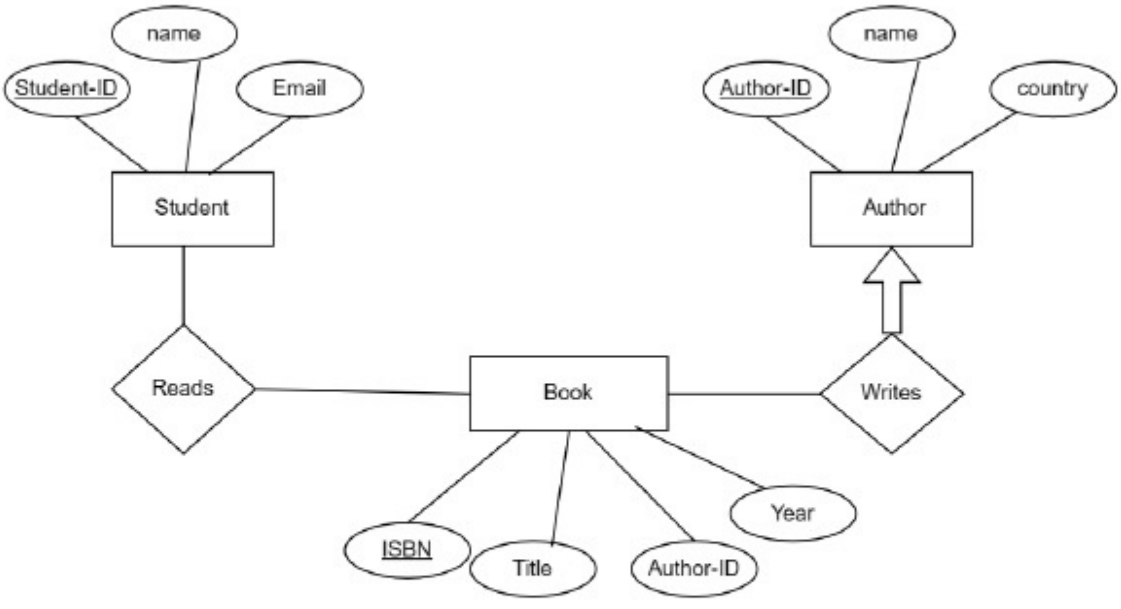

Figure 1: **Library**

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

Options :

6406533039316. ✖ There might exist an author who has not written any books

6406533039317. ✔ There might exist a student who has not read any book

6406533039318. ✖ An author can write at most one book

6406533039319. ✖ A student can read at most one book

PDSA

Section Id :	64065364075
Section Number :	7
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Display Number Panel :	Yes
Section Negative Marks :	0
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	No
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	640653133691
Question Shuffling Allowed :	No

Question Number : 129 Question Id : 640653902417 Question Type : MCQ Calculator : Yes Correct Marks : 0

Question Label : Multiple Choice Question

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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 :

6406533039323. ✔ YES

6406533039324. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	640653133692
Question Shuffling Allowed :	Yes