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Completed on Thursday, 15 April 2021, 11:30 AM
Time taken 29 mins 59 secs
Grade 16.00 out of 30.00 (53%)

Question 1

Incorrect

Mark 0.00 out of 1.00

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_____ can be minimized by optimizers

- ☐ B. Resource consumption
- ☐ D. Length of indices
- ☐ C. Size of pipeline
- ☒ A. Disk usage

✗

The correct answer is: B. Resource consumption

Question 2

Incorrect

Mark 0.00 out of 1.00

[Flag question](#)

A query optimizer must use _____ plan for optimization of a query

- ☒ A. Evaluation
- ☐ C. Algebra
- ☐ D. Cost
- ☐ B. Execution

✗

The correct answer is: D. Cost

Question 3

Correct

Mark 1.00 out of 1.00

[Flag question](#)

By performing _____ double buffer allows algorithm to function efficiently

- ☐ A. Parallel CPU activities
- ☒ D. CPU activity parallel with I/O activity
- ☐ C. Parallel disk sector access
- ☐ B. Parallel I/O activities

✓

The correct answer is: D. CPU activity parallel with I/O activity

Question 4

Correct

Mark 1.00 out of 1.00

[Flag question](#)

Calculate the order of leaf(leaf) and non leaf(p) nodes of a B+ tree based on the information given as: Search key field = 12 bytes; Record pointer = 10 bytes; Block pointer = 8 bytes; Block size = 1024 bytes

Select one:

- ☒ pleaf= 46 & p = 51
- ☐ pleaf= 47 & p = 52
- ☐ pleaf = 52 & p = 47
- ☐ pleaf = 51 & p = 46

✓

The correct answer is: pleaf= 46 & p = 51

Question 5

Incorrect

Mark 0.00 out of 1.00

[Flag question](#)

Consider the transactions T1, T2, and T3 and the schedules S1 and S2 given below. Which is conflict serializable?

T1: r1(X); r1(Z); w1(X); w1(Z)

T2: r2(Y); r2(Z); w2(Z)

T3: r3(Y); r3(X); w3(Y)

S1: r1(X); r3(Y); r3(X); r2(Y); r2(Z); w3(Y); w2(Z); r1(Z); w1(X); w1(Z)

S2: r1(X); r3(Y); r2(Y); r3(X); r1(Z); r2(Z); w3(Y); w1(X); w2(Z); w1(Z)

- ☒ Neither S1 nor S2
- ☐ Only S1
- ☐ Both S1 and S2
- ☐ Only S2
- ☐ None of above

✗

Your answer is incorrect.

The correct answer is:
Only S1

Question 6

Incorrect

Mark 0.00 out of 1.00

[Flag question](#)

Consider a B+-tree in which the maximum number of keys in a node is 5. What is the minimum number of keys in any non-root node?

- Select one:
- ☐ 1
- ☐ 2
- ☒ 3
- ☐ 4

✗

The correct answer is: 2

Question 7

Consider a table that describes the customers (Customerid, name, gender, rating). The rating value is an integer in the range 1 to 5 and only two values (male and female) are recorded for gender. Consider the

Correct
Mark 1.00 out of 1.00
Flag question

Consider a table that includes the columns: customer_id, name, gender, rating. The rating value is an integer in the range 1 to 5 and only two values (male and female) are recorded for gender. Consider the query "how many male customers have a rating of 5"? The best indexing mechanism appropriate for the query is

- Select one:
- ☐ Extendible hashing
 - ☐ B+ Tree
 - ☒ Bit-mapped indexing
 - ☐ Linear hashing

✓

Your answer is correct.
The correct answer is:
Bit-mapped indexing

Question 8
Correct
Mark 1.00 out of 1.00
Flag question

Cost of _____ plan is estimated using number of block transfers from disk and the number of disk seeks

- ☐ A. Query-execution
- ☒ B. Query-evaluation
- ☐ D. Query-implementation
- ☐ C. Query-processing

✓

The correct answer is: B. Query-evaluation

Question 9
Correct
Mark 1.00 out of 1.00
Flag question

Double buffering uses

- ☒ A. Two parallel buffers
- ☐ C. Four buffers
- ☐ B. Two subsequent buffers
- ☐ D. Four vertical buffers

✓

The correct answer is: A. Two parallel buffers

Question 10
Incorrect
Mark 0.00 out of 1.00
Flag question

Given a block can hold either 3 records or 10 key pointers. A database contains n records, then how many blocks do we need to hold the data file and the dense index

- Select one:
- ☐ $n/3$
 - ☐ $n/30$
 - ☐ $13n/30$
 - ☒ $n/10$

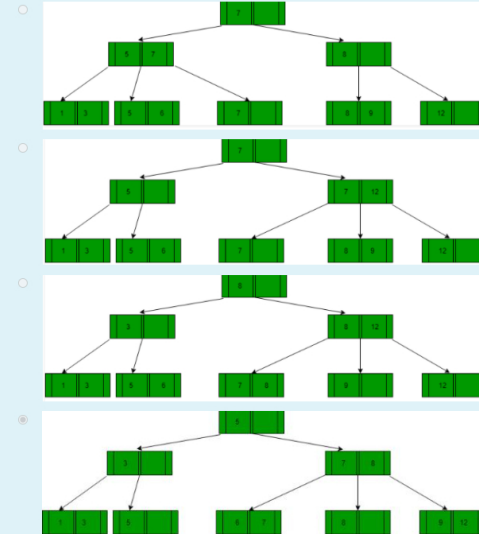
✗

The correct answer is: $13n/30$

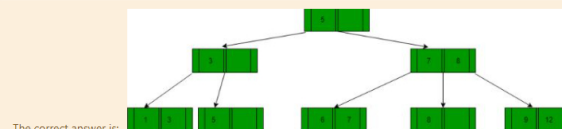
Question 11
Correct
Mark 1.00 out of 1.00
Flag question

If following sequence of keys are inserted in a B+ tree with $K(=3)$ pointers: 8, 5, 1, 7, 3, 12, 9, 6 Which of the following shall be correct B+ tree?

Select one:



✓



The correct answer is:

Question 12
Incorrect
Mark 0.00 out of 1.00
Flag question

In _____ allocation method for disk block allocation in a file system, insertion and deletion of blocks in a file is relatively easy (choose the best option).

- Select one:
- ☐ Index

- ☒ Bit Map
- ☐ Linked
- ☐ Contiguous

✖

The correct answer is: Linked

Question 13
Correct
Mark 1.00 out of 1.00
Flag question

In a B+ tree, if the search-key value is 12 bytes long, the block size is 1024 bytes and the block pointer is 6 bytes, then the maximum number of keys that can be accommodated in each non-leaf node of the tree is ____.

- Select one:
- ☐ 57
- ☐ 54
- ☒ 56
- ☐ 58

✔

The correct answer is: 56

Question 14
Correct
Mark 1.00 out of 1.00
Flag question

In a demand-driven pipeline, its each operation can be implemented as

- ☐ B. A Process
- ☒ A. An iterator
- ☐ C. A thread
- ☐ D. A system

✔

The correct answer is: A. An iterator

Question 15
Incorrect
Mark 0.00 out of 1.00
Flag question

In general, which could be fastest

- ☐ B. `balance < 2500 ? balance(account)`
- ☒ D. `!balance < 2500 ? balance(account)`
- ☐ C. `!balance < 2500 ? balance(account)`
- ☐ A. `balance < 2500 ? balance(account)`

✖

The correct answer is: A. `!balance < 2500 ? balance(account)`

Question 16
Correct
Mark 1.00 out of 1.00
Flag question

In query processing to access data, which is the lowest-level operator

- ☐ A. Pointers
- ☒ D. File scan
- ☐ B. Locators
- ☐ C. Indices

✔

The correct answer is: D. File scan

Question 17
Correct
Mark 1.00 out of 1.00
Flag question

On contents of the which of the following the response time in the query evaluation plan depends on:

- ☐ B. Queue
- ☐ A. Blocks of disk
- ☒ C. Buffer
- ☐ D. Pipeline

✔

The correct answer is: C. Buffer

Question 18
Incorrect
Mark 0.00 out of 1.00
Flag question

Operations in the _____ pipeline do not wait for requests to produce tuples

- ☐ B. Blocking
- ☐ D. Producer-driven
- ☒ A. Double
- ☐ C. Demand-driven

✖

The correct answer is: D. Producer-driven

Question 19
Not answered
Marked out of 1.00
Flag question

Query optimizer should use _____

- ☐ B. Data dictionary and statistics of each relation in the data dictionary and past statistics related to access using file scan of physical records from the databases
- ☐ D. Data dictionary and statistics of each relation in the data dictionary and past statistics related to access of records from the databases and statistics about indices.
- ☐ A. Data dictionary
- ☐ C. Data dictionary and statistics of each relation in the data dictionary

The correct answer is: D. Data dictionary and statistics of each relation in the data dictionary and past statistics related to access of records from the databases and statistics about indices.

Question 20
Correct
Mark 1.00 out of 1.00
Flag question

Raid configurations of the disks are used to provide

- Select one:
- ☐ C. High data density
- ☒ A and B
- ☐ A. Fault-tolerance
- ☐ B. High speed

✔

The correct answer is: A and B

Question **21**
Incorrect
Mark 0.00 out of 1.00
🚩 Flag question

The expression $r \bowtie s$ using attribute A can be defined as

- ☐ B. $\sigma r.A = s.A (s \times r)$
- ☒ C. $\sigma r.A = s.A ((r \times s) \cap (s \times r))$
- ☐ D. $\sigma r.A = s.A ((r \times s) - (s \times r))$
- ☐ A. $\sigma r.A = s.A (r \times s)$

✖

The correct answer is: A. $\sigma r.A = s.A (r \times s)$

Question **22**
Correct
Mark 1.00 out of 1.00
🚩 Flag question

The initial seek in the linear search access the file's

- ☐ B. First secondary index
- ☐ A. First primary index
- ☐ D. First non-key
- ☒ C. First block

✔

The correct answer is: C. First block

Question **23**
Correct
Mark 1.00 out of 1.00
🚩 Flag question

The order of a leaf node in a tree B+ 7 is the maximum number of (value, data record pointer) pairs it can hold. Given that the block size is 1024 bytes, data record pointer is 7 bytes long, the value field is 9 bytes long and a block pointer is 6 bytes long, what is the order of the leaf node?

Select one:

- ☐ 64
- ☐ 44
- ☒ 63
- ☐ 45

✔

The correct answer is: 63

Question **24**
Correct
Mark 1.00 out of 1.00
🚩 Flag question

The physical location of a record determined by a formula that transforms a file key into a record location is

Select one:

- ☐ Sequential file
- ☐ B-Tree file
- ☐ Indexed file
- ☒ Hashed file

✔

The correct answer is: Hashed file

Question **25**
Correct
Mark 1.00 out of 1.00
🚩 Flag question

The rating value is an integer in the range 1 to 5 and only two values (male and female) are recorded for gender. Consider the query "how many male customers have a rating of 5"? The best indexing mechanism appropriate for the query is

Select one:

- ☐ Extensible hashing
- ☒ Bit-mapped
- ☐ B+ Tree
- ☐ Linear hashing

✔

The correct answer is: Bit-mapped

Question **26**
Correct
Mark 1.00 out of 1.00
🚩 Flag question

Using _____ multiple records can be retrieved

- ☒ A. Secondary index
- ☐ D. Scrub index
- ☐ B. Primary index
- ☐ C. Cluster index

✔

The correct answer is: A. Secondary index

Question **27**
Incorrect
Mark 0.00 out of 1.00
🚩 Flag question

A Schedule that is not conflict serializable and contains at least one blind write then the schedule is

- ☒ Always view serializable
- ☐ May be view serializable
- ☐ None of the others
- ☐ Always non-serializable

✖

Your answer is incorrect.

The correct answer is:
May be view serializable

Question **28**
Incorrect
Mark 0.00 out of 1.00
🚩 Flag question

What should be done to improve query's processing time?

- ☐ D. Use compatible data types
- ☐ A. Write complex queries
- ☒ C. Use sub-queries
- ☐ B. Coalesce a table with itself

✖

QUESTION 28: COMPARE & LEAVE WITH USER

The correct answer is: D. Use compatible data types

Question **29**
Incorrect
Mark 0.00 out of 1.00
Flag question

Which of the following is correct?

Select one:

- ☒ B-trees are for storing data on disk and B+ trees are for main memory
- ☐ Range queries are faster on B+ trees
- ☐ The height of a B+ tree is independent of the number of records
- ☐ B-trees are for primary indexes and B+ trees are for secondary indexes

✖

Your answer is incorrect.

The correct answer is: Range queries are faster on B+ trees

Question **30**
Incorrect
Mark 0.00 out of 1.00
Flag question

Which of the following is dense index?

Select one:

- ☐ Clusters index
- ☒ Secondary non key index
- ☐ Primary index
- ☐ Secondary index on non-ordering key field

✖

The correct answer is: Secondary index on non-ordering key field

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