bonus quiz

Due Apr 5 at 11:59pm **Points** 10 **Questions** 11 **Available** Mar 28 at 12am - Apr 5 at 11:59pm 9 days
Time Limit None

Instructions

This quiz covers some key concepts in chapters 5-7. This quiz does not reflect the difficulty level of exam 2.

This bonus quiz will be counted as 10 bonus points towards your exam 2 score.

Only 1 attempt allowed.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	34 minutes	4.67 out of 10

Score for this quiz: **4.67** out of 10
Submitted Apr 5 at 11:07pm
This attempt took 34 minutes.

Question 1 — 0 / 0 pts

I promise I am doing this quiz all by myself.

Correct!

- (•) True
- ( ) False

Question 2

0 / 1 pts

When a page is requested but this page is not in the buffer pool, a buffer manager will first

You Answered

- (•) choose a frame for replacement

  if the buffer is full.

Correct Answer

- ( ) find an empty frame in buffer pool
- ( ) wait until buffer is empty

Question 3

1 / 1 pts

A bit map is used for fixed-length tuples, packed format.

- ( ) True

Correct!

False

Question 4

1 / 1 pts

Comparing heap file with sorted file, sorted file can be more costly to maintain (meaning, more costly to handle "insert" and "delete")

Correct!

True

False

Question 5

0 / 1 pts

Suppose I have a large-sized relation "income", which has attributes "id, age, income". I know this table will have a lot of queries for "select records of a certain age". Suppose the relation is stored as heap file, unsorted.

Between the following two strategies, which one do you think will work better?

Correct Answer

build index for age

You Answered

sort based on age

Question 6

0 / 1 pts

Suppose one index node can have 3 children

What is the maximum number of pages a 2 level B+ tree can point to? (level 1 is the root, level 2 is the data entry nodes)

You Answered

8

Correct Answers

9

How many data entry nodes are there?

How many pages can one data entry node point to?

Question 7

1 / 1 pts

Suppose one index node can have 3 children

What is the maximum number of pages an n level B+ tree can point to? (level 1 is the root, and level n is the data entry nodes)

$3 \times n$

Correct!

3^n

n^3

Question 8

0.67 / 1 pts

in block nested loop join, the cost is

$$M + \lceil \frac{M}{B-2} \rceil \times N$$

where M is the number of pages for relation R, N is the number of pages for relation S, and B is the number of pages available in memory.

Which following explanations are correct? Choose all you think is correct

Correct Answer

$\lceil \frac{M}{B-2} \rceil$ this is the number of chunks of R, and thus the number of times S needs to be scanned.

Correct!

The outer relation R will be scanned only once. That's why the first term M

Correct!

In memory, 1 page for S, 1 page for output, and B-2 pages for R

Question 9

1 / 1 pts

Suppose B=52, M=1000, N=100

where M is the number of pages for relation R, N is the number of pages for relation S, and B is the number of pages available in memory.

Which relation should be the outer relation in block nested loop join, so that the cost is lower? R or S

- R
- S

Correct!

100+(100/50)*1000=2100

Question 10

0 / 1 pts

Suppose B=52, M=1000, N=100

where M is the number of pages for relation R, N is the number of pages for relation S, and B is the number of pages available in memory.

Which would be faster? The best block nested loop join, or Grace hash join

- They are the same

You Answered

Grace hash join

3(M+N)=3300

Correct Answer

block nested loop join

Question 11

0 / 1 pts

suppose we have a relation S with10,000 pages, unsorted.

We have 52 pages in memory.

What is the i/o cost of sorting S?

hint:

https://piazza.com/class/k532yf3hh2f7ic?cid=164 (https://piazza.com/class/k532yf3hh2f7ic?cid=164)

You Answered

30,000

Correct Answers

60,000 (with margin: 0)
0 (with margin: 0)

For each round, how many pages need to be read? How many pages need to be written?

Quiz Score: **4.67** out of 10