1Z0-117 Q&As

Oracle Database 11g Release 2: SQL Tuning Exam

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QUESTION 1

Which statement is true about an SQL plan baselines that are fixed?

A. New plans are added automatically by the optimizer to the baseline and are automatically evolved.

B. New, better plans are added automatically as a fixed plan baseline.

C. New plan can be manually loaded to the baseline from the cursor cache or a SQL tuning set.

D. New plans can be added as fixed plans to the baseline by using the SQL Tuning Advisor to generate a SQL profile and by accepting the SQL profile.

Correct Answer: D

When a SQL statement with a fixed SQL plan baseline is tuned using the SQL Tuning Advisor, a SQL profile recommendation has special meaning. When the

SQL profile is accepted, the tuned plan is added to the fixed SQL plan baseline as a non-fixed plan. However, as described above, the optimizer will not use the

tuned plan as long as a reproducible fixed plan is present. Therefore, the benefit of SQL tuning may not be realized. To enable the use of the tuned plan, manually

alter the tuned plan to a fixed plan by setting its FIXED attribute to YES.

Note:

It is also possible to influence the optimizer\\'s choice of plan when it is selecting a plan from a SQL plan baseline. SQL plan baselines can be marked as fixed.

Fixed SQL plan baselines indicate to the optimizer that they are preferred. If the optimizer is costing SQL plan baselines and one of the plans is fixed, the optimizer

will only cost the fixed plan and go with that if it is reproducible.

If the fixed plan(s) are not reproducible the optimizer will go back and cost the remaining SQL plan baselines and select the one with the lowest cost. Note that

costing a plan is nowhere near as expensive as a hard parse. The optimizer is not looking at all possible access methods but at one specific access path.

Reference: Oracle Database Performance Tuning Guide 11g, Using Fixed SQL Plan Baselines Reference: SQL Plan Management in Oracle Database 11g

QUESTION 2

You need to upgrade you Oracle Database 10g to 11g. You want to ensure that the same SQL plans that are currently in use in the 10g database are used in the upgraded database initially, but new, better plans are allowed subsequently.

Steps to accomplish the task:

1.

Set the OPTIMIZER_USE_SQL_BASELINE and OPTIMIZER_CAPTURE_SQL_PLAN_BASELINE to TRUE.

2.

Bulk load the SQL Management Base as part of an upgrade using an STS containing the plans captured in Oracle Database 10g.

3.

Evolve the plan baseline using the DBMS_SPM.EVOLVE_PLAN_BASELINE procedure.

4.

Fix the plan baseline using the DBMS_SPM.ALTER_SQL_PLANBASELINE procedure.

5.

Accept new, better plans using the DBMS_SPM.ALTER_SQL_PLAN_BASELINE procedure and manually load them to the existing baseline.

6.

Set OPTIMIZER_CAPTURE_SQL_PLAN_BASELINES to FALSE.

Identify the required steps.

A. 1, 3, 4, 5

B. 1, 6, 3, 4, 5

C. 1, 2, 3, 5

D. 1, 2, 3, 4

E. 1, 6, 3

F. 1 and 2

Correct Answer: F

*

(1) OPTIMIZER_CAPTURE_SQL_PLAN_BASELINES In Oracle Database 11g a new feature called SQL Plan Management (SPM) has been introduced to guarantees any plan changes that do occur lead to better performance. When OPTIMIZER_CAPTURE_SQL_PLAN_BASELINES is set to TRUE (default FALSE) Oracle will automatically capture a SQL plan baseline for every repeatable SQL statement on the system. The execution plan found at parse time will be added to the SQL plan baseline as an accepted plan.

*

(2) Once you have completed the software upgrade, but before you restart the applications and allow users back on the system, you should populate SQL Plan Management (SPM) with the 10g execution plans you captured before the upgrade. Seeding SPM with the 10g execution plans ensures that the application will continue to use the same execution plans you had before the upgrade. Any new execution plans found in Oracle Database 11g will be recorded in the plan history for that statement but they will not be used. When you are ready you can evolve or verify the new plans and only implement those that perform better than the 10g plan.

Incorrect:

Not (3): DBMS_SPM.EVOLVE_PLAN_BASELINE is not used to evolve new plans.

DBMS_SPM.EVOLVE_SQL_PLAN_BASELINE should be used:

It is possible to evolve a SQL statement\\'s execution plan using Oracle Enterprise Manager or by running the command-line function

DBMS_SPM.EVOLVE_SQL_PLAN_BASELINE. U

Note:

* SQL plan management (SPM) ensures that runtime performance will never degrade due to the change of an execution plan. To guarantee this, only accepted

(trusted) execution plans will be used; any plan will be tracked and evaluated at a later point in time and only accepted as verified if the new plan performs better

than an accepted plan. SQL Plan Management has three main components:

1.

SQL plan baseline capture:

Create SQL plan baselines that represents accepted execution plans for all relevant SQL statements. The SQL plan baselines are stored in a plan history inside

the SQL Management Base in the SYSAUX tablespace.

2.

SQL plan baseline selection

Ensure that only accepted execution plans are used for statements with a SQL plan baseline and track all new execution plans in the history for a statement as

unaccepted plan. The plan history consists of accepted and unaccepted plans. An unaccepted plan can be unverified (newly found but not verified) or rejected

(verified but not found to performant).

3.

SQL plan baseline evolution

Evaluate all unverified execution plans for a given statement in the plan history to become either accepted or rejected

QUESTION 3

Partial details of an execution plan.

SELECT STATEMENT	
SORT GROUP BY	
HASH JOIN	
TABLE ACCESS FULL	CHANNELS
HASH JOIN	
TABLE ACCESS FULL	CUSTOMERS
HASH JOIN	
TABLE ACCESS FULL	TIMES
PARTITION RANGE ITERATOR	
TABLE ACCESS BY LOCAL INDEX ROWID	SALES
BITMAP CONVERSION TO ROWIDS	
BITMAP AND	
BITMAP MERGE	
BITMAP KEY ITERATOR	
BUFFER SORT	
TABLE ACCESS FULL	CHANNELS
BITMAP INDEX RANGE SCAN	SALES_CHANNEL_BIX
BITMAP MERGE	
BITMAP KEY ITERATION	
BUFFER SORT	
TABLE ACCESS FULL	TIMES
BITMAP INDEX RANGE SCAN	SALES_TIME_BIX
BITMAP MERGE	
BITMAP KEY ITERATION	
BUFFER SORT	
TABLE ACCESS FULL	TIMES
BITMAP INDEX RANGE SCAN	SALES_TIME_BIX

Which statement correctly describes the BITMAP AND operation?

A. It produces a bitmap, representing dimension table rows from all dimension tables that join with qualified fact table rows.

B. It produces a concentration of the bitmaps for all dimension tables.

C. It produces a bitmap, representing fact table rows that do not join with qualified dimension table rows from all dimension tables.

D. It produces a bitmap, representing fact table rows that join with qualified dimension table rows from all dimension tables.

Correct Answer: D

Example:

Additional set operations will be done for the customer dimension and the product dimension. At this point in the star query processing, there are three bitmaps. Each bitmap corresponds to a separate dimension table, and each bitmap represents the set of rows of the fact table that satisfy that individual dimension\\'s constraints.

These three bitmaps are combined into a single bitmap using the bitmap AND operation. This final bitmap represents the set of rows in the fact table that satisfy all of the constraints on the dimension table.

Reference: Oracle Database Data Warehousing Guide, Star Transformation with a Bitmap Index

QUESTION 4

You enable auto degree of parallelism (DOP) for your database instance.

Examine the following query:

```
SQL> SELECT /*+ PARELLEL (MANUAL) */ customers.cust_first_name,
Customers.cust_last_name,
        MAX (QUANTITY_SOLD), AVG (QUANTITY_SOLD)
        FROM mysales, customers
        WHERE mysales.cust_id=customers.cust_id
        GROUP BY customer.cust_first_name, customers.cust_last_name;
```

Which two are true about the execution of statement?

A. Dictionary DOP for the objects accessed by the query is used to determine the statement DOP.

B. Auto DOP is used to determine the statement DOP only if the estimated serial execution time exceeds PARALLEL_MIN_TIME_THRESHOLD.

C. Dictionary DOP is used to determine the statement DOP only if the estimated serial execution time exceeds PARALLEL_MIN_TIME_THRESHOLD.

D. The statement will be queued if insufficient parallel execution slaves are available to satisfy the statements DOP.

E. The statement will be queued if the number of busy parallel execution servers exceeds PARALLEL_SERVERS_TARGET.

F. The statements may execute serially.

Correct Answer: AF

*

Parallel (Manual): The optimizer is forced to use the parallel settings of the objects in the state- ment.

*

MANUAL - This is the default. Disables Auto DOP (not B), statement queuing (not D, Not E) and in-memory parallel execution. It reverts the behavior of parallel

execution to what it was pre- vious to Oracle Database 11g, Release 2 (11.2).

*

PARELLEL (MANUAL)

You can use the PARALLEL hint to force parallelism. It takes an optional parameter: the DOP at which the statement should run.

The following example forces the statement to use Oracle Database 11g Release 1 (11.1) behav- ior:

SELECT /*+ parallel(manual) */ ename, dname FROM emp e, dept d WHERE e.deptno=d.deptno;

*

PARALLEL_SERVERS_TARGET specifies the number of parallel server processes allowed to run parallel statements before statement queuing will be used. When the parameter PARAL- LEL_DEGREE_POLICY is set to AUTO, Oracle will queue SQL statements that require paral- lel execution, if the necessary parallel server processes are not available. Statement queuing will begin once the number of parallel server processes active on the system is equal to or greater than PARALLEL_SERVER_TARGET.

By default, PARALLEL_SERVER_TARGET is set lower than the maximum number of parallel server processes allowed on the system (PARALLEL_MAX_SERVERS) to ensure each parallel statement will get all of the parallel server resources required and to prevent overloading the sys- tem with parallel server processes.

Note that all serial (non-parallel) statements will execute immediately even if statement queuing has been activated.

QUESTION 5

In Your Database, The Cursor_Shareing Parameter is set to EXACT. In the Employees table, the data is significantly skewed in the DEPTNO column. The value 10 is found in 97% of rows.

Examine the following command and out put.

```
SQL> VARIABLE dno NUMBER
SQL> EXEC : dno : = 10

SQL> SELECT /*ACS_1*/ count (*), max (empno)
          FROM employees
          WHERE deptno = :dno;

SQL> SELECT CHILD_NUMBER, EXECUTIONS, BUFFER_GETS, IS_BIND_SENSITIVE, IS_BIND_AWARE, IS_SHAREABLE
          FROM v$SQL
          WHERE SQL_TEXT LIKE       'SELECT /*ACES_%';

CHILD_NUMBER    EXECUTIONS      BUFFER_GETS     IS_BIND_SEN     IS_BIND_AWA     IS_SHAREABLE
------------    ----------      -----------     -----------     -----------     ------------
   0                2               1010            Y               N               Y
```

Which three statements are correct?

A. The DEPTNO column will become bind aware once histogram statistics are collected.

B. The value for the bind variable will considered by the optimizer to determine the execution plan.

C. The same execution plan will always be used irrespective of the bind variable value.

D. The instance collects statistics and based on the pattern of executions creates a histogram on the column containing the bind value.

E. Bind peeking will take place only for the first execution of the statement and subsequent execution will use the same plan.

Correct Answer: ABD

*

We here see that the cursor is marked as bind sensitive (IS_BIND_SEN is Y).

*

In 11g, the optimizer has been enhanced to allow multiple execution plans to be used for a single statement that uses bind variables. This ensures that the best

execution plan will be used depending on the bind value.

A cursor is marked bind sensitive if the optimizer believes the optimal plan may depend *

on the value of the bind variable. When a cursor is marked bind sensitive, Oracle monitors the behavior of the cursor using different bind values, to determine if a

different plan for different bind values is called for.

*

(B, not C): A cursor is marked bind sensitive if the optimizer believes the optimal plan may depend on the value of the bind variable. When a cursor is marked

bind sensitive, Oracle monitors the behavior of the cursor using different bind values, to determine if a different plan for different bind values is called for.

Note: Setting CURSOR_SHARING to EXACT allows SQL statements to share the SQL area only when their texts match exactly. This is the default behavior. Using this setting, similar statements cannot shared; only textually exact statements can be shared.

Reference: Why are there more cursors in 11g for my query containing bind variables?