Self-test Db2 for z/OS Fundamentals

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INTRODUCTION TO THE SELF-TEST DB2 FOR z/OS FUNDAMENTALS

This test will help you determine if you've obtained the objectives of the Db2 for z/OS fundamentals course, or if you would benefit from following the course.

The test itself consists of 25 multiple-choice questions. This will take you 20 to 25 minutes to complete.

Some questions only have one answer. Others have multiple answers. In that case, the number of expected answers is indicated.

Write down your answer(s) and compare with the given solutions which you can find at the end. Depending upon your score, you will also find our recommendation concerning the Db2 for z/OS fundamentals course.

QUESTIONS SELF-TEST DB2 FOR Z/OS FUNDAMENTALS

1. Given the following cursor declaration:

```
DECLARE COURSEUPDATE CURSOR FOR
SELECT CSTITLE
FROM TU00001.COURSES
FOR UPDATE OF CDUR
```

Which of the following embedded SQL statements will use this cursor correctly?

O (a)
```
UPDATE TU00001.COURSES
SET CDUR = 5
```

O (b)
```
UPDATE TU00001.COURSES
SET CDUR = 5
WHERE CURRENT OF COURSEUPDATE
```

O (c)
```
UPDATE SET CDUR = 5
WHERE CURRENT OF COURSEUPDATE
```

O (d)
```
UPDATE TU00001.COURSES C
SET C.CSTITLE = 'New Title'
WHERE CURRENT OF COURSEUPDATE
```

2. The following commands are issued against a database containing a table named `TBACCAD.TUTCOURSES`:

```
CREATE ALIAS TBACCAD.COUR    FOR TBACCAD.TUTCOURSES;
CREATE ALIAS USR.COUR        FOR TEMP.COUR;
CREATE ALIAS TU00001.COURSES FOR USR.COUR;
```

if user `TU00001` issues the following statement:

```
SELECT * FROM COUR
```

which of the following objects will be accessed?

O (a) `TBACCAD.COUR`

O (b) `USR.COUR`

O (c) `TEMP.COUR`

O (d) `TU00001.COUR`

3. Which of the following statements concerning Db2 storage groups is ***NOT*** true?

   O (a) All the volumes in a storage group must be of the same device type (e.g. tape, disk, ...).

   O (b) Volumes can only have standard VSAM datasets allocated.

   O (c) The volumes in a storage group are controlled by a VSAM catalog.

   O (d) Storage groups may overlap. The same volume may belong to more than one storage group.

4. When using DCLGEN to generate a table declaration, which information concerning this table is ***NEVER*** available in the generated output?

   O (a) The null indicators of the columns/fields.

   O (b) The primary key of the table.

   O (c) The datatypes of columns/fields.

   O (d) The data structures specific to the programming language.

5. Complete the following sentence correctly:
   A database can not be dropped ...

   O (a) ... while a Db2 utility has control of any part of the database.

   O (b) ... if there is still a user connected to the database.

   O (c) ... if there is a referential constraint pointing to a table of this database from a table of another database.

   O (d) ... before all indexes connected to tables of this database are dropped.

6. Assume that the database `TRAINING` exists, that it contains a tablespace `TSDEFAULT`, and that you have the authority to create tables in it. Suppose there is a table called `PERSONS` in an other database. Which of the following SQL statements is ***NOT*** correct?

   O (a) `CREATE TABLE TEST1 LIKE PERSONS IN TRAINING.TSDEFAULT`

   O (b) `CREATE TABLE TEST1 LIKE PERSONS`

   O (c) `CREATE TABLE TEST1 LIKE PERSONS IN DATABASE TRAINING`

   O (d) `CREATE TABLE TEST1 LIKE PERSONS IN TABLESPACE TSDEFAULT`

7. When declaring a foreign key on a table, referencing an existing primary key with complete definition, what might differ between foreign key and primary key?

   O (a) The order of the included columns.

   O (b) The nullability of one of the included columns.

   O (c) The data type of the corresponding columns.

   O (d) The length declaration of an included column, if its datatype is VARCHAR.

8. When a column has an extension of `WITH DEFAULT NULL`, and a unique index is created on this column, what will be the effects on the possible null values in that column?

   O (a) Nulls are no longer allowed, since nulls aren't unique.

   O (b) There is still a single null allowed, since it is unique as such.

   O (c) It has no influence on the possible null values; Db2 doesn't consider nulls when it comes to an index.

   O (d) The extension will make the creation of an unique index impossible.

9. Which statement about an index is ***NOT*** true?

   O (a) An index has its own `INDEX SPACE`, automatically created.

   O (b) An index always has a balanced tree structure.

   O (c) A clustering index influences the physical sequence of data in the tablespace.

   O (d) The name of an index can be mentioned in a Select statement, to improve the performance of the query.

10. There are three types of authorization ID associated with a user in Db2. Which of the following is ***NOT*** one of them?

    O (a) Primary Authorization ID

    O (b) Secondary Authorization ID

    O (c) SQL Authorization ID

    O (d) Current SQLID

11. Complete correctly:
    When a user has a `SELECT` authorization on a certain base table, and he creates a view on that table alone, then he/she ...

    O (a) ... only has a `SELECT` authorization on that view.

    O (b) ... also has `DELETE` authorization on that view because he/she is the creator of the view.

    O (c) ... will notice that he cannot create the view (authorization error).

    O (d) ... can only execute an `UPDATE` as long as the definition of the view is not exceeded.

12. Which statement about tablespaces is true?

O (a) A tablespace is divided in units called pages, which hold one or more rows of a table. If a row of 6000 bytes is placed in a 4K page, the page will automatically be resized to 8K.

O (b) A tablespace is divided in units called pages, which hold one or more rows of a table. If a row of 6000 bytes is placed in a 4K page, the row will automatically be split over two pages.

O (c) Dropping a tablespace will not only remove all tables of the tablespace itself, but also all indexes created on these tables, even though they are stored separately in their own indexspace.

O (d) When creating a tablespace, one must indicate either the storage group or the bufferpool to be used by this tablespace. If neither is defined, the creation of the tablespace will fail.

13. An embedded SQL statement returns a sqlcode of - 811, with a message of:

```
THE RESULT OF AN EMBEDDED SELECT STATEMENT IS A TABLE OF MORE THAN ONE ROW, OR
THE RESULT OF THE SUBQUERY OF A BASIC PREDICATE IS MORE THAN ONE VALUE
```

What might be the problem and solution, without changing the logical result of the SQL query? (2 answers)

[_] [a] A subquery was used in the embedded SQL statement. Rewrite the statement without subquery, i.e., use a join instead.

[_] [b] The SQL statement was not a singleton select. Rewrite the statement in the form of a cursor.

[_] [c] The SQL statement was correct. Check the consistency of the data in the tables; check especially for duplicates in a column where one does not expect duplicates.

[_] [d] A `UNION` was used in the embedded SQL statement. Rewrite the SQL statement as two separate statements, or use a `UNION ALL`.

[_] [e] A `GROUP BY` was used in the embedded SQL statement. Rewrite the statement without `GROUP BY`, or move the `GROUP BY` into a subquery.

14. When granting and revoking authorizations, which of the following aspects will ***NOT*** be taken into consideration by Db2?

O (a) The timestamps of earlier `GRANT`-s.

O (b) The presence of `WITH GRANT OPTION` on earlier `GRANT`-s.

O (c) Authorizations on base tables in views.

O (d) Whether the `GRANTEE` is an existing user ID for RACF.

15. Consider the following SQL statement, executed by user TU00001:

```
CREATE VIEW BELGIAN_COMPANIES
AS
SELECT  *
FROM    COMPANIES
WHERE   COCOUNTRY = 'BE'
```

User TU00044 has INSERT authority on this view, what would happen if he tries to insert a row into this view, and thereby specifies the value 'GB' for the COCOUNTRY field?

O (a) The row will be inserted in the table TU00001.COMPANIES, but it will not show up in a subsequent SELECT on this view.

O (b) The row will be inserted only if the user has an authority to insert on table TU00001.COMPANIES, but it will never show up in a SELECT on this view.

O (c) The row won't be inserted because the field COCOUNTRY doesn't have the value 'BE'.

O (d) You can't insert into a view, because views don't contain actual data; they're just virtual windows on base tables.

16. What happens when the execution of a utility is terminated by the -TERM command?

O (a) The execution ends abnormally, the corresponding row in the SYSUTIL table is not removed, all resources are freed.

O (b) The execution ends normally, the corresponding row in the SYSUTIL table is not removed, all resources are freed.

O (c) The execution ends normally, the corresponding row in the SYSUTIL table is removed, all resources are freed.

O (d) The execution ends abnormally, the corresponding row in the SYSUTIL table is removed, all resources are freed.

O (e) The execution ends abnormally, the corresponding row in the SYSUTIL table is not removed, all resources remain blocked.

O (f) The execution ends normally, the corresponding row in the SYSUTIL table is not removed, resources remain blocked.

17. Which of the following statements concerning locking on TABLESPACE level is correct?

O (a) When a TABLESPACE is S-locked (Shared use) by another user, a U lock (Update use) can be placed. However, an X lock (eXclusive use) on this level will force the S lock to be dropped, its transaction to be rolled-back to be able to place the X lock.

O (b) When a TABLESPACE is S-locked by another user, a U-lock can be placed. However, an X-lock is not compatible and will have to wait until the S-lock is released.

O (c) When a TABLESPACE is S-locked by another user, a U lock can be placed. However, an X lock is not compatible. A IX lock (Intent to eXclusively use) will be placed to indicate that a X lock is waiting to be placed.

O (d) When a TABLESPACE is S-locked by another user, neither a U lock or an X lock is compatible on this level. In both cases an I lock (IU lock, IX lock) will be placed to indicate that a U lock or X lock is waiting to be placed.

18. Besides on TABLE and TABLESPACE level, on what level can implicit locks be placed by Db2?

O (a) On ROW, SEGMENT and PARTITION level.

O (b) On ROW, PAGE and SEGMENT level.

O (c) On PAGE, SEGMENT and PARTITION level.

O (d) On ROW, PAGE and PARTITION level.

19. If the SQLCA is included in the program, which of the following host-variables is ***NOT*** known and as such unavailable for the program?

O (a) SQLCODE

O (b) SQLERRD

O (c) SQLNUM

O (d) SQLSTATE

O (e) SQLWARN

20. Consider the following declarations (either in COBOL or in PL/I) as generated by DCLGEN:

COBOL:

```
01 PERSONS.
   10 PNUMBER            PIC  S9(9) COMP-4.
   10 PLASTNAME          PIC  X(40).
   10 PFIRSTNAME.
      49 PFIRSTNAME-LEN  PIC  S9(4) COMP-4.
      49 PFIRSTNAME-TEXT PIC  X(20).
01 NUM                   PIC  S9(9) COMP-4.
01 INDICATOR.
   10 IND               PIC  S9(4) COMP-4 OCCURS 3 TIMES.
```

PL/I:

```
DCL 1 PERSONS,
      5 PNUMBER       BIN FIXED(31),
      5 PLASTNAME     CHAR(40),
      5 PFIRSTNAME    CHAR(20) VAR;
DCL 1 NUM             BIN FIXED(31);
DCL 1 INDICATOR,
      5 IND(3)        BIN FIXED(15);
```

The column `PNUMBER` is the primary key. Which of the following embedded SQL statements is correct?

O (a)
```
SELECT  PLASTNAME
FROM    PERSONS
INTO    :PLASTNAME:IND(2)
WHERE   PNUMBER = :NUM
```

O (b)
```
SELECT  PLASTNAME
INTO    :PLASTNAME:IND(2)
FROM    PERSONS
WHERE   PNUMBER = :NUM
```

O (c)
```
SELECT  *
FROM    PERSONS
INTO    :PERSONS:IND
WHERE   PNUMBER = :NUM
```

O (d)
```
SELECT  *
INTO    :PERSONS:IND
FROM    PERSONS
WHERE   PNUMBER = :NUM
```

21. Which of the following statements concerning the use of indicator variables in embedded SQL statements is the MOST correct one?

O (a) For every single column that can be NULL, we should add an indicator variable to the host variable. Columns that can't be NULL don't need an indicator variable added to their host variables, but if they have such an indicator variable, this will not generate an error.

O (b) For every single column that can be NULL, we should add an indicator variable to the host variable. Columns that can't be NULL, mustn't have an indicator variable added to their host variables, otherwise an error would be generated.

O (c) For every single NULL value returned to the programs host variables, we should add an indicator variable to the receiving host variable. If we don't, an error will be generated.

O (d) For every single NULL value returned to the programs host variables, we should add an indicator variable to the receiving host variable. If we don't, this might generate an error, viz. when the host variable hasn't been used before this instance.

22. Consider the following embedded SQL statement:

```
DECLARE CURS CURSOR
FOR
SELECT  *
FROM    TAB1
WHERE   COL1 > :NUM
```

Suppose that all used host variables are correctly declatred. Which of the following embedded SQL statements will ***NOT*** generate an error?

O (a)
```
FETCH  *
INTO   :HOSTTAB1:IND
FROM   TAB1
```

O (b)
```
FETCH  CURS
INTO   :HOSTTAB1:IND
```

O (c)
```
SELECT  *
INTO    :HOSTTAB1:IND
FROM    CURS
```

O (d)
```
SELECT  CURS
INTO    :HOSTTAB1:IND
```

23. Consider the following embedded SQL statement:

```
SELECT  PFNAME
INTO    :PFNAME:IND
FROM    TUTPERSONS
WHERE   PLNAME = :PLNAME
```

In which order should the following program variables be evaluated by the part of the program just after this SQL statement?

O (a) `SQLCODE, IND, PFNAME`

O (b) `IND, PLNAME, PFNAME`

O (c) `SQLCODE, PFNAME, IND`

O (d) `SQLCODE, PLNAME, PFNAME`

24. The following is the CREATE statement for a table in Db2, executed by user TU00001:

```
CREATE TABLE COURSES
( CID      CHAR(4)      NOT NULL,
  CSTITLE  CHAR(45)     NOT NULL,
  CLTITLE  VARCHAR(60)          ,
  CDUR     SMALLINT     NOT NULL,
  CAPRICE  DECIMAL(9,2) NOT NULL)
IN TRAINING.TSDEFAULT
```

The same table was declared using embedded SQL in an application:

```
DECLARE TU00001.COURSES TABLE
( CID      CHAR(4)      NOT NULL,
  CSTITLE  CHAR(45)     NOT NULL,
  Caprice  DECIMAL(9,2) NOT NULL,
  CDUR     SMALLINT     NOT NULL)
```

What will happen when BINDing the DBRM that was generated by the precompiler?

O (a) An error will occur at BIND time:
COLUMN Caprice IS NOT AN INSERTED COLUMN OF TABLE TU00001.COURSES

O (b) An error will occur at BIND time:
ORDER OF DECLARED COLUMNS IS NOT CONSISTENT WITH TABLE TU00001.COURSES

O (c) A warning will occur at BIND time:
NUMBER OF DECLARED COLUMNS IS NOT CONSISTENT WITH TABLE TU00001.COURSES

O (d) Neither an error nor a warning will occur at BIND time.

25. When should we execute a REBIND rather than a BIND? (2 answers)

[_] [a] When the embedded SQL of the application is changed.

[_] [b] When an index is added to one of the tables used by the embedded SQL.

[_] [c] When a new user is executing an application in which unqualified tables are used in the embedded SQL, and we want the user to see the tables in his own schema.

[_] [d] After the execution of a RUNSTATS.

[_] [e] When the application has been recompiled, but none of the embedded SQL statements were changed.

EVALUATION.

Here are the correct answers to all questions:

1. b
2. d
3. b
4. b
5. a
6. d
7. b
8. b
9. d
10. c
11. a
12. c
13. b c
14. d
15. a
16. c
17. b
18. d
19. c
20. d
21. a
22. b
23. a
24. d
25. b d

Give 1 point per correctly answered question. A question is correctly answered if all indicated answers are given.

If your score is more than 80%, you do not have to follow the course. You have now mastered the necessary knowledge to follow the Db2 for z/OS advanced programming course, the Db2 for z/OS SQL performance course, and/or the Db2 for z/OS administration course.

When you have a score between 50% and 80%, following the course Db2 for z/OS fundamentals can improve your knowledge.

When your score is less than 50%, we strongly suggest you to follow this course Db2 for z/OS fundamentals. Be sure your basic SQL and RDBMS knowledge is sufficient: fill out the corresponding self-test to verify this.