Chapter 2: Creating and Modifying Database Tables

TRUE/FALSE

1. The SQL command to create a database table is an example of DML.

   ANS: F PTS: 1 REF: 42

2. A user schema contains all database objects created by a user.

   ANS: T PTS: 1 REF: 43

3. According to the Oracle Naming Standard, '-' (hyphen) is a legal character.

   ANS: F PTS: 1 REF: 44

4. To create a table it is only necessary to specify column names.

   ANS: F PTS: 1 REF: 44

5. The Oracle DBMS stores columns of all data types in the same amount of space.

   ANS: F PTS: 1 REF: 44

6. The VARCHAR2 data type can store up to 4,000 characters.

   ANS: T PTS: 1 REF: 45

7. Using the CHAR data type causes a column value to be padded to the maximum declared size of the column.

   ANS: T PTS: 1 REF: 46

8. The CHAR data types stores up to 4,000 characters.

   ANS: F PTS: 1 REF: 45

9. Given the column declaration name CHAR(5), if a user attempted to store the value "Jonathan" in the name column, only the first 5 characters would be stored.

   ANS: F PTS: 1 REF: 46

10. The CHAR and VARCHAR2 data types store Unicode character data.

    ANS: F PTS: 1 REF: 46

11. When declaring a NUMBER data type, scale is the total number of digits both to the left and to the right of the decimal point.

    ANS: F PTS: 1 REF: 47

12. The following declaration represents a floating-point number: my_number NUMBER.

ANS: T PTS: 1 REF: 48

13. The following declaration represents an integer: my_int number(4, 2).

ANS: F PTS: 1 REF: 47

14. A fixed-point number contains a specific number of decimal places.

ANS: T PTS: 1 REF: 48

15. If a user only specifies the time when setting a value for a DATE column, the date portion will default to the current time.

ANS: F PTS: 1 REF: 49

16. A TIMESTAMP data type is the same as a DATE data type, except that time zone can be specified.

ANS: F PTS: 1 REF: 49

17. If a column has a YEAR TO MONTH INTERVAL data type, then the value +02-11 specifies a positive time interval of 2 years and 11 months.

ANS: T PTS: 1 REF: 50

18. Up to 6 GB of binary data can be stored in a BLOB column.

ANS: F PTS: 1 REF: 51

19. A primary key is defined using an integrity constraint.

ANS: T PTS: 1 REF: 52

20. A NOT NULL constraint is an example of a table constraint.

ANS: F PTS: 1 REF: 52

21. If the column S_ID is the primary key of the STUDENT table, the constraint name would be pk_STUDENT_S_ID according to the constraint naming convention.

ANS: F PTS: 1 REF: 53

22. A composite key is created using a value constraint.

ANS: F PTS: 1 REF: 55

23. To check that the value entered into a CHAR column is either ‘M’ or ‘F’, you would use a check condition constraint.

ANS: T PTS: 1 REF: 56

24. To log in to a database using SQL*Plus you only need to provide user name and password.

ANS: F PTS: 1 REF: 58

25. An Oracle error consists of a 3 letter prefix and a 5 digit code.

ANS: T PTS: 1 REF: 62

26. When you exit from a SQL*Plus session, the connection with the database is automatically closed.

ANS: T PTS: 1 REF: 64

27. To view the column names and data types of the LOCATION table you would type DESCRIBE LOCATION; at the SQL*Plus prompt.

ANS: T PTS: 1 REF: 66

28. You can always rename a table.

ANS: T PTS: 1 REF: 72

29. You can change a column data type from VARCHAR2 to NUMBER.

ANS: F PTS: 1 REF: 73

30. It is possible to temporarily disable constraints in an Oracle database.

ANS: T PTS: 1 REF: 77-78

MULTIPLE CHOICE

1. Which of the following is not part of a DDL command?
   a. create table ...
   b. drop table ...
   c. create constraint ...
   d. select table_name from ...

   ANS: D PTS: 1 REF: 42

2. Which of the following is not required when creating a table?
   a. table size
   b. table name
   c. column names
   d. column data types

   ANS: A PTS: 1 REF: 44

3. Which of the following is a legal character in the Oracle Naming Standard?
   a. %
   b. ^
   c. #
   d. *

   ANS: C PTS: 1 REF: 44

4. Which of the following is not a legal table name according to the Oracle Naming Standard?
   a. #COURSE_ID
   b. COURSE$ID
   c. COURSEID
   d. COURSE_ID

   ANS: A PTS: 1 REF: 44

5. Which of the following data types is used to store variable length ASCII character data?

a. CHAR
b. NCHAR
c. VARCHAR2
d. NVARCHAR2

ANS: C PTS: 1 REF: 45-46

6. Which of the following declares a column named “name” that always contains exactly 30 characters?
a. VARCHAR2(30) name
b. CHAR(30) name
c. name VARCHAR2(30)
d. name CHAR(30)

ANS: D PTS: 1 REF: 46

7. Which of the following declarations would be most appropriate for storing a dollar value up to $1000?
a. price NUMBER(5,2)
b. price NUMBER(5)
c. price NUMBER(2)
d. price NUMBER

ANS: A PTS: 1 REF: 48

8. What is the default format for a DATE value?
a. MM/DD/YY
b. DD-MON-YY
c. MM/DD/YYYY
d. MON-DD-YYYY

ANS: B PTS: 1 REF: 49

9. If a user enters only a time into a DATE column, what will the date portion be set to?
a. January 1, 1970
b. first day of the current year
c. first day of the current month
d. current date

ANS: C PTS: 1 REF: 49

10. In an INTERVAL YEAR TO MONTH data type, which of the following indicates a positive time interval of 2 years and 11 months?
a. 2-11
b. +2-11
c. +02-11
d. 11-02

ANS: C PTS: 1 REF: 50

11. Which of the following LOB data types does not store the entire large object in the database?
a. BLOB
b. BFILE
c. CLOB
d. NCLOB

ANS: B PTS: 1 REF: 51

12. Which of the following is not created using an integrity constraint?
a. foreign key
b. primary key
c. composite key
d. surrogate key

ANS: D PTS: 1 REF: 53

13. Which of the following is not required to log in to an Oracle database using SQL*Plus?
a. password
b. database server ip
c. host string
d. user name

ANS: B PTS: 1 REF: 59

14. Which of the following pieces of information is not displayed by SQL*Plus when an error occurs?

a. error line number
b. error location
c. error code
d. suggested correction

ANS: D PTS: 1 REF: 62

15. Which of the following pieces of information about a table is not displayed when using the DESCRIBE command?
a. column name
b. column data type
c. not null settings
d. table constraints

ANS: D PTS: 1 REF: 66

16. Which of the following data dictionary views can only be seen by users with special privileges?
a. USER
b. ALL
c. DBA
d. SCHEMA

ANS: C PTS: 1 REF: 67

17. When selecting the table_name column from the all_tables view which tables are displayed?
a. all tables in database
b. all tables in user's schema
c. all tables user has permission to manipulate
d. all newly created tables

ANS: C PTS: 1 REF: 68

18. Which command would be used to delete table x and all foreign key constraints to x?
a. delete x
b. delete x cascade constraints
c. drop x
d. drop x cascade constraints

ANS: D PTS: 1 REF: 73

19. Which of the following is not automatically transferred to a new table name upon renaming a table?
a. indexes
b. constraints
c. views
d. privileges

ANS: C PTS: 1 REF: 74

20. Which of the following sql commands adds a new VARCHAR2 column of length 20 named new_column to table test?
a. ALTER TABLE test
ADD (new_column VARCHAR2(20))
b. ADD column new_column VARCHAR2(20) to TABLE test
c. ADD to TABLE test (new_column VARCHAR2(20))
d. ALTER TABLE test (new_column VARCHAR2(20))

ANS: A PTS: 1 REF: 75

21. Which of the following is true when decreasing the maximum size of a CHAR column?
a. it is an unrestricted action
b. it is only permitted if all values are NULL
c. all values in the column will be truncated to the new size
d. all values larger than the new size will be automatically set to NULL

ANS: B PTS: 1 REF: 73

22. Which of the following is a table constraint?
    a. not null constraint
    b. check condition
    c. unique constraint
    d. default constraint

    ANS: C PTS: 1 REF: 52

23. If you need to store a jpeg image in the database, which column declaration would you use?
    a. my_image BLOB
    b. my_image CLOB
    c. my_image LOB
    d. my_image BFILE

    ANS: A PTS: 1 REF: 52

24. Which of the following column data type changes is permitted?
    a. DATE to CHAR
    b. VARCHAR2 to CHAR
    c. CHAR to NUMBER
    d. NUMBER to DATE

    ANS: B PTS: 1 REF: 75

25. Which command is used to disable the constraint named faculty_loc_id_fk in the faculty table?
    a. MODIFY TABLE CONSTRAINT
       DISABLE faculty_loc_id_fk;
    b. ALTER TABLE faculty
       DISABLE faculty_loc_id_fk;
    c. MODIFY TABLE faculty
       DISABLE faculty_loc_id_fk;
    d. ALTER TABLE faculty
       DISABLE CONSTRAINT faculty_loc_id_fk;

    ANS: D PTS: 1 REF: 78

26. Almost all relational database vendors support the ____ ANSI standard.
    a. SQL-88
    b. SQL-92
    c. SQL-93
    d. SQL-99

    ANS: B PTS: 1 REF: 42

27. ____ commands are used to add new database objects.
    a. DML
    b. DDL
    c. DCL
    d. XML

    ANS: B PTS: 1 REF: 42

28. SQL command words are also known as ____.
    a. Java commands
    b. terms
    c. code words
    d. reserved words

    ANS: D PTS: 1 REF: 42

29. The Oracle Naming Standard states that objects must be from 1 to ____ characters long.
    a. 20
    b. 30
    c. 40
    d. unlimited

    ANS: C PTS: 1 REF: 44

30. The ____ data type stores variable-length character data.

a. CHAR
b. VARCHAR
c. VARCHAR2
d. STRING2

ANS: C PTS: 1 REF: 45

31. The CHAR data type stores fixed-length character data up to a maximum size of ____ characters.
a. 2,000
b. 4,000
c. 10,000
d. unlimited

ANS: A PTS: 1 REF: 46

32. Oracle10g stores character data in VARCHAR2 and CHAR columns using ____ encoding.
a. Unicode
b. ASCII
c. EBCDIC
d. Java

ANS: B PTS: 1 REF: 46

33. You use the ____ data type for any column that stores numerical data upon which users may perform arithmetic calculations.
a. NUMBER
b. NUMERIC
c. VAR
d. FLOAT

ANS: A PTS: 1 REF: 47

34. A(n) ____ number would be best to store a currency value.
a. int
b. char
c. floating-point
d. fixed-point

ANS: D PTS: 1 REF: 48

35. A ____ is a character LOB, storing up to 4 GB of character data in the database.
a. BFILE
b. BLOB
c. CLOB
d. CHAR

ANS: C PTS: 1 REF: 51

36. ____ constraints define specific data values or data ranges that must be inserted into columns and whether values must be unique or not NULL.
a. Value
b. Integrity
c. Redundancy
d. Range

ANS: A PTS: 1 REF: 52

37. The ____ constraint specifies whether the user must enter a column for a specific record, or whether the value can be NULL (indeterminate or unknown).
a. INDEF
b. INPUT
c. NULL
d. NOT NULL

ANS: D PTS: 1 REF: 56

38. Each SQL*Plus command is terminated with a(n) ____.
a. period
b. semicolon
c. colon
d. exclamation mark

ANS: B PTS: 1 REF: 59

39. Deleting columns from a table is a(n) ____ action.

a. restricted
b. unrestricted
c. illegal
d. privileged

ANS: B PTS: 1 REF: 72

40. The ____ TABLE command is used to modify an existing column's data declaration.
a. CHANGE
b. RESET
c. MODIFY
d. ALTER

ANS: D PTS: 1 REF: 75

COMPLETION

1. _____ commands are used to insert, update, delete, and view data.

ANS:
DML
Data Manipulation Language

PTS: 1 REF: 42

2. The data objects within a user schema are called database objects or _____.

ANS: schema objects

PTS: 1 REF: 43

3. _____ are restrictions on the data values that a column can store.

ANS: Constraints

PTS: 1 REF: 43-44

4. A(n) _____ specifies the kind of data that the column stores.

ANS: data type

PTS: 1 REF: 44

5. The VARCHAR2 data type stores variable-length character data up to a maximum of _____ characters.

ANS:
4,000
4000

PTS: 1 REF: 45

6. Fixed-length character data is stored in the _____ data type.

ANS:
CHAR
char
Char

PTS: 1 REF: 45

7. NVARCHAR2 and NCHAR store character data with _____ coding.

   ANS:
   Unicode
   unicode

   PTS: 1 REF: 46

8. _____ is the total number of digits both to the left and to the right of the decimal point.

   ANS: Precision

   PTS: 1 REF: 47

9. The _____ specifies the number of digits on the right side of the decimal point.

   ANS: scale

   PTS: 1 REF: 47

10. A(n) _____ is a whole number with no digits on the right side of the decimal point.

    ANS: integer

    PTS: 1 REF: 47

11. A(n) _____ number contains a variable number of decimal places.

    ANS: floating-point

    PTS: 1 REF: 48

12. A(n) _____ column stores binary data of up to 4 GB in the database.

    ANS: BLOB

    PTS: 1 REF: 51

13. A(n) _____ constraint defines a primary or foreign key.

    ANS: integrity

    PTS: 1 REF: 53

14. A(n) _____ constraint restricts the data value with respect to all other values in the table.

    ANS: table

PTS: 1 REF: 52

15. A(n) _____ constraint limits the value that can be placed in a specific column, irrespective of values that exist in other table rows.

ANS: column

PTS: 1 REF: 52

16. A(n) _____ enables you to specify that a column value must be a specific value or fall within a range of values.

ANS: check condition

PTS: 1 REF: 56

17. A(n) _____ constraint is a table constraint that specifies that a column must have a unique value for every table row.

ANS: unique

PTS: 1 REF: 58

18. If an Oracle error is generated by the DBMS the error code will begin with _____.

ANS: ORA

PTS: 1 REF: 62

19. To view a list of all tables in your own schema, use the command “select table_name from _____”.

ANS: user_tables

PTS: 1 REF: 67

20. Adding a new column to a database table is a(n) _____ action.

ANS: unrestricted

PTS: 1 REF: 72

21. Adding a check condition constraint to a table is a(n) _____ action.

ANS: restricted

PTS: 1 REF: 72

22. To delete a table from the database, use the _____ command.

ANS: DROP TABLE

PTS: 1 REF: 72

23. One way to exit SQL*Plus is to type _____ at the SQL prompt.

    ANS: exit

    PTS: 1 REF: 64

24. The _____ category of data dictionary views shows both the objects in the current user's schema and the objects that the user has privileges to manipulate.

    ANS: ALL

    PTS: 1 REF: 67

25. _____ is a Web-based resource that Oracle Corporation provides free of charge; it is useful for looking up error codes.

    ANS:
    OTN
    Oracle Technology Network

    PTS: 1 REF: 63

ESSAY

1. Oracle provides a means to disable constraints and then enable them again. Give an example of a situation in which this feature would be useful.

   ANS:
   Sometimes while you are developing new database applications, it is useful to disable constraints, then re-enable the constraints when the application is finished. For example, suppose one programming team member is working on an application to add records to the FACULTY table, while another team member is performing maintenance operations on the LOCATION table. (Recall that the LOC_ID column in the FACULTY table references the LOC_ID column in the LOCATION table as a foreign key.) If the team member working with the LOCATION table deletes all of the table rows, the team member working with the FACULTY table cannot insert any new rows, because there are no LOC_ID primary key values to reference.

   PTS: 1 REF: 77-78

2. You are trying to create a table using SQL*Plus but keep receiving an Oracle error message. You cannot understand the description of the error provided by the interpreter. You have also looked-up the error code at otn.oracle.com, but you still cannot fix your sql. Describe another means you could use to find the problem in your code.

   ANS:

When an error occurs that you cannot locate, a last resort debugging technique is to create the table multiple times and add one additional column declaration each time, until you find the declaration causing the error. First paste your nonworking command in a Notepad file and modify it so that it creates the table with only the first column declaration. Copy the modified command, and paste it into SQL*Plus. If SQL*Plus successfully creates the table with the first column, you now know that the error was not in the first column declaration. Delete the table using the DROP TABLE command, which has the following syntax: DROP TABLE tablename;. (You will learn more about the DROP TABLE command later in this chapter.) Then, modify the command in Notepad to create the table using only the first and second column declarations. If this works, you now know that the problem was not in either the first or second column declaration. Drop the table again, and modify the command to create the table using only the first, second, and third column declarations. Continue this process of adding one more column declaration to the CREATE command until you locate the column declaration that is causing the error.

PTS: 1 REF: 64

3. Explain why it is a good idea to use Notepad or another editor to modify your sql commands rather than trying to edit them directly in the SQL*Plus window. Give at least two advantages of using the editor.

   ANS:
   Many SQL commands are long and complex, and it is easy to make typing errors. A good approach for entering and editing SQL*Plus commands is to type commands into a text editor such as Notepad, then copy your commands, paste the copied commands into SQL*Plus, and execute the commands. If the command has an error, you can switch back to the text editor, edit the command, copy and paste the edited text back into SQL*Plus, and then re-execute the command. When you are creating database tables, it is a good idea to save the text of all of your CREATE TABLE commands in a single Notepad text file so you have a record of the original code. Saving all the commands in one file creates a script, which is a text file that contains several related SQL commands.You can run the script later to re-create the tables if you need to make changes.You can save multiple CREATE TABLE commands in a text file. Just make sure that they are in the proper order so that foreign key references are made after their parent tables are created.

   PTS: 1 REF: 60-61

4. Define the two basic categories of SQL commands.

   ANS:
   Data definition language (DDL) commands—Used to create new database objects (such as user accounts and tables) and modify or delete existing objects.When you execute a DDL command, the command immediately changes the database, so you do not need to save the change explicitly.

   Data manipulation language (DML) commands—Used to insert, update, delete, and view database data.When you execute a DML command, you must explicitly save the command to make the new data values visible to other database users.

   PTS: 1 REF: 42

5. Explain the Oracle naming standard. Provide example of legal and illegal names.

   ANS:

Table names and column names must follow the Oracle naming standard, which is a series of rules that Oracle Corporation has established for naming all database objects. This Oracle naming standard states that objects must be from one to 30 characters long, can contain letters, numbers, and the special symbols ($),(_), and (#), and must begin with a character. Examples of legal Oracle10*g* database object names are STUDENT_TABLE, PRICE$, or COURSE_ID#. Examples of illegal Oracle10*g* database object names are STUDENT TABLE (which contains a blank space), STUDENT-TABLE (which contains a hyphen), or #COURSE_ID (which does not begin with a character).

PTS: 1 REF: 44