1. What is the term "SQL" an acronym for?

   Structured Query Language.

2. What is the purpose of SQL?

   SQL is an "English-like" language through which you are able to access and manipulate information in a database. It also allows control of that access through security settings and provides commands for constructing database objects like tables.

3. What are the six SQL statement categories?

   a. Data Definition (DDL) – used to define, alter or drop database objects
   b. Data Control (DCL) – used to control access to the database
   c. Data Manipulation (DML) – used to access, create or manipulate data in existing database objects
   d. Transaction Control – used to manage changes made by the DML statements
   e. Session Control – used to manage properties of a user's session
   f. System Control – used to manage the properties of the database

4. True or false? SQL is a programming language like Java.
   False. SQL is not compiled. PL/SQL has programming language elements but not SQL.

5. True or false? In SQL*Plus you can abbreviate SQL keywords.
   False.

6. What does the SQL*Plus SPOOL command do?
   It directs any output to the SQL*Plus window to a file named by the SPOOL command.

7. Which SQL*Plus command is used to display the structure of a table?
   DESCRIBE or DESC for short.

8. In table emp which column is neither a number nor a varchar2 datatype ?
   The SQL*Plus command DESC emp will tell you. (It's HIREDATE with datatype of DATE).

9. Which Oracle SQL datatype is used to define character data that is fixed-length? If you don't specify its size, then what is the default size?
   FIXED. One.

10. Which Oracle SQL datatype is used to define variable-length character data? True or false? You must always specify the size of this datatype for a column (i.e. there is no default)

VARCHAR2. True.

11. Which Oracle SQL datatype is used to define date and time values?
    DATE.

12. What is the largest positive value that can be represented by the Oracle SQL datatype of NUMBER(4) ?
    9999

13. What happens when you attempt to store the values of 123.1, 12345.12345, and 123.9988 in a datatype defined as NUMBER(5)?
    They are stored in the database as 123, 12345, 124.

14. What happens when you attempt to store the values of 0.012345 and 1.012345 in a datatype defined as NUMBER(2, 3)?
    0.012, error (value larger than specified precision allowed for this column)

15. What happens when you attempt to store the value of 1, 10, 100, and 100.001 in a datatype defined as NUMBER(5,-2)?
    0, 0, 100, rounded to 100

16. True or false? In a SELECT statement the FROM clause identifies which table or tables are used.
    True

17. True or false? In a SELECT statement the table names can be entered in either lower or uppercase.
    True

18. True or false? In a SELECT statement the column names can be entered in either lower or uppercase.
    True

19. True or false? In a SELECT statement any keywords (such as SELECT, FROM, WHERE) can be entered in either lower or uppercase.
    True

20. True or false? In SQL*Plus the SELECT statement must end with a slash character to run it.
    False, it is a semi-colon by default although you can change this by setting the "sqlterminator" option.

21. How do you SELECT all columns from a table named "bonus"?
    select * from bonus; or select ename, job, sal, comm from bonus;

22. True or false? The period is used to separate the names of selected columns in a SELECT statement.
    False, it is the comma.

23. True or false? The following SELECT statements return identical row values.
    SELECT ename, sal, 12*sal+100 from bonus;
    SELECT ename, sal, 12*(sal+100) from bonus;
    False. The first select will multiply 12 and sal first, then add 100.

24. True or false? A column alias is used to rename a column heading and can be useful when performing a calculated value in a SELECT.
    True.

25. What happens when you concatenate two columns with the "||" (two vertical bars) operator in a SELECT?
    The select returns the two columns as one column.

26. What happens when you enclose text with single quotes in a SELECT statement as in SELECT ename || ' earned a bonus of ' || comm from bonus; ?
    The literal is enclosed by single quotes. All three elements (ename, the literal and comm) are combined into one column.

27. What kind of value do you get when you concatenate a character string with a NULL value: another character string or a NULL?
    The original character string.

28. True or false? A NULL value is the same as a blank string.
    False. A NULL value is an unknown value.

29. What is Oracle's built-in function to convert a NULL value to another value?
    NVL

30. True or false? By default the display of a query shows all rows including duplicate rows.
    True.

31. What keyword is used in a SELECT statement to eliminate distinct rows?
    Distinct

32. True or false? The WHERE clause comes before the FROM clause in a SELECT statement.
    False.

33. True or false? A SELECT statement must always specify a FROM clause.
    True

34. True or false? A SELECT statement must always specify a WHERE clause.
    False.

35. Write the SELECT statement needed to display all the ename values in table emp for salesman jobs (the job column equals salesman). What kind of quotes do you use for salesman in this SELECT: single quotes or double quotes?

```
select ename
from emp
where job = 'SALESMAN';
```

36. Write the SELECT statement needed to display all the ename values in table emp earning less than or equal to 3000 (the sal column contains the earning amounts).

```
select ename
from emp
where sal <= 3000;
```

37. Write the SELECT statement needed to display all the ename values in table emp earning less than 1000 or earning more than 1200.

```
select ename
from emp
where sal < 1000 or sal > 1200;
```

38. Write the SELECT statement needed to display all the ename values in table emp with a deptno of 20 or 30.

```
select ename
from emp
where deptno in (20, 30);
```

```
select ename
from emp
where deptno=20 or deptno=30;
```

39. True or false? In a WHERE clause the AND operator has a higher precedence than the OR operator.
    True

40. Write the SELECT statement needed to display all the ename values in table emp with a job of CLERK and earning more than 1000 or a job of MANAGER and earning less than 2500.

```
select ename
from emp
where job = 'CLERK' AND
sal > 1000 or
job = 'MANAGER' and
sal < 2500;
```

41. Write the SELECT statement needed to display all the ename values in table emp hired in 1982. There are two versions of a SELECT statement to do this but for this one use the BETWEEN keyword (HIREDATE is the column name, compare with '01-JAN-82' and '31-DEC-82')

```
select ename
from emp
where hiredate between '01-JAN-82' and '31-DEC-82';
```

42. Write the SELECT statement needed to display all the ename values starting with A, B or C in table emp.

```
select ename
from emp
where ename like 'A%' or
ename like 'B%' or
ename like 'C%';
```

43. Write the SELECT statement needed to display all the ename values in table emp who are not in deptno 20.

```
select ename
from emp
where deptno <> 20;
```

```
select ename
from emp
where deptno not in (20);
```

44. Write the SELECT statement needed to display all the ename values in table emp who have managers of King (mgr value of 7839), Jones (mgr value of 7566), or Blake (mgr value of 7698). Use the IN (list) comparison operator.

```
select ename
from emp
where mgr in (7839, 7566, 7698);
```

45. Write the SELECT statement needed to display all the four (and only four) lettered ename values in table emp.

```
select ename
from emp
where ename like '____';    (four underscore characters)
```

46. Write the SELECT statement needed to display all the ename values in table emp who were hired in 1981. Use the LIKE operator.

```
Select ename
From emp
Where hiredate like '%81';
```

47. True or false? In an ORDER BY clause the default sort order is descending.

    False. It is ascending.

48. True or false? In a SELECT statement you are not allowed to have a column in the ORDER BY clause that is not part of the SELECT clause.

    False. You can sort by a column that isn't mentioned in the select clause.

49. Write the SELECT statement needed to display all the ename values in table emp sorted in ascending alphabetical order.

```
select ename
from emp
order by ename;
```

50. Write the SELECT statement needed to display all the ename and sal values in table emp ordered by descending sal values.

```
select ename, sal
from emp
order by sal desc;
```

51. Write the SELECT statement needed to display all the ename values in table emp who did not earn a commission (the comm. column is NULL).

```
select ename
from emp
where comm is NULL;
```

52. Write the SELECT statement needed to display all the ename values in table emp who did earn a commission. Use the SELECT version that tests for NULL.

```
select ename
from emp
where comm is not null;
```