1.

```
SELECT DISTINCT OWNER FROM DBA_TABLES;

ANOTHER SOLUTION:

select owner
from DBA_TABLES
group by owner
order by owner desc;
```

2. Many solutions possible.

i. admin may have forgotten to give him permission to login!

SOLVE: GRANT CONNECT TO RONALDO;

ii. Password might havebeen changed/forgotten.

SOLVE: ALTER USER RONALDO IDENTIFIED BY 'NEW_PASS';

3.

```
alter table table_name modify age number;
```

4.

```
create table scientist(
ID number,
name varchar2(20),
totalPublications number,
age number,
nationality varchar2(20),
constraints pk_scn primary key(id)
);

create table journal(
paperID number,
title varchar2(20),
scientistID number,
year number,
constraints pk_jrnl1 primary key(paperID),
constraints fk_jrnl1 foreign key(scientistID) referencing
scientist(ID)
);
```

5.

```
create table emp_new(
id number,
name varchar2(20),
constraints pk_emp primary key(id)
);

alter table emp_new add  Dept_ID number;

alter table emp_new add constraint fk_deptID foreign key(Dept_id)
referencing department(ID);
```

6.

```
        create table department(
        code number,
        name varchar2(20),
        budget number,
        constraints pk_department primary key(code)
        );

        create table employees(
        ssn number,
        name varchar2(20),
        lastname varchar2(20),
        age number,
        department number,
        constraints pk_employees primary key(ssn),
        constraints fk_employees foreign key(department) references
department(code)
        );

        insert into department values(14,'it',65000);
        insert into department values(37,'accounting',15000);
        insert into department values(59,'human_resources',240000);
        insert into department values(77,'research',6500);

        insert into employees values(1,'Michael','Rogers',37,14);
        insert into employees values(2,'Anand','Manikutty',51,14);
        insert into employees values(3,'Carol','Smith',35,37);
        insert into employees values(4,'Joe','Stevens',34,37);
        insert into employees values(5,'Mary-anne','Foster',28,14);
        insert into employees values(6,'George','ODonnell',33,77);
        insert into employees values(7,'John','Doe',59,59);
        insert into employees values(8,'David','Smith',45,77);
        insert into employees values(9,'Zacary','Efron',20,59);
        insert into employees values(10,'Eric','Goldsmith',30,59);
        insert into employees values(11,'Elizabeth','Doe',22,14);
        insert into employees values(12,'Kumar','Swamy',27,14);

        **************************SQL*************************************

1.
select name
from department
where budget>(select min(budget)
              from department);

2.
select department
from employees
group by department
having count(SSN)<3;

3.
SELECT D.NAME,COUNT(E.SSN)
```

```
FROM DEPARTMENT D , EMPLOYEES E
WHERE E.DEPARTMENT = D.CODE
GROUP BY D.NAME;

ANOTHER SOLUTION:
select D.name,T.num_of_employee
from
(select department,count(SSN) as num_of_employee
from employees
group by department) T,department D
where T.department=D.code;

OR:
select d.name,count(e.department) from department d,employees e where
e.department=d.code group by d.name;

4.
select name,code
from department
where budget<>( select min(budget) from department);

OR:

SELECCT NAME,CODE
FROM DEPARTMENT
WHERE BUDGET> (SELECT MIN(BUDGET) FROM DEPARTMENT);

5.
SELECT COUNT(SSN)
FROM EMPLOYEES
WHERE LASTNAME ='Smith';

OR:

select count(LASTNAME) as smith
from employees
group by lastname
having lastname='SMITH';

OR:
select count(lastname) from employees where lastname='Smith';

6.
select E.name,E.lastname,D.name,D.budget
from employees E,department D
where E.department=D.code;

7.
select name
from department
where budget>(select avg(budget) from department);

8.
```

```
select sum(budget)
from department;

9.
SELECT COUNT (DISTINCT DEPARTMENT) FROM EMPLOYEES;

OR:
select count(*) as num_of_dept
from (select department
      from employees
      group by department);

10.
select name
from department
where budget=( select max(budget) from department);

11.
SELECT E.NAME
FROM EMPLOYEES E, DEPARTMENT D
WHERE D.NAME='it' AND AGE= (SELECT MAX(AGE) FROM EMPLOYEES WHERE DEPARTMENT
=14);

BEST SOLUTION:

SELECT E.NAME
FROM EMPLOYEES E, DEPARTMENT D
WHERE D.NAME='it' AND E.DEPARTMENT =D.CODE AND AGE= (SELECT MAX(AGE) FROM
EMPLOYEES E,DEPARTMENT D WHERE D.CODE =E.DEPARTMENT AND D.NAME='it');

12.

SELECT D.NAME , MIN(AGE)
FROM EMPLOYEES E, DEPARTMENT D
WHERE D.CODE= E.DEPARTMENT
GROUP BY D.NAME
HAVING MIN(AGE)<36;

ANOTHER SOLUTION:

select D.name
from (
select department
from employees
group by department
having min(age)<36)T,department D
where T.department=D.code;

13.
select *
from employees
where department=14 or department=77;
```

```
14.
select E.name,E.lastname
from employees E,department D
where E.department= D.code and D.budget>60000;

15.
SELECT D.NAME , AVG(AGE)
FROM EMPLOYEES E, DEPARTMENT D
WHERE D.CODE = E.DEPARTMENT
GROUP BY D.NAME;

ANOTHER SOLUTION:

select D.name,T.avg
from(
select department,avg(age) as avg
from employees
group by department) T,department D
where T.department=D.code;

16.
SELECT DISTINCT LASTNAME FROM EMPLOYEES;

ANOTHER SOLUTION:

select lastname
from employees
group by lastname;

17.
select name,budget*1.2 as budget
from department;

ANOTHER SOLUTION:

UPDATE DEPARTMENT
SET BUDGET=BUDGET*1.2;

18.insert into department values(95,'QUALITY ASSURANCE',40000);

19.
update employees
set department=95
where department=77;

20.
delete from employees
where department=14;
```