**Hospital Database SQL Queries**

Below are the SQL queries to answer the 39 questions based on the hospital database.

**1) Find all the information of the nurses who are yet to be registered.**

SELECT \*

FROM nurse

WHERE registered = FALSE;

**2) Find the name of the nurse who is the head of their department.**

SELECT n.name

FROM nurse n

JOIN department d ON n.employeeid = d.head;

**3) Find the name of the physicians who are the head of each department.**

SELECT p.name, d.name AS department\_name

FROM physician p

JOIN department d ON p.employeeid = d.head;

**4) Count the number of patients who have taken an appointment with at least one physician.**

SELECT COUNT(DISTINCT patient) AS total\_patients

FROM appointment;

**5) Find the floor and block where room number 212 belongs.**

SELECT blockfloor, blockcode

FROM room

WHERE roomnumber = 212;

**6) Retrieve the names of all the physicians who have performed at least one procedure.**

SELECT DISTINCT p.name

FROM physician p

JOIN undergoes u ON p.employeeid = u.physician;

**7) Find the number of procedures performed by each physician.**

SELECT u.physician, COUNT(u.procedure) AS procedure\_count

FROM undergoes u

GROUP BY u.physician;

**8) Find the number of rooms available in each block.**

SELECT blockfloor, blockcode, COUNT(\*) AS available\_rooms

FROM room

WHERE unavailable = FALSE

GROUP BY blockfloor, blockcode;

**9) Retrieve the list of patients who have undergone a specific procedure (e.g., procedure\_id = 105).**

SELECT p.name

FROM patient p

JOIN undergoes u ON p.ssn = u.patient

WHERE u.procedure = 105;

**10) Find the names of nurses who have been on-call in block 1.**

SELECT DISTINCT n.name

FROM nurse n

JOIN on\_call oc ON n.employeeid = oc.nurse

WHERE oc.blockfloor = 1;

**11) Count the number of appointments scheduled for each physician.**

SELECT physician, COUNT(\*) AS total\_appointments

FROM appointment

GROUP BY physician;

**12) Retrieve the names of patients who have been admitted in the hospital (i.e., have an entry in the stay table).**

SELECT p.name

FROM patient p

JOIN stay s ON p.ssn = s.patient;

**13) Find the number of procedures performed in each room.**

SELECT r.roomnumber, COUNT(u.procedure) AS procedure\_count

FROM room r

JOIN stay s ON r.roomnumber = s.room

JOIN undergoes u ON s.stay\_id = u.stay

GROUP BY r.roomnumber;

**14) Retrieve the details of physicians who are trained in more than 2 procedures.**

SELECT physician, COUNT(treatment) AS total\_procedures

FROM trained\_in

GROUP BY physician

HAVING COUNT(treatment) > 2;

**15) List all procedures that have not been performed on any patient.**

SELECT procedure\_id, name

FROM procedure

WHERE procedure\_id NOT IN (SELECT DISTINCT procedure FROM undergoes);

**16) Find the names of patients who have been prescribed medication but have never undergone a procedure.**

SELECT DISTINCT p.name

FROM patient p

JOIN prescribes pr ON p.ssn = pr.patient

WHERE p.ssn NOT IN (SELECT DISTINCT patient FROM undergoes);

**17) Count the number of nurses assigned to each department.**

SELECT department, COUNT(\*) AS nurse\_count

FROM nurse

GROUP BY department;

**18) Retrieve the list of all physicians who have trained in a procedure but have never performed it.**

SELECT DISTINCT p.name

FROM physician p

JOIN trained\_in t ON p.employeeid = t.physician

WHERE t.treatment NOT IN (SELECT DISTINCT procedure FROM undergoes WHERE physician = p.employeeid);

**19) Find the name of the most frequently prescribed medication.**

SELECT m.name

FROM medication m

JOIN prescribes pr ON m.code = pr.medication

GROUP BY m.name

ORDER BY COUNT(\*) DESC

LIMIT 1;

**20) Retrieve the list of patients who have been admitted in the hospital for more than 7 days.**

SELECT p.name

FROM patient p

JOIN stay s ON p.ssn = s.patient

WHERE (s.end\_date - s.start\_date) > 7;

**21) Find the total billing amount for each patient.**

SELECT patient, SUM(billing\_amount) AS total\_billed

FROM appointment

GROUP BY patient;

**22) Retrieve the names of nurses who have assisted in at least 5 procedures.**

SELECT n.name

FROM nurse n

JOIN undergoes u ON n.employeeid = u.assistingnurse

GROUP BY n.name

HAVING COUNT(\*) >= 5;

(Additional queries will follow in the same format until question 39...)

* **23) Find the physician who has trained the most procedures.**

SELECT physician, COUNT(treatment) AS total\_trained

FROM trained\_in

GROUP BY physician

ORDER BY total\_trained DESC

LIMIT 1;

* **24) Retrieve the names of physicians who have appointments but haven't performed any procedures.**

SELECT physician, COUNT(treatment) AS total\_trained

FROM trained\_in

GROUP BY physician

ORDER BY total\_trained DESC

LIMIT 1;

* **25) Count the number of patients treated by each physician.**

SELECT physician, COUNT(DISTINCT patient) AS total\_patients

FROM appointment

GROUP BY physician;

**26) Retrieve the list of nurses who have assisted in procedures but were not on-call.**

SELECT DISTINCT n.name

FROM nurse n

JOIN undergoes u ON n.employeeid = u.assistingnurse

WHERE n.employeeid NOT IN (SELECT DISTINCT nurse FROM on\_call);

**27) Find the departments with the most physicians.**

SELECT department, COUNT(\*) AS physician\_count

FROM physician

GROUP BY department

ORDER BY physician\_count DESC

LIMIT 1;

**28) Retrieve the details of patients who have been admitted more than once.**

SELECT patient, COUNT(\*) AS admission\_count

FROM stay

GROUP BY patient

HAVING COUNT(\*) > 1;

**29) Find the room that has been occupied the longest.**

SELECT room, SUM(end\_date - start\_date) AS total\_days

FROM stay

GROUP BY room

ORDER BY total\_days DESC

LIMIT 1;

**30) Retrieve the names of physicians who have never been on-call.**

SELECT DISTINCT p.name

FROM physician p

WHERE p.employeeid NOT IN (SELECT DISTINCT nurse FROM on\_call);

**31) Find the most common diagnosis among patients.**

SELECT diagnosis, COUNT(\*) AS frequency

FROM patient\_diagnosis

GROUP BY diagnosis

ORDER BY frequency DESC

LIMIT 1;

**32) Retrieve the list of medications that have been prescribed more than 10 times.**

SELECT m.name, COUNT(\*) AS prescription\_count

FROM medication m

JOIN prescribes p ON m.code = p.medication

GROUP BY m.name

HAVING COUNT(\*) > 10;

**33) Find the physicians who have trained in a procedure but haven't renewed their certification.**

SELECT DISTINCT p.name

FROM physician p

JOIN trained\_in t ON p.employeeid = t.physician

WHERE t.certificationexpires < CURRENT\_DATE;

**34) Retrieve the number of patients each nurse has assisted in procedures.**

SELECT assistingnurse, COUNT(\*) AS assisted\_procedures

FROM undergoes

GROUP BY assistingnurse;

**35) Find the total number of procedures performed each month.**

SELECT EXTRACT(MONTH FROM date) AS month, COUNT(\*) AS total\_procedures

FROM undergoes

GROUP BY EXTRACT(MONTH FROM date);

**36) Retrieve the details of patients who have both an appointment and a stay record.**

SELECT DISTINCT p.\*

FROM patient p

JOIN appointment a ON p.ssn = a.patient

JOIN stay s ON p.ssn = s.patient;

**37) Find the average length of hospital stays per department.**

SELECT d.name AS department, AVG(s.end\_date - s.start\_date) AS avg\_stay\_days

FROM stay s

JOIN room r ON s.room = r.roomnumber

JOIN department d ON r.department = d.department\_id

GROUP BY d.name;

**38) Count the number of procedures performed in each department.**

SELECT d.name AS department, COUNT(u.procedure) AS total\_procedures

FROM undergoes u

JOIN physician p ON u.physician = p.employeeid

JOIN department d ON p.department = d.department\_id

GROUP BY d.name;

**39) Retrieve the details of the most expensive procedure performed in the hospital.**

SELECT \*

FROM procedure

ORDER BY cost DESC

LIMIT 1;