

1) Write the SQL Expressions for the following queries using suitable SQL operations.

a) Display the Course\_id, Title and Credits of Course that are offered in any of the departments namely: Physics, Music, Finance & Biology.

Ans → Select Sub\_code, Title, Credits from Course where Department in ('Physics', 'Music', 'Finance', 'Biology');

b) Display records of the instructors whose name starts with "K" and who get salary more than 68000.

Ans → select \* from Faculty-Info where Name like 'K%' and Salary > 68000;

c) Display name, department, gross salary and net salary of instructors with 10% DA, 20% HRA, 30% IT.

Ans → Select Name, Department, (Salary + (Salary \* 1.05)) + (Salary \* 20) AS Gross Salary, ((Salary + (Salary \* 1.05)) + (Salary \* 0.20)) - (Salary \* 0.30) AS Net-Salary from Faculty-Info;

d) Display records of the instructors with salary range 60000 to 80000.

Ans → Select \* from Faculty-Info where Salary between 60000 and 80000;

e) Display the records of the instructors having the second letter in their name as 'n'.

Ans → select \* from Faculty-Info where Name like '\_n%';

f) Display the names of the instructors of Comp. Sci. Department in descending order of their salary.

Ans → select Name from Faculty-Info where Department = 'Comp. Sci.' order by Salary desc;

g) Update all records of instructor table with a salary hike of 15%.

Ans → update Faculty-Info set Salary = Salary \* 1.15;

h) Update the records with a salary hike of 3% for Comp. Sci. Dept instructors having salary

less than 70000.

Ans → update Faculty-Info set Salary = Salary \* 1.03 where Department = 'Comp. Sci.' and  
Salary < 70000;

i) Display the annual salary of each instructor.

Ans → select Name, Salary \* 12 as Annual-Salary from Faculty-Info;

j) Update the title of the course having title 'Game Design' to 'Game Theory'.

Ans → Update Courses set Title = 'Game Theory' where Title = 'Game Design';

k) Delete the instructor records of History department.

Ans → Delete from Faculty-Info where Department = 'History';

l) Delete the course records of the courses having course\_id starting with 'BIO'.

Ans → Delete from Course where Sub-Code like 'BIO%';

2) Write the SQL Expressions for the following queries using suitable SQL aggregate functions.

a) Display the Avg. Salary of the instructors of Physics department.

Ans → select AVG(Salary) as Avg-Salary from Faculty-Info where Department = 'Physics';

b) Display the Dept-name and Average salary paid to instructor of each department.

Ans → select Department, AVG(Salary) as Avg-Salary from Faculty-Info group by Department;

c) Display the ID, Name & Department of the instructor drawing the highest salary.

Ans → select ID, Name, Department from Faculty-Info where Salary = (Select MAX(Salary) from Faculty-Info);

d) Display the number of instructors available in Comp. Sci. Department.

Ans → select count(\*) as Faculty-Count from Faculty-Info where Department = 'Comp. Sci.';

c) Display the total credits of all courses offered in Comp. Sci. Department.

Ans → Select sum(Credits) AS Total\_Credits from Courses where Department = 'Comp. Sci';

f) Display the number of instructors and total salary drawn by Physics and Comp. Sci. departments.

Ans → Select Department, COUNT(\*) AS Faculty\_Count, SUM(Salary) AS Total\_Salary from Faculty-Info where Department IN ('Physics', 'Comp. Sci') group by Department;

g) Display the total credits of Comp. Sci. and Biology departments from course table.

Ans → Select Department, sum(Credits) AS Total\_Credits from Courses where Department in ('Comp. Sci', 'Biology') group by Department;

h) Display building wise total budget values.

Ans → Select Building, sum(Budget) AS Total\_Budget from Department group by Building;

i) Display the number of instructors of each department.

Ans → Select Department, COUNT(\*) AS Faculty\_Count from Faculty-Info group by Department;

j) Display the number of instructors of each department sorted in high to low;

Ans → Select Department, COUNT(\*) AS Faculty\_Count from Faculty-Info group by Department order by Faculty\_Count desc;

k) Display the number of courses offered semester wise.

Ans → Select semester, COUNT(\*) AS Course\_Count from Courses group by Semester;

l) Display the name of departments having number of instructors less than 2.

Ans → Select Department from Faculty-Info group by Department having COUNT(\*) < 2;

m) List the number of instructors of each department having 2 or more than 2 instructors except Finance department, sorted in high to low order of their number.

Ans → Select Department, COUNT(\*) AS Faculty-Count from Faculty-Info where Department  $\neq$  'Finance' group by Department having COUNT(\*)  $>= 2$  order by Faculty-Count desc;

n) Display the Dept-name that has paid total salary more than 50000.

Ans → Select Department from Faculty-Info group by Department having SUM(Salary)  $> 50000$ ;

o) Display the total budget for the building built by Watson.

Ans → Select SUM(Budget) AS Total\_Budget from Department where Builder = 'Watson';

p) Display the highest salary of the instructor of Comp. Sci. Department.

Ans → Select MAX(Salary) AS Highest-Salary from Faculty-Info where Department = 'Comp. Sci.';

3) Write the SQL Expressions for the following queries using suitable SQL scalar function.

a) Display your name with first letter being capital, where the entered name is in lower case.

Ans → Select concat(ucase(left('dinanath', 1)), substring('dinanath', 2)) AS Capitalized-Name;

b) Display 2nd- 6th characters of your name.

Ans → Select substring('dinanath', 2, 5) AS Extracted-Characters;

c) Find length of your full university name.

Ans → Select length('Siksha O Anusandhan') AS Name-Length;

d) Display all the instructor names with its first letter in upper case.

Department of Computer Science & Engineering  
Faculty of Engineering & Technology (ITER)

- a) Ans → select concat(UCASE(left(Name, 1)), LOWER(substring(Name, 2))) AS Capitalized\_Name from Faculty\_Info;
- e) List the department name of each instructor as a three letter code.
- Ans → select Name, left(Department, 3) as Dept\_Code from Faculty\_Info;
- f) Display the month of joining of each instructor.
- Ans → select Name, monthname(Date\_of\_join) as Joining\_Month from Faculty\_Info;
- g) Display the date of joining of each instructor in dd/mm/yy format.
- Ans → select Name, date\_format(Date\_of\_join, '%d/%m/%y') as Joining\_Date from Faculty\_Info;
- h) Display the experience of each instructor in terms of months.
- Ans → select Name, timestampdiff(month, Date\_of\_join, curdate()) as Experienced\_Month from Faculty\_Info;
- i) Display the experience of each instructor in terms of years & months.
- Ans → select Name, floor(timestampdiff(month, Date\_of\_join, curdate())/12) as Years, mod(timestampdiff(month, Date\_of\_join, curdate()), 12) as Months from Faculty\_Info;
- j) Display the day as joining of each instructor.
- Ans → select Name, dayname(Date\_of\_join) as Joining\_Day from Faculty\_Info;
- k) Display the date corresponding to 15 days after today's date.
- Ans → select date\_add(curdate(), interval 15 day) as Future\_Date;
- l) Display the value 94204.27348 truncated upto 2 digits after decimal point.
- Ans → select truncate(94204.27348, 2) as truncated\_value;
- m) Display the value of expression  $\frac{8}{5} + 8^{1/9}$ .
- Ans → select 5 + pow(8, 1/9) as result;
- n) Find out the square root of 8464312.
- Ans → select sqrt(8464312) as square\_root;
- o) Display the string "HELLO ITER" in lower case with a column heading lower\_case.
- Ans → select lower("HELLO ITER") as 'lower\_case';