Ex.No. 12	PL/SQL FUNCTIONS	Date :

1. PL/SQL Function to Find Factorial of a Number using Recursion:

```sql
CREATE OR REPLACE FUNCTION factorial(n IN NUMBER)
RETURN NUMBER
IS
BEGIN
    IF n = 0 THEN
        RETURN 1;
    ELSE
        RETURN n * factorial(n-1);
    END IF;
END;
```

Example usage:

```sql
SELECT factorial(5) FROM dual;
-- Output: 120
```

2. PL/SQL Function to Check if a Number is Prime:

```vbnet
CREATE OR REPLACE FUNCTION is_prime(n IN NUMBER)
RETURN BOOLEAN
IS
    i NUMBER;
BEGIN
    IF n <= 1 THEN
        RETURN FALSE;
    END IF;
    FOR i IN 2..(n/2) LOOP
        IF MOD(n,i) = O THEN
            RETURN FALSE;
        END IF;
    END LOOP;
    RETURN TRUE;
END;
```

Example usage:

```sql
SELECT is_prime(7) FROM dual;
-- Output: TRUE

SELECT is_prime(12) FROM dual;
-- Output: FALSE
```

3. PL/SQL Function to Retrieve Count of Students from 'CSE' Department:

```sql
CREATE OR REPLACE FUNCTION count_cse_students
RETURN NUMBER
IS
    cse_count NUMBER;
BEGIN
    SELECT COUNT(*) INTO cse_count FROM Student WHERE dept = 'CSE';
    RETURN cse_count;
END;
```

Example usage:

```sql
SELECT count_cse_students() FROM dual;
-- Output: 10
```

4. PL/SQL Function to Retrieve Maximum CGPA of a Student:

```sql
CREATE OR REPLACE FUNCTION max_cgpa
RETURN NUMBER
IS
    max_cg NUMBER;
BEGIN
    SELECT MAX(cgpa) INTO max_cg FROM Student;
    RETURN max_cg;
END;
```

Example usage:

```sql
SELECT max_cgpa() FROM dual;
-- Output: 9.5
```

5. PL/SQL Function to Calculate Average of Two Numbers:

```sql
CREATE OR REPLACE FUNCTION avg(x IN NUMBER, y IN NUMBER)
RETURN NUMBER
IS
BEGIN
    RETURN (x + y) / 2;
END;
```

Example usage:

```sql
SELECT avg(4, 8) FROM dual;
-- Output: 6
```