# RAJALAKSHMI ENGINEERING COLLEGE

RAJALAKSHMI NAGAR, THANDALAM – 602 105

RAJALAKSHMI
ENGINEERING
COLLEGE

## CS23332 DATABASE MANAGEMENT SYSTEMS LAB

Laboratory Record Note Book

Name : P. M. Arunesh

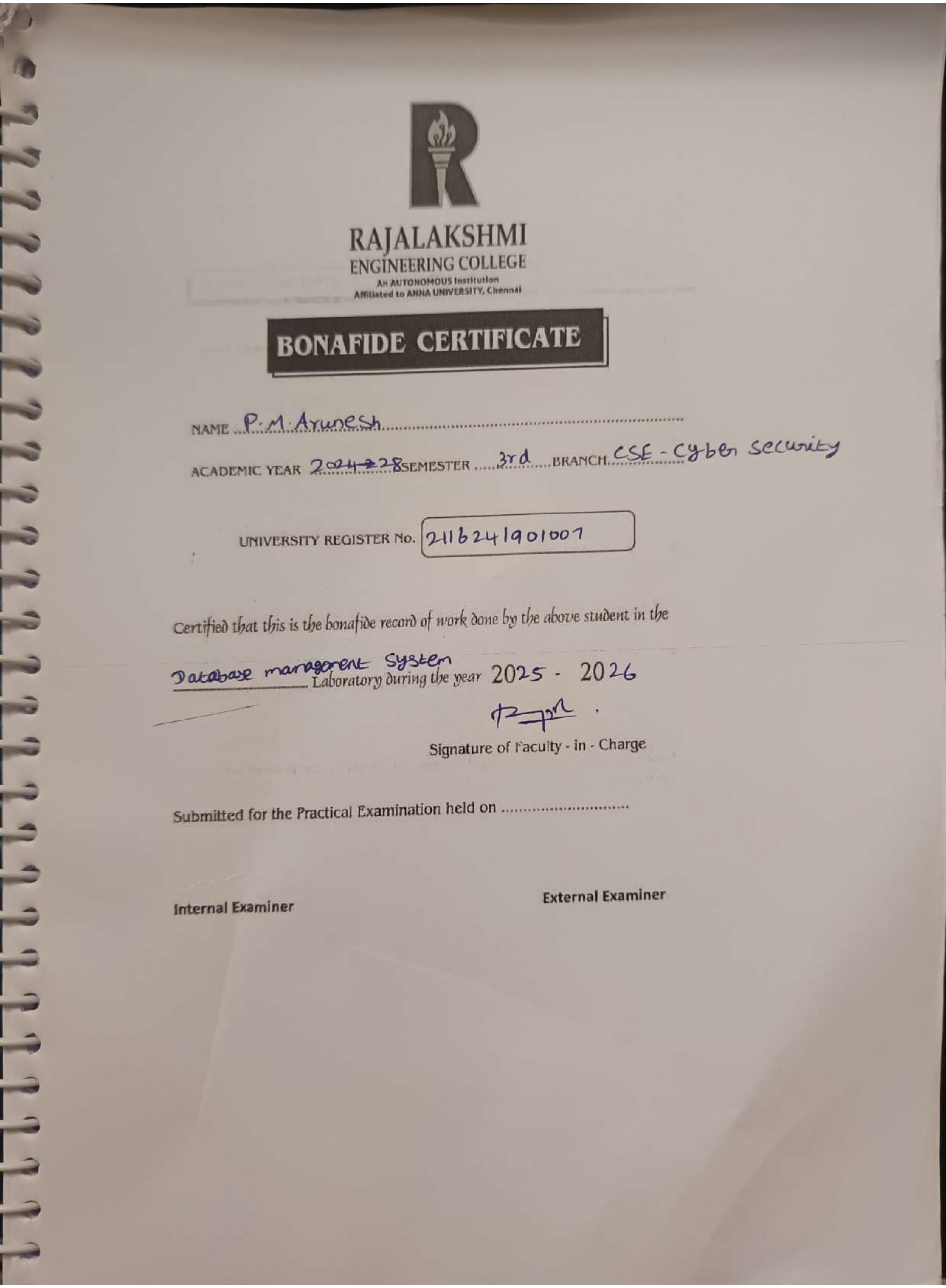
Year / Branch / Section : 2025 / CSE - Cyber security

University Register No. : 211624190 1007

College Roll No. : 241901007

Semester : III

Academic Year : 2024 - 28



RAJALAKSHMI
ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

# BONAFIDE CERTIFICATE

NAME P.M.Arunesh

ACADEMIC YEAR 2024-~~2~~28 SEMESTER 3rd BRANCH CSE - Cyber security

UNIVERSITY REGISTER No. 2116241901007

Certified that this is the bonafide record of work done by the above student in the

Database management system Laboratory during the year 2025 - 2026

Signature of Faculty - in - Charge

Submitted for the Practical Examination held on ..............................

Internal Examiner

External Examiner

# INDEX

Name : P.M.Arunesh Branch : CSE-CS Sec : A Roll No : 241901007

## Program 1

Write a code in PL/SQL to develop a trigger that enforces referential integrity by preventing the deletion of a parent record if child records exist.

```
    Create or Replace Trigger trg-Prevent-Parent-delete
    BEfore DELETE ON department
    FOR EACH Row.

  DEClare
          v-count number;
 BEGIN
  SELECT Count(L) INTO v-count from employee
 where    .
         dept-id= ocp. dept_id;
  IF   v- count > 0 THEN
          RAISE_Application-Error(-20001,'cannot
delete   parent record. Child records exits in
Employee table');
  END IF;
  END;
```

Program 2

Write a code in PL/SQL to create a trigger that checks for duplicate values in a specific column and raises an exception if found.

```
CREATE or replace trigen trg_ check - duplicate_email
insert or update on Students.

For Each Row

Declare
      v- count NUMBER;

BEGIN
   SELECT count(1) INTO v-count FROM Students WHERE
 Email = NEW email
 IF v - count > 0 Then
      raise - Application - Error(-20002, 'Duplicate email
   duplicate each email must be unique:

   END if:

END
/
```

Program 3

Write a code in PL/SQL to create a trigger that restricts the insertion of new rows if the total of a column's values exceeds a certain threshold.

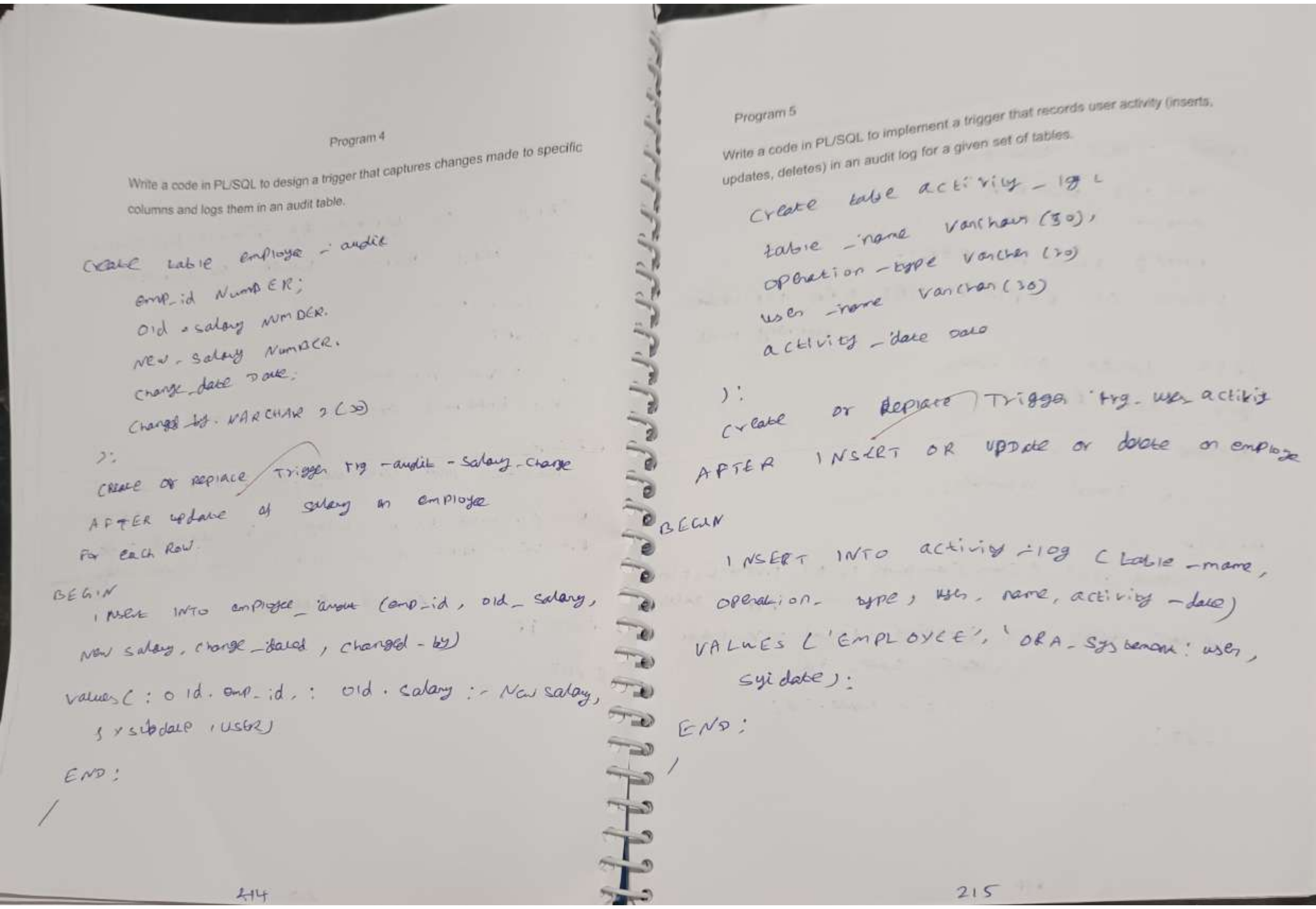
```
   CREATE OR REPLACE OR TRIGGER trg_limit -
total salary  BEFORE  INSERT ON Employees

for Each Row
DE CLARE
   V - total Numbers;
   V - threshold constant Number:= 1000;

BEGIN
   SELECT null (sum(salary). 0) INTO V-total from
                                        Employees:
IF (V-total + : NEW salary) > V- threshold THEN
RAISE - APPLICATION- ERROR (-20003, "Total Salary exceeds
                                                  all
            allowed threshold;

END iF;

END:
/
```



Program 4

Write a code in PL/SQL to design a trigger that captures changes made to specific columns and logs them in an audit table.

```
Create table employe - audit
    emp_id NumBER;
    Old _ salary NUMBER.
    New - salary NumBER.
    change_date Date;
    Changed by. VARCHAR 2 (30)
 );
 Create or replace Trigger trg - audit - salary_change
 AFTER update of salary on employee
For each Row
BEGIN
  insert INTO employee_ audit (emp_id , old_ salary,
 New salary , change_dated , changed - by)
Values ( : o ld . emp_ id , : old . salary :- New salary,
   sysdate , USER)
END;
/
```

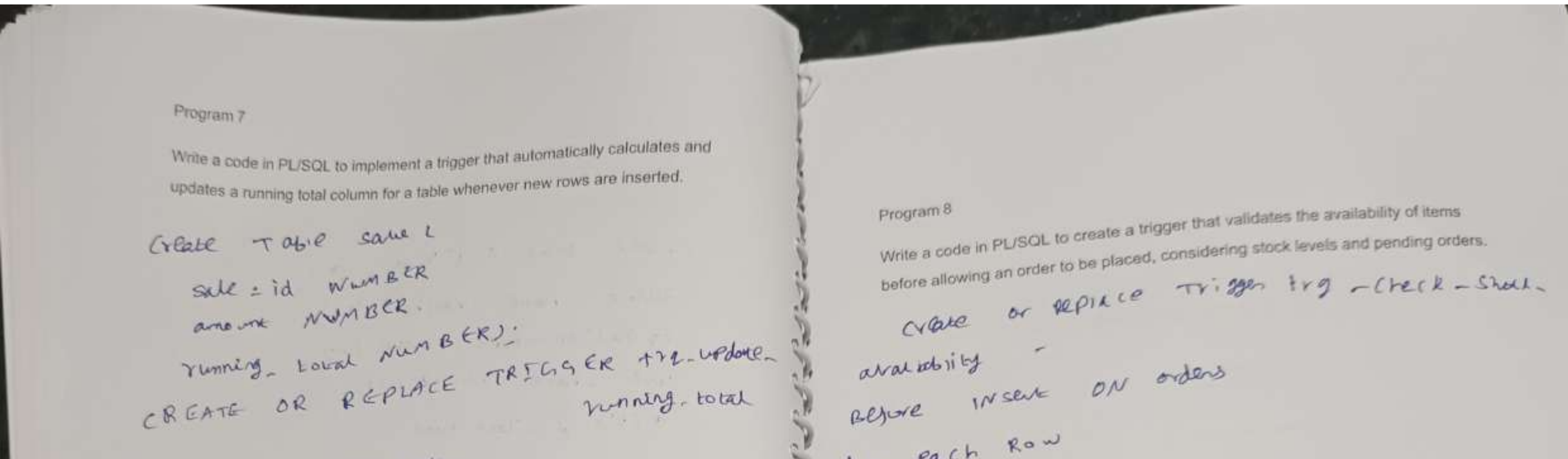
Program 5

Write a code in PL/SQL to implement a trigger that records user activity (inserts, updates, deletes) in an audit log for a given set of tables.

```
Create table activity - log (
table _name varchar (30),
operation - type varchar (20)
user -name varchar (30)
activity - date date

);
Create or Replace Trigger trg_ user activity
APTER INSERT OR UPDate or delete on employe

BEGIN
   INSERT INTO activity -log ( table -name,
 operation_ type , user_ name, activity - date)
 VALUES ( 'EMPLOYEE', 'ORA_ Sysbenom : user,
   sysdate );
END;
/
```



Program 7

Write a code in PL/SQL to implement a trigger that automatically calculates and updates a running total column for a table whenever new rows are inserted.

```
Create Table sale L
   sale : id NUMBER
   amount NUMBER.
  running_ total NUMBER);
CREATE OR REPLACE TRIGGER trg_update_
                                running. total

After insert ON Sales
for each Row

declare
     v- total Number;

BEGIN
    select NVL (Sum (amount ), 0) INTO v, total
                                FROM sales;
update sales SET running - total = v- total
                  WHERE sale_ id
           = : NEW sale-id.

END;
/
```

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Program 8

Write a code in PL/SQL to create a trigger that validates the availability of items before allowing an order to be placed, considering stock levels and pending orders.

```
   Create or Replace Trigger trg -Check - Stock-
 availability   -
Before  INsert  ON  orders
for  each  Row
declare
   v- stock Number:
BEGIN
   SELECT quantity - in - stock INTO v-stock
                                FROM inventory
WHERE item_ id = : NEW . item - id;
     IF v- Stock <: New. order _ quantity T
RAISE - APPLication - Error (-20004. 'insuff
              stock available
         for the required item);
  END IF;
END;
/
```

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| Evaluation Procedure | Marks awarded |
|---|---|
| PL/SQL Procedure(5) | 5 |
| Program/Execution (5) | 5 |
| Viva(5) | 5 |
| Total (15) | 15 |
| Faculty Signature | |