Database Trigger (All Types: Row level and Statement level triggers, Before and After Triggers).

Write a database trigger on Library table. The System should keep track of the records that are being updated

or deleted. The old value of updated or deleted records should be added in Library\_Audit table.

ANS

1

CREATE TABLE Library (

Book\_ID NUMBER PRIMARY KEY,

Title VARCHAR2(100),

Author VARCHAR2(100),

Publisher VARCHAR2(100),

Year\_Published NUMBER,

Copies\_Available NUMBER

);

2

CREATE TABLE Library\_Audit (

Audit\_ID NUMBER PRIMARY KEY,

Book\_ID NUMBER,

Title VARCHAR2(100),

Author VARCHAR2(100),

Publisher VARCHAR2(100),

Year\_Published NUMBER,

Copies\_Available NUMBER,

Operation VARCHAR2(10), -- 'UPDATE' or 'DELETE'

Action\_Time TIMESTAMP,

User\_Name VARCHAR2(100) -- This can capture the user performing the operation

);

3

CREATE OR REPLACE TRIGGER trg\_before\_delete\_library

BEFORE DELETE ON Library

FOR EACH ROW

BEGIN

-- Insert the old values into the Library\_Audit table

INSERT INTO Library\_Audit (

Book\_ID, Title, Author, Publisher, Year\_Published, Copies\_Available,

Operation, Action\_Time, User\_Name

)

VALUES (

:OLD.Book\_ID, :OLD.Title, :OLD.Author, :OLD.Publisher, :OLD.Year\_Published, :OLD.Copies\_Available,

'DELETE', SYSTIMESTAMP, USER

);

END;

/

4

INSERT INTO Library (Book\_ID, Title, Author, Publisher, Year\_Published, Copies\_Available)

VALUES (1, 'Database Systems', 'C. J. Date', 'Addison-Wesley', 2000, 10);

INSERT INTO Library (Book\_ID, Title, Author, Publisher, Year\_Published, Copies\_Available)

VALUES (2, 'Oracle Database', 'Tom Kyte', 'Oracle Press', 2010, 5);

5

UPDATE Library

SET Title = 'Advanced Database Systems', Copies\_Available = 8

WHERE Book\_ID = 1;

6

DELETE FROM Library WHERE Book\_ID = 2;

7

SELECT \* FROM Library\_Audit;