Below is the **full Oracle-based SQL DDL** with **proper constraints, correct data types, NOT NULL, UNIQUE, CHECK constraints**, and realistic definitions.

This is the **clean, production-quality version** you can directly use in your Oracle*Plus project report or practical exam.

✅ 1. CREATE TABLES WITH FULL CONSTRAINTS & DATA TYPES

DEPARTMENT

```
CREATE TABLE DEPARTMENT (
    DEPT_ID      NUMBER(3)    CONSTRAINT dept_pk PRIMARY KEY,
    DEPT_NAME    VARCHAR2(50)  CONSTRAINT dept_name_nn NOT NULL,
    LOCATION     VARCHAR2(50)  CONSTRAINT dept_location_nn NOT NULL
);
```

EMPLOYEE

```
CREATE TABLE EMPLOYEE (
    EMP_ID       NUMBER(5)     CONSTRAINT emp_pk PRIMARY KEY,
    EMP_NAME     VARCHAR2(50)  CONSTRAINT emp_name_nn NOT NULL,
    GENDER       CHAR(1)       CONSTRAINT emp_gender_ck CHECK (GENDER IN ('M','F')),
    DOB          DATE          CONSTRAINT emp_dob_nn NOT NULL,
    EMAIL        VARCHAR2(100) CONSTRAINT emp_email_uq UNIQUE,
    PHONE        VARCHAR2(15)  CONSTRAINT emp_phone_uq UNIQUE,
    HIRE_DATE    DATE          CONSTRAINT emp_hire_nn NOT NULL,
    DEPT_ID      NUMBER(3)     CONSTRAINT emp_dept_fk REFERENCES DEPARTMENT(DEPT_ID),
    JOB_ROLE     VARCHAR2(50),
    MANAGER_ID   NUMBER(5)     CONSTRAINT emp_mgr_fk REFERENCES EMPLOYEE(EMP_ID)
);
```

CLIENT

```
CREATE TABLE CLIENT (
    CLIENT_ID       NUMBER(5)     CONSTRAINT client_pk PRIMARY KEY,
    CLIENT_NAME     VARCHAR2(100) CONSTRAINT client_name_nn NOT NULL,
    CONTACT_PERSON  VARCHAR2(50),
    CONTACT_EMAIL   VARCHAR2(100) CONSTRAINT client_email_uq UNIQUE,
    COUNTRY         VARCHAR2(50)  DEFAULT 'India'
);
```

PROJECT

```
CREATE TABLE PROJECT (
    PROJECT_ID      NUMBER(5)     CONSTRAINT proj_pk PRIMARY KEY,
    PROJECT_NAME    VARCHAR2(100) CONSTRAINT proj_name_nn NOT NULL,
    CLIENT_ID       NUMBER(5)     CONSTRAINT proj_client_fk REFERENCES
CLIENT(CLIENT_ID),
    START_DATE      DATE          CONSTRAINT proj_start_nn NOT NULL,
    END_DATE        DATE,
    STATUS          VARCHAR2(20)  CONSTRAINT proj_status_ck
                        CHECK (STATUS IN ('Active','Completed','On Hold')),
    TEAM_LEAD_ID    NUMBER(5)     CONSTRAINT proj_lead_fk REFERENCES
EMPLOYEE(EMP_ID)
);
```

TECH_STACK

```
CREATE TABLE TECH_STACK (
    TECH_ID     NUMBER(3)     CONSTRAINT tech_pk PRIMARY KEY,
    TECH_NAME   VARCHAR2(50)  CONSTRAINT tech_name_nn NOT NULL,
    CATEGORY    VARCHAR2(30)  CONSTRAINT tech_category_nn NOT NULL
);
```

PROJECT_TECH (Mapping Table)

```
CREATE TABLE PROJECT_TECH (
    PROJECT_ID  NUMBER(5),
    TECH_ID     NUMBER(3),
```

```
    CONSTRAINT projtech_pk PRIMARY KEY (PROJECT_ID, TECH_ID),

    CONSTRAINT projtech_proj_fk FOREIGN KEY (PROJECT_ID)
        REFERENCES PROJECT(PROJECT_ID),

    CONSTRAINT projtech_tech_fk FOREIGN KEY (TECH_ID)
        REFERENCES TECH_STACK(TECH_ID)
);
```

SALARY

```
CREATE TABLE SALARY (
    SALARY_ID     NUMBER(5)     CONSTRAINT salary_pk PRIMARY KEY,
    EMP_ID        NUMBER(5)     CONSTRAINT salary_emp_fk REFERENCES
EMPLOYEE(EMP_ID),
    BASIC_PAY     NUMBER(10,2)  CONSTRAINT salary_basic_nn NOT NULL,
    BONUS         NUMBER(10,2)  DEFAULT 0,
    DEDUCTIONS    NUMBER(10,2)  DEFAULT 0,
    NET_PAY       NUMBER(10,2),
    PAY_DATE      DATE          CONSTRAINT salary_paydate_nn NOT NULL,

    CONSTRAINT salary_net_ck CHECK (NET_PAY >= 0)
);
```

PERFORMANCE

```
CREATE TABLE PERFORMANCE (
    REVIEW_ID        NUMBER(5)     CONSTRAINT perf_pk PRIMARY KEY,
    EMP_ID           NUMBER(5)     CONSTRAINT perf_emp_fk REFERENCES
EMPLOYEE(EMP_ID),
    REVIEW_DATE      DATE          CONSTRAINT perf_date_nn NOT NULL,
    RATING           NUMBER(2,1)   CONSTRAINT perf_rating_ck CHECK (RATING
BETWEEN 1 AND 5),
    FEEDBACK         VARCHAR2(255),
    NEXT_PROMOTION_DATE DATE
);
```

✅ 2. INSERT SAMPLE INDIAN DATA (8 ROWS PER TABLE)

DEPARTMENT

```
INSERT INTO DEPARTMENT VALUES (101, 'Development', 'Pune');
INSERT INTO DEPARTMENT VALUES (102, 'Testing', 'Bangalore');
INSERT INTO DEPARTMENT VALUES (103, 'HR', 'Hyderabad');
INSERT INTO DEPARTMENT VALUES (104, 'DevOps', 'Chennai');
INSERT INTO DEPARTMENT VALUES (105, 'Finance', 'Mumbai');
INSERT INTO DEPARTMENT VALUES (106, 'Support', 'Noida');
INSERT INTO DEPARTMENT VALUES (107, 'Cloud', 'Pune');
INSERT INTO DEPARTMENT VALUES (108, 'Data Science', 'Bangalore');
```

EMPLOYEE

```
INSERT INTO EMPLOYEE VALUES (201, 'Amit Sharma', 'M', DATE
'1995-03-12', 'amit.sharma@it.com','9876543210', DATE '2021-06-10',
101, 'Software Engineer', NULL);
INSERT INTO EMPLOYEE VALUES (202, 'Priya Singh', 'F', DATE
'1997-09-21', 'priya.singh@it.com','9823156784', DATE '2020-02-15',
102, 'QA Engineer', 201);
INSERT INTO EMPLOYEE VALUES (203, 'Rohan Verma', 'M', DATE
'1994-11-11', 'rohan.verma@it.com','9898989898', DATE '2019-10-01',
101, 'Senior Developer', 201);
INSERT INTO EMPLOYEE VALUES (204, 'Sneha Patil', 'F', DATE
'1998-04-05', 'sneha.patil@it.com','9123456780', DATE '2022-01-18',
103, 'HR Executive', 201);
INSERT INTO EMPLOYEE VALUES (205, 'Karan Mehta', 'M', DATE
'1993-02-17', 'karan.mehta@it.com','9988776655', DATE '2018-07-12',
104, 'DevOps Engineer', 203);
INSERT INTO EMPLOYEE VALUES (206, 'Deepika Rao', 'F', DATE
'1996-12-30', 'deepika.rao@it.com','9123499900', DATE '2021-11-10',
108, 'Data Analyst', 203);
```

```
INSERT INTO EMPLOYEE VALUES (207, 'Vikram Desai', 'M', DATE
'1992-06-19', 'vikram.desai@it.com','9765432100', DATE '2017-09-25',
105, 'Account Manager', 201);
INSERT INTO EMPLOYEE VALUES (208, 'Anjali Nair', 'F', DATE
'1997-08-03', 'anjali.nair@it.com','9856781234', DATE '2020-04-11',
106, 'Support Engineer', 207);
```

CLIENT

```
INSERT INTO CLIENT VALUES (301, 'Infosys Ltd', 'Rajesh
Kumar','rajesh@infosys.com','India');
INSERT INTO CLIENT VALUES (302, 'Reliance Digital', 'Mehul
Shah','mehul.shah@reliance.com','India');
INSERT INTO CLIENT VALUES (303, 'Tata Motors', 'Arjun
Deshmukh','arjun@tatamotors.com','India');
INSERT INTO CLIENT VALUES (304, 'Byju''s Learning', 'Karan
Patel','karan@byjus.com','India');
INSERT INTO CLIENT VALUES (305, 'Amazon India', 'Sonal
Mehta','sonal@amazon.com','India');
INSERT INTO CLIENT VALUES (306, 'HDFC Bank', 'Ritesh
Sinha','ritesh@hdfc.com','India');
INSERT INTO CLIENT VALUES (307, 'Flipkart', 'Gaurav
Jain','gaurav@flipkart.com','India');
INSERT INTO CLIENT VALUES (308, 'Zomato', 'Harsh
Agarwal','harsh@zomato.com','India');
```

PROJECT

```
INSERT INTO PROJECT VALUES (401, 'CRM Automation', 301, DATE
'2023-01-01', DATE '2023-12-31', 'Active', 203);
INSERT INTO PROJECT VALUES (402, 'E-Commerce Backend', 307, DATE
'2022-06-15', DATE '2023-11-10', 'Completed', 201);
INSERT INTO PROJECT VALUES (403, 'Banking Security Module', 306, DATE
'2023-03-20', NULL, 'Active', 205);
INSERT INTO PROJECT VALUES (404, 'Vehicle Tracking System', 303, DATE
'2022-02-10', DATE '2023-08-30', 'Completed', 203);
```

```
INSERT INTO PROJECT VALUES (405, 'Learning App Upgrade', 304, DATE
'2023-05-05', NULL, 'Active', 202);
INSERT INTO PROJECT VALUES (406, 'Cloud Migration', 305, DATE
'2021-10-01', DATE '2022-12-15', 'Completed', 203);
INSERT INTO PROJECT VALUES (407, 'Support Automation', 308, DATE
'2023-02-14', NULL, 'Active', 208);
INSERT INTO PROJECT VALUES (408, 'Payroll Management System', 302,
DATE '2023-01-10', NULL, 'On Hold', 207);
```

TECH_STACK

```
INSERT INTO TECH_STACK VALUES (1, 'Python', 'Backend');
INSERT INTO TECH_STACK VALUES (2, 'Java', 'Backend');
INSERT INTO TECH_STACK VALUES (3, 'ReactJS', 'Frontend');
INSERT INTO TECH_STACK VALUES (4, 'SQL', 'Database');
INSERT INTO TECH_STACK VALUES (5, 'Oracle', 'Database');
INSERT INTO TECH_STACK VALUES (6, 'AWS', 'Cloud');
INSERT INTO TECH_STACK VALUES (7, 'Docker', 'DevOps');
INSERT INTO TECH_STACK VALUES (8, 'Machine Learning', 'Data Science');
```

PROJECT_TECH

```
INSERT INTO PROJECT_TECH VALUES (401, 1);
INSERT INTO PROJECT_TECH VALUES (401, 3);
INSERT INTO PROJECT_TECH VALUES (402, 2);
INSERT INTO PROJECT_TECH VALUES (402, 4);
INSERT INTO PROJECT_TECH VALUES (403, 6);
INSERT INTO PROJECT_TECH VALUES (403, 7);
INSERT INTO PROJECT_TECH VALUES (405, 3);
INSERT INTO PROJECT_TECH VALUES (406, 6);
```

SALARY

```
INSERT INTO SALARY VALUES (501, 201, 55000, 5000, 2000, 58000, DATE
'2023-11-01');
INSERT INTO SALARY VALUES (502, 202, 45000, 3000, 1500, 46500, DATE
'2023-11-01');
INSERT INTO SALARY VALUES (503, 203, 75000, 7000, 3000, 79000, DATE
'2023-11-01');
INSERT INTO SALARY VALUES (504, 204, 40000, 2000, 1000, 41000, DATE
'2023-11-01');
INSERT INTO SALARY VALUES (505, 205, 68000, 6000, 2500, 71500, DATE
'2023-11-01');
INSERT INTO SALARY VALUES (506, 206, 62000, 5500, 2200, 65300, DATE
'2023-11-01');
INSERT INTO SALARY VALUES (507, 207, 58000, 4000, 1800, 60200, DATE
'2023-11-01');
INSERT INTO SALARY VALUES (508, 208, 42000, 2500, 1200, 43300, DATE
'2023-11-01');
```

PERFORMANCE

```
INSERT INTO PERFORMANCE VALUES (601, 201, DATE '2023-10-10', 4.5,
'Excellent work on backend development', DATE '2024-10-01');
INSERT INTO PERFORMANCE VALUES (602, 202, DATE '2023-09-12', 4.2,
'Very good testing skills', DATE '2024-09-20');
INSERT INTO PERFORMANCE VALUES (603, 203, DATE '2023-11-15', 4.8,
'Outstanding project leadership', DATE '2024-11-15');
INSERT INTO PERFORMANCE VALUES (604, 204, DATE '2023-08-05', 4.0,
'Good communication skills', DATE '2024-08-05');
INSERT INTO PERFORMANCE VALUES (605, 205, DATE '2023-10-17', 4.6,
'Strong DevOps work', DATE '2024-10-17');
INSERT INTO PERFORMANCE VALUES (606, 206, DATE '2023-09-28', 4.3,
'Great analytical skills', DATE '2024-09-28');
INSERT INTO PERFORMANCE VALUES (607, 207, DATE '2023-11-11', 4.1,
'Good financial management', DATE '2024-11-11');
INSERT INTO PERFORMANCE VALUES (608, 208, DATE '2023-10-20', 3.9,
'Improving support efficiency', DATE '2024-10-20');
```