**Обработка коллекций**

А) Вложенная таблица инициализирована как NULL, потому ее нельзя изменить

Б) Изменить инициализацию вложенной таблицы с NULL на typ\_item\_nst()

З) Ошибка «ORA-22908: ссылка на пустой элемент таблицы» выбрасывается на строке «INSERT INTO TABLE (SELECT items FROM pOrder WHERE ordid = 1000) VALUES(typ\_item(99, 129));»

**Использование коллекций**

**4)**

А) CREATE TYPE typ\_cr\_card AS OBJECT card\_type VARCHAR2(25), card\_num NUMBER);

B) CREATE TYPE typ\_cr\_card\_nst AS TABLE OF typ\_cr\_card;

C) ALTER TABLE customers ADD (credit\_cards typ\_cr\_card\_nst) NESTED TABLE credit\_cards STORE AS c\_c\_store\_tab;

**5)**

CREATE OR REPLACE PACKAGE credit\_card\_pkg IS

PROCEDURE update\_card\_info (

p\_cust\_id NUMBER,

p\_card\_type VARCHAR2,

p\_card\_no VARCHAR2

);

PROCEDURE display\_card\_info (

p\_cust\_id NUMBER

);

END credit\_card\_pkg; -- package spec

/

CREATE OR REPLACE PACKAGE BODY credit\_card\_pkg IS

PROCEDURE update\_card\_info (

p\_cust\_id NUMBER,

p\_card\_type VARCHAR2,

p\_card\_no VARCHAR2

) IS

v\_card\_info typ\_cr\_card\_nst;

i INTEGER;

BEGIN

SELECT

credit\_cards

INTO v\_card\_info

FROM

customers

WHERE

customer\_id = p\_cust\_id;

IF v\_card\_info.EXISTS(1) THEN -- cards exist, add more

i := v\_card\_info.last;

v\_card\_info.extend(1);

v\_card\_info(i + 1) := typ\_cr\_card(p\_card\_type, p\_card\_no);

UPDATE customers

SET

credit\_cards = v\_card\_info

WHERE

customer\_id = p\_cust\_id;

ELSE -- no cards for this customer yet, construct one

UPDATE customers

SET

credit\_cards = typ\_cr\_card\_nst(typ\_cr\_card(p\_card\_type, p\_card\_no))

WHERE

customer\_id = p\_cust\_id;

END IF;

END update\_card\_info;

PROCEDURE display\_card\_info (

p\_cust\_id NUMBER

) IS

v\_card\_info typ\_cr\_card\_nst;

i INTEGER;

BEGIN

SELECT

credit\_cards

INTO v\_card\_info

FROM

customers

WHERE

customer\_id = p\_cust\_id;

IF v\_card\_info.EXISTS(1) THEN

FOR idx IN v\_card\_info.first..v\_card\_info.last LOOP

dbms\_output.put('Card Type: '

|| v\_card\_info(idx).card\_type

|| ' ');

dbms\_output.put\_line('/ Card No: ' || v\_card\_info(idx).card\_num);

END LOOP;

ELSE

dbms\_output.put\_line('Customer has no credit cards.');

END IF;

END display\_card\_info;

END credit\_card\_pkg; -- package body

**7)**

SELECT c1.customer\_id, c1.cust\_last\_name, c2.\* FROM customers c1, TABLE(c1.credit\_cards) c2 WHERE customer\_id = 120;