Total No. of printed pages = 4

MCA 182303

Roll No. of candidate

12/21   2021

M.C.A. 3rd Semester End-Term Examination

DATABASE MANAGEMENT SYSTEM

(New Regulation (w.e.f. 2017-18))

(New Syllabus (w.e.f. 2018-19))

Full Marks – 70   Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *four* from the rest.

1. Choose the appropriate answer: $(10 \times 1 = 10)$

    (i) 'View' is —————

        (a) Logical table   (b) Physical table

        (c) Joint table   (d) None of these

    (ii) Which of the following is associated with : NEW and : OLD?

        (a) Trigger   (b) Stored Procedure

        (c) Function   (d) None of these

    (iii) To remove specific row from table, which of the following maybe used?

        (a) Delete   (b) Drop

        (c) Commit   (d) None of these

    (iv) To modify specific data in a table, which of the following is used?

        (a) Modify   (b) Change

        (c) Alter   (d) None of these

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(v) PAN number has the format of 5 alphabets, followed by 4 numbers and 1 alphabet. The following PL/SQL function is created to check valid PAN numbers

```
create or replace function check_pan(pan_no varchar2)
        return number
        is
        x number(2);
        begin
            if (regexp _ LIKE (pan _ no '[A-Z] [A-Z] [A-Z] [A-Z] [A-Z]
            [0-9][0-9][0-9][0-9][A-Z]'))then
            x:=1;
            else
            x:=0;
            end if;
            return x;
        end;
        /
```

Output of the SQL statement-

Select check_pan('APMPB9629P'),check_pan('BPMQW121 B') from dual;

(a) 0 1   (b) 1 0

(c) syntax error in function   (d) syntax error in SQL statement

(vi) Just after running the SQL statement:

create sequence mca_code_sequence start with 10 increment by 2;

If the very next SQL statement is: select mca_code_sequence.currval

from dual; which of the following output is correct for the second

statement

(a) 10   (b) error

(c) 12   (d) none of these

(vii) Output of the SQL statement:

select length(substr('Lachit Borphukan',7)) from dual;

(a) 9   (b) 10

(c) syntax error   (d) None of these

(viii) ON DELETE CASCADE is associated with

(a) datatype   (b) primary key-foreign key

(c) view   (d) commit

(ix) Select abs(-56) from dual; returns-

    (a) −56   (b) 56

    (c) 5.6   (d) 9

(x) Which function returns the first letter of the string to uppercase?

    (a) INITCAP   (b) CAPINIT

    (c) UPPER   (d) UPFUN

2. (a) What is the importance of ER diagram in database design? Describe the relationships with example. (7)

(b) Draw an ER diagram for an 'Online Bus Ticket Booking System' to fulfill the following objectives (8)

    (i) To store bus detail along with route of service in database.

    (ii) To enable users to check for available seats and their position (window side, single/double etc.)

    (iii) To store route wise and bus category wise fares.

    (iv) To book seat and the payment information to be stored in database.

    (v) To store passenger data.

    (vi) To enable cancellation of booking.

3. (a) Describe ACID properties of Database in detail. (8)

(b) Describe Rollback, Commit, Savepoint, Union, Union all, Intersect and Minus with example. (7)

4. (a) Consider the following tables (9)

Book_Stock

B id (PK)	Book_name	Book_price	Available_Quantity
1	Let Us C	500	100
2	The old man and the Sea	400	80
3	Engineering Mathematics	450	70

Book_Sale

Sale id (PK)	B_id(FK)	Sale_quantity	Pay_amount	B_Language
1	1	3	?	?
2	3	10	?	?

Create a trigger on Book_Sale that automatically calculates Pay-amount by considering Book_price and Sale_quantity. 10% rebate is provided for all non-English books. Data for B_Language is to be inserted as either 'Englsih' or 'Non-English' depending on the Language of Book_name. Implement logic so that Available_Quantity is automatically adjusted after each sale but never attain a negative value.

(b) Write SQL statement to display the Book_name and Book_price of the book with lowest Available_Quantity as on table Book_Stock of Q4(a). (2)

(c) Write SQL statement to find the total number of books available in database. (2)

(d) Write SQL statement to display name of the books that contain the word 'Man' in its name. (2)

5. (a) Describe the concept of Normalization. (6)

(b) What is 'package' in PL/SQL? How 'package specification' is different from 'package body'? Explain with syntax and example. (9)

6. (a) How instr() is different from substr()? Explain with example. Write about 'group by' in detail with example. (6)

(b) What is the difference between 'row level trigger' and 'statement level trigger'? Explain the use of 'instead of trigger' with example. (9)

7. Write short notes on any three the followings: (3 × 5=15)

(a) B+ tree index files

(b) Stored procedure

(c) Partitioned Hashing

(d) Cursor