

PRACTICE PAPER–2(TERM-2)

XII-COMPUTER SCIENCE (083)

Time allowed: 2 hours

Maximum Marks: 35

General instructions:

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions (11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers 7, 8 and 12.

(SECTION A)

Each question carries 2 marks

Q1. Differentiate between queues and stacks (2)

Stacks	Queues
A Stack is a data structure that follows the LIFO (Last In First Out) principle.	A Queue follows the FIFO(First in First Out) principle.
We can add and remove an element from the top/last place only	It is open from both the ends hence we can easily add elements to the back and can remove/delete elements from the front.
We use append () to add an element at the top/last place and pop() to remove the element from the top/last	We use append () to add an element at the top/last place and pop(0) to remove the element from the first place.

Q2. (i) Expand the following: (1)

HTTP, FTP

(ii) You want to share some audio files from your friend's laptop using Bluetooth what kind of network is this? (1)

Ans. (i) Hyper Text Transfer Protocol, File Transfer Protocol
(ii) PAN-Personal Area Network

Q3. (i) Which constraint specifies the values in the column must be unique?
(ii) Which constraint specified with a column uniquely identifies each row in a table? (2)

Ans. (i) UNIQUE (ii) PRIMARY KEY

Q4. Differentiate between fetchone() and fetchall() (2)

Ans. fetchall() : Whenever we execute the SELECT query using the cursor.execute() method the cursor.fetchall() method extracts a result set of all the rows. It returns these rows as a list of tuples. An empty list is returned if there is no record to fetch.
fetchone() : Whenever we execute the SELECT query using the cursor.execute() method it creates a cursor object. The cursor.fetchone() method returns a single record as a tuple and it returns None if no rows are available.

(2)

Table: SMARTWATCH

WATCHID	NAME	PRICE	QTY_STORE
W1	Fitbit Versa	21000	100
W2	Apple Watch	55000	150
W3	Garmin Fenix	75000	50
W4	Fitbit Versa	21000	100
W5	Samsung Galaxy	27000	200
W6	Amazfit Watch	17000	100
W7	Fossil Hybrid	15000	50

- a) **SELECT * FROM SMARTWATCH WHERE PRICE>=21000 AND QTY_STORE>100**
b) **SELECT SUM(QTY_STORE) FROM SMARTWATCH WHERE NAME IN ("Fitbit Versa", "Fossil Hybrid");**
c) **SELECT MAX(PRICE)+ MIN(PRICE) FROM SMARTWATCH;**
d) **SELECT AVG(PRICE) FROM SMARTWATCH**

- Ans. a)

W2	Apple Watch	55000	150
W5	Samsung Galaxy	27000	200

 b) 250
c) 90000 d) 33000

- Q6. (i) Which command is used to see the table structure** (1)
(ii) What is a Cartesian join or product on two tables? (1)

- Ans. (i) DESC tablename or DESCRIBE tablename
(ii) The Cartesian join is used to generate a paired combination of each row of the first table with each row of the second table. This join type is also known as cross join. The resultant rows are a product of the number of rows in each table.

- Q7. In the table Loan below** (2)

- (a) Identify the candidate key(s) from the table **Loan**.
(b) Which field will be considered as the foreign key if the tables **Customers** and **Loan** are related in a database?

Table Loan

LoanID	LoanDate	ID	EMI	Years
1101	2021-03-01	5	20000	4
1102	2021-02-06	3	10000	2
1103	2021-04-12	4	10000	3
1104	2021-05-15	5	5000	3

Table Customers:

ID	Name	Age	City	Salary
1	Kashika	37	Jammu	80000.00
2	Anupriya	35	Shimla	75000.00
3	Vijayan	36	Hyderabad	65000.00
4	Krishnan	35	Chennai	55000.00
5	Harsh	37	Gandhinagar	85000.00
6	Raisa	32	Mumbai	45000.00

Ans. a) LoanID and LoanDate b) ID is the foreign key

(SECTION B)

Each question carries 3 marks

Q8. Coach Abhishek stores the races and participants in a dictionary. Write a program, with separate user defined functions to perform the following operations: (3)

- Push the names of the participants of the dictionary onto a stack, where the distance is more than 100.
- Pop and display the content of the stack. For example:

If the sample content of the dictionary is as follows:

Races = {100: 'Varnika', 200: 'Jugal', 400: 'Kushal', 800: 'Minisha'}

The output from the program should be:

Minisha Kushal Jugal

Ans. Races = {100: 'Varnika', 200: 'Jugal',
400: 'Kushal', 800: 'Minisha'}
def PUSH(Stk, N):
 Stk.append(N)
def POP(Stk):
 if Stk != []:
 return Stk.pop()
 else:
 return None
stack1 = []
for i in Races:
 if i >= 200:
 PUSH(stack1, Races[i])

```

while True:
    if stack1!=[]:
        print(POP(stack1),end=" ")
    else:
        break

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Q9. (i) A table, Students has been created in a database with the following fields: (3)
StudentID, NAME, DOB, CITY, MARKS

Give the SQL command to change the datatype of CITY from Varchar(30) to Char(30).

(ii) Which of the following is a DML command?
SELECT...FROM, CREATE TABLE, INSERT, UPDATE

Ans. (i) ALTER TABLE Students MODIFY COLUMN CITY char(30);

(ii) DML: SELECT...FROM, INSERT INTO, UPDATE...SET

Q10. Maniklal Fabrics is creating a database called Stores with a table called City_Store. Write the SQL commands for doing the same. (3)

Store_id	INT Primary Key
Manager	Varchar(20)
Address	Varchar(30)
City	Varchar(20)
City_Code	Char(5)
Last_update	Date

Ans. The SQL commands are:
CREATE DATABASE STORES;
CREATE TABLE City_Store (Store_id INT PRIMARY KEY, Manager VARCHAR(20),
Address VARCHAR(30), City VARCHAR(20), City_Code CHAR(5), Last_update date);

(SECTION C)

Each question carries 4 marks

Q11. A database called ecompany has two tables COMPANY and CUSTOMER with the following records. Write SQL commands for the queries (a)-(d) based on the two tables COMPANY and CUSTOMER

(4)

COMPANY

PID	NAME	CITY	PRODUCTNAME
2101	APPLE	DELHI	WATCH

2102	SAMSUNG	BANGALORE	MOBILE
2103	PANASONIC	DELHI	TV
2104	SONY	MUMBAI	MOBILE
2105	LENOVO	INDORE	TABLET
2106	DELL	MUMBAI	LAPTOP

COUSTMER

CUSTID	NAME	UNITPRICE	QTY	PID
101	REENA SONI	60,000	10	2102
102	MICHAEL PAUL	50,000	20	2106
103	MEETALI SINGH	70,000	15	2101
104	PARUL SOHAL	55,000	3	2103
105	RAJESH DESWAL	45,000	7	2104

- Write an SQL statement to display the name of the companies in reverse alphabetical order.
- To add one more column to the table customer called TOTAL_PRICE which can have up to two decimal places.
- Write an SQL statement to count the products city wise.
- Write an SQL statement to display the customer name, product of the unit price and quantity, product name where the name of the city is Mumbai.

Ans. a) SELECT NAME FROM COMPANY ORDER BY NAME DESC;
b) ALTER TABLE CUSTOMER ADD TOTAL_PRICE DECIMAL(10,2);
c) SELECT COUNT(*), CITY FROM COMPANY GROUP BY CITY;
d) SELECT CUSTOMER.NAME, UNITPRICE*QTY, PRODUCTNAME FROM COMPANY, CUSTOMER WHERE COMPANY.PID=CUSTOMER.PID AND CITY= 'MUMBAI';

Q12. (i) Give two advantages and two disadvantages of ring topology. (4)

OR

Define the following terms:

Web Browser, Web server

(ii) Differentiate between wired and wireless Transmission Media.

Ans. (i)	Ring Topology	
	Advantages	Disadvantages
	This arrangement prevents collisions.	Needs more cable than bus.

Data packets travel at greater speeds.	Any snag in the cable ring crashes the network.
Any problems with device and cable can be easily located.	The network activity is disturbed when adding or removing a node.

OR

Web Browser: This is an application software used to view or browse web pages from a web server. Have to type the exact URL to view the web page to request for a web page. This has no database. Google Chrome, Safari, Mozilla Firefox, Microsoft Edge are some popular web browsers.

Web Server: This is a technologically advanced machine that stores all the files containing the web pages which can be viewed by the web browser. Web Servers store, process and deliver web pages to the users when they receive a request from a browser. The Web Server provides the storage space for website files. Apache Server is the most popular server.

(ii) Wired Transmission Media: Wired transmission media are the cables that are used in networking. Popular wired transmission media are twisted pair cable, co-axial cable and fiber optical cable. Each of them has its own characteristics like transmission speed, effect of noise, physical appearance, cost etc.

Wireless Transmission Media: Wireless transmission media are the ways of transmitting data without using any cables. Nowadays wireless communication is becoming popular as it is not bounded by physical geography. This transmission uses Microwave, Radio wave, Infrared or a combination of these.

Q13. Jeevan CareGivers Company has set up its head office with 4 blocks of buildings named Block A, Block B, Block C and Block D. (4)

The number of computers in each block are:

Block A-25

Block B-50

Block C-125

Block D-10

Shortest distances between various Blocks in meters:

Block A to Block B-60 m

Block B to Block C-40 m

Block C to Block A-30 m

Block D to Block C-50 m

- Suggest the most suitable place (i.e. block) to house the server of this company with a suitable reason.
- Suggest the type of network to connect all the blocks with suitable reason.
- The company is planning to link all the blocks through a secure and high speed wired medium. Suggest a way to connect all the blocks.
- Suggest the most suitable wired medium for efficiently connecting each computer installed in every block out of the following network cables:

- Ans.**
- Block C , It has maximum number of computer.
 - Since the distance between the blocks is less than 1 Km and LAN can be upto 10 Km
 - Star topology
 - Ethernet Cable