MAX. MARKS : 70   MAX TIME : 03:00 HRS

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.

2. Both Part A and Part B have choices.

3. Part - A has 2 sections:

   a. Section - I is short answer questions, to be answered in one word or one line.

   b. Section - II has two case studies questions. Each case study has 4 case - based sub - parts. An examinee is to attempt any 4 out of the 5 subparts.

4. Part - B is Descriptive Paper.

5. Part - B has three sections

   a. Section - I is short answer questions of 2 marks each in which two question have internal options.

   b. Section - II is long answer questions of 3 marks each in which two questions have internal options.

   c. Section - III is very long answer questions of 5 marks each in which one question has internal option.

6. All programming questions are to be answered using Python Language only.

Question No.	Part - A	Marks allocated
	Section - I	
	Attempt any 15 questions from question no. 1 to 21.	
1	Given the list L = [1,[3,4],16,40,11], write the output of print(L[1:-1]).	1
2	Find the valid identifier(s) from the following	1

	a) While b) for c) 123abc d) _123	
3	Write the full form of CSV	1
4	Identify the valid Unary operator from the following a) and b) + c) **>** d) **	1
5	Write the output for the following statement: print(4 and 12)	1
6	Write a statement in Python to declare a dictionary whose keys are a, b, c and values are January, February, March.	1
7	Identify immutable type out of the following : a) list b) dict c) int d) set	1
8	Name the built-in string function / method that is used to return a version of the string suitable for caseless comparisons.	1
9	Ravi Jayaraman wants a client/server protocol, in which e-mail is received and held by him on his computer from Internet server. Regularly, it should check his mail-box on the email server and download mails to his computer. Which protocol out of the following will be ideal for the same? (i) POP3 (ii) SMTP (iii) VoIP (iv) HTTP	1
10	Which of the following will come under cyber crime? 1 Theft of a brand new sealed pack laptop. 2 Access to a bank account for getting unauthorised money transaction. 3 Modification in a company data with unauthorised access. 4 Photo copying a printed copy.	1
11	In SQL, which clause is used to restrict the number of rows in the output.	1
12	Correct the SQL statement given below : Select * from company where fname != NULL; ('company' is name of table and 'fname' is attribute in it)	1
13	In SQL, Multi-row functions also called as _____ functions.	1
14	Which of the following is DDL command? a) INSERT b) DELETE c) DROP d) UPDATE	1
15	Expand the tern IPR.	1

16	Write the output for following statement : print(False * 4 + 1)	1
17	If the following code is executed, what will be the output of the following code? name="ComputerSciencewithPython" print(name[3:-5:-2])	1
18	In SQL, write the query to display the structure of the table if the name of the table is 'student'.	1
19	Rearrange the following terms in decreasing order of data transfer rates. Gbps, Mbps, Tbps, Kbps, bps	1
20	In 4G mobile communication, 'G' stands for _____.	1
21	In SQL, a candidate key chosen by database administrator is called as _____.	1
	SECTION - II (ATTEMPT ANY FOUR IN EACH QUESTION)	
22	On the basis of following table answer the given questions: Table: CUSTOMER_DETAILS | CUST_ID	CUST_NAME	ACCT_TYPE	ACCUMLT_AMT	DOJ	GENDER
---	---	---	---	---	---
CNR_001	Manoj	Saving	101250	1992-02-19	M
CNR_002	Rahul	Current	132250	1998-01-11	M
CNR_004	Steve	Saving	18200	1998-02-21	M
CNR_005	Manpreet	Current	NULL	1994-02-19	M | 1) What will be the output of the following query : Select count(ACCUMLT_AMT) From CUSTOMER_DETAILS; 2) What will the output of the following query : Select count(*) From CUSTOMER_DETAILS; 3) Consider above two queries is there any difference in the output. Justify your answer. 4) What will be the cardinality and degree of the above table if two columns and 1 row removed from it. 5) Identify the primary key in the above table.	4
23	Manoj of class XII working on csv files, want to complete his	4

program. Kindly help him to complete his task by completing code as per the instructions:

```
import _____ # 1 name of module
# code for writing into csv file
def write_csv():
    header = ['id', 'name', 'address', 'zip']
    rows = [
        [1, 'Hannah', '4891 "Blackwell" Street, Anchorage, Alaska', 99503 ],
        [2, 'Walton', '4223 Half and Half Drive, Lemoore, California', 97401 ],
        [3, 'Sam', '3952 Little Street, Akron, Ohio', 93704],
        [4, 'Chris', '3192 Flinderation Road, Arlington Heights, Illinois', 62677],
        [5, 'Doug', '3236 Walkers Ridge Way, Burr Ridge', 61257],
            ]
    with open('customers.csv', 'w', newline='') as f:
    csv_writer = csv.writer(f)
    csv_writer._____ # 2 code to write header row
    for row in rows:
        csv_writer._____ # 3 code to write rows


# code for reading from csv file
def read_csv():
    fin = open("customers.csv",'r')
    csv_reader = _____ # 4 code to create reader object
    print(_____) # 5 code for read/print single row
    for row in csv_reader:
        print(row)
    fin.close()
write_csv()
read_csv()
```

	PART - B	
	SECTION - I	
24	Evaluate the following expressions: a) 6 % 3 + 5**2 * 4 // 5 - 3 ** 2 b) 10 > 5 or 4 > 18 and not 24 != 19	2

25	Differentiate between Web server and web browser. Write names of any two popular web browsers.	2
	OR	
	Give two differences between 3G and 4G telecommunication technologies. Name any two service providers for these technologies in India.	
26	Expand the following terms : i) MBps (ii) HTTPS (iii) XML (iv) WLL	2

27	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	 30=To
	 for K in range(0,TO)
	     IF k%4=0:
	       print[K*4]
	     else:
	       print[K+3]
		2

28	Find the output of the following code:
	 x = 20
	 def myfunc():
	     global x
	     x = 10
	     print(x)
	 myfunc()
	 print(x,end="")
		2

29	What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum and minimum value that can be assigned to each of the variables BEGIN and LAST. import random VALUES=[10,20,30,40,50,60,70,80] BEGIN=random.randint(1,3) LAST=random.randint(BEGIN,4) for I in range(BEGIN,LAST+1): print(VALUES[I],"-",end=" ")	2

	(i) 30 - 40 - 50 - (ii) 10 - 20 - 30 - 40 - (iii) 30 - 40 - 50 - 60 - (iv) 30 - 40 - 50 - 60 - 70 -	
30	Answer the following : 1) What is the use of foreign key in a relation. 2) Why multiple relations are preferred over single relation in a database.	2
31	Answer the following: 1) What values are returned by fetchone() and fetchall() if they contains no record. 2) What is counted by rowcount.	2
32	Consider the relation given below: Table : EMP	2

Table : EMP

ID	DESIG	SALARY
101	PGT	100000
102	PGT	70000
103	TGT	70000

Find all candidate key(s) in the relation. Out of these candidate key(s) find all Alternate key(s).

| 33 | Find and write the output of the following python code: | 2 |

```
def fun(s):
    k=len(s)
    m=" "
    for i in range(0,k):
        if(s[i].isdigit()):
            m=m+s[i]*2
        elif s[i].islower():
            m=m+s[i].upper()
        else:
            m=m+'$$'
    print(m)
fun('Cbse45@com')
```

		SECTION - II	
34		Write a function in Python PUSH(N), where N is a list of names. From this list push all names whose length greater than 4 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate message. OR Write a function in Python POP(N), where N is a stack implemented by a list of names. The function returns the value deleted from the stack or display appropriate message if no value available for deletion.	3
35		Consider the code written below and find the output as per the contents of the file "demo.txt". contents of file demo.txt : This is a file To create knowledge on The file handling concept In python programming language Program for output : ``` fin = open("story.txt") fin.readline() fin.readline() fin.read(4) print(fin.read(10)) print(fin.readline(),end="") print(fin.readline(),end="") fin.close() ``` OR Write a function to read a given file "story.txt" and write those lines which contains more than four words, in a new file "current.txt". If story.txt contains : My first book was Me and My Family It gave me chance to be Known	3

		to the world	
		Then current.txt will contains :	
		My first book was Me	
		It gave me chance to be Known	
36		Write a function which accepts a string and if length of the string is even it returns a string in which 1st character swapped with 2nd, 3rd character with 4th character and so on, otherwise return a message "Illegal string". E.g. S ="python" than output : "yphtno"	3
37		Consider the following tables EMPLOYEES and EMPSALARY. Write output for the SQL commands (1) to (3).	3

Table: EMPLOYEES

EMPID	FIRSTNAME	LASTNAME	ADDRESS	CITY
010	GEORGE	Smith	83 First Street	Howard
105	MARY	Jones	842VineAve	Losantiville
152	SAM	Tones	33 Elm st	Paris
215	SARAH	Ackerman	440 U.S.110	Upton
244	MANILA	Sengupta	24 FriendsStreet	New Delhi
300	ROBERT	Samuel	9 Fifth Cross	Washington
335	HENRY	Williams	12 Moore Street	Boston
400	RACHEL	Lee	121 Harrison	New York
441	PETER	Thompson	11 Red road	Paris

Table : EMPSALARY

EMPID	SALARY	BENEFITS	DESIGNATION
010	75000	15000	Manager
105	65000	15000	Manager
152	80000	25000	Director
215	75000	12500	Manager
244	50000	12000	Clerk

300	45000	10000	Clerk
335	40000	10000	Clerk
400	32000	7500	Salesman
441	28000	7500	Salesman

1) Select FIRSTNAME from Employees where LASTNAME LIKE 'S%';

2) Select sum(distinct benefits) from EmpSalary;

3) Select DESIGNATION, max(SALARY), min(SALARY) from EmpSalary group by DESIGNATION;

SECTION - III

38 Ayurveda Training Educational Institute is setting up its centre in Hyderabad with four specialised departments for Orthopedics, Neurology and Pediatrics along with an administrative office in separate buildings. The physical distances between these department buildings and the number of computers to be installed in these departments and administrative office are given as follows. You, as a network expert, have to answer the queries as raised by them in (1) to (5).

Shortest distances between various locations in metres :

Administrative Office to Orthopedics Unit	55
Neurology Unit to Administrative Office	30
Orthopedics Unit to Neurology Unit	70
Pediatrics Unit to Neurology Unit	50
Pediatrics Unit to Administrative Office	40
Pediatrics Unit to Orthopedics Unit	110

Number of Computers installed at various locations are as follows :

Pediatrics Unit	40
Administrative Office	140
Neurology	50
Orthopedics Unit	80

5

1) Suggest the most suitable location to install the main server of this institution to get efficient connectivity with suitable reason.

2) Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings.

3) Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following :

- Gateway
- Modem
- Switch

4) Suggest the topology of the network

Topologies : Bus Topology, Star Topology

5) Suggest network cable for efficiently connecting each computer installed in each of the buildings out of the following :

Network Cable : Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable

| 39 | Consider the following tables EMPLOYEES and EMPSALARY. Write SQL commands for the Statements (1) to (5).

Table: EMPLOYEES | 5 |

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335	40000	10000	Clerk
400	32000	7500	Salesman
441	28000	7500	Salesman

1) To display Firstname, Lastname, Address and City of all employees living in Paris from the table EMPLOYEES.

2) To display the content of EMPLOYEES table in descending order of FIRSTNAME.

3) To display the Firstname, Lastname, and Total Salary of all managers from the tables, where Total Salary is calculated as Salary+Benifts.

	4) To display the Maximum salary among Managers and Clerks from the table EMPSALARY. 5) To display all records from both the table by using natural join.	
40	Write a function bin_display() to search a given record in a given binary file "student.pi" having values for fields (admno, name, class, percentage). Search is to be done on the basis of admno, program should ask input for admno from user with appropriate message. If record found display the record details, otherwise display a message "RECORD NOT FOUND".	5