MODEL QUESTION PAPER

Computer Science

XII – STANDARD (CBSE)

Time Allowed: 3 hours   Maximum Marks: 70

General Instructions:

1. Please check this question paper contains 35 questions.
2. The paper is divided into 4 Sections- A, B, C, D and E.
3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
6. Section D, consists of 3 questions (31 to 33). Each question carries 5 Marks.
7. Section E, consists of 2 questions (34 to 35). Each question carries 4 Marks.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	State True or False. . "Identifiers are names used. to identify a variable, function in a program"	1
2.	Which of the following is a valid keyword in Python? (a) false (b) return (c) non_local. (d) none	1
3.	Given the following Tuple Tup= U0, 20, 30, ·so) Which of the following statements will result in an error? (a) print(Tup·[O]) (b) Tup.insert {2,3) (c) print(Tup[l:2]) (d) print(len(Tup))	1
4.	Consider the given expression: 57 or ·not 7>4 Which of the following will be the correct output, if the given expression is evaluated? (a) True (b) False (c) NONE (d) NULL	1
5.	Select the correct output of the code: S="Amrit Mahotsav @ 75" A=S.split(" ",2) print(A) (a) ('Amrit', 'Mahotsav', '@', '75') (b)['Amrit', 'Mahotsav', '@ 75'] (c)'Amrit', 'Mahotsav', '@ 75') (d) ['Amrit', 'Mahotsav', '@', '75'	1
6	Which of the following modes in Python creates a new file, if file does not exist and overwrites the content, if the file exists? (a) r+ (b)r (c)w (d) a	1

7.	Fill in the blank. Which function is used to arrange the elements of a list in ascending order. (a) sort () (b) arrange () (c) ascending () (d) asort ()	1
8.	Which of the following operators will return either True or False? (a) += (b) != (c) = (d) *=	1
9.	·Which of the following statement(s) would give an error after executing the following code? Stud= { "Mu rug an": 100, "Mithu": 95}　　# Statement 1 print (Stud[95])　　　　　　　　# Statement 2 Stud ["Murugai1"]=99　　　　　 # Statement 3 pririt(Stud.pop())　　　　　　# Statement 4 print(Stud)　　　　　　　# Statement 5 (a) Statement 2 (b) Statement 3 (c) Statement 4 (d) Statement 2 and 4	1
10.	Fill in the blank. _ is a number of tuples in a relation. (a) Attribute (b) Degree (c) Domain (d) Cardinality	1
11.	The syntax of seek() is: file object.seek(offset[,reference_point]) What is the default value of reference_point? (a) 0　　　　(b) 1　　　　(c) 2　　　　(d) 3	1
12.	Fill in the blank : ___ clause is used with SELECT statement to display data in a sorted form with respect to a specified column. (a) WHERE (b) ORDER BY (c) HAVING (d) DISTINCT	1
13.	Fill in the blank: In_____switching, before a communication starts, a dedicated path is identified between the sender and the receiver. (a) Packet (b) Graph (c) Circuit (d) Plot	1
14.	What will the following expression be evaluated to in python? (a) 8. 5 (c) 10. 2 (b) 8. 0 (d) 10.0	1

15.	Which function returns the sum of all elements of a list? (a) count() (b) sum() (c) total () (d) add ()	1
16.	fetchallO method fetches all rows in a result set and returns a: (a) Tuple of lists (b) List of tuples (c) List of strings (d) Tuple of strings	1
	Q. 17 and 18 are Assertion (A) and Reasoning (R) based questions. Mark the correct choice as (a) Both (A) and (R) are true and (R) is the correct explanation for (A). (b) Both (A) and (R) are true and (R) is not the correct explanation for (A). (c) (A) is true but (R) is false. (d) (A) is false but (R) is true.	
17.	Assertion (A): To use a function from a particular module, we need to import the module. Reason (R): import statement can be written anywhere in the program, before using a function from that module.	1
18.	Assertion (A): A stack is a LIFO structure. Reason (R): Any· new element pushed into .the stack always gets positioned at the index after the last existing element in the stack.	1

SECTION B

19.	Atharva is a Python programmer working on a program to find and return the maximum value from the list. The code written below has syntactical errors. Rewrite the correct code and underline the corrections made.
	def max_num (L) :
	    max=L(0)
	    for a in L:
	       if a > max
	         max=a
	       return max
		2

20.	(a) ·Differentiate between wired and wireless transmission. OR (b) · Differentiate between URL and domain name with the help of an f 2 appropriate example.	2
21.	(a) Given is a Python list declaration: Listofnames=["Aman","Ankit","Ashish","Rajan","Rajat"] Write the output of: print (Listofnaines [-1: -4: -1]) (b) Consider the following tuple declaration : Tup1=(l0,20,30, (10,20,30) ,40) Write the output of : print(tupl.index(20))	1 1
22.	Explain · the concept of "Alternate ' Key" in a Relational Database Management System with an appropriate example	2

3

23.	(a) Write the full forms of the following:
	    (i) HTML
	    (ii) TCP
	(b) What is the heed of Protocols?
		2

24.	(a) Write the output of the code given below:
	
	``
	def short_sub (lst,n):
	    for i in range(0,n):
	        if len (lst)>4:
	            lst [i]=lst [i.]+lst[i]
	        else:
	            lst[i]=lst[i]
	subject=['CS', 'HINDI', 'PHYSICS', 'CHEMISTRY', 'MATHS']
	short_sub (subje6t', 5)
	print (subject)
	``
	
	                OR
	(a) Write the output of the code given below:
	``
	a =30
	def call (x):
	    global a
	    if a%2==0:
	        x+=a
	        x=20
	    else:
	        x-=a
	    return x
	print(call(35),end="I")
	print(call(40),end= "@")
	``
		2

25.	(a) Differentiate between CHAR and V ARCHAR data types in SQL with appropriate example. OR (b) Name any two DDL and any two DML commands	2

SECTION C

26	(a) Consider the following tables - LOAN and BORROWER: Table: LOAN			3

Table: LOAN

LOAN NO	B NAME	**AMOUNT**
L-170	DELHI	3000
L-230	KANPUR	4000

Table: BROWWER

CUST_NAME	**LOAN_NAME**
JOHN	L-171
KRISH	L-230
RAVYA	L-170

4

How many rows and columns will be there in the natural join of these two tables?

OR

(b) Write the output of the queries (i) to (iv) based on the table, GARMENTgiven below:

TABLE: GARMENT

GCODE	TYPE	PRICE	FCODE	ODR_DATE
G101	EVENING GOWN	550	F03	2008-12-19
G102	SLACKS	750	F02	2020-10-20
G103	FROCK	900	F01	2021-09-09
G104	TULIP SKIRT	1250	F01	2021-08-10
G105	BABY TOP	1400	F02	2020-03-31
G106	FORMAL PANT	1350	F01	2019-01-06

(i) SELECT DISTINCT(COUNT(FCODE))FROM GARMENT;
(ii) SELECT FCODE, COUNT(*), MIN(PRICE) FROM GARMENT GROUP BY FCODE HAVING COUNT(*)>1;
(iii) SELECT TYPE FROM GARMENT WHERE ODR_DATE >'2021-02-01' AND PRICE
(iv) SELECT * FROM GARMENT WHERE TYPE LIKE 'F%'

27	(a) Write the ·definition of a Python function named LongLines () which reads the contents· of a text file named 'LINES. TXT' and displays those lines from the file which have at least 10 words in it. For example, if the content of 'LINES. TXT' is as follows: Once upon a time, there was a woodcutter He lived in a little house in a beautiful, green wood. One day, he was merrily chopping some wood. He saw a little girl skipping through the woods, whistling happily. The girl was followed by a big gray wolf. Then the function should display output as: He lived in a little house in a beautiful, green wood. He saw a little girl skipping through the woods, whistling happily. OR (b) Write a function count Dwords() in Python to count the words ending with a digit in a t;xt file "Details.txt". Example: If the file content is as follows: On seat2 VIP1 will sit and On seatl VVIP2 will be sitting Output will be: Number of words ending with a digit are 4	3
28	Write the output of any three SQL queries (i) to (iv) based on the tables COMPANY and CUSTOMER given below: Table: COMPANY	3

CID	C_NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV

	444	SONY		MUMBAI	MOBILE
	555	BLACKBERRY		CHENNAI	MOBILE
	666	DELL		DELHI	LAPTOP

Table: CUSTOMER

CUSTID	CID	NAME	PRICE	QTY
C01	222	ROHIT SHARMA	70000	20
C02	666	DEEPIKA KUMARI	50000	10
C03	111	MOHAN KUMAR	30000	5
C04	555	RADHA MOHAN	30000	11

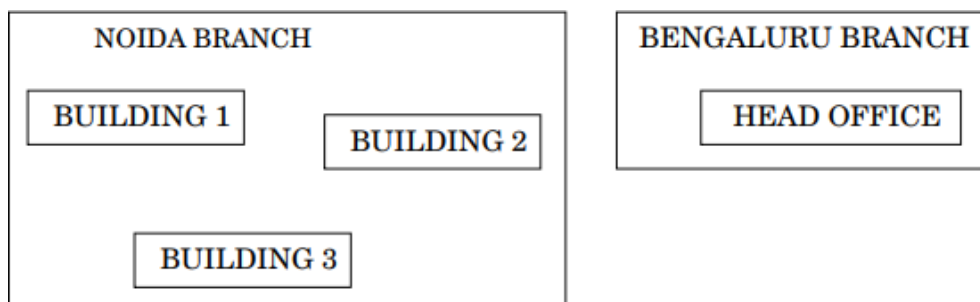|		
	i)	SELECT PRODUCTNAME, COUNT (*) FROM COMPANY GROUP BY PRODUCTNAME HAVING COUNT (*)> 2;
	ii)	SELECT NAME, PRICE, PRODUCTNAME FROM COMPANY C, CUSTOMER CT WHERE C.CID = CU.CID AND C_NAME = 'SONY';
	iii)	SELECT DISTINCT CITY FROM COMPANY;
	iv)	SELECT * FROM COMPANY WHERE C_NAME LIKE '%ON%';
29	Write a function EOReplace0 in Python which accepts a list L of numbers. Thereafter, it increments all even Numbers by 1 and decrements all odd numbers by 1. Example: If Sample Input data of the list is: L=[l0,20,30,40,35,55] Output will be: L=[ll,21,31,41,34,54]	3
30	(a) A list contains following record of customer: [Customer_name, Room Type] Write the following user defined functions to perform, given operations on the stack named 'Hotel': (i) Push_ Cust () - To Push customers' names of those customers who are staying in 'Delux' Room Type. (ii) Pop_ Cust () - To Pop the names of customers from the stack and display them. Also, display "Underflow" when there are no ' customers in the stack. For example: If the lists with customer details are as follows: ["Siddarth", "Delux"] ["Rahul", "Standard"] ["Jerry", "Delux"] The stack should contain Jerry Siddharth The output should be: Jerry Siddharth Underflow OR (b) Write a function in Python, Push (Vehicle) where, Vehicle is a dictionary containing details of vehicles – {Car _Name: Maker}. The function should push the name of car manufactur19- by 'TATA' (including all the possible cases like	3

Tata, TaTa, etc.) to the stack.
For example:
If the dictionary contains the following data:
Vehicle={"Santro":"ijyundai","Nexon":"TATA","Safari":"Tata"}
The stack should contain
Safari
Nexon

SECTION D

31 ABC Consultants are setting up a secure network for their office campus at Noida for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Bengaluru. As a network consultant, give solutions to the questions (i) to (v), after going through the building locations and other details which are given below:

```
NOIDA BRANCH                          BENGALURU BRANCH

 BUILDING 1                             HEAD OFFICE
                BUILDING 2

        BUILDING 3
```

Distance between various blocks/locations:

Building	Distance
Building 1 to Building 3	120 m
Building 1 to Building 2	50 m
Building 2 to Building 3	65 m
Noida Branch to Head Office	1500 km

Number of computers
Building 1 = 25
Building 2 = 51
Building 3 = 150
Head Office = 10

    i)   Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location.

    ii)   Suggest the cable layout of connections between the buildings inside the campus.

    iii)   Suggest the placement of the following devices with justification: Switch Repeater

    iv)   The organization is planning to provide a high-speed link with the head office situated in Bengaluru, using a wired connection. Suggest a suitable wired medium for the same.

The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same.

5

32	(a) What possible output(s) are expected to be displayed on screen at the time of execution of the following program:	5

```
import random
M=[5,10,15,20,25,30]
for i in range(l,3}:
        first=random.randint(2,5)- 1
        sec=random.randint(3,6)- 2
        third=random.randint(l,4)
        print(M[first],M[sec],M[third],sep="#")
```

(i)   10#25#15
         20#25#25
(ii)   5#25#20
         25#20#15
(iii)   30#20#20
         20#25#25
(iv)   10#15#25#
         15#20#10#

<div align="center">OR</div>

(b) The code given below deletes the record from. the table employee which contains the following record structure:
E _ code - String
E _ name - String
Sal - Integer
City - String
Note the following to establish connectivity between Python and MySQL;
Username is root
Password is root
The table exists in MySQL database named emp.
The details (E_code, E_name,Sal,City) are the attributes of the table.

33	a) Write one difference between CSV and text files. 5 Write a program in Python that defines and calls the following user defined functions:	5

(i) COURIER_ADD():
It takes the values from the user and adds the details to a csv file I courier.csv I. Each record consists of a list with field elements as cid, s name, Source, destination to store Courier ID, Sender name, Source and destination address respectively.
(ii) COURIER_SEARCH():
Takes the destination as the input and displays ail the courier records going to that destination.

<div align="center">OR</div>

(b) Why it is important to close a file before exiting? Write a program in Python that defines and calls the following user defined functions:
(i) Add_Book0:
Takes the details of the books and adds them to a csv file 'Book.csv'. Each record consists of a list with field elements as book ID, B name and pub to store book ID, book name and publisher respectively.
(ii) Search_Book0:
Takes publisher name as input and counts and displays number of books published by them.

<div align="center">**SECTION E**</div>

34	The ABC Company is considering to maintain their salespersons records using SQL to store data. As a database administrator, Alia created the table Salesperson and also entered the data of 5 Salespersons.Table: Salesperson	4

S_ID	S_NAME	AGE	S_AMOUNT	REGION
S001	SHYAM	35	20000	NORTH
S002	RISHABH	30	25000	EAST
S003	SUNIL	29	21000	NORTH
S004	RAHIL	39	22000	WEST
S005	AMIT	40	23000	EAST

Based on the data given above, answer the following questions:
- (i) Identify the attribute that is best suited to be the Primary Key and why?
- (ii) The Company has asked Alia to add another attribute in the table. What will be the new degree and cardinality of the above table?
- (iii) Write the statements to: (a) Insert details of one salesman with appropriate data. (b) SHYAM SOUTH table Salesperson.

OR (Option for part iii only)

iii) Write the statement to:
(a) Delete the record of salesman RISHABH, as he has left the company. Remove an attribute REGION from the table.

| 35 | Shreyas is a programmer, who has recently been given a task to write a user defined function named write_bin ( ) to create a binary file called cust_file.dat
The function accept Thereafter it display customer number, name, quantity and price. SAVE' plays the message 'Quantity less than 10 ..... Cannot · 1 1' quantity entered 1s less than 10. Otherwise the function calculates amount as price quantity and then writes the record in list to the binary file.

```python
def write_bin():
    bin_file= _____ #Statement 1
    while TRUE:
        c_no=int(input("enter customer number"))
        c_name=input("enter customer name")
        qty=int(input("enter qty"))
        price=int(input("enter price"))
        if. ___ #Statement 2
            print("Quantity less than 10 .. Cannot SAVE")
        else:
            amt=price * qty
            c_detail=[c_no,c name,qty,price,amt] #Statement 3
            ans=input("Do you wish to enter more records y/n")
            if ans.lower()=='n':
                ---------- #Statement 4
                ----------- #Statement 5
                ----------- #Statement 6
```

- i) Write the correct statement to open a file 'Cust_file.dat' for writing the data of the customer.
- ii) Which statement should Shreyas fill in Statement 2 to check whether quantity is less than 1.
- iii) Which statement should Shreyas fill in Statement 3 to write data to the binary file and in Statemen,t _4 to stop further processing if the user does not wish to enter more records.

OR (Option for part (iii) only)
(iii) What should Shreyas fill in Statement 5 to close the binary file named Cust_file.dat and in Statement 6 to call function, to write data in binary file? | 4 |