SET - 2

Roll No. | | | | | | |

Candidates must write the Set No. on the title page of the answer book.

SAHODAYA PRE-BOARD EXAMINATION (2023-24)

- Please check that this question paper contains 15 printed pages.
- Set number given on the right hand side of the question paper should be written on the title page of the answer book by the candidate.
- Check that this question paper contains 35 questions.
- Write down the Serial Number of the question in the left side of the margin before attempting it.
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed 15 minutes prior to the commencement of the examination. The students will read the question paper only and will not write any answer on the answer script during this period. Students should not write anything in the question paper.

CLASS- XII

SUB.: COMPUTER SCIENCE (083)

Time: 3 hours **Maximum Marks: 70**

General Instructions :-

1. Please check this question paper contains 35 questions.
2. All questions are compulsory.
3. This question paper is divided into 5 sections- A, B, C, D and E.
4. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
5. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
6. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
7. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
8. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
9. All programming questions are to be answered using Python Language only.

	SECTION-A	
1.	Which out of the following Network devices is used to connect dissimilar networks (different protocols)? (a) Hub (b) Router (c) Bridge (d) Gateway	1
2.	Select the correct output of the code: quote= "Mission Chandrayan-3" a=quote.split("a") print(a[0],"++",a[3]) (a) Mission Ch++3 (b) Mission Ch++ ndrayan-3 (c) Mission Ch++ yan-3 (d) Mission Ch ++ n-3	1
3.	Given the following dictionary: D={'B':'Black','R':'Red','B':'Blue'} Find the value of D1: D1=dict.fromkeys(D) (a) {'B': None, 'R': None, 'B': None} (b) {'Black': None, 'Red': None, 'Blue': None} (c) {'B': ' ', 'R': ' '} (d) {'B': None, 'R': None}	1
4.	Select the correct output of the code: str="computer is fun" p=len(str) substr="fun" print(str.find(substr, 0, p)) (a) 13 (b) 12 (c) -1 (d) 0	1
5.	Find the invalid identifier from the following: (a) none (b) address (c) Name (d) pass	1
6.	When is the finally block executed? (a) When there is no exception (b) When there is an exception	1

	(c) Only if some condition that has been specified is satisfied (d) Always	
7.	Fil in the blank: The _____ statement when combined with table name returns the structure of the table. (a) DESC (b) UNIQUE (c) DISTINCT (d) NULL	1
8.	Which of the following functions can not be used with a tuple? (a) max( ) (b) sort (c) count (d) sorted	1
9.	Fill in the blank: _____ command is used to remove a column from a table in SQL. (a) update (b) remove (c) alter (d) delete	1
10.	State whether the following statement is True or False: While writing a program all exceptions must be handled as the system cannot handle Exceptions on it's own.	1
11.	Given a Tuple tup1= (10, 20, 30, 40, 50, 60, 70, 80, 90) What will be the output of print (tup1 [3:7:2])? (a) (40,50,60,70,80) (b) (40,50,60,70) (c) [40,60] (d) (40,60)	1
12.	What will be the output of the following statement? print (6<12 and not (20>15) or (10>5)) (a) TRUE (b) FALSE (c) True (d) False	1
13.	What is the output of the following code : T=(200) print(T*2) (a) (200,200) (b) Error (c) 400 (d) [200,200]	1
14.	Which of the following network devices amplify the incoming signal and forwards it in LAN? (a) Repeater (b) Gateway (c) Router (d) Modem	1
15.	What will be the output of the following code? import random List=["Delhi","Mumbai","Chennai","Kolkata"]	1

	for y in range(4): x = random.randint(1,3) print(List[x],end="#") (a) Delhi#Mumbai#Chennai#Kolkata# (b) Mumbai#Chennai#Kolkata#Mumbai# (c) Mumbai# Mumbai #Mumbai # Delhi# (d) Mumbai# Mumbai #Chennai # Mumbai	
16.	If cross product is done on two tables Table1 (2 tuples and 3 attributes) and Table2 (2 attributes and 3 tuples) then what will be the cardinality of the resultant table?	1
Q17 and 18 are ASSERTION AND REASONING 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)** : Non default arguments cannot follow default argument. **Reasoning (R)** : In a function header, any parameter cannot have a default value unless all parameters appearing on its right have their default values .	1
18.	**Assertion (A)** : CSV (Comma Separated Values) is a file format for data storage which looks like a binary file. **Reason (R)** : The information is organized with one record on each line and each field is separated by comma.	1
	SECTION-B	
19.	Arjun has created a table SMS containing SRoll_no, Sname, SClass, SPhone_no and percent. Later, he realizes that the field Sphone_no may have duplicate values. Help him to write a SQL command to set the property of this field to deny duplicate values. Also he needs help to write SQL command to see the structural detail of the table SMS. OR Ms. Trisha of a software company created a table **Clients** under a database **Company**. After creating table, she now wants to add an additional column CPortfolio to store textual information containing maximum of 100 characters and	2

	that can't be blank. Also she wants to view all the tables present under the database **Company**. Help her to write the SQL commands to complete the above tasks.	

20.	Write the output of the following code snippet.
	V=70
	def display(N):
	global V
	V=35
	if N%9==0:
	V=V*N
	else:
	V=V/N
	print(V, end="*")
	display(15)
	print(int(V))
		2

21.	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: (a) Sort the elements of a tuple Tup in ascending order. (b) Remove an element present at index 3 of a List Li. OR (a) Convert the input to the type of element as entered. (b) Find the total of values in a list of integers.	2

22.	Predict the output of the following Python Code:
	def CHECK(s):
	k=len(s)
	m=" "
	for i in range(0,k):
	if(s[i].isupper()):
	m=m+s[i].lower()
	elif(s[i].isalpha()):
	m=m+s[i].upper()
	else:
	m=m+"bb"
	print(m)
		2

	CHECK("CBSESchoolXII@com") **OR** **Predict the output of the following Python Code:** def CHANGE(P,Q=30): P=P+Q Q=P-Q print(P,'#',Q) return(P) R=150 S=100 R=CHANGE(R,S) print(R,'#',S) S=CHANGE(S) print(R,'#',S)	

23.	Predict the output of the following code:
	Fruits = {}
	f1=['Apple', 'Grapes', 'Orange', 'apple' , 'Grapes']
	for index in f1:
	if index in Fruits:
	Fruits[index]+=1
	else:
	Fruits[index]=1
	for i , j in Fruits.items() :
	print(i,j , sep = '@')
		2

24.	(a) Expand the following terms: IMAP, GSM (b) Give one difference between LAN and WAN. OR (a) Define the term Telnet with respect to networks (b) How is server different from client?	2
25.	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. value=30	2

	for res in range(0, value) If res%4==0: print(res*4) elseif res%5==0: print(res+3) else: print(res+10)	
	SECTION-C	
26.	Write a function ETCount() in Python, which should read each character of a text file "TESTFILE.txt" and then count and display the occurrence of alphabets E and T individually (including small cases e and t too). Example: If the file content is as follows: Today is a pleasant day. It might rain today. It is mentioned on weather sites The ETCount() function should display the output as: E or e: 6 T or t : 9 OR Write a function CountVC() in Python to read a text file "Versions.txt" and then count and display the total number of vowels and consonants (including small cases and uppercases). Example : If the file content is as follows : Updated information As simplified by official websites. The CountVC() function should display the output as : The total number of Vowels : 20 The total number of Consonants : 28	3
27.	Mayank has created a dictionary containing names and marks as key value pairs of 6 students. Write a function in Python PushName(S) to Push the keys (name of the student) of the dictionary S into a stack, where the corresponding value (marks) is	3

	greater than 75. Also display the count of elements pushed into the stack. **For example:** If the sample content of the dictionary is as follows S={"OM":66, "JAI":45, "BOB":95, "ALI":65, "ANU":90, "TOM":82} The stack should contain TOM ANU BOB **The output should be:** The count of elements in the stack is 3	
28.	(a) Refer the tables given below: **Table: Book** **Code** | **Sub** B1 | English B2 | Physics B3 | History B4 | Science **Table B: Stock** **SCode** | **Pub** | **Qty** | **Code** P01 | Gyan Chand | 250 | B1 P02 | Pustak House | 340 | B2 P03 | Arora | 470 | B3 P04 | Sonka | 245 | B5 Predict the output for the following query: SELECT * FROM Book NATURAL JOIN Stock ; (c) Consider the following tables WORKER and PAYLEVEL and write the output of the following SQL queries (i) to (iv).	3

Table : WORKER

ECODE	NAME	DESIGN	PLEVEL	DOJ	DOB
11	Radhe Shyam	Supervisor	P001	13-Sep-2004	23-Aug-1981
12	Chander Nath	Operator	P003	22-Feb-2010	12-Jul-1987
13	Fizza	Operator	P003	14-Jun-2004	14-Oct-1983
15	Ameen Ahmed	Machanic	P002	21-Aug-2006	13-Mar-1984
18	Sanya	Clerk	P002	19-Dec-2005	09-Jun-1987

Table: PAYLEVEL

PLEVEL	PAY	ALLOWANCE
P001	26000	12000
P002	22000	10000
P003	12000	600

(i) SELECT COUNT(PLEVEL), PLEVEL FROM WORKER GROUP BY PLEVEL;

(ii) SELECT MAX (DOB), MIN(DOJ) FROM WORKER;

(iii) SELECT NAME, PAY FROM WORKER W, PAYLEVEL P WHERE W. PLEVEL= P. PLEVEL AND W.ECODE <13;

(iv) SELECT PLEVEL, PAY+ALLOWANCE FROM PAYLEVEL WHERE PLEVEL= 'P003';

29. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations PRODUCT and ORDER. 2+1=3

Table: PRODUCT

PID	BRAND	CITY_STORE	PNAME	PRICE
111	SONY	DELHI	TV	70000
222	NOKIA	MUMBAI	MOBILE	50000
333	ONIDA	DELHI	TV	30000
444	SONY	MUMBAI	MOBILE	35000
555	BLACKBERRY	CHENNAI	MOBILE	25000

666	DELL	DELHI	LAPTOP	20000

Table: ORDER

CID	CNAME	QTY	PID
101	ROHAN SHARMA	20	222
102	DEEPAK KUMAR	10	666
103	MOHAN KUMAR	5	111
104	SAHIL BANSAL	3	333
105	NEHA SONI	7	444
106	SONAL AGARWAL	5	333
107	ARUN SINGH	15	666

(i) SELECT COUNT(*) , CITY_STORE FROM PRODUCT
GROUP BY CITY_STORE;

(ii) SELECT AVG(QTY) FROM ORDER
WHERE CNAME LIKE "%R%";

(iii) SELECT CNAME, BRAND FROM PRODUCT, ORDER
WHERE PRODUCT. PID = ORDER.PID AND PNAME= "MOBILE";

(iv) SELECT CNAME, QTY FROM ORDER
WHERE QTY NOT BETWEEN 5 AND 20;

(b) Write a command in SQL to view all the Tables present in a database named 'SCHOOL';

30. Observe the following table and answer the parts (a) to (c): 3

Table: Store

ItemCode	ItemName	Qty	Rate
10	Gel Pen Classic	1150	25
11	Sharpner	1500	10
12	Ball Pen 0.5	1600	12
13	Eraser	1600	5
15	Ball Pen 0.25	800	20

(a) Identify the most appropriate column, which can be considered as Primary key of the Table Store.

(b) If three columns are added and one row is deleted from the table Store, then

what will be the new degree and cardinality of the above table?

(c) Write the SQL statement to delete the record of items having Rate less than 10.

SECTION-D

31. Manish is a Python programmer working in a School. For the Result analysis in School, he has created a csv file named student.csv, to store the results of students in different Exams. The structure of record of file student.csv is :[RollNo, Name, Percentage], where

RollNo is the Roll Number of student (integer), Name is the Student Name (string), Percentage is the percentage of marks secured by the student (float).

For efficiently maintaining data of the Result analysis, Manish wants to write the following user defined functions. 4

(a) ADD() – To accept and add data of students to a CSV file 'student.csv'.

(b) Display() – To read all content of "student.csv" and display records of only those students who scored more than 90 percentage.

32. Consider the tables WORKERS and DESIGN given below: 1*4=4

TABLE : WORKERS

W_ID	FIRSTNAME	LASTNAME	ADDRESS	CITY
102	SAM	TONES	33 ELM ST.	PARIS
105	SARAH	ACKERMAN	440 U.S. 110	NEW YORK
144	MANILA	SENGUPTA	24FRIENDS STREET	NEW DELHI
210	GEORGE	SMITH	83 FIRST STREET	HOWARD
255	MARY	JONES	842 VINE AVE	LOS ANGLE
300	ROBERT	SAMUEL	9 FIFTH CROSS	WASHINGTON
335	HENRY	WILLIAMS	12MOORE STREET	BOSTON
403	RONNY	LEE	121 HARRISON ST	NEW YORK
451	PAT	THOMPSON	11 RED ROAD	PARIS

TABLE : DESIGN

W_ID	SALARY	BENEFITS	DESIGNATION
102	75000	15000	MANAGER
105	85000	25000	DIRECTOR
144	70000	15000	MANAGER
210	75000	125000	MANAGER
255	50000	12000	CLERK
300	45000	10000	CLERK
335	40000	10000	CLERK
403	32000	7500	SALESMAN
451	28000	7500	SALESMAN

Write SQL queries for the following:

(a) To display the FIRSTNAME , CITY and TOTAL SALARY of all clerks from the tables WORKERS and DESIGN , where TOTAL SALARY is calculated as SALARY + BENEFITS .

(b) To display the minimum SALARY of employees of each DESIGNATION .

(c) Increase the BENEFITS of all SALESMEN by 10% in table DESIGN .

(d) To display the W_ID and SALARY of all employees between 50000 to 70000 .

SECTION-E

33. (a) Write any two differences between Text file and Binary file. 2+3=5

(b) Write a function in python to search and display details, whose destination is "**Cochin**" from binary file "**Bus.dat**". Assuming the binary file is containing the following elements in the list:

- Bus Number
- Bus Starting Point
- Bus Destination

OR

(a) Write any two differences between 'rb' and 'ab' modes w.r.t. Binary files.

(b) A binary file "salary.dat" has structure [employee id, employee name, salary]. Write a function CountRec() in Python that would read contents of the file "salary.dat" and display the details of those employee whose salary is above 20000.

34. (a) Define the term Cardinality with respect to RDBMS. 1+4=5

(b) A company has stored the data of its employees in **emp** Table. The management of the company has decided to increase the salary by 20% of all those employees who belong to the IT Department. As a Software programmer, help the management by writing the following missing statements 1-4 to complete the code:

```
import mysql.connector as mycon
mydb= _____                          #Statement 1
mycursor=_____                       #Statement 2
mycursor.execute ( _____ )           #Statement 3
mydb._____                           #Statement 4
```

Statement 1 - To form the database connection object.

Statement 2 - To form the cursor object.

Statement 3 - To execute the command that will increase the salary by 20% of all those employees who belong to the IT Department.

Statement 4 - To make the changes after deletion of record permanently in the database.

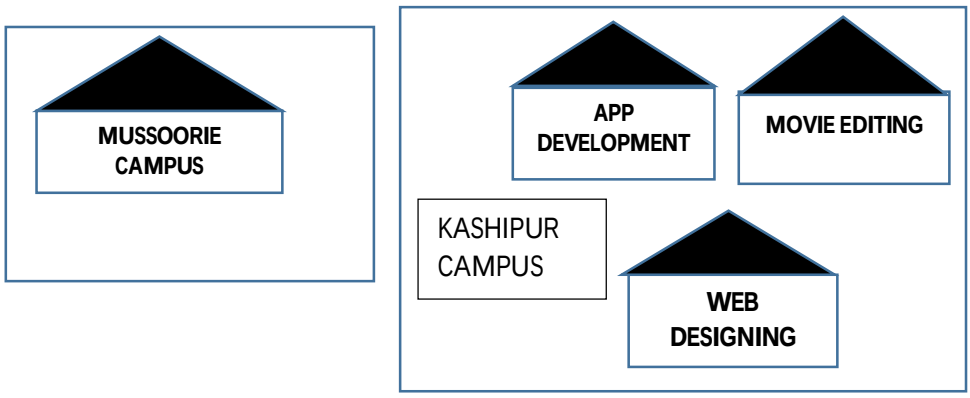
Note: The connection object parameters are localhost, user name is root and password is 1234 and database name is Company.

OR

(a) Define the term degree with respect to RDBMS.

(b) The code given below intends to delete a record from the table 'Employee' available in the database 'Company', whose 'Dept' is 'Elect' and Grade is 'G4'. Write the following missing statements 1-4 to complete the code:

	import mysql.connector as mycon
	mydb= _____ #Statement 1
	mycursor=_____ #Statement 2
	mycursor.execute (_____) #Statement 3
	mydb._____ #Statement 4
	
	Statement 1 - To form the database connection object.
	Statement 2 - To form the cursor object
	Statement 3 - To execute the command that will delete the desired record from the table 'Employee'.
	Statement 4 - To make the changes after deletion of record permanently in the database.
	Note: The connection object parameters are localhost, user name is root and password is 1234.	

35.	MakeInIndia Corporation, an Uttarakhand based IT training company, is planning to set up training centres in various cities in next 2 years. Their first campus is coming up in Kashipur district. At Kashipur campus, they are planning to have 3 different blocks for App development, Web designing and Movie editing. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters. 	1*5=5

Distance between various blocks/locations:

Block	Distance
App development to Web designing	28 m
App development to Movie editing	55 m
Web designing to Movie editing	32 m
Kashipur Campus to Mussoorie Campus	232 Km

Number of Computers are as follows :

Block	Number of computers
App development	75
Web designing	50
Movie editing	80

(a) Suggest the most appropriate block/location to house the SERVER in the Kashipur campus (out of the 3 blocks) to get the best and effective connectivity. Justify your answer.

(b) Suggest a device/software to be installed in the Kashipur Campus to take care of data security.

(c) Suggest the best wired medium and draw the cable layout (Block to Block) to economically connect various blocks within the Kashipur Campus.

(d) Suggest the placement of the following devices with appropriate reasons:

a. Switch / Hub

b. Repeater

(e) Suggest a protocol that shall be needed to provide Video Conferencing solution between Kashipur Campus and Mussoorie Campus.