

**KENDRIYA VIDYALAYA SANGATHAN**  
**GUWAHATI REGION**  
**PRE BOARD – II (Session 2023-24)**  
**Class : XII Subject: (083) Computer Science**

**Maximum Marks : 70**

**Time Allowed: 03:00 Hours**

**General Instructions:**

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

<b>SECTION – A</b>		
Q1.	State True or False "In Python, data type of a variable depends on its value"	(1)
Q2.	The correct definition of column 'alias' is a. A permanent new name of column b. A new column of a table c. A view of existing column with different name d. A column which is recently deleted	(1)
Q3	What will be the output of the following python expression? <code>print(2**3**2)</code> a. 64    b. 256    c. 512    d. 32	(1)
Q4.	What will be the output of the following python dictionary operation? <code>data = {'A':2000, 'B':2500, 'C':3000, 'A':4000}</code> <code>print(data)</code> a. {'A':2000, 'B':2500, 'C':3000, 'A':4000} b. {'A':2000, 'B':2500, 'C':3000} c. {'A':4000, 'B':2500, 'C':3000} d. It will generate an error.	(1)
Q5.	In MYSQL database, if a table, <b>Alpha</b> has degree 5 and cardinality 3, and another table, <b>Beta</b> has degree 3 and cardinality 5, what will be the degree and cardinality of the Cartesian product of <b>Alpha</b> and <b>Beta</b> ? a. 5,3            b. 8,15            c. 3,5            d. 15,8	(1)
Q6.	Identify the device on the network which is responsible for forwarding data from one device to another a. NIC            b. Router            c. RJ45            d. Repeater	(1)
Q7.	Choose the most correct statement among the following –	(1)

	<ul style="list-style-type: none"> <li>a. a dictionary is a sequential set of elements</li> <li>b. a dictionary is a set of key-value pairs</li> <li>c. a dictionary is a sequential collection of elements key-value pairs</li> <li>d. a dictionary is a non-sequential collection of elements</li> </ul>	
Q8.	<p>Select the correct output of the code:</p> <pre>a = "Year 2024 at all the best" a = a.split('a') b = a[0] + "-" + a[1] + "-" + a[3] print (b)</pre> <ul style="list-style-type: none"> <li>a. Year – 0- at All the best</li> <li>b. Ye-r 2024 -ll the best</li> <li>c. Year – 024- at All the best</li> <li>d. Year – 0- at all the best</li> </ul>	(1)
Q9.	<p>Which of the following statement(s) would give an error during execution?</p> <pre>S=["CBSE"]           # Statement 1 S+="Delhi"           # Statement 2 S[0]= '@'            # Statement 3 S=S+"Thank you"     # Statement 4</pre> <p>a) Statement 1 b) Statement 2 c) Statement 3 d) Statement 4</p>	(1)
Q10.	<p>Give the output:</p> <pre>dic1={'r':'red','g':'green','b':'blue'} for i in dic1:     print (i,end='')</pre> <ul style="list-style-type: none"> <li>a. rgb</li> <li>b. RGB</li> <li>c. RBG</li> <li>d. rbg</li> </ul>	(1)
Q11.	<p>Which function is used to display the unique values of a column of a table?</p> <ul style="list-style-type: none"> <li>a. sum()</li> <li>b. unique()</li> <li>c. distinct()</li> <li>d. return()</li> </ul>	(1)
Q12.	<p>Select the correct output of the code:</p> <pre>for i in "QUITE":     print([i.lower()], end= "#")</pre> <ul style="list-style-type: none"> <li>a. q#u#i#t#e#</li> <li>b. ['quite#']</li> <li>c. ['q']#[ 'u']#[ 'i']#[ 't']#[ 'e']#</li> <li>d. ['quite'] #</li> </ul>	(1)
Q13.	<p>The statement which is used to get the number of rows fetched by execute() method of cursor:</p>	(1)



Q20.	<p>a) Rishaan has written a code to input a number and check whether it is even or odd number. His code is having errors. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made.</p> <pre> Def checkNumber(N):     status = N%2     return #main-code num=int( input(" Enter a number to check :)) k=checkNumber(num) if k = 0:     print("This is EVEN number") else: print("This is ODD number") </pre>	(2)
Q21.	<p>a) Write a function countNow(CITY) in Python, that takes the dictionary, CITY as an argument and displays the names (in uppercase) of the CITY whose names are longer than 5 characters.</p> <p>For example, Consider the following dictionary  CITY={1:"Delhi",2:"Guwahati",3:"Ajmer",4:"Jaipur",5:"Udaipur"}</p> <p><b>The output should be:</b>  GUWAHATI  JAIPUR  UDAIPUR</p> <p style="text-align: center;">OR</p> <p>a) Write a Python code to accept a word /String a mixed case and pass it to a function the function should count the number of vowels present in the given string and return the number of vowels to the main program.</p> <p>Sample Input : computer science  Sample output : No of vowels = 6</p>	(2)
Q22.	<p>Predict the output of the Python code given below:</p> <pre> def Swap (a,b) :     if a&gt;b:         print("changed ",end="")         return b,a     else:         print("unchanged ",end="")         return a,b data=[11,22,16,50,30] for i in range (4,0,-1): </pre>	(2)

	<code>print(Swap(data[i],data[i-1]))</code>	
Q23.	<p>Choose the best option for the possible output of the following code</p> <pre>import random L1=[random.randint(0,10) for x in range(3)] print(L1)</pre> <p>(a) [0,0,7]      (b) [9,1,7]      (c) [10,10,10]      (d) All are possible</p> <p style="text-align: center;"><b>OR</b></p> <pre>import random num1=int(random.random()+0.5)</pre> <p>What will be the minimum and maximum possible values of variable num1</p>	(2)
Q24.	<p>Ms. Tejasvi has just created a table named "Student" containing columns sname, Class and Mark. After creating the table, she realized that she has forgotten to add a primary key column in the table. Help her in writing an SQL command to add a primary key column Stuld of integer type to the table Student.</p> <p>Thereafter, write the command to insert the following record in the table:</p> <p>Stuld- 1299 Sname- Shweta Class: XII Mark: 98</p>	(2)
Q25.	<p>Predict the output of the following code:</p> <pre>value = 50 def display(N):     global value     value = 25     if N%7==0:         value = value + N     else:         value = value - N print(value, end="#") display(20) print(value)</pre> <p style="text-align: center;"><b>OR</b></p> <p>Predict the output of the Python code given below:</p> <pre>a=20 def call():     global a     b=20     a=a+b     return a     print(a)  call() print(a)</pre>	(2)

**SECTION – C**

Q26. Predict the output of the Python code given below: (3)

```

Text1="IND-23"
Text2=""
I=0
while I<len(Text1):
    if Text1[I]>="0" and Text1[I]<="9":
        Val = int(Text1[I])
        Val = Val + 1
        Text2=Text2 + str(Val)
    elif Text1[I]>="A" and Text1[I]<="Z":
        Text2=Text2 + (Text1[I+1])
    else:
        Text2=Text2 + "*"
    I+=1
print(Text2)

```

Q27. a) Consider the table CLUB given below and write the output of the SQL queries that follow. (3)

CCODE	CNAME	MAKE	COLOUR	CAPACITY	CHARGES
105	Fortuner	Toyota	White	7	1500
245	Nexon	Tata	Black	5	1000
130	Duster	Renault	Green	6	2000
225	Kwid	Renault	Grey	5	2500
120	Baleno	Suzuki	Red	5	4000
207	Nano	Tata	Blue	4	3500

(i) SELECT DISTINCT MAKE FROM CAR;  
(ii) SELECT MAKE, COUNT(\*) FROM CAR GROUP BY MAKE;  
(iii) SELECT CNAME FROM CAR WHERE CAPACITY>5 ORDER BY CNAME;

Q28. Write a function in Python to read lines from a text file visitors.txt, and display only those lines, which are starting with an alphabet 'P'. (3)

**If the contents of file is :**  
Visitors from various cities are coming here. Particularly, they want to visit the museum.  
Looking to learn more history about countries with their cultures. The output should be:  
Particularly, they want to visit the museum.

**OR**

Write a method in Python to read lines from a text file book.txt, to find and display the occurrence of the word 'are'. For example, if the content of the file is:  
Books are referred to as a man's best friend. They are very beneficial for mankind and have helped it evolve. Books leave a deep impact on us and are responsible for uplifting our mood.

The output should be 3.

Q29.	<p>A relation Toys is given below :</p> <table border="1" data-bbox="272 176 1393 520"> <thead> <tr> <th>T_no</th> <th>Name</th> <th>Company</th> <th>Price</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>T001</td> <td>Doll</td> <td>Barbie</td> <td>1200</td> <td>10</td> </tr> <tr> <td>T002</td> <td>Car</td> <td>Seedo_wheels</td> <td>550</td> <td>12</td> </tr> <tr> <td>T003</td> <td>Mini House</td> <td>Barbie</td> <td>1800</td> <td>15</td> </tr> <tr> <td>T004</td> <td>tiles</td> <td>Seedo_wheels</td> <td>450</td> <td>20</td> </tr> <tr> <td>T005</td> <td>Ludo</td> <td>Seedo_wheels</td> <td>200</td> <td>24</td> </tr> </tbody> </table> <p>Write SQL commands to:</p> <ol style="list-style-type: none"> <li>Display the average price of each type of company having quantity more than 15.</li> <li>Count the type of toys manufactured by each company.</li> <li>Display the total price of all toys.</li> </ol>	T_no	Name	Company	Price	Qty	T001	Doll	Barbie	1200	10	T002	Car	Seedo_wheels	550	12	T003	Mini House	Barbie	1800	15	T004	tiles	Seedo_wheels	450	20	T005	Ludo	Seedo_wheels	200	24	(3)
T_no	Name	Company	Price	Qty																												
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Q30.	<p>A list, NList contains following record as list elements: [City, Country, distance from Delhi] Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named travel.</p> <p><b>(i) Push_element(NList):</b> It takes the nested list as an argument and pushes a list object containing name of the city and country, which are not in India and distance is less than 3500 km from Delhi.</p> <p><b>(ii) Pop_element():</b> It pops the objects from the stack and displays them. Also, the function should display "Stack Empty" when there are no elements in the stack.</p> <p>For example: If the nested list contains the following data: NList=[["New York", "U.S.A.", 11734], ["Naypyidaw", "Myanmar", 3219], ["Dubai", "UAE", 2194], ["London", "England", 6693], ["Gangtok", "India", 1580], ["Columbo", "Sri Lanka", 3405]] The stack should contain: ['Naypyidaw', 'Myanmar'], ['Dubai', 'UAE'], ['Columbo', 'Sri Lanka'] The output should be: ['Columbo', 'Sri Lanka'] ['Dubai', 'UAE'] ['Naypyidaw', 'Myanmar'] Stack Empty</p>	(3)																														

**SECTION – D**

Q31.

Consider the following tables Consumer and Stationary.

(4)

**Table: Stationary**

S_ID	StationaryName	Company	Price
BP01	Ball Pen	Reynolds	10
PL02	Pencil	Natraj	5
ER05	Eraser	Natraj	3
PL01	Pencil	Apsara	6
GP02	Gel Pen	Reynolds	15

**Table: Consumer**

C_ID	ConsumerName	City	S_ID
01	Pen House	Delhi	PL01
06	Write Well	Mumbai	GP02
12	Topper	Delhi	BP01
15	Good Learner	Delhi	PL02
16	Motivation	Bangalore	PL01

Write SQL statements for (i) to (iv)

- (i) To display the consumer detail in descending order of their name.
- (ii) To display the Name and Price of Stationaries whose Price is in the range 10 to 15.
- (iii) To display the ConsumerName, City and StationaryName for stationaries of "Reynolds" Company
- iv) To increase the Price of all stationary by 2 Rupees

Q32

- (a) What does CSV stand for?
- (b) Write a Program in Python that defines and calls the following user defined functions:
  - (i) InsertRow() – To accept and insert data of an student to a CSV file 'class.csv'. Each record consists of a list with field elements as rollno, name and marks to store roll number, student's name and marks respectively.
  - (ii) COUNTD() – To count and return the number of students who scored marks greater than 75 in the CSV file named 'class.csv'.

(4)

**Section – E**

Q33.

XYZ Media house campus is in Delhi and has 4 blocks named Z1, Z2, Z3 and Z4. The tables given below show the distance between different blocks and the number of computers in each block.

(5)



<b>Block Z1 to Block Z2</b>	<b>80 metres</b>
<b>Block Z1 to Block Z3</b>	<b>65 metres</b>
<b>Block Z1 to Block Z4</b>	<b>90 metres</b>
<b>Block Z2 to Block Z3</b>	<b>45 metres</b>
<b>Block Z2 to Block Z4</b>	<b>120 metres</b>
<b>Block Z3 to Block Z4</b>	<b>60 metres</b>

<b>Block</b>	<b>Number of computers</b>
Z1	135
Z2	290
Z3	180
Z4	195

The company is planning to form a network by joining these blocks.

- i. Out of the four blocks on campus, suggest the location of the server that will provide the best connectivity. Explain your response.
- ii. For very fast and efficient connections between various blocks within the campus, suggest a suitable topology and draw the same.
- iii. Suggest the placement of the following devices with justification
  - (a) Repeater
  - (b) Hub/Switch
- iv. VoIP technology is to be used which allows one to make voice calls using a broadband internet connection. Expand the term VoIP.
- v. The XYZ Media House intends to link its Mumbai and Delhi centers. Out of LAN, MAN, or WAN, what kind of network will be created? Justify your answer.

Q34.	<p>A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price].</p> <ol style="list-style-type: none"> <li>i. Write a user defined function CreateFile() to input data for a record and add to Book.dat .</li> <li>ii. Write a function CountRec(Author) in Python which accepts the Author name as parameter and count and return number of books by the given Author are stored in the binary file "Book.dat"</li> </ol> <p style="text-align: center;"><b>OR</b></p> <p>A binary file "STUDENT.DAT" has structure (admission_number, Name, Percentage). Write a function countrec() in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%</p>	(5)
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Q35	<p>(i) Define the term Domain with respect to RDBMS. Give one example to support your answer.</p> <p>(ii) Kabir wants to write a program in Python to insert the following record in the table named Student in MYSQL database, SCHOOL:</p> <ul style="list-style-type: none"><li>❑ rno(Roll number )- integer</li><li>❑ name(Name) - string</li><li>❑ DOB (Date of birth) – Date</li><li>❑ Fee – float</li></ul> <p>Note the following to establish connectivity between Python and MySQL:</p> <ul style="list-style-type: none"><li>❑ Username - root</li><li>❑ Password - tiger</li><li>❑ Host - localhost</li></ul> <p>The values of fields rno, name, DOB and fee has to be accepted from the user. Help Kabir to write the program in Python.</p> <p style="text-align: center;"><b>OR</b></p> <p>(i) Give one difference between Primary key and unique key.</p> <p>(ii) Sartaj has created a table named Student in MYSQL database, SCHOOL:</p> <ul style="list-style-type: none"><li>❑ rno(Roll number )- integer</li><li>❑ name(Name) - string</li><li>❑ DOB (Date of birth) – Date</li><li>❑ Fee – float</li></ul> <p>Note the following to establish connectivity between Python and MySQL:</p> <ul style="list-style-type: none"><li>❑ Username - root</li><li>❑ Password - tiger</li><li>❑ Host - localhost</li></ul>	5
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