

**KENDRIYA VIDYALAYA SANGATHAN: BHUBANESWAR REGION**  
**PRE-BOARD EXAMINATION 2023-24**  
**CLASS XII**  
**COMPUTER SCIENCES (083) SET-2**

**TIME: 3 HOURS**

**M.M.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 2 questions (31 to 32). Each question carries 4 Marks.
7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
8. All programming questions are to be answered using Python Language only.

Q. No.	<u>SECTION A</u>	Marks
1.	State True or False "Variable declaration is implicit in Python"	1
2.	Which SQL command is used to change some values in existing rows? a) update    b) insert    c) alter    d) order	1
3.	Consider the following expression : <b>5+2**6&lt;9+2-16//8</b> Which of the following will be correct output if the given expression is evaluated? (a) 127    (b) True    (c) False    (d) Invalid expression	1
4.	Which of the following refers to mathematical function? a) sqrt    b) rhombus    c) add    d) rhombus	1
5.	In MYSQL database, if a table, Alpha has degree 5 and cardinality 3, and another table, Beta has degree 3 and cardinality 5, what will be the degree and cardinality of the Cartesian product of Alpha and Beta? a) 5,3    b) 8,15    c) 3,5    d) 15,8	1
6.	..... Protocol is used to send the email to another email user. a) FTP b) POP c) IMAP d) SMTP	1
7.	What will be the output of the following Python code snippet?  <pre> a = {} a[1] = 1 a['1'] = 2 a[1]=a[1]+1 count = 0 for i in a:     count += a[i] print(count) </pre> a) 1    b) 2    c) 4    d) Error, the keys can't be a mixture of letters and numbers	1
8.	Select the correct output of the code:	1

	<pre>S="computer Students are very smart" l=S.split() s_new="-".join([l[0].upper(),l[1].lower(),l[2].upper(),l[3],l[4].upper()]) print(s_new)</pre> <p>(a)COMPUTER-students-ARE-very-SMART (b) COMPUTER-STUDENTS-ARE-very-SMART (c) computer-students-are-very-SMART (d) COMPUTER-STUDENTS-ARE-VERY-SMART</p>					
9.	<p>Which of the following statement(s) would give an error during execution of the following code?</p> <pre>tup = (60,120,25,40,70,99) print(tup) #Statement 1 tup [4] =80#Statement 2 print (tup [3] +50) #Statement 3 print(min(tup)) #Statement 4</pre> <p>Options: a. Statement 1      b. Statement 2      c. Statement 3      d. Statement 4</p>	1				
10.	<p>What possible outputs(s) will be obtained when the following code is executed?</p> <pre>import random num=random.randint(0,3) houses=["ASHOKA","SHIVAJI","TAGORE","RAMAN"] for I in range(1,num):     print(houses[I],end="**")</pre> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">a. RAMAN** SHIVAJI** TAGORE**</td> <td style="width: 50%; padding: 5px;">b. SHIVAJI** SHIVAJI**TAGORE**</td> </tr> <tr> <td style="width: 50%; padding: 5px;">c. SHIVAJI** SHIVAJI** TAGORE** TAGORE**</td> <td style="width: 50%; padding: 5px;">d. ASHOKA** SHIVAJI*SHIVAJI* TAGORE* TAGORE* TAGORE*</td> </tr> </table>	a. RAMAN** SHIVAJI** TAGORE**	b. SHIVAJI** SHIVAJI**TAGORE**	c. SHIVAJI** SHIVAJI** TAGORE** TAGORE**	d. ASHOKA** SHIVAJI*SHIVAJI* TAGORE* TAGORE* TAGORE*	1
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c. SHIVAJI** SHIVAJI** TAGORE** TAGORE**	d. ASHOKA** SHIVAJI*SHIVAJI* TAGORE* TAGORE* TAGORE*					
11.	<p>Fill in the blank: The modem at the sender's computer end acts as a _____.</p> <p>a. Modelb. Modulatorc. Demodulatord. Convertor</p>	1				
12.	<p>What will be the output of the following Python code?</p> <pre>x=65 def change():     global x     x=x+10 change() print(x)</pre> <p>a) 65 b) error c) 75 d) 85</p>	1				
13.	<p>State True or False An try block may have more than except blocks to handle exception.</p>	1				
14.	<p>Select correct collection of DDL Command?</p>	1				

	(a) CREATE, DELETE, ALTER, MODIFY (b) CREATE, DROP, ALTER, UPDATE (c) CREATE, DROP, ALTER, TRUNCATE (d) CREATE, DELETE, ALTER, UPDATE	
15.	A _____ is a set of rules that governs data communication.	1
16.	Which statement is used to retrieve the current position within the file: a) fp.seek() b) fp.tell() c) fp.loc d) fp.pos	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): List is an immutable data type Reasoning(R): When an attempt is made to update the value of an immutable variable, the old variable is destroyed and a new variable is created by the same name in memory.	1
18.	Assertion (A): A function is a block of organized and reusable code that is used to perform a single related action. Reason (R): Function provides better modularity for your application and a high degree of code reusability.	1
<b><u>SECTION B</u></b>		
19.	(i) Expand the following terms IMAP DNS (ii) Write two points of difference between Switch and Router. <b>OR</b> (i) Define the term bandwidth with respect to networks (ii) Write two points of difference between Web Server and Web Browser	1+1=2
20.	The code given below accepts a number as an argument and checks whether the given number is perfect number or not. Observe the following code carefully and rewrite it after <b>removing all syntax and logical errors</b> . Underline all the corrections made.  <pre> define perfectNum(num) :     sum = 0     For i in range(1, num)         IF n % i = 0:             sum = sum + i     If sum == n:         print("The number is a Perfect number")     else:         print("The number is not a Perfect number") num =input("Enter the number") perfectNum(num) </pre>	2
21.	Write a function countNow (DAYS) in Python, that takes the dictionary, DAYS as an argument and displays the names (in lowercase) of the days whose names are longer than 7 characters. For example, Consider the following dictionary <b>DAYS={1:"MONDAY",2:"TUESDAY",3:"WEDNESDAY",4:"THURSDAY",5:"FRIDAY",6:"SATURDAY",7:"SUNDAY"}</b>	2

	<p>The output should be:  <b>wednesday</b>  <b>thursday</b>  <b>saturday</b></p> <p style="text-align: center;"><b>OR</b></p> <p>Write a function, lenWords(String), that takes a string as an argument and returns a list containing length of each word of a string.  For example, if the string is "we are writing preboard exams ", the list will have <b>[2, 3, 7, 8, 5]</b></p>																													
22.	<p>Predict the output of the following code:</p> <pre>TXT = ["10", "20", "30", "5"] CNT = 3 TOTAL = 0 for C in [7, 5, 4, 6]:     T = TXT[CNT]     TOTAL = float (T) + C print (TOTAL) CNT-=1</pre>	2																												
23.	<p>Write the Python statement for <b>each</b> of the following tasks using <b>BUILT-IN functions / methods</b> only:</p> <p>(i) To update dictionary d1 with dictionary d2  (ii) To convert only starting letter in string named, <i>message</i> into uppercase letter.</p> <p><b>OR</b></p> <p>A list named <b>studentMarks</b> stores marks of students of a class. Write the Python comm and to import the required module and (using built-in function) to display average value from the given list.</p>	1+1=2																												
24.	<p>Mr. Raja has just created a table named “<b>Employee</b>” containing columns <b>Ename</b>, <b>Department</b> and <b>Salary</b>. After creating the table, he realized that he has forgotten to add a primary key column in the table. Help him in writing an SQL command to add a primary key column <b>EmpId</b> of integer type to the table Employee. Thereafter, write the command to insert the following record in the table:  <b>EmpId- 999 ,Ename- Shweta ,Department: Production, Salary: 26900</b></p> <p style="text-align: center;"><b>OR</b></p> <p>A music store MySports is considering to maintain their inventory using SQL to store the data. The detail is as follow:</p> <p style="text-align: center;"><b>Table: SPORTS</b></p> <table border="1" data-bbox="203 1507 1425 1751"> <thead> <tr> <th>SCODE</th> <th>SPORTNAME</th> <th>NOOFPLAYERS</th> <th>COACHNAME</th> </tr> </thead> <tbody> <tr> <td>S001</td> <td>CRICKET</td> <td>21</td> <td>RAHUL DRAVID</td> </tr> <tr> <td>S002</td> <td>FOOTBALL</td> <td>25</td> <td>ROSHAN LAL</td> </tr> <tr> <td>S003</td> <td>HOCKEY</td> <td>40</td> <td>SRADAR SINGH</td> </tr> <tr> <td>S004</td> <td>CRICKET</td> <td>19</td> <td>CHETAN SHARMA</td> </tr> <tr> <td>S005</td> <td>ARCHERY</td> <td>12</td> <td>LIMBARAM</td> </tr> <tr> <td>S006</td> <td>SHOTTING</td> <td>17</td> <td>DEEPIKA KUMARI</td> </tr> </tbody> </table> <p>Write an SQL statement to modify the no of players to 60 whose SCode is “S006”</p>	SCODE	SPORTNAME	NOOFPLAYERS	COACHNAME	S001	CRICKET	21	RAHUL DRAVID	S002	FOOTBALL	25	ROSHAN LAL	S003	HOCKEY	40	SRADAR SINGH	S004	CRICKET	19	CHETAN SHARMA	S005	ARCHERY	12	LIMBARAM	S006	SHOTTING	17	DEEPIKA KUMARI	2
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25.	<p>Find and write the output of the following Python code:</p>	2																												

```

def change(s):

    n = len(s)
    m=""
    for i in range(0, n):
        if (s[i] >= 'a' and s[i] <= 'm'):
            m = m +s[i].upper()
        elif (s[i] >= 'n' and s[i] <= 'z'):
            m = m +s[i-1]
        elif (s[i].isupper()):
            m = m + s[i].lower()
        else:
            m = m + '#'

    print(m)
change("welcome2kv")

```

**SECTION C**

26. Predict the output of the Python code given below:

3

```

Msg1="WeLcOME"
Msg2="GUESts"
Msg3=""
for I in range(0, len(Msg2)+1):
    if Msg1[I]>="A" and Msg1[I]<="M":
        Msg3=Msg3+Msg1[I]
    elif Msg1[I]>="N" and Msg1[I]<="Z":
        Msg3=Msg3+Msg2[I]
    else:
        Msg3=Msg3+"*"
print(Msg3)

```

27. Write the outputs of the SQL queries (i) to (iii) based on the relation COURSE

1\*3=3

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102

	<table border="1"> <tr> <td>C204</td> <td>DDTP</td> <td>9000</td> <td>2018-09-15</td> <td>104</td> </tr> <tr> <td>C205</td> <td>DHN</td> <td>20000</td> <td>2018-08-01</td> <td>101</td> </tr> <tr> <td>C206</td> <td>O LEVEL</td> <td>18000</td> <td>2018-07-25</td> <td>105</td> </tr> </table> <p>(i) SELECT DISTINCT TID FROM COURSE;  (ii) SELECT TID, COUNT (*), MIN(FEES) FROM COURSEGROUP BY TID HAVING COUNT (*)&gt;1;  (iii) SELECT COUNT (*), SUM(FEES) FROM COURSEWHERE STARTDATE&lt; '2018-09-15';</p>	C204	DDTP	9000	2018-09-15	104	C205	DHN	20000	2018-08-01	101	C206	O LEVEL	18000	2018-07-25	105																																												
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28.	<p>Write a function COUNT_AND () in Python to read the text file "STORY.TXT" and count the number of times "AND" occurs in the file. (include AND/and/And in the counting)</p> <p style="text-align: center;"><b>OR</b></p> <p>Write a function DISPLAYWORDS( ) in python to display the count of words starting with "t" or "T" in a text file 'STORY.TXT'</p>	3																																																										
29.	<p>Write SQL commands for the following queries (i) to (iii) on the basis of relation Mobile Master and Mobile Stock.</p> <p style="text-align: center;"><b>MOBILE STOCK</b></p> <table border="1"> <thead> <tr> <th>S_Id</th> <th>M_Id</th> <th>M_Qty</th> <th>M_Supplier</th> </tr> </thead> <tbody> <tr> <td>S001</td> <td>MB004</td> <td>450</td> <td>NEW VISION</td> </tr> <tr> <td>S002</td> <td>MB003</td> <td>250</td> <td>PRAVEEN GALLERY</td> </tr> <tr> <td>S003</td> <td>MB001</td> <td>300</td> <td>CLASSIC MOBILE</td> </tr> <tr> <td>S004</td> <td>MB006</td> <td>150</td> <td>A-ONE MOBILE</td> </tr> <tr> <td>S005</td> <td>MB003</td> <td>150</td> <td>THE MOBILE</td> </tr> <tr> <td>S006</td> <td>MB006</td> <td>50</td> <td>MOBILE CENTRE</td> </tr> </tbody> </table> <p style="text-align: center;"><b>MOBILE MASTER</b></p> <table border="1"> <thead> <tr> <th>M_Id</th> <th>M_Company</th> <th>M_Name</th> <th>M_Price</th> <th>M_Mf_Date</th> </tr> </thead> <tbody> <tr> <td>MB001</td> <td>SAMSUNG</td> <td>GALAXY</td> <td>4500</td> <td>2013-02-12</td> </tr> <tr> <td>MB003</td> <td>NOKIA</td> <td>N1100</td> <td>2250</td> <td>2012-04-15</td> </tr> <tr> <td>MB004</td> <td>MICROMAX</td> <td>UNITE3</td> <td>4500</td> <td>2016-10-17</td> </tr> <tr> <td>MB005</td> <td>SONY</td> <td>XPERIAM</td> <td>7500</td> <td>2017-11-20</td> </tr> <tr> <td>MB006</td> <td>OPPO</td> <td>SELFIEEX</td> <td>8500</td> <td>2010-08-21</td> </tr> </tbody> </table> <p>(i) Display the Mobile Company, Name and Price in descending order of their manufacturing date  (ii) List the details of mobile whose name starts with "S" or ends with "a"  (iii) Display M_Id and sum of Mobile quantity in each M_Id.</p>	S_Id	M_Id	M_Qty	M_Supplier	S001	MB004	450	NEW VISION	S002	MB003	250	PRAVEEN GALLERY	S003	MB001	300	CLASSIC MOBILE	S004	MB006	150	A-ONE MOBILE	S005	MB003	150	THE MOBILE	S006	MB006	50	MOBILE CENTRE	M_Id	M_Company	M_Name	M_Price	M_Mf_Date	MB001	SAMSUNG	GALAXY	4500	2013-02-12	MB003	NOKIA	N1100	2250	2012-04-15	MB004	MICROMAX	UNITE3	4500	2016-10-17	MB005	SONY	XPERIAM	7500	2017-11-20	MB006	OPPO	SELFIEEX	8500	2010-08-21	1*3=3
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30.	<p>Two list Lname and Lage contains names of persons and age of persons respectively. A list named Lnameage is empty. Write functions as details given below</p> <p>(i) Push_na() :- it will push the tuple containing pair of name and age from Lname and Lage whose age is above 50  (ii) Pop_na() :- it will remove the last pair of name and age and also print name and age of removed person. It should also print "underflow" if there is nothing to remove</p> <p>For example, the two lists have following data  Lname=['narender', 'jaya', 'raju', 'ramesh', 'amit', 'Piyush']  Lage=[45,23,59,34,51,43]  After Push_na() the contains of Lnameage stack is  [('raju',59),('amit',51)]  The output of first execution of pop_na() is  The name removed is amit  The age of person is 51</p>	3																																																										

**OR**

A dictionary stu contains rollno and marks of students. Two empty list stack\_roll and stack\_mark will be used as stack. Two function push\_stu() and pop\_stu() is defined and perform following operation

(a) Push\_stu() :- It reads dictionary stu and add keys into stack\_roll and values into stack\_marks for all students who secured more than 60 marks.

(b) Pop\_stu() :- it removes last rollno and marks from both list and print "underflow" if there is nothing to remove

For example

stu={1:56,2:45,3:78,4:65,5:35,6:90}

values of stack\_roll and stack\_mark after push\_stu()

[3,4,6] and {78,65,90}

**SECTION D**

31. Consider the tables **STORE** and **SUPPLIERS** given below:

**TABLE: STORE**

ITEM NO	ITEM	SCODE	QTY	RATE	LASTBUY
2005	Sharpner Classic	23	60	8	2009-01-31
2003	Ball Pen 0.25	22	50	25	2010-02+01
2002	Gel Pen Premium	21	150	12	201-02-24
2006	Gel Pen Classic	21	250	20	2009-03-11
2001	Eraser Small	22	220	6	2009-01-19
2004	Eraser Big	22	110	8	2009-12-02
2009	Ball Pen 0.5	21	180	18	2009-11-03

**Table :Suppliers**

Scode	Sname
21	Premium Stationary
23	Soft plastics
22	Tetra Supply

i) To display ItemNo, Item Name and Sname from the tables with their corresponding matching Scode.

ii) Display the structure of the table **store**.

iii) Display the average rate of Premium Stationary and Tetra Supply.

iv) Display the item, qty, and rate of products in descending order of rates

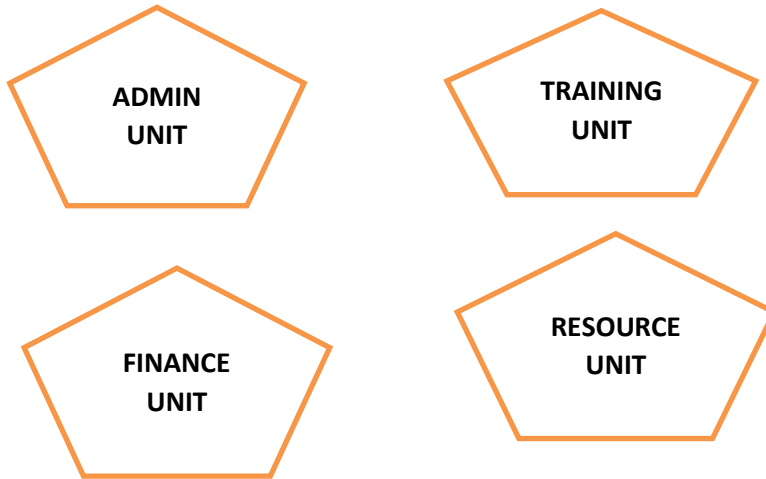
32. Asutosh Das is a Python programmer working in a school. For the preboard results, he has created a csv file named **Result.csv** has following structure **[rollno, name, marks]**.

i. Write a user defined function insertRec () to input data for a student and add to **Result.csv**.

ii. Write a function searchRollNo (r) in Python which accepts the student's **rollno** as parameter and searches the record in the file "**Result.csv**" and shows the details of student i.e., rollno, name and marks (if found) otherwise shows the message as '**No record found**'

**SECTION E**

33. "Vidyadhara" an NGO is planning to setup its new campus at Bhubaneswar for its web-based activities. The campus has four (04) UNITS as shown below: 1\*5=5



Distance Between above Units are given heres under

UN IT-1	UNIT-2	DISTANCE(In mtrs)
ADMIN	TRAINING	65
ADMIN	RESOURCE	120
ADMIN	FINANCE	100
FINANCE	TRAINING	60
FINANCE	RESOURCE	40
TRAINING	RESOURCE	50

No Of Computers in various UNITs are:

UNIT	NO OF COMPUTERS
ADMIN	150
FINANCE	25
TRAINING	90
RESOURCE	75

- Suggest topology and draw the cable layout to efficiently connect various blocks of buildings within the Bhubaneswar campus for connecting the digital devices.
- Which network device will be used to connect computers in each block to form a local area network?
- Which block, in Bhubaneswar Campus should be made the server? Justify your answer.
- Is there a requirement of a repeater in the given cable layout? Why/Why not?
- NGO is planning to connect its Regional Office at Delhi, Rajasthan. Which out of the following wired communication, will you suggest for a very high-speed connectivity?  
(a) Twisted Pair cable (b) Ethernet cable (c) Optical Fiber

34. i) Differentiate between r+ and a+ file modes in Python.  
 (ii) Consider a file, **SPORTS.DAT**, containing records of the following structure:  
**[SportName, TeamName, No\_Players, No\_matcheswon]**  
 Write a function, copyData (), that reads contents from the file **SPORTS.DAT** and copies the records with Sport name as "Cricket" to the file named **CRICKET.DAT**. The function should return the total number of records copied to the file **CRICKET.DAT**. 2+3=5

Or



	<p>i) Difference between seek() and tell() methods with syntax  ii) Consider a binary file emp.dat having records in the form of dictionary.  E.g {eno:1, name:" Rahul", sal: 5000}  write a python function to display the records of above file for those employees who get salary between 25000 and 30000</p>	
35.	<p>(i) Define the term Domain with respect to RDBMS. Give one example to support your answer(ii) Karthik wants to write a program in Python to create <b>student</b> table 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>▪ fees – 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 - root</li> <li>▪ Host - localhost</li> </ul> <p>Help Kabir to write the program in Python to create the above table.</p> <p style="text-align: center;"><b>OR</b></p> <p>(i) Give one difference between unique constraint and primary key.  (ii) Rojalina Gamango 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 – root</li> <li>• Host – localhost</li> </ul> <p>Rojalina Gamango now wants to display the records of students whose fee is more than 3500. Rojalina Gamango to write the program in Python</p>	1+4=5

-end-