DAV PUBLIC SCHOOLS, ODISHA
PRE-BOARD EXAMINATION
(2023-24)

SET-1

- Please check that this question paper contains 11 printed pages.
- 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.

CLASS- XII

SUB: COMPUTER SCIENCE (083)

Time allowed: 3 Hours   **Maximum Marks: 70**

_____

General Instructions:
- Please check this question paper contains 35 questions.
- The paper is divided into 5 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.

Q No.	Section-A	Marks
1	State True or False. The dictionary definition D= {([2,3]):"ABC",(3,4):"DEF"}is a valid statement in Python.	1
2	Which is known as range operator in MySQL. a. IN b. BETWEEN c. IS d. DISTINCT	1
3	What will be the output of the following statement? print(5+3**2*2**1*2-400//3) a. -92 b. 92 c. 90 d. -92.0	1
4	Select the correct output of the code: st = "Balloon is flying high" w = st.split()	1

```
r = st.partition('a')
st_new = "*".join([str(len(w)) , str(len(r))])
print(st_new)
```
a. ['Balloon', 'is', 'flying', 'high']   b. ('B', 'a', 'lloon is flying high')

c. 4*3   d. Error

| 5 | A relation DEPARTMENT has 5 attributes and 7 tuples in it. Now 3 tuples are added and 2 attributes are deleted from it. Find the Degree and Cardinality of the resultant relation.

a. 10, 7   b. 7,10   c. 3, 10   d. 10,3 | 2 |

| 6 | Which out of the following Network devices is used to connect dissimilar networks (different protocols)?
a. Hub   b. Router   c. Bridge   d. Gateway | 1 |

| 7 | What is the output of the following code fragment? | 1 |

```
total = 0
mydict = {"cat":12, "dog": 6, "elephant":23,"bear":20}
for akey in mydict:
   if len(akey) > 3:
      total = total + mydict[akey]
print(total)
```

a. 42   b. 45   c. 43   d. 49

| 8 | Find the output of the following code:
s="Johney Johney Yes Papa"
print(s[:6]+s[14:17][::-1])

a. JohneyYes   b. JohneyseY   c. yenhoJseY   d. None of the above | 1 |

| 9 | Which of the following statement (s) would give an error during the execution of the following code:
T=(20,25,10,60,90)

T.sort()   # Statement 1

T.append(40)   # Statement 2

T[2]=70   # Statement 3

a. Statement 1 and Statement 3   b. Statement 1 and Statement 2

c. Statement 2 and Statement 3   d. All the statements. | 1 |

10	What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code?
	
	    from random import randint
	    LST=[5,10,15,20,25,30,35,40,45,50,60,70]
	    first = randint(3,8) – 1
	    second = randint(4,9) – 2
	    third = randint(6,11) – 3
	    print(LST[first],"#", LST[second],"#", LST[third],"#")
	
	a. 20#25#25# b. 30#40#70#
	
	c. 15#60#70# d. 35#40#60#
		1

11	Network device that regenerates and retransmits the whole signal is _____. a. Modem b. Hub c. Repeater d. Bridge	1

12	Select the output for the given code:
	n=2
	def fun(n):
	   n=3
	   return n*n
	print(n*n,"@",fun(n),"@",n+1,"@",fun(n)+3)
	a. 4 @ 9 @ 3 @ 12 b. 4 @ 4 @ 3 @ 7
	c. 9 @ 9 @ 3 @ 12 d. 9 @ 4 @ 3 @ 12
		1

13	State whether the following statement is True or False. A **NameError** is generated if we call a library function with a wrong name.	1

14	Which is/are correct statements about primary key of a table?
	   a. Primary keys can contain NULL values
	   b. Primary keys cannot contain NULL values.
	   c. A Primary key cannot act as a Foreign Key in other table.
	   d. A Primary key can contain repeated values in it.
		1

15	_____is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol. a. VoIP b. SMTP c. PPP d. HTTP	1
16	Which method of pickle module is used to read a Python object from a binary file? a. dump() b. read() c. reader() d. load()	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	str1= "Class" + "Work" **Assertion (A)** :- Value of str1 will be "ClassWork". **Reasoning (R)** :- Operator '+' adds the operands, if both are numbers & concatenates the string if both operands are strings.	1
18	**Assertion (A)** :A function can be called with keyword argument. **Reasoning (R)**: While calling a function with keyword argument parameter sequence is mandatory.	1
	Section-B	
19	(i) Expand the following terms: IMAP, EDGE (ii) Write two advantages of Ring Topology. **(OR)** (i) What is web Hosting? (ii) Write different parts of an URL with example	1+1=2

20	The code given below is used to print prime numbers between a given range. Observe the following code carefully and rewrite it after removing all errors. Underline all the corrections made.
	
	 def prime(lower,upper):
	    print("Prime numbers between", lower, "and", upper, "are:")
	    for num in range(lower, upper + 1):
	    if num > 1:
	        for i in range(2, num)
	          if (num % i) = 0:
	            break:
	     else:
	      print(num)
	 def prime(10,20)
		2

21	Write a function **EndWithVowel(Flowers)** in Python, that takes the dictionary named as Flowers as its argument and displays the names of the flowers which ends with a vowel (Consider both upper and lower case vowel).	2

For example, Consider the following dictionary

Flowers={1:"Rose", 2:"Lily", 3:"Dahlia", 4:"Orchild", 5:"Daisy"}

Then the output should be:

Rose

Dahlia

(OR)

Write a function, **LenWords(STRING)**, that takes a string as an argument and returns a tuple containing length of each word of a string.

For example, if the string is "Come let us have some enjoyment",

The tuple will have (4, 3, 2, 4, 4, 9)

22	Predict the output of the Python code given below:	2

```
L='Alexander.'
x=''
l1=[]
count=1
for i in L:
    if i in ['a','e','i','o','u']:
        x=x+i.upper()
    else:
        if count%2!=0:
            x=x+str(len(L[:count]))
        else:
            x=x+i
    count+=1
print(x)
```

23	Write a suitable Python statement for each of the following tasks using built-in functions/methods only:	2

   i   To remove an item **Kolkata : 65** from Dictionary D.

   ii   To sort and then reverse all the elements of a list L using one single command.

(OR)

A string named STR stores the name of a city. Write a python program, to remove all the duplicate occurrences of alphabets from STR.

If STR="Malayesia"

Then resultant STR will be "Malyesi"

24	Mr. Ashok has just created a table named "Admission" containing columns AdmNo, Name, Class and Address. After creating the table, he realized that, the width of the column "Address" to be increased to 50. Help him in writing an SQL command to change the column width. Thereafter, write the command to view the new structure of the table. **(OR)** Mr. Rohit is working in a database named University, in which he has created a table named "College" containing columns CollegeId, CollegeName, No_of_seats, and Reservation. After creating the table, he realized that the attribute, Reservation has to be deleted from the table and a new attribute No_of_reservations of data type Integer has to be added. This attribute No_of_reservations cannot be left blank. Help Rohit in writing the commands to complete both the tasks.	2

25	Predict the output of the Python code given below:
	
	``python
	def Change(tuple1):
	    list1 =list(tuple1)
	    M=max(list1)
	    m=min(list1)
	    for i in range(len(list1)):
	        if list1[i]==M:
	            k=i
	        if list1[i]==m:
	            n=i
	    list1[k], list1[n] = list1[n], list1[k]
	    tuple1 = tuple(list1)
	    print(tuple1)
	tuple1 = (77, 11, 55, 22, 44, 88)
	Change(tuple1)
	``
		2

Section-C

| 26 | Find and write the output of the following Python code :

```python
Text = "gmail@com"
L=len(Text)
Ntext=" "
for i in range(0,L):
    if Text[i].isupper():
        Ntext=Ntext+Text[i].lower()
    elif Text[i].isalpha():
        Ntext= Ntext+Text[i].upper()
    else:
        Ntext=Ntext+'bb'
print(Ntext)
``` | 3 |

27	Write an output for SQL queries (i) to (iii), which are based on the table: COURSE given below:	1x3=3

COURSE

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
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

(i) SELECT DISTINCT TID FROM COURSE;

(ii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE

GROUP BY TID HAVING COUNT(*)>1;

(iii)SELECT SUM(FEES) FROM COURSE WHERE STARTDATE<'2018-09-15';

28	Write a function Filterlines() in python which read lines from a text file Comp.TXT and display those lines, which are having atleast 4 words.	3

Eg: if the file contains the following data:

Going stock mars public rubber pen yearly rest

Then the output should be**: mars rest**

(OR)

Write a function FindWords( ) to display those words from a file Words.txt which starts and ends with the same letter .

Eg: if the file contains the following data:

Going stock mars public rubber pen yearly rest

Then the output should be: **Going rubber yearly**

29	Consider the table Trainer given below:	1x3=3

Table : Trainer

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

Based on the given table, write SQL queries for the following:

(i) Display the Trainer Name, City & Salary in descending order of their Hiredate.

(ii) To display the Trainer Name, City of Trainer who joined the Institute in the month of December 2001.

(iii) To display the number of Trainers from each city.

30	Given a Dictionary, Student_dict containing marks of students for three test-series in the form Stu_ID:(TEST1, TEST2, TEST3) as key-value pairs. Write a Python program with the following user-defined functions to perform the specified operations on a stack named Student_Stk.	3

(i) **Push_ele(Student_Stk, Student_dict)** : It allows pushing Stu_IDs of those students, from the dictionary Student_dict into the stack Student_Stk, who have scored more than or equal to 75 marks in the TEST2 Exam.

(ii) **Pop_ele(Student_Stk):** It removes all elements present inside the stack Student_Stk in LIFO order and prints them. Also, the function displays

'Stack Empty' when there are no more elements left in the stack.

Call both functions to execute queries.

For example:

If the dictionary Student_dict contains the following data:

Student_dict ={**4**:(87,78,89),**8**:(57,84,61),**10**:(71,67,90),**15**:(66,81,80), **20**:(80,48,91)}

After executing Push_ele(), Student_Stk should contain [4,8,15]

After executing Pop_elements(), The output should be:

15   8   4   Stack Empty

Section-D

31	Consider the following tables ITEM and CUSTOMER, write SQL commands for the Following:	1x4=4

TABLE: ITEM

I_ID	Item _Name	Manufacturer	Price
PC01	Personal Computer	ABC	35000
LC05	Laptop	ABC	55000
PC03	Personal Computer	XYZ	32000
PC06	Personal Computer	MNO	37000
LC03	Laptop	PQR	57000

TABLE: CUSTOMER

C_ID	Customer_Name	City	I_ID
01	N Roy	Delhi	LC03
06	H Singh	Mumbai	PC03
12	R Pandey	Delhi	PC06
15	C Sharma	Delhi	LC03
16	K Agrawal	Bangalore	PC01

(a) To display the details of those Customers whose city is Delhi.

(b) To display the details of Items whose Price is in the range of 35000 to 55000 (Both values included).

	(c) To display the Customer_Name, City from table CUSTOMER and Item_Name , Price from table ITEM, with their corresponding matching I_Id. (d) To increase the Price of all items by 1000 in the table ITEM.	
32	Tapas 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 as follows: **[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, Tapas wants to write the following user defined functions. (a) GetData() – To accept and add data of students to the CSV file 'student.csv'.To enhance readability of the data,Tapas wants to add column heading before adding data to the file. (b) ShowData() – To read all content of "student.csv" and display records of only those students who scored more than 90 percentage.	4
	Section-E	
33	The University is planning to start its Academic blocks at Bokaro city to setup a network. The University has 3 different blocks (Block A, Block B, Block C) and one Administrative Block, as shown in the diagram below: The distances between various blocks are as follows:	1X5=5

FROM	TO	DISTANCE
Block A	Administrative Block	80 m
Block A	Block C	80 m
Block B	Administrative Block	45 m
Block B	Block C	30 m
Block C	Administrative Block	35 m
Block A	Block B	15 m

No. of computers installed in each of the following blocks are as follows:

Name of Block	No. of Computers
Block A	15
Block B	40
Block C	20
Administrative Block	80

(a) Suggest the most suitable place (i.e., Block) to install the server of this University with a suitable reason.

(b) Suggest the ideal layout for connecting these blocks for a wired connectivity.

(c) Which device will you suggest to be placed/installed in each of these blocks to efficiently connect all the computers within these blocks?

(d) Suggest the placement of a repeater in the network with justification.

(e) The University is planning to connect its Admission office in Delhi, which is more than 1250 km from University. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer.

34	i. Mention any two differences between seek() and tell().	2+3=5

ii. Consider a file DEPATURE.DAT containing multiple records. The structure of each record is as : **[Fno, FName, Fare, Source, Destination]**

Write a function **COPY_RECORD()** in Python that copies all those records from DEPATURE.DAT where the source is BHUBANESWAR and the destination is CHENNAI, into a new file named RECORD.DAT .

(OR)

i. Mention any two differences between binary files and csv files?

ii. Consider a Binary file MYBOOK.DAT containing a dictionary having multiple elements. Each element is in the form of BNO:[BNAME,BTYPE,PRICE] as key:value pair where

    BNO– Book Number

    BNAME– Book Name

    BTYPE- Book Type

    PRICE– Book price

Write an user-defined function, **ChangeBook(price)** that accepts price as parameter and displays all those records from the binary file MYBOOK.DAT which has a book price more than or equal to the price value passed as a parameter.

35	i) Define Equi Join with appropriate example.	1+4=5

ii) Write a function sql_data( ) to insert a record to the table using MySQL connectivity.

    Note the following to establish connectivity between Python and MYSQL:

- Username is SCHOOL
- Password is ABC123
- Host is localhost.
- The table EXAM exists in MYSQL database named DAV.
- The details (Tno, Tname, Tsdate, Tedate) are to be accepted from the user.

(OR)

i) Write command to create a database EMPLOYEE.

ii) Write a function sql_data( ) to read those records using MySQL connectivity where the joining date is before 5 October 2022.

Note the following to establish connectivity between Python and MYSQL:

- Username is TCS
- Password is TCS123
- Host is localhost.
- The table EMP_RECORD exists in a MYSQL database named EMPLOYEE.
- EMP_RECORD consist of attributes (EmpID, EmpName, Date_of_Join). Date_of _Join is in the format of YY-MM-DD.

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