

Please Check that this question paper contains **35** questions and **07** pages.

D.A.V. INSTITUTIONS, CHHATTISGARH
Practice Paper – 3 : 2023-24
Class : XII

Time : 3 Hrs.**Subject : Computer Science-Python (083)****Max. Marks : 70****General Instructions :**

- Question paper is containing 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.
- In some questions of Section B,C & E there will be internal choice.
- All programming questions are to be answered using Python Language only.

Section : A (1 Mark each)**Select the most appropriate option out of the options given or write answer in one word/line.****Attempt all the questions from question No. 1 to 18.**

- | | | |
|----|---|---|
| 1 | Which of the following cannot be a variable ? | 1 |
| | (a) <code>__init__</code> (b) <code>in</code> (c) <code>it</code> (d) <code>on</code> | |
| 2 | In the relational models, cardinality actually refers to _____. | 1 |
| | (a) Number of tuples (b) Number of attributes (c) Number of tables (d) None of above | |
| 3 | Evaluate the expression given below if A=16 and B=15 | 1 |
| | <code>A % B // A</code> | |
| | (a) 0.0 (b) 0 (c) 15 (d) 23 | |
| 4 | Select the correct output of the following string operation : | 1 |
| | <code>S = "hello hi"</code>
<code>Print(S.capitalize())</code> | |
| | (a) HELLO HI (b) Hello hi (c) Hello Hi (d) hello Hi | |
| 5 | Which command is used to view the list of databases in mysql ? | 1 |
| 6 | If all the devices of a network are connected via a central hub, then it is _____ topology. | 1 |
| | (a) Star (b) Bus (c) Tree (d) Mesh | |
| 7 | Given is a Python list declaration : <code>L=["Aaa", "Bbb", "Ccc", "Ddd"]</code> | 1 |
| | What will be the output of : <code>print(L[-1 : -4 : -1])</code> | |
| | (a) <code>["Bbb", "Ccc", "Ddd"]</code> (b) <code>["Ddd","Ccc","Bbb"]</code> | |
| | (c) <code>["Aaa","Bbb","Ccc"]</code> (d) none | |
| 8 | Which of the following function will return the last three characters of a string S ? | 1 |
| | (a) <code>S[3:]</code> (b) <code>S[: 3]</code> (c) <code>S[-3:]</code> (d) <code>S[: -3]</code> | |
| 9 | What will be the output of the following Python code ? | 1 |
| | <code>T1 = (5 ,)</code>
<code>T2 = T1 * 2</code>
<code>print (len(T2))</code> | |
| | (a) 0 (b) 1 (c) 2 (d) Error | |
| 10 | Which of the following function does not comes under random module ? | 1 |

- (a) random.randrange() (b) random.randint()
 (c) random.randfloat() (d) random.random()

- 11 _____ is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol. 1
 (a) VoIP (b) SMTP (c) PPP (d) HTTP
- 12 For a function header as follows : 1
 def CALC (X , Y=20) :
 Which of the following function calls will given an error ?
 (a) CALC(15,25) (b) CALC(X=1,Y=2) (c) CLAC(Y=2) (d) CALC(10)
- 13 When is the finally block executed under Exception Handling ? 1
 (a) when there is no exception (b) when there is an exception
 (c) only if some condition that has been specified is satisfied (d) always
- 14 Tuple represents a _____ in a table of MySQL . 1
 (a) Attributes (b) Columns (c) Record (d) Vertical line
- 15 Which of the following is a client side scripting language ? 1
 (a) Perl (b) ASP (c) VBScript (d) JSP
- 16 The readlines() method in text file returns _____ 1
 (a) a str (b) a list of lines (c) a list of single characters (d) a list of integer

Q 17 & 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 1
 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.
- 18 Assertion (A) : Python Standard Library consists of various modules. 1
 Reasoning(R) : A function in a module is used to simplify the code and avoids repetition.

Section B

Attempt all the questions from Q.No. 19 to 25 . Each question carries 2 mark

- 19 (i) Expand the following terms : WAN , SMTP 2
 (ii) Give one difference between circuit switching and packet switching.
- OR
- (i) What is Web Hosting ?
 (ii) Write any two examples of Server side Scripts.
- 20 Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. 2
- ```
50 = To
for K in range (0 , To)
 if K % 4 = 0 :
 print (K * 4)
 Else:
 print (K + 3)
```
- 21 Write a function countNow(PLACES) in Python, that takes the dictionary, PLACES as an argument and displays the names (in uppercase)of the places whose names are longer than 5 characters. 2  
 For example, Consider the following dictionary  
 PLACES={ 1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Doha"}  
 The output should be:  
 LONDON  
 NEW YORK

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 fun", the tuple will have (4, 3, 2, 4, 4, 3)

22 What will be the output of the following code snippet ? 2

```
L = [11,22, 33,44,55,66,10]
NL = []
for c in L:
 if c % 2 == 0:
 NL.append (c)
print(NL)
```

23 Write the most appropriate list method to perform the following tasks. 2

- (a) Delete a given element from the list.
- (b) Add an element in the end of the list.
- (c) Add an element in the beginning of the list.
- (d) Delete 3<sup>rd</sup> element from the list.

OR

Write a program to print the total number of Even numbers in the given List L.

Here L = [ 11 , 35 , 20 , 99 , 12 , 40 ]

24 Ms. Anjali has just created a table named "Emp" containing columns ENm, Dept & Salary. 2  
After creating the table , she realized that she has forgotten to add a primary key column in the table. Help her in writing an MySql command to add a primary key column EmpId of integer type to the table "Emp". Thereafter, write the command to insert a record as per your choice.

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

```
def Diff(N1,N2):
 if N1>N2:
 return N1-N2
 else:
 return N2-N1
NUM= [10,23,14,54,32]
for CNT in range (4,0,-1):
 A=NUM[CNT]
 B=NUM[CNT-1]
 print(Diff(A,B),'#', end=' ')
```

OR

Predict the output of the Python code given below:

```
tuple1 = (11, 22, 33, 44, 55 ,66)
list1 =list(tuple1)
new_list = []
for i in list1:
 if i%2==0:
 new_list.append(i)
new_tuple = tuple(new_list)
print(new_tuple)
```

### Section C

**Attempt all the questions from Q.No. 26 to 30 . Each question carries 3 mark**

26 Find and write the output of the following Python code : 3

```

def Display(S1):
 S2 = "" #no blank space
 for i in range(len(S1)):
 if S1[i].isupper() :
 S2 = S2 + S1[i].lower()
 elif S1[i].islower():
 S2 = S2 +S1[i].upper()
 else:
 if i%2 ==0:
 S2 = S2 + S1[i-1]
 else:
 S2 = S2 +"#"
 print(S2)
#MAIN PROGRAM
Display("Fun@Python3")

```

27 Ram has forgotten the names of the databases, tables and the structure of the tables that he had created in RDBMS on his computer. 3

- (a) Write MySql statement to display the names of all the databases present in RDBMS application on his computer.
- (b) Write the statement which he should execute to open the database named "STOCK"
- (c) Write the statement which he should execute to display the structure of the table "ITEMS" existing in the above opened database "STOCK".

28 Write a method CountLines() in Python to read lines from text file "Poem.txt" and display the lines which are not starting with any vowel. 3

Example: If the file content is as follows :

An apple a day keeps the doctor away.

We all Pray for everyone's safety.

A marked difference will come in our country.

The CountLines() function should display the output as :

The number of lines not starting with any vowel : 1

**OR**

Write a function ETCount() in Python, which should read each character of a text file "TESTFILE.TXT" and then count and display the count of 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

29 Write a function NOReplace() in Python, which accepts a list L of numbers. Thereafter, it increments all positive numbers by 2 and decrements all negative numbers by 3. 3

30 Julie has created a dictionary containing names and marks as key value pairs of 6 students. Write a program, with separate user defined functions to perform the following operations: 3

- Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 75
- Pop and display the content of the stack.

For example:

If the sample content of the dictionary is as follows:

R={"OM":76, "JAI":45, "BOB":89, "ALI":65, "ANU":90, "TOM":82}

The output from the program should be:

TOM ANU BOB OM

### Section D

**Attempt all the questions from Q.No. 31 to 32 . Each question carries 4 mark**

- 31 Write queries (a) to (d) based on the tables EMPLOYEE and DEPARTMENT given below: 4  
Table: EMPLOYEE

| EMPID | NAME   | DOB         | DEPTID | DESIG       | SALARY |
|-------|--------|-------------|--------|-------------|--------|
| 120   | Alisha | 23-Jan-1978 | D001   | Manager     | 75000  |
| 123   | Nitin  | 10-Oct-1977 | D002   | AO          | 59000  |
| 129   | Navjot | 12-Jul-1971 | D003   | Supervisor  | 40000  |
| 130   | Jimmy  | 30-Dec-1980 | D004   | Sales Rep   |        |
| 131   | Faiz   | 06-Apr-1984 | D001   | Dep Manager | 65000  |

Table: DEPARTMENT

| DEPTID | DEPTNAME   | FLOORNO |
|--------|------------|---------|
| D001   | Personal   | 4       |
| D002   | Admin      | 10      |
| D003   | Production | 1       |
| D004   | Sales      | 3       |

- a. To display the average salary of all employees, department wise.
- b. To display name and respective department name of each employee whose salary is more than 50000.
- c. To display the names of employees whose salary is not known, in alphabetical order.
- d. To display DEPTID from the table EMPLOYEE without repetition.
- 32 Vedansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named Result.csv, to store the results of students in different sports events. The structure of Result.csv is : 4  
[St\_Id, St\_Name, Game\_Name, Result]  
Where  
St\_Id is Student ID (integer)  
ST\_name is Student Name (string)  
Game\_Name is name of game in which student is participating(string)  
Result is result of the game whose value can be either 'Won', 'Lost' or 'Tie'  
For efficiently maintaining data of the event, Vedansh wants to write the following user defined functions:  
Accept() – to accept a record from the user and add it to the file Result.csv. The column headings should also be added on top of the csv file.  
wonCount() – to count the number of students who have won any event.  
As a Python expert, help him complete the task.

### Section E

**Attempt all the questions from Q.No. 33 to 35 . Each question carries 5 mark**

- 33 Devine Tech Corporation(DTC) is a professional consultancy company. The company is 5

planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) and (v) below :

| Block to Block distance (in m )                  |            |          |
|--------------------------------------------------|------------|----------|
| Block (From)                                     | Block (To) | Distance |
| Human Resource                                   | Conference | 110      |
| Human Resource                                   | Finance    | 40       |
| Conference                                       | Finance    | 80       |
| Expected number of computers to be in each block |            |          |
| Block                                            | Computers  |          |
| Human Resource                                   | 25         |          |
| Finance                                          | 120        |          |
| Conference                                       | 90         |          |

- (i) Which will be the most appropriate block, where TTC should plan to install their server ?
- (ii) Draw a block to cable layout to connect all the buildings in the most appropriate manner for efficient communication.
- (iii) Suggest a suitable topology to connect the computers in each building.
- (iv) Which of the following device will be suggested by you to connect each computer in each of the buildings ?  
 (a) Switch/Hub      (b) Modem      (c) Gateway
- (v) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed ?

- 34 (i) Differentiate between r+ and w+ file modes in Python. 2+3  
 (ii) Consider a file, SPORT.DAT, containing records of the following structure: =5  
 [SportName, TeamName, No\_Players]

Write a function, copyData(), that reads contents from the file SPORT.DAT and copies the records with Sport name as “**Basket Ball**” to the file named BASKET.DAT. The function should return the total number of records copied to the file BASKET.DAT.

**OR**

- (i) How are text files different from binary files?
- (ii) A Binary file, CINEMA.DAT has the following structure:  
 {MNO:[MNAME, MTYPE]}

Where

MNO – Movie Number

MNAME – Movie Name

MTYPE is Movie Type

Write a user defined function, findType(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype.

- 35 (i) Define the term Domain with respect to RDBMS. Give one example to support your answer. 1+4 =5

(ii) Kabir wants to write a program in Python to insert the following record in the table named Student in MYSQL database, SCHOOL:

- rno(Roll number )- integer
- name(Name) - string
- DOB (Date of birth) – Date
- Fee – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

The values of fields rno, name, DOB and fee has to be accepted from the user. Help Kabir to write the program in Python.

OR

(i) Give one difference between alternate key and candidate key.

(ii) Sartaj has created a table named Student in MYSQL database, SCHOOL:

- rno(Roll number )- integer
- name(Name) - string
- DOB (Date of birth) – Date
- Fee – float

Note the following to establish connectivity between Python and MySQL:

Sartaj, now wants to display the records of students whose fee is more than 5000. Help Sartaj to write the program in Python.

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