

Please Check that this question paper contains **35** questions and **8** pages.

**D.A.V. INSTITUTIONS, CHHATTISGARH****Practice Paper - 8 : 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***All questions carrying 1 mark each.***18×1=18****1. State True or False.**

“Comments are not executed by interpreter.”

**2. Which of the following is *not* a sequential datatype in Python ?**

- (a) Dictionary
- (b) String
- (c) List
- (d) Tuple

**3. Given the following dictionary**

```
Day={1:"Monday", 2:"Tuesday", 3:"Wednesday"}
```

Which statement will return "Tuesday".

- (a) `Day.pop()`
- (b) `Day.pop(2)`
- (c) `Day.pop(1)`
- (d) `Day.pop("Tuesday")`

**4. Consider the given expression :**

```
7<4 or 6>3 and not 10==10 or 17>4
```

Which of the following will be the correct output if the given expression is evaluated ?

- (a) **True**
- (b) **False**

(c) NONE

(d) NULL

5. Select the correct output of the code :

```
S="Amrit Mahotsav @ 75"  
A=S.split(" ",2)  
print(A)
```

(a) ('Amrit', 'Mahotsav', '@', '75')

(b) ['Amrit', 'Mahotsav', '@ 75']

(c) ('Amrit', 'Mahotsav', '@ 75')

(d) ['Amrit', 'Mahotsav', '@', '75']

6. Which of the following modes in Python creates a new file, if file does not exist and overwrites the content, if the file exists ?

(a) r+ (b) r

(c) w (d) a

7. Fill in the blank :

\_\_\_\_\_ is not a valid built-in function for list manipulations.

(a) count()

(b) length()

(c) append()

(d) extend()

8. Which of the following is an example of identity operators of Python ?

(a) is (b) on

(c) in (d) not in

9. Which of the following statement(s) would give an error after executing the following code ?

```
S="Happy" # Statement 1  
print(S*2) # Statement 2  
S+="Independence" # Statement 3  
S.append("Day") # Statement 4  
  
print(S) # Statement 5
```

(a) Statement 2 (b) Statement 3

(c) Statement 4 (d) Statement 3 and 4

10. Fill in the blank :

In a relational model, tables are called \_\_\_\_\_, that store data for different columns.

(a) Attributes

(b) Degrees

(c) Relations

(d) Tuples

11. The correct syntax of `tell()` is :
- (a) `tell.file_object()`
  - (b) `file_object.tell()`
  - (c) `tell.file_object(1)`
  - (d) `file_object.tell(1)`
12. Fill in the blank :  
\_\_\_\_\_statement of SQL is used to insert new records in a table.
- (a) ALTER
  - (b) UPDATE
  - (c) INSERT
  - (d) CREATE
13. Fill in the blank :  
In\_\_\_\_\_switching, before a communication starts, a dedicated path is identified between the sender and the receiver.
- (a) Packet
  - (b) Graph
  - (c) Circuit
  - (d) Plot
14. What will the following expression be evaluated to in Python ?  
`print(6/3 + 4**3//8-4)`
- (a) 6.5
  - (b) 4.0
  - (c) 6.0
  - (d) 4
15. Which of the following functions is a valid built-in function for both list and dictionary datatype ?
- (a) `items()`
  - (b) `len()`
  - (c) `update()`
  - (d) `values()`
16. `fetchone()` method fetches only one row in a ResultSet and returns a \_\_\_\_\_.
- (a) Tuple
  - (b) List

- (c) Dictionary
- (d) String

Q. 17 and 18 are Assertion (A) and Reasoning (R) 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)* : In Python, a stack can be implemented using a list.

*Reasoning (R)* : A stack is an ordered linear list of elements that works on the principle of First In First Out (FIFO).

18. *Assertion (A)* : `readlines()` reads all the lines from a text file and returns the lines along with newline as a list of strings.

*Reasoning (R)* : `readline()` can read the entire text file line by line without using any looping statements.

### SECTION B

19. Ravi, a Python programmer, is working on a project in which he wants to write a function to count the number of even and odd values in the list. He has written the following code but his code is having errors. Rewrite the correct code and underline the corrections made. 2

```

define EOCOUNT(L) :
    even_no=odd_no=0
    for i in range(0,len(L))
        if L[i]%2=0:

            even_no+=1
        Else:
            odd_no+=1
    print(even_no, odd_no)

```

20. (a) Write any two differences between Fiber-optic cable and Coaxial cable. 2

### OR

(b) Write one advantage and one disadvantage of wired over wireless communication. 2

21. (a) Given is a Python string declaration : 1

`NAME = "Learning Python is Fun"`

Write the output of : `print(NAME[-5:-10:-1])`

(b) Write the output of the code given below : 1

`dict1={1: ["Rohit", 20], 2: ["Siya", 90]}`

`dict2={1: ["Rahul", 95], 5: ["Rajan", 80]}`

`dict1.update(dict2)`

```
print(dict1.values())
```

22. Explain the usage of **HAVING** clause in **GROUP BY** command in RDBMS with the help of an example. 2
23. (a) Write the full forms of the following : 1
- (i) XML
  - (ii) HTTPS
- (b) What is the use of FTP ? 1
24. (a) Write the output of the Python code given below : 2
- ```
g=0
def fun1(x,y):
    global g
    g=x+y
    return g

def fun2(m,n):
    global g
    g=m-n
    return g
k=fun1(2,3)
fun2(k,7)
print(g)
```

**OR**

- (b) Write the output of the Python code given below : 2

```
a=15
def update(x):
    global a
    a+=2

    if x%2==0:
        a*=x
    else:
        a//=x

a=a+5
print(a,end="$")
update(5)
print(a)
```

25. (a) Differentiate between **IN** and **BETWEEN** operators in SQL with appropriate examples. 2

**OR**

- (b) Which of the following is **NOT** a DML command. 2
- DELETE, DROP, INSERT, UPDATE

**SECTION C**

26. (a) Consider the following tables – Student and Sport :  
Table : Student

| ADMNO | NAME  | CLASS |
|-------|-------|-------|
| 1100  | MEENA | X     |

Table : Sport

|       |          |
|-------|----------|
| ADMNO | GAME     |
| 1100  | CRICKET  |
| 1103  | FOOTBALL |

What will be the output of the following statement ?

1

**SELECT \* FROM Student, Sport;**

- (b) Write the output of the queries (i) to (iv) based on the table, GARMENT given below :

2

TABLE : GARMENT

| GCODE | TYPE         | PRICE | FCODE | ODR_DATE   |
|-------|--------------|-------|-------|------------|
| G101  | EVENING GOWN | 850   | F03   | 2008-12-19 |
| G102  | SLACKS       | 750   | F02   | 2020-10-20 |
| G103  | FROCK        | 1000  | F01   | 2021-09-09 |
| G104  | TULIP SKIRT  | 1550  | F01   | 2021-08-10 |
| G105  | BABY TOP     | 1500  | F02   | 2020-03-31 |
| G106  | FORMAL PANT  | 1250  | F01   | 2019-01-06 |

(i) **SELECT DISTINCT (COUNT (FCODE) ) FROM GARMENT ;**

(ii) **SELECT FCODE, COUNT (\*), MIN (PRICE) FROM GARMENT GROUP BY FCODE HAVING COUNT (\*) > 1 ;**

(iii) **SELECT TYPE FROM GARMENT WHERE ODR\_DATE > '2021-02-01' AND PRICE < 1500 ;**

(iv) **SELECT \* FROM GARMENT WHERE TYPE LIKE 'F%' ;**

27. (a) Write a function in Python that displays the book names having 'Y' or 'y' in their name from a text file "Bookname.txt".

3

Example :

If the file 'Bookname.txt' contains the names of following books :

One Hundred Years of Solitude  
The Diary of a Young Girl  
On the Road

After execution, the output will be :

One Hundred Years of Solitude  
The Diary of a Young Girl

**OR**

- (b) Write a function **RevString ()** to read a textfile "Input.txt" and prints the words starting with 'O' in reverse order. The rest of the content is displayed normally.

3

Example :

If content in the text file is :

## UBUNTU IS AN OPEN SOURCE OPERATING SYSTEM

Output will be :

## UBUNTU IS AN NEPO SOURCE GNITAREPO SYSTEM

(words 'OPEN' and 'OPERATING' are displayed in reverse order)

28. Write the output of any three SQL queries (i) to (iv) based on the tables COMPANY and CUSTOMER given below : 3

Table : COMPANY

| CID | C_NAME     | CITY    | PRODUCTNAME |
|-----|------------|---------|-------------|
| 111 | SONY       | DELHI   | TV          |
| 222 | NOKIA      | MUMBAI  | MOBILE      |
| 333 | ONIDA      | DELHI   | TV          |
| 444 | SONY       | MUMBAI  | MOBILE      |
| 555 | BLACKBERRY | CHENNAI | MOBILE      |
| 666 | DELL       | DELHI   | LAPTOP      |

Table : CUSTOMER

| CUSTID | CID | NAME           | PRICE | QTY |
|--------|-----|----------------|-------|-----|
| C01    | 222 | ROHIT SHARMA   | 70000 | 20  |
| C02    | 666 | DEEPIKA KUMARI | 50000 | 10  |
| C03    | 111 | MOHAN KUMAR    | 30000 | 5   |
| C04    | 555 | RADHA MOHAN    | 30000 | 11  |

- (i) **SELECT PRODUCTNAME, COUNT(\*) FROM COMPANY GROUP BY PRODUCTNAME HAVING COUNT(\*) > 2;**
- (ii) **SELECT NAME, PRICE, PRODUCTNAME FROM COMPANY C, CUSTOMER CT WHERE C.CID = CU.CID AND C\_NAME = 'SONY';**
- (iii) **SELECT DISTINCT CITY FROM COMPANY;**
- (iv) **SELECT \* FROM COMPANY WHERE C\_NAME LIKE '%ON%';**
29. Write a function `search_replace()` in Python which accepts a list L of numbers and a number to be searched. If the number exists, it is replaced by 0 and if the number does not exist, an appropriate message is displayed. 3

Example :

L = [10,20,30,10,40]

Number to be searched = 10

List after replacement :

L = [0,20,30,0,40]

30. A list contains following record of course details for a University :

[**Course\_name, Fees, Duration**]

Write the following user defined functions to perform given operations on the stack named 'Univ' :

- (i) **Push\_element()** To push an object containing the Course\_name, Fees and Duration of a course, which has fees greater than 100000 to the stack. 3

(ii) **Pop\_element()** \_ To pop the object from the stack and display it.

Also, display “Underflow” when there is no element in the stack.

For example :

If the lists of courses details are :

[“MCA”,200000,3]

[“MBA”,500000,2]

[“BA”,100000,3]

The stack should contain :

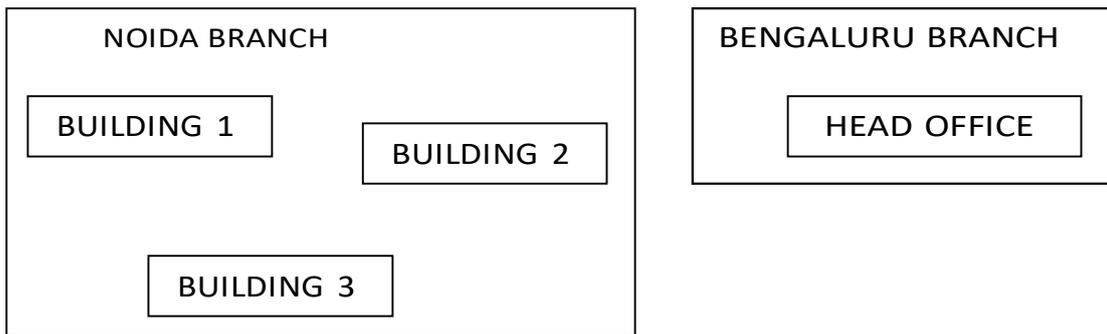
[“MBA”,500000,2]

[“MCA”,200000,3]

### SECTION D

31. ABC Consultants are setting up a secure network for their office campus at Noida for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Bengaluru. As a network consultant, give solutions to the questions (i) to (v), after going through the building locations and other details which are given below :

Distance between various blocks/locations :



| Building                    | Distance |
|-----------------------------|----------|
| Building 1 to Building 3    | 120 m    |
| Building 1 to Building 2    | 50 m     |
| Building 2 to Building 3    | 65 m     |
| Noida Branch to Head Office | 1500 km  |

Number of computers

| Building    | Number of Computers |
|-------------|---------------------|
| Building 1  | 25                  |
| Building 2  | 51                  |
| Building 3  | 150                 |
| Head Office | 10                  |

(i) Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location. 1

(ii) Suggest the cable layout of connections between the buildings inside the campus. 1

(iii) Suggest the placement of the following devices with justification : 1

- Switch
  - Repeater
- (iv) The organization is planning to provide a high-speed link with the head office situated in Bengaluru, using a wired connection. Suggest a suitable wired medium for the same. 1
- (v) The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same. 1
32. (a) (i) What possible output(s) are expected to be displayed on screen at the time of execution of the following code ? 2

```
import random
S=["Pen", "Pencil", "Eraser", "Bag", "Book"]
for i in range (1,2):
    f=random.randint(i,3)
    s=random.randint(i+1,4)

    print(S[f],S[s],sep=":")
```

Options :

(I) Pencil:Book

(II) Pencil:Book  
Eraser:Bag

(III) Pen:Book  
Bag:Book

(IV) Bag:Eraser

- (ii) The table **Bookshop** in MySQL contains the following attributes :

B\_code Integer  
B\_name String  
Qty Integer  
Price Integer

Note the following to establish connectivity between Python and MySQL on a 'localhost' :

- Username is 'shop'
- Password is Book
- The table exists in a MySQL database named **Bstore**.

The code given below updates the records from the table **Bookshop** in MySQL. 3

Statement 1 \_ to form the cursor object.

Statement 2 – to execute the query that updates the Qty to 20 of the records whose B\_code is 105 in the table.

Statement 3 – to make the changes permanent in the database.

```
import mysql.connector as mysql
def update_book():
```

```

mydb=mysql.connect(host="localhost",
user="shop",passwd="Book",database="Bstore")

mycursor=_____ # Statement 1
qry= "update Bookshop set Qty=20 where
B_code=105"

_____ # Statement 2
_____ # Statement 3

```

**OR**

- (b) (i) Predict the output of the code given below : 2

```

text="LearningCS"
L=len(text)
ntext=""
for i in range (0,L):

    if text[i].islower():
        ntext=ntext+text[i].upper()
    elif text [i].isalnum():

        ntext=ntext+text[i_]

    else:

        ntext=ntext+'&&'

print(ntext)

```

- (ii) The table **Bookshop** in MySQL contains the following attributes :

B\_code – Integer  
B\_name \_String  
Qty Integer  
Price Integer

Note the following to establish connectivity between Python and MySQL on a 'localhost' :

- Username is 'shop'
- Password is ,Book
- The table exists in a MySQL database named **Bstore**.

The code given below reads the records from the table **Bookshop** and displays all the records : 3

Statement 1 \_ to form the cursor object.

Statement 2 – to write the query to display all the records from the table.

Statement 3 to read the complete result of the query into the object named **B\_Details**, from the table **Bookshop** in the database.

```

import mysql.connector as mysql
def Display_book():

```

```

mydb=mysql.connect(host="localhost",
user="shop",passwd="Book",database="Bstore")

mycursor=_____ # Statement 1
mycursor.execute("_____") # Statement 2

B_Details=_____ # Statement 3
for i in B_Details:
    print(i)

```

33. (a) Write a point of difference between append (a) and write (w) modes in a text file.

5

Write a program in Python that defines and calls the following user defined functions :

- (i) Add\_Teacher() : It accepts the values from the user and inserts record of a teacher to a csv file 'Teacher.csv'. Each consists of a list with field elements as **T\_id**, **Tname** and **desig** to store teacher ID, teacher name and designation respectively.
- (ii) Search\_Teacher() : To display the records of all the PGT (designation) teachers.

**OR**

- (b) Write one point of difference between **seek()** and **tell()** functions in file handling. Write a program in Python that defines and calls the following user defined functions :

5

- (i) Add\_Device() : The function accepts and adds records of the peripheral devices to a csv file 'peripheral.csv'. Each record consists of a list with field elements as **P\_id**, **P\_name** and **Price** to store peripheral device ID, device name, and price respectively.
- (ii) Count\_Device() : To count and display number of peripheral devices, whose price is less than < 1000.

## SECTION E

34. The ABC Company is considering to maintain their salespersons records using SQL to store data. As a database administrator, Alia created the table Salesperson and also entered the data of 5 Salespersons.

Table : Salesperson

| S_ID | S_NAME  | AGE | S_AMOUNT | REGION |
|------|---------|-----|----------|--------|
| S001 | SHYAM   | 35  | 20000    | NORTH  |
| S002 | RISHABH | 30  | 25000    | EAST   |
| S003 | SUNIL   | 29  | 21000    | NORTH  |
| S004 | RAHIL   | 39  | 22000    | WEST   |
| S005 | AMIT    | 40  | 23000    | EAST   |

Based on the data given above, answer the following questions :

- (i) Identify the attribute that is best suited to be the Primary Key and why ? 1
- (ii) The Company has asked Alia to add another attribute in the table. What will be the new degree and cardinality of the above table ? 1
- (iii) Write the statements to : 2
- (a) Insert details of one salesman with appropriate data.
- (b) Change the Region of salesman 'SHYAM' to 'SOUTH' in the table Salesperson.

### OR (Option for part iii only)

- (iii) Write the statement to : 2
- (a) Delete the record of salesman RISHABH, as he has left the company.
- (b) Remove an attribute REGION from the table.
35. Atharva is a programmer, who has recently been given a task to write a Python code to perform the following binary file operation with the help of a user defined function/module :

Copy\_new() : to create a binary file `new_items.dat` and write all the item details stored in the binary file, `items.dat`, except for the item whose item\_id is 101. The data is stored in the following format :

```
{item_id:[item_name,amount]}
```

```
import _____ # Statement 1  
  
def Copy_new() :
```

```

f1=_____ # Statement 2
f2=_____ # Statement 3

item_id=int(input("Enter the item id"))
item_detail=_____ # Statement 4
for key in item_detail:
    if_____: # Statement 5
        pickle._____ # Statement 6
f1.close()
f2.close()

```

He has succeeded in writing partial code and has missed out certain statements. Therefore, as a Python expert, help him to complete the code based on the given requirements :

- (i) Which module should be imported in the program ? (Statement 1) 1
- (ii) Write the correct statement required to open the binary file "items.dat". (Statement 2) 1
- (iii) Which statement should Atharva fill in Statement 3 to open the binary file "new\_items.dat" and in Statement 4 to read all the details from the binary file "items.dat". 2