



|   |  |   |
|---|--|---|
|   | <pre>s = "Python is fun" l = s.split() s_new = "-".join([l[0].upper(), l[1], l[2].capitalize()]) print(s_new)</pre> <p>Options:</p> <ol style="list-style-type: none"> <li>PYTHON-IS-Fun</li> <li>PYTHON-is-Fun</li> <li>Python-is-fun</li> <li>PYTHON-Is -Fun</li> </ol>  |   |
| 5 | <p>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>?</p> <ol style="list-style-type: none"> <li>5,3</li> <li>8,15</li> <li>3,5</li> <li>15,8</li> </ol> | 1 |
| 6 | <p>Riya wants to transfer pictures from her mobile phone to her laptop. She uses Bluetooth Technology to connect two devices. Which type of network will be formed in this case?</p> <ol style="list-style-type: none"> <li>PAN</li> <li>LAN</li> <li>MAN</li> <li>WAN</li> </ol>  | 1 |
| 7 | <p>Which of the following will delete key-value pair for key = "Red" from a dictionary D1?</p> <ol style="list-style-type: none"> <li>delete D1("Red")</li> <li>del D1["Red"]</li> <li>del.D1["Red"]</li> <li>D1.del["Red"]</li> </ol>   | 1 |
| 8 | <p>Consider the statements given below and then choose the correct output from the given options:</p> <pre>pride="#G20 Presidency" print(pride[-2:2:-2])</pre>   | 1 |

|    |  |   |
|----|--|---|
|    | <p>Options:</p> <ul style="list-style-type: none"> <li>a. ndsr</li> <li>b. ceieP0</li> <li>c. ceieP</li> <li>d. yndsr</li> </ul>   |   |
| 9  | <p>Which of the following statement(s) would give an error during execution of the following code?</p> <pre>tup = (20, 30, 40, 50, 80, 79) print(tup)           #Statement 1 print(tup[3]+50)    #Statement 2 print(max(tup))     #Statement 3 tup[4]=80           #Statement 4</pre> <p>Options:</p> <ul style="list-style-type: none"> <li>a. Statement 1</li> <li>b. Statement 2</li> <li>c. Statement 3</li> <li>d. Statement 4</li> </ul> | 1 |
| 10 | <p>What possible outputs(s) will be obtained when the following code is executed?</p> <pre>import random myNumber=random.randint(0, 3) COLOR=["YELLOW", "WHITE", "BLACK", "RED"] for I in range(1, myNumber):     print(COLOR[I], end="*")     print()</pre> <p>Options:</p> <ul style="list-style-type: none"> <li>a.</li> </ul>  | 1 |

|    |  |   |
|----|--|---|
|    | <p>RED*</p> <p>WHITE*</p> <p>BLACK*</p> <p>b.</p> <p>WHITE*</p> <p>BLACK*</p> <p>c.</p> <p>WHITE* WHITE*</p> <p>BLACK* BLACK*</p> <p>d.</p> <p>YELLOW*</p> <p>WHITE*WHITE*</p> <p>BLACK* BLACK* BLACK*</p> |   |
| 11 | <p>Fill in the blank:</p> <p>The modem at the sender's computer end acts as a _____.</p> <p>a. Model</p> <p>b. Modulator</p> <p>c. Demodulator</p> <p>d. Convertor</p>                                     | 1 |
| 12 | <p>Consider the code given below:</p> <pre> b=100 def test(a):     _____ # missing statement     b=b+a     print(a,b) test(10) print(b) </pre>   | 1 |

|    |   |   |
|----|---|---|
|    | <p>Which of the following statements should be given in the blank for #Missing Statement, if the output produced is 110?</p> <p>Options:</p> <ul style="list-style-type: none"> <li>a. <code>global a</code></li> <li>b. <code>global b=100</code></li> <li>c. <code>global b</code></li> <li>d. <code>global a=100</code></li> </ul>   |   |
| 13 | <p>State whether the following statement is True or False:</p> <p>An exception may be raised even if the program is syntactically correct.</p>  | 1 |
| 14 | <p>Which of the following statements is FALSE about keys in a relational database?</p> <ul style="list-style-type: none"> <li>a. Any candidate key is eligible to become a primary key.</li> <li>b. A primary key uniquely identifies the tuples in a relation.</li> <li>c. A candidate key that is not a primary key is a foreign key.</li> <li>d. A foreign key is an attribute whose value is derived from the primary key of another relation.</li> </ul> | 1 |
| 15 | <p>Fill in the blank:</p> <p>In case of _____ switching, before a communication starts, a dedicated path is identified between the sender and the receiver.</p>   | 1 |
| 16 | <p>Which of the following functions changes the position of file pointer and returns its new position?</p> <ul style="list-style-type: none"> <li>a. <code>flush()</code></li> <li>b. <code>tell()</code></li> <li>c. <code>seek()</code></li> <li>d. <code>offset()</code></li> </ul>  | 1 |
|    | <p>Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as</p> <ul style="list-style-type: none"> <li>(a) Both A and R are true and R is the correct explanation for A</li> <li>(b) Both A and R are true and R is not the correct explanation for A</li> </ul>  |   |

|                         |   |           |
|-------------------------|---|-----------|
|                         | (c) A is True but R is False<br>(d) A is false but R is True  |           |
| 17                      | Assertion(A): List is an immutable data type<br>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): Python Standard Library consists of various modules.<br>Reasoning(R): A function in a module is used to simplify the code and avoids repetition.  | 1         |
| <b><u>SECTION B</u></b> |   |           |
| 19                      | (i) Expand the following terms:<br>POP3 , URL<br><br>(ii) Give one difference between XML and HTML.<br><br>OR<br><br>(i) Define the term bandwidth with respect to networks.<br>(ii) How is http different from https?  | 1+1=<br>2 |
| 20                      | The code given below accepts a number as an argument and returns the reverse number. Observe the following code carefully and rewrite it after removing <b>all syntax and logical errors</b> . Underline all the corrections made.<br><br><pre> define revNumber (num) :     rev = 0     rem = 0     While num &gt; 0:         rem ==num %10         rev = rev*10 + rem         num = num//10         return rev print (revNumber (1234) ) </pre> | 2         |

|    |   |       |
|----|---|-------|
| 21 | <p>Write a function <code>countNow (PLACES)</code> in Python, that takes the dictionary, <code>PLACES</code> as an argument and displays the names (in uppercase) of the places whose names are longer than 5 characters.</p> <p>For example, Consider the following dictionary</p> <pre>PLACES={1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Doha"}</pre> <p>The output should be:</p> <p>LONDON<br/>NEW YORK</p> <p style="text-align: center;">OR</p> <p>Write a function, <code>lenWords (STRING)</code>, that takes a string as an argument and returns a tuple containing length of each word of a string.</p> <p>For example, if the string is "Come let us have some fun", the tuple will have (4, 3, 2, 4, 4, 3)</p> | 2     |
| 22 | <p>Predict the output of the following code:</p> <pre>S = "LOST" L = [10, 21, 33, 4] D = {} for I in range(len(S)):     if I%2==0:         D[L.pop()] = S[I]     else:         D[L.pop()] = I+3  for K, V in D.items():     print(K, V, sep="*")</pre>  | 2     |
| 23 | <p>Write the Python statement for <b>each</b> of the following tasks using BUILT-IN functions/methods only:</p> <ol style="list-style-type: none"> <li>(i) To insert an element 200 at the third position, in the list L1.</li> <li>(ii) To check whether a string named, <code>message</code> ends with a full stop / period or not.</li> </ol>  | 1+1=2 |

|    |  |   |
|----|--|---|
|    | OR   |   |
|    | A list named <code>studentAge</code> stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display the most common age value from the given list.   |   |
| 24 | <p>Ms. Shalini has just created a table named “Employee” containing columns <code>Ename</code>, <code>Department</code> and <code>Salary</code>.</p> <p>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 <code>EmpId</code> of integer type to the table <code>Employee</code>.</p> <p>Thereafter, write the command to insert the following record in the table:</p> <p>EmpId- 999<br/> Ename- Shweta<br/> Department: Production<br/> Salary: 26900</p> <p style="text-align: center;">OR</p> <p>Zack is working in a database named <code>SPORT</code>, in which he has created a table named “Sports” containing columns <code>SportId</code>, <code>SportName</code>, <code>no_of_players</code>, and <code>category</code>.</p> <p>After creating the table, he realized that the attribute, <code>category</code> has to be deleted from the table and a new attribute <code>TypeSport</code> of data type string has to be added. This attribute <code>TypeSport</code> cannot be left blank. Help Zack write the commands to complete both the tasks.</p> | 2 |
| 25 | Predict the output of the following code:  | 2 |



```
def Changer (P, Q=10) :
    P=P/Q
    Q=P%Q
    return P

A=200
B=20
A=Changer (A, B)
print (A, B, sep='$')
B=Changer (B)
print (A, B, sep='$', end='###')
```

### SECTION C

| 26   | <p>Predict the output of the Python code given below:</p> <pre>Text1="IND-23" Text2="" I=0 while I&lt;len(Text1):     if Text1[I]&gt;="0" and Text1[I]&lt;="9":         Val = int(Text1[I])         Val = Val + 1         Text2=Text2 + str(Val)     elif Text1[I]&gt;="A" and Text1[I]&lt;="Z":         Text2=Text2 + (Text1[I+1])     else:         Text2=Text2 + "*"     I+=1 print(Text2)</pre>  | 3   |        |        |        |            |     |       |      |        |    |        |       |     |            |           |
|------|--|-----|--------|--------|--------|------------|-----|-------|------|--------|----|--------|-------|-----|------------|-----------|
| 27   | <p>Consider the table CLUB given below and write the output of the SQL queries that follow.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>CID</th> <th>CNAME</th> <th>AGE</th> <th>GENDER</th> <th>SPORTS</th> <th>PAY</th> <th>DOAPP</th> </tr> </thead> <tbody> <tr> <td>5246</td> <td>AMRITA</td> <td>35</td> <td>FEMALE</td> <td>CHESS</td> <td>900</td> <td>2006-03-27</td> </tr> </tbody> </table> | CID | CNAME  | AGE    | GENDER | SPORTS     | PAY | DOAPP | 5246 | AMRITA | 35 | FEMALE | CHESS | 900 | 2006-03-27 | 1*3=<br>3 |
| CID  | CNAME  | AGE | GENDER | SPORTS | PAY    | DOAPP      |     |       |      |        |    |        |       |     |            |           |
| 5246 | AMRITA   | 35  | FEMALE | CHESS  | 900    | 2006-03-27 |     |       |      |        |    |        |       |     |            |           |

|      | 4687  | SHYAM   | 37     | MALE      | CRICKET    | 1300 | 2004-04-15 |      |      |       |        |           |     |       |         |       |      |           |
|------|---|---------|--------|-----------|------------|------|------------|------|------|-------|--------|-----------|-----|-------|---------|-------|------|-----------|
|      | 1245  | MEENA   | 23     | FEMALE    | VOLLEYBALL | 1000 | 2007-06-18 |      |      |       |        |           |     |       |         |       |      |           |
|      | 1622  | AMRIT   | 28     | MALE      | KARATE     | 1000 | 2007-09-05 |      |      |       |        |           |     |       |         |       |      |           |
|      | 1256  | AMINA   | 36     | FEMALE    | CHESS      | 1100 | 2003-08-15 |      |      |       |        |           |     |       |         |       |      |           |
|      | 1720  | MANJU   | 33     | FEMALE    | KARATE     | 1250 | 2004-04-10 |      |      |       |        |           |     |       |         |       |      |           |
|      | 2321  | VIRAT   | 35     | MALE      | CRICKET    | 1050 | 2005-04-30 |      |      |       |        |           |     |       |         |       |      |           |
|      | <p>(i) SELECT COUNT(DISTINCT SPORTS) FROM CLUB;<br/> (ii) SELECT CNAME, SPORTS FROM CLUB WHERE<br/> DOAPP&lt;"2006-04-30" AND CNAME LIKE "%NA";<br/> (iii) SELECT CNAME, AGE, PAY FROM CLUB WHERE<br/> GENDER = "MALE" AND PAY BETWEEN 1000 AND<br/> 1200;</p>  |         |        |           |            |      |            |      |      |       |        |           |     |       |         |       |      |           |
| 28   | <p>Write a function in Python to read a text file, Alpha.txt and displays those lines which begin with the word 'You'.</p> <p style="text-align: center;">OR</p> <p>Write a function, vowelCount() in Python that counts and displays the number of vowels in the text file named Poem.txt.</p>   |         |        |           |            |      |            | 3    |      |       |        |           |     |       |         |       |      |           |
| 29   | <p>Consider the table Personal given below:</p> <p><b>Table: Personal</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">P_ID</th> <th style="width: 20%;">Name</th> <th style="width: 20%;">Desig</th> <th style="width: 20%;">Salary</th> <th style="width: 25%;">Allowance</th> </tr> </thead> <tbody> <tr> <td>P01</td> <td>Rohit</td> <td>Manager</td> <td>89000</td> <td>4800</td> </tr> </tbody> </table> |         |        |           |            |      |            | P_ID | Name | Desig | Salary | Allowance | P01 | Rohit | Manager | 89000 | 4800 | 1*3=<br>3 |
| P_ID | Name  | Desig   | Salary | Allowance |            |      |            |      |      |       |        |           |     |       |         |       |      |           |
| P01  | Rohit   | Manager | 89000  | 4800      |            |      |            |      |      |       |        |           |     |       |         |       |      |           |

|     |         |            |       |      |
|-----|---------|------------|-------|------|
| P02 | Kashish | Clerk      | NULL  | 1600 |
| P03 | Mahesh  | Supervisor | 48000 | NULL |
| P04 | Salil   | Clerk      | 31000 | 1900 |
| P05 | Ravina  | Supervisor | NULL  | 2100 |

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

- (i) Increase the salary by 5% of personals whose allowance is known.
- (ii) Display Name and Total Salary (sum of Salary and Allowance) of all personals. The column heading 'Total Salary' should also be displayed.
- (iii) Delete the record of personals who have salary greater than 25000

|    |  |   |
|----|--|---|
| 30 | <p>A list, <code>NList</code> contains following record as list elements:<br/> <code>[City, Country, distance from Delhi]</code></p> <p>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 <code>travel</code>.</p> <ol style="list-style-type: none"> <li>(i) <b>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.</li> <li>(ii) <b>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.</li> </ol> <p>For example: If the nested list contains the following data:<br/> <code>NList=[["New York", "U.S.A.", 11734],</code><br/> <code>["Naypyidaw", "Myanmar", 3219],</code><br/> <code>["Dubai", "UAE", 2194],</code><br/> <code>["London", "England", 6693],</code></p> | 3 |
|----|--|---|

```
["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
```

### SECTION D

31 Consider the tables PRODUCT and BRAND given below:

Table: PRODUCT

| PCode | PName      | UPrice | Rating | BID |
|-------|------------|--------|--------|-----|
| P01   | Shampoo    | 120    | 6      | M03 |
| P02   | Toothpaste | 54     | 8      | M02 |
| P03   | Soap       | 25     | 7      | M03 |
| P04   | Toothpaste | 65     | 4      | M04 |
| P05   | Soap       | 38     | 5      | M05 |
| P06   | Shampoo    | 245    | 6      | M05 |

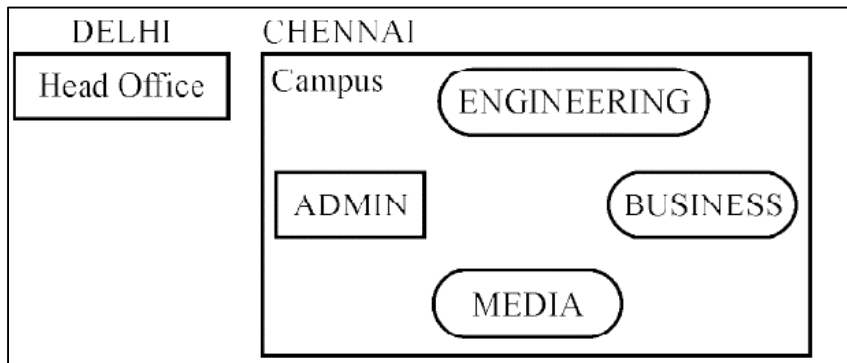
Table: BRAND

| BID | BName      |
|-----|------------|
| M02 | Dant Kanti |
| M03 | Medimix    |
| M04 | Pepsodent  |
| M05 | Dove       |

1\*4=  
4

|    |  |   |
|----|--|---|
|    | <p>Write SQL queries for the following:</p> <ol style="list-style-type: none"> <li>(i) Display product name and brand name from the tables PRODUCT and BRAND.</li> <li>(ii) Display the structure of the table PRODUCT.</li> <li>(iii) Display the average rating of Medimix and Dove brands</li> <li>(iv) Display the name, price, and rating of products in descending order of rating.</li> </ol>   |   |
| 32 | <p>Vedansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named <code>Result.csv</code>, to store the results of students in different sports events. The structure of <code>Result.csv</code> is :</p> <pre>[St_Id, St_Name, Game_Name, Result]</pre> <p>Where</p> <p><code>St_Id</code> is Student ID (integer)</p> <p><code>ST_name</code> is Student Name (string)</p> <p><code>Game_Name</code> is name of game in which student is participating(string)</p> <p><code>Result</code> is result of the game whose value can be either 'Won', 'Lost' or 'Tie'</p> <p>For efficiently maintaining data of the event, Vedansh wants to write the following user defined functions:</p> <p><code>Accept()</code> – to accept a record from the user and add it to the file <code>Result.csv</code>. The column headings should also be added on top of the csv file.</p> <p><code>wonCount()</code> – to count the number of students who have won any event.</p> <p>As a Python expert, help him complete the task.</p> | 4 |
|    | <b><u>SECTION E</u></b>  |   |

- 33 Meticulous EduServe is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA



**Block to Block distances (in Mtrs.)**

| From              | To             | Distance |
|-------------------|----------------|----------|
| ADMIN             | ENGINEERING    | 55 m     |
| ADMIN             | BUSINESS       | 90 m     |
| ADMIN             | MEDIA          | 50 m     |
| ENGINEERING       | BUSINESS       | 55 m     |
| ENGINEERING       | MEDIA          | 50 m     |
| BUSINESS          | MEDIA          | 45 m     |
| DELHI HEAD OFFICE | CHENNAI CAMPUS | 2175 km  |

**Number of computers in each of the blocks/Center is as follows:**

|             |     |
|-------------|-----|
| ADMIN       | 110 |
| ENGINEERING | 75  |
| BUSINESS    | 40  |
| MEDIA       | 12  |
| DELHI HEAD  | 20  |

- a) Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices.

|    |  |       |
|----|--|-------|
|    | <p>b) Which network device will be used to connect computers in each block to form a local area network?</p> <p>c) Which block, in Chennai Campus should be made the server? Justify your answer.</p> <p>d) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in CHENNAI?</p> <p>e) Is there a requirement of a repeater in the given cable layout? Why/Why not?</p>  |       |
| 34 | <p>(i) Differentiate between r+ and w+ file modes in Python.</p> <p>(ii) Consider a file, SPORT.DAT, containing records of the following structure:</p> <pre>[SportName, TeamName, No_Players]</pre> <p>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.</p> <p style="text-align: center;"><b>OR</b></p> <p>(i) How are text files different from binary files?</p> <p>(ii) A Binary file, CINEMA.DAT has the following structure:</p> <pre>{MNO: [MNAME, MTYPE]}</pre> <p>Where</p> <p>MNO – Movie Number</p> <p>MNAME – Movie Name</p> <p>MTYPE is Movie Type</p> <p>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.</p> | 2+3=5 |
| 35 | <p>(i) Define the term Domain with respect to RDBMS. Give one example to support your answer.</p>  | 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`:

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



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