

Questions from Board Examination

Unit I - Computational Thinking and Programming – 2

Q. No.	Question	Mark
1.	State True or False. “Identifiers are names used to identify a variable, function in a program”.	1
2.	Which of the following is a valid keyword in Python ? (a) false (b) return (c) non_local (d) none	1
3.	Given the following Tuple Tup= (10, 20, 30, 50) Which of the following statements will result in an error ? (a) print(Tup[0]) (b) Tup.insert (2,3) (c) print(Tup[1:2]) (d) print(len(Tup))	1
4.	Consider the given expression : 5<10 and 12>7 or not 7>4 Which of the following will be the correct output, if the given expression is evaluated ? (a) True (b) False (c) NONE (d) NULL	1
5.	Select the correct output of the code : S= "Amrit Mahotsav @ 75" A=S.partition (" ") print (a) (a) ('Amrit Mahotsav','@','75') (b) ['Amrit','Mahotsav','@','75'] (c) ('Amrit', 'Mahotsav @ 75') (d) ('Amrit', '', 'Mahotsav @ 75')	1
6.	Which of the following mode keeps the file offset position at the end of the file ? (a) r+ (b) r (c) w (d) a	1
7.	Fill in the blank. _____ function is used to arrange the elements of a list in ascending order. (a) sort() (b) arrange() (c) ascending() (d) asort()	1

8.	Which of the following operators will return either True or False ? (a) += (b) != (c) = (d) *=	1
9.	Which of the following statement(s) would give an error after executing the following code ? Stud={"Murugan":100, "Mithu":95} # Statement 1 print (Stud[95]) # Statement 2 Stud ["Murugan"]=99 # Statement 3 print (Stud.pop()) # Statement 4 print (Stud) # Statement 5 (a) Statement 2 (b) Statement 3 (c) Statement 4 (d) Statements 2 and 4	1
10.	The syntax of seek() is : file_object.seek(offset[,reference_point]) What is the default value of reference_point ? (a) 0 (b) 1 (c) 2 (d) 3	1
11.	What will the following expression be evaluated to in Python ? print(4+3*5/3-5%2) (a) 8.5 (b) 8.0 (c) 10.2 (d) 10.0	1
12.	Which function returns the sum of all elements of a list ? (a) count() (b) sum() (c) total() (d) add()	1
13.	Assertion (A) : To use a function from a particular module, we need to import the module. Reason (R) : import statement can be written anywhere in the program, before using a function from that module.	1
14.	Assertion (A) : A stack is a LIFO structure. Reason (R) : Any new element pushed into the stack always gets positioned at the index after the last existing element in the stack.	1
15.	Atharva is a Python programmer working on a program to find and return the maximum value from the list. The code written below has syntactical errors. Rewrite the correct code and underline the corrections made. def max_num (L) : max=L(0) for a in L : if a > max max=a return max	2

16.	<p>(a) Given is a Python list declaration : Listofnames=["Aman", "Ankit", "Ashish", "Rajan", "Rajat"] Write the output of : print (Listofnames [-1:-4:-1])</p> <p>(b) Consider the following tuple declaration : tup1=(10,20,30, (10,20,30), 40) Write the output of : print(tup1.index(20))</p>	2
17.	<p>Write the output of the code given below :</p> <pre>def short_sub (lst,n) : for i in range (0,n) : if len (lst)>4: lst [i]=lst [i]+lst[i] else: lst[i]=lst[i] subject=['CS', 'HINDI', 'PHYSICS', 'CHEMISTRY', 'MATHS'] short_sub(subject,5) print(subject)</pre>	2
18.	<p>Write the output of the code given below :</p> <pre>a =30 def call (x) : global a if a%2==0: x+=a else: x-=a return x x=20 print(call(35),end="#") print(call(40),end= "@")</pre>	2

19.	<p>Write the definition of a Python function named <code>LongLines()</code> which reads the contents of a text file named 'LINES.TXT' and displays those lines from the file which have at least 10 words in it. For example, if the content of 'LINES.TXT' is as follows :</p> <p>Once upon a time, there was a woodcutter He lived in a little house in a beautiful, green wood. One day, he was merrily chopping some wood. He saw a little girl skipping through the woods, whistling happily. The girl was followed by a big gray wolf.</p> <p>Then the function should display output as :</p> <p>He lived in a little house in a beautiful, green wood. He saw a little girl skipping through the woods, whistling happily.</p>	3
20.	<p>Write a function <code>count_Dwords()</code> in Python to count the words ending with a digit in a text file "Details.txt".</p> <p>Example:</p> <p>If the file content is as follows :</p> <p>On seat2 VIP1 will sit and On seat1 VVIP2 will be sitting</p> <p>Output will be:</p> <p>Number of words ending with a digit are 4</p>	3
21.	<p>Write a function <code>EOReplace()</code> in Python, which accepts a list L of numbers. Thereafter, it increments all even numbers by 1 and decrements all odd numbers by 1.</p> <p>Example :</p> <p>If Sample Input data of the list is :</p> <p><code>L=[10, 20, 30, 40, 35, 55]</code></p> <p>Output will be :</p> <p><code>L=[11, 21, 31, 41, 34, 54]</code></p>	3

25.	<p>(a) Write one difference between CSV and text files. Write a program in Python that defines and calls the following user defined functions :</p> <p>(i) COURIER_ADD(): It takes the values from the user and adds the details to a csv file 'courier.csv'. Each record consists of a list with field elements as cid, s_name, Source, destination to store Courier ID, Sender name, Source and destination address respectively.</p> <p>(ii) COURIER_SEARCH() : Takes the destination as the input and displays all the courier records going to that destination.</p> <p style="text-align: center;">OR</p> <p>(b) Why it is important to close a file before exiting ? Write a program in Python that defines and calls the following user defined functions :</p> <p>(i) Add_Book() : Takes the details of the books and adds them to a csv file 'Book.csv'. Each record consists of a list with field elements as book_ID, B_name and pub to store book ID, book name and publisher respectively.</p> <p>(ii) Search_Book() : Takes publisher name as input and counts and displays number of books published by them.</p>	5
26.	<p>Shreyas is a programmer, who has recently been given a task to write a user defined function named write_bin() to create a binary file called Cust_file.dat containing customer information – customer number (c_no), name (c_name), quantity (qty), price (price) and amount (amt) of each customer.</p> <p>The function accepts customer number, name, quantity and price. Thereafter, it displays the message 'Quantity less than 10.... Cannot SAVE', if quantity entered is less than 10. Otherwise the function calculates amount as price * quantity and then writes the record in the form of a list into the binary file.</p> <pre>import pickle def write_bin(): bin_file=_____ #Statement 1 while True: c_no=int(input("enter customer number")) c_name=input("enter customer name") qty=int(input("enter qty")) price=int(input("enter price")) if _____ #Statement 2 print("Quantity less than 10..Cannot SAVE") else: amt=price * qty c_detail=[c_no,c_name,qty,price,amt] _____ #Statement 3 ans=input("Do you wish to enter more records y/n") if ans.lower()=='n': _____ #Statement 4 _____ #Statement 5 _____ #Statement 6</pre>	4

	<p>(i) Write the correct statement to open a file 'Cust_file.dat' for writing the data of the customer.</p> <p>(ii) Which statement should Shreyas fill in Statement 2 to check whether quantity is less than 10.</p> <p>(iii) Which statement should Shreyas fill in Statement 3 to write data to the binary file and in Statement 4 to stop further processing if the user does not wish to enter more records.</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">(Option for part (iii) only)</p> <p>(iii) What should Shreyas fill in Statement 5 to close the binary file named Cust_file.dat and in Statement 6 to call a function to write data in binary file ?</p>	
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Q. No.	Question	Mark
1.	<p>State True or False.</p> <p>“Comments are not executed by interpreter.”</p>	1
2.	<p>Which of the following is not a sequential datatype in Python ?</p> <p>(a) Dictionary</p> <p>(b) String</p> <p>(c) List</p> <p>(d) Tuple</p>	1
3.	<p>Given the following dictionary</p> <p>Day={1:"Monday", 2:"Tuesday", 3:"Wednesday"}</p> <p>Which statement will return "Tuesday".</p> <p>(a) Day.pop()</p> <p>(b) Day.pop(2)</p> <p>(c) Day.pop(1)</p> <p>(d) Day.pop("Tuesday")</p>	1

9.	<p>Which of the following statement(s) would give an error after executing the following code ?</p> <pre>S="Happy" # Statement 1 print(S*2) # Statement 2 S+="Independence" # Statement 3 S.append("Day") # Statement 4 print(S) # Statement 5</pre> <p>(a) Statement 2 (b) Statement 3 (c) Statement 4 (d) Statement 3 and 4</p>	1
10.	<p>The correct syntax of <code>tell()</code> is :</p> <p>(a) <code>tell.file_object()</code> (b) <code>file_object.tell()</code> (c) <code>tell.file_object(1)</code> (d) <code>file_object.tell(1)</code></p>	1
11.	<p>What will the following expression be evaluated to in Python ?</p> <pre>print(6/3 + 4**3//8-4)</pre> <p>(a) 6.5 (b) 4.0 (c) 6.0 (d) 4</p>	1
12.	<p>Which of the following functions is a valid built-in function for both list and dictionary datatype ?</p> <p>(a) <code>items()</code> (b) <code>len()</code> (c) <code>update()</code> (d) <code>values()</code></p>	1
13.	<p><i>Assertion (A)</i> : In Python, a stack can be implemented using a list. <i>Reasoning (R)</i> : A stack is an ordered linear list of elements that works on the principle of First In First Out (FIFO).</p>	1
14.	<p><i>Assertion (A)</i> : <code>readlines()</code> reads all the lines from a text file and returns the lines along with newline as a list of strings. <i>Reasoning (R)</i> : <code>readline()</code> can read the entire text file line by line without using any looping statements.</p>	1

15.	<p>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.</p> <pre> 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) </pre>	2
16.	<p>(a) Given is a Python string declaration :</p> <pre>NAME = "Learning Python is Fun"</pre> <p>Write the output of : <code>print(NAME[-5:-10:-1])</code></p> <p>(b) Write the output of the code given below :</p> <pre> dict1={1:["Rohit",20], 2:["Siya",90]} dict2={1:["Rahul",95], 5:["Rajan",80]} dict1.update(dict2) print(dict1.values()) </pre>	2
17.	<p>Write the output of the Python code given below :</p> <pre> 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) </pre>	2

18.	<p>Write the output of the Python code given below :</p> <pre> 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) </pre>	2
19.	<p>Write a function in Python that displays the book names having 'Y' or 'y' in their name from a text file "Bookname.txt".</p> <p>Example :</p> <p>If the file 'Bookname.txt' contains the names of following books :</p> <p>One Hundred Years of Solitude The Diary of a Young Girl On the Road</p> <p>After execution, the output will be :</p> <p>One Hundred Years of Solitude The Diary of a Young Girl</p>	3
20.	<p>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.</p> <p>Example :</p> <p>If content in the text file is :</p> <p>UBUNTU IS AN OPEN SOURCE OPERATING SYSTEM</p> <p>Output will be :</p> <p>UBUNTU IS AN NEPO SOURCE GNITAREPO SYSTEM (words 'OPEN' and 'OPERATING' are displayed in reverse order)</p>	3

21.	<p>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.</p> <p>Example :</p> <p>L = [10,20,30,10,40]</p> <p>Number to be searched = 10</p> <p>List after replacement :</p> <p>L = [0,20,30,0,40]</p>	3
22.	<p>A list contains following record of course details for a University :</p> <p>[Course_name, Fees, Duration]</p> <p>Write the following user defined functions to perform given operations on the stack named 'Univ' :</p> <p>(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.</p> <p>(ii) Pop_element() – To pop the object from the stack and display it. Also, display “Underflow” when there is no element in the stack.</p> <p>For example :</p> <p>If the lists of courses details are :</p> <p>[“MCA”,200000,3]</p> <p>[“MBA”,500000,2]</p> <p>[“BA”,100000,3]</p> <p>The stack should contain :</p> <p>[“MBA”,500000,2]</p> <p>[“MCA”,200000,3]</p>	3

23.	<p>What possible output(s) are expected to be displayed on screen at the time of execution of the following code ?</p> <pre>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=":")</pre> <p>Options :</p> <p>(I) Pencil:Book</p> <p>(II) Pencil:Book Eraser:Bag</p> <p>(III) Pen:Book Bag:Book</p> <p>(IV) Bag:Eraser</p>	2
24.	<p>Predict the output of the code given below :</p> <pre>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-1] else: ntext=ntext+'&&' print(ntext)</pre>	2

25.	<p>Write a point of difference between append (a) and write (w) modes in a text file.</p> <p>Write a program in Python that defines and calls the following user defined functions :</p> <p>(i) Add_Teacher() : It accepts the values from the user and inserts record of a teacher to a csv file 'Teacher.csv'. Each record consists of a list with field elements as T_id, Tname and desig to store teacher ID, teacher name and designation respectively.</p> <p>(ii) Search_Teacher() : To display the records of all the PGT (designation) teachers.</p>	5
26.	<p>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 :</p> <p>(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.</p> <p>(ii) Count_Device() : To count and display number of peripheral devices, whose price is less than ₹ 1000.</p>	5

27. 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 :

- | | |
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| <p>(i) Which module should be imported in the program ? (Statement 1)</p> <p>(ii) Write the correct statement required to open the binary file "items.dat". (Statement 2)</p> <p>(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".</p> | |
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OR (Option for part iii only)

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| <p>(iii) What should Atharva write in Statement 5 to apply the given condition and in Statement 6 to write data in the binary file "new_items.dat".</p> | |
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Questions from Board Examinations

Unit II - Computer Networks

Q. No.	Question	Mark																
1.	<p>Fill in the blank : _____ is used for point-to-point communication or unicast communication such as radar and satellite.</p> <p>(a) INFRARED WAVES (b) BLUETOOTH (c) MICROWAVES (d) RADIOWAVES</p>	1																
2.	<p>(a) Differentiate between wired and wireless transmission. OR (b) Differentiate between URL and domain name with the help of an appropriate example.</p>	2																
3.	<p>(a) Write the full forms of the following : (i) HTML (ii) TCP (b) What is the need of Protocols ?</p>	2																
4.	<p>Quickdev, an IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branches locations and other details which are given below :</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>DELHI BRANCH</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">BRANCH A</div> <div style="border: 1px solid black; padding: 2px 10px;">BRANCH B</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">BRANCH C</div> <div style="border: 1px solid black; padding: 2px 10px;">BRANCH D</div> </div> </div> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>KANPUR BRANCH</p> <div style="border: 1px solid black; padding: 2px 10px; margin-top: 10px;">MARKETING DEPT.</div> </div> </div> <p>Distance between various branches is as follows :</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Branch</th> <th>Distance</th> </tr> </thead> <tbody> <tr> <td>Branch A to Branch B</td> <td>40 m</td> </tr> <tr> <td>Branch A to Branch C</td> <td>80 m</td> </tr> <tr> <td>Branch A to Branch D</td> <td>65 m</td> </tr> <tr> <td>Branch B to Branch C</td> <td>30 m</td> </tr> <tr> <td>Branch B to Branch D</td> <td>35 m</td> </tr> <tr> <td>Branch C to Branch D</td> <td>15 m</td> </tr> <tr> <td>Delhi Branch to Kanpur</td> <td>300 km</td> </tr> </tbody> </table>	Branch	Distance	Branch A to Branch B	40 m	Branch A to Branch C	80 m	Branch A to Branch D	65 m	Branch B to Branch C	30 m	Branch B to Branch D	35 m	Branch C to Branch D	15 m	Delhi Branch to Kanpur	300 km	5
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Distance between various branches is as follows :

Branch	Distance
Branch A to Branch B	40 m
Branch A to Branch C	80 m
Branch A to Branch D	65 m
Branch B to Branch C	30 m
Branch B to Branch D	35 m
Branch C to Branch D	15 m
Delhi Branch to Kanpur	300 km

Number of computers in each of the branches :

Branch	Number of Computers
Branch A	15
Branch B	25
Branch C	40
Branch D	115

- (i) Suggest the most suitable place to install the server for the Delhi branch with a suitable reason.
- (ii) Suggest an ideal layout for connecting all these branches within Delhi.
- (iii) Which device will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches ?
- (iv) Delhi firm is planning to connect to its Marketing department in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed ? Justify your answer.
- (v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch.

2023 Compartment

Q. No.	Question	Mark
1	<p>Fill in the blank :</p> <p>In _____ switching, before a communication starts, a dedicated path is identified between the sender and the receiver.</p> <p>(a) Packet</p> <p>(b) Graph</p> <p>(c) Circuit</p> <p>(d) Plot</p>	1

2	<p>(a) Write any two differences between Fiber-optic cable and Coaxial cable.</p> <p style="text-align: center;">OR</p> <p>(b) Write one advantage and one disadvantage of wired over wireless communication.</p>	2																				
3	<p>(a) Write the full forms of the following :</p> <p>(i) XML</p> <p>(ii) HTTPS</p> <p>(b) What is the use of FTP ?</p>	2																				
4	<p>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 :</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 10px; width: 45%;"> <p style="text-align: center;">NOIDA BRANCH</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">BUILDING 1</div> <div style="border: 1px solid black; padding: 5px; width: 15%;">BUILDING 2</div> </div> <div style="margin-top: 20px; text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">BUILDING 3</div> </div> </div> <div style="border: 1px solid black; padding: 10px; width: 45%;"> <p style="text-align: center;">BENGALURU BRANCH</p> <div style="margin-top: 10px; text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">HEAD OFFICE</div> </div> </div> </div> <p>Distance between various blocks/locations :</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Building</th> <th style="text-align: left;">Distance</th> </tr> </thead> <tbody> <tr> <td>Building 1 to Building 3</td> <td>120 m</td> </tr> <tr> <td>Building 1 to Building 2</td> <td>50 m</td> </tr> <tr> <td>Building 2 to Building 3</td> <td>65 m</td> </tr> <tr> <td>Noida Branch to Head Office</td> <td>1500 km</td> </tr> </tbody> </table> <p>Number of computers</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Building</th> <th style="text-align: left;">Number of Computers</th> </tr> </thead> <tbody> <tr> <td>Building 1</td> <td>25</td> </tr> <tr> <td>Building 2</td> <td>51</td> </tr> <tr> <td>Building 3</td> <td>150</td> </tr> <tr> <td>Head Office</td> <td>10</td> </tr> </tbody> </table>	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	Building	Number of Computers	Building 1	25	Building 2	51	Building 3	150	Head Office	10	5
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| <p>(i) Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location.</p> <p>(ii) Suggest the cable layout of connections between the buildings inside the campus.</p> <p>(iii) Suggest the placement of the following devices with justification :</p> <ul style="list-style-type: none">• Switch• Repeater <p>(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.</p> <p>(v) The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same.</p> | |
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Questions from Board Examination

Unit III - Database Management

2023

1. Fill in the blank:

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

- (a) Attributes (c) Relations
(b) Degrees (d) Tuples

2. Fill in the blank:

_____ statement of SQL is used to insert new records in a table.

- (a) ALTER (c) INSERT
(b) UPDATE (d) CREATE

3. Explain the usage of HAVING clause in GROUP BY command in RDBMS with the help of an example.

4. Differentiate between IN and BETWEEN operators in SQL with appropriate examples.

5. Which of the following is NOT a DML command?

DELETE, DROP, INSERT, UPDATE

6. Consider the following tables Student and Sport:

Table : Student

ADMNO	NAME	CLASS
1100	MEENA	X
1101	VANI	XI

Table : Sport

ADMNO	GAME
1100	CRICKET
1103	FOOTBALL

What will be the output of the following statement?

SELECT * FROM Student, Sport;

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

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%';

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

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%';

9. 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?

(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?

(iii) Write the statements to:

(a) Insert details of one salesman with appropriate data.

(b) SHYAM SOUTH in the table Salesperson.

(iii) Write the statement to:

(a) Delete the record of salesman RISHABH, as he has left the company.

(b) Remove an attribute REGION from the table.

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- Fill in the blank.
_____ is a number of tuples in a relation.
(a) Attribute (b) Degree
(c) Domain (d) Cardinality
- Fill in the blank :
_____ clause is used with SELECT statement to display data in a sorted form with respect to a specified column.
(a) WHERE (b) ORDER BY
(c) HAVING (d) DISTINCT
- Explain the concept of "Alternate Key" in a Relational Database Management System with an appropriate example.
- Differentiate between CHAR and VARCHAR data types in SQL with appropriate example.
- Name any two DDL and any two DML commands.
- Write the output of the queries (i) to (iv) based on the table, WORKER given below :

TABLE: WORKER

W_ID	F_NAME	L_NAME	CITY	STATE
102	SAHIL	KHAN	KANPUR	UTTAR PRADESH
104	SAMEER	PARIKH	ROOP NAGAR	PUNJAB
105	MARY	JONES	DELHI	DELHI
106	MAHIR	SHARMA	SONIPAT	HARYANA
107	ATHARVA	BHARDWAJ	DELHI	DELHI
108	VEDA	SHARMA	KANPUR	UTTAR PRADESH

- SELECT F_NAME, CITY FROM WORKER ORDER BY STATE DESC;
- SELECT DISTINCT (CITY) FROM WORKER;
- SELECT F_NAME, STATE FROM WORKER WHERE L_NAME LIKE '_HA%';
- SELECT CITY,COUNT(*) FROM WORKER GROUP BY CITY;

7. Write the outputs of the SQL queries (i) to (iv) based on the relations COMPUTER and SALES given below :

Table : SALES

PROD_ID	QTY_SOLD	QUARTER
P002	4	1
P003	2	2
P001	3	2
P004	2	1

Table : COMPUTER

PROD_ID	PROD_NAME	PRICE	COMPANY	TYPE
P001	MOUSE	200	LOGITECH	INPUT
P002	LASER PRINTER	4000	CANON	OUTPUT
P003	KEYBOARD	500	LOGITECH	INPUT
P004	JOYSTICK	1000	IBALL	INPUT
P005	SPEAKER	1200	CREATIVE	OUTPUT
P006	DESKJET PRINTER	4300	CANON	OUTPUT

- (i) SELECT MIN(PRICE), MAX(PRICE) FROM COMPUTER;
- (ii) SELECT COMPANY, COUNT(*) FROM COMPUTER GROUP BY COMPANY HAVING COUNT(COMPANY) > 1;
- (iii) SELECT PROD_NAME, QTY_SOLD FROM COMPUTER C, SALES S WHERE C.PROD_ID=S.PROD_ID AND TYPE = 'INPUT';
- (iv) SELECT PROD_NAME, COMPANY, QUARTER FROM COMPUTER C, SALES S WHERE C.PROD_ID=S. PROD_ID;
8. The school has asked their estate manager Mr. Rahul to maintain the data of all the labs in a table LAB. Rahul has created a table and entered data of 5 labs.

LABNO	LAB_NAME	INCHARGE	CAPACITY	FLOOR
L001	CHEMISTRY	Daisy	20	I
L002	BIOLOGY	Venky	20	II
L003	MATH	Preeti	15	I
L004	LANGUAGE	Daisy	36	III
L005	COMPUTER	Mary Kom	37	II

Based on the data given above answer the following questions :

- (i) Identify the columns which can be considered as Candidate keys.
- (ii) Write the degree and cardinality of the table.
- (iii) Write the statements to :
- Insert a new row with appropriate data.
 - Increase the capacity of all the labs by 10 students which are on 'I' Floor.
9. Write the statements to :
- Add a constraint PRIMARY KEY to the column LABNO in the table.
 - Delete the table LAB.

2022

1. Differentiate between the terms Attribute and Domain in the context of Relational Data Model.

2.

Write the output of SQL queries (a) to (d) based on the table VACCINATION_DATA given below :

TABLE : VACCINATION_DATA

VID	Name	Age	Dose1	Dose2	City
101	Jenny	27	2021-12-25	2022-01-31	Delhi
102	Harjot	55	2021-07-14	2021-10-14	Mumbai
103	Srikanth	43	2021-04-18	2021-07-20	Delhi
104	Gazala	75	2021-07-31	NULL	Kolkata
105	Shiksha	32	2022-01-01	NULL	Mumbai

- (a) `SELECT Name, Age FROM VACCINATION_DATA
WHERE Dose2 IS NOT NULL AND Age > 40;`
- (b) `SELECT City, COUNT(*) FROM VACCINATION_DATA GROUP BY City;`
- (c) `SELECT DISTINCT City FROM VACCINATION_DATA;`
- (d) `SELECT MAX (Dose1), MIN (Dose2) FROM VACCINATION_DATA;`

3. Write the output of SQL queries (a) and (b) based on the following two tables DOCTOR and PATIENT belonging to the same database :

Table : **PATIENT**

PNO	PNAME	ADMDATE	DNO
P1	NOOR	2021-12-25	D1
P2	ANNIE	2021-11-20	D2
P3	PRAKASH	2020-12-10	NULL
P4	HARMEET	2019-12-20	D1

Table : **DOCTOR**

DNO	DNAME	FEES
D1	AMITABH	1500
D2	ANIKET	1000
D3	NIKHIL	1500
D4	ANJANA	1500

- (a) `SELECT DNAME, PNAME FROM DOCTOR
NATURAL JOIN PATIENT ;`
- (b) `SELECT PNAME, ADMDATE, FEES
FROM PATIENT P, DOCTOR D
WHERE D.DNO = P.DNO AND FEES > 1000;`

4. Differentiate between Candidate Key and Primary Key in the context of Relational Database Model.

5. Consider the following table **PLAYER** :

Table : **PLAYER**

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNAV	18
P5	GURSHARAN	42

- (a) Identify and write the name of the most appropriate column from the given table **PLAYER** that can be used as a Primary key.
- (b) Define the term Degree in relational data model. What is the Degree of the given table **PLAYER** ?

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1. Write the output of the SQL queries (a) to (d) based on the table TRAVEL given below :

Table : TRAVEL

T_ID	START	END	T_DATE	FARE
101	DELHI	CHENNAI	2021-12-25	4500
102	DELHI	BENGALURU	2021-11-20	4000
103	MUMBAI	CHENNAI	2020-12-10	5500
104	DELHI	MUMBAI	2019-12-20	4500
105	MUMBAI	BENGALURU	2022-01-15	5000

- (a) `SELECT START, END FROM TRAVEL
WHERE FARE <= 4000 ;`
- (b) `SELECT T_ID, FARE FROM TRAVEL
WHERE T_DATE LIKE '2021-12-%' ;`
- (c) `SELECT T_ID, T_DATE FROM TRAVEL WHERE END = 'CHENNAI'
ORDER BY FARE ;`
- (d) `SELECT START, MIN(FARE)
FROM TRAVEL GROUP BY START ;`

2. Write the output of the SQL queries (a) and (b) based on the following two tables FLIGHT and PASSENGER belonging to the same database :

Table : FLIGHT

FNO	DEPART	ARRIVE	FARE
F101	DELHI	CHENNAI	4500
F102	DELHI	BENGALURU	4000
F103	MUMBAI	CHENNAI	5500
F104	DELHI	MUMBAI	4500
F105	MUMBAI	BENGALURU	5000

Table : PASSENGER

PNO	NAME	FLIGHTDATE	FNO
P1	PRAKASH	2021-12-25	F101
P2	NOOR	2021-11-20	F103
P3	HARMEET	2020-12-10	NULL
P4	ANNIE	2019-12-20	F105

- (a) `SELECT NAME, DEPART FROM FLIGHT
NATURAL JOIN PASSENGER ;`
- (b) `SELECT NAME, FARE
FROM PASSENGER P, FLIGHT F
WHERE F.FNO = P.FNO AND F.DEPART = 'MUMBAI' ;`
3. Explain Primary Key in the context of Relational Database Model. Support your answer with suitable example.
4. Consider the following table BATSMEN :

Table : BATSMEN

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNAV	18
P5	GURSHARAN	52

- (i) Identify and write the name of the Candidate Keys in the given table BATSMEN.
- (ii) How many tuples are there in the given table BATSMEN ?
5. (a) A SQL table **BOOKS** contains the following column names :
BOOKNO, BOOKNAME, QUANTITY, PRICE, AUTHOR
Write the SQL statement to add a new column **REVIEW** to store the reviews of the book.
- (b) Write the names of any two commands of **DDL** and any two commands of **DML** in SQL.
6. Rashmi has forgotten the names of the databases, tables and the structure of the tables that she had created in Relational Database Management System (RDBMS) on her computer.
- (a) Write the SQL statement to display the names of all the databases present in RDBMS application on her computer.
- (b) Write the statement which she should execute to open the database named "**STOCK**".
- (c) Write the statement which she should execute to display the structure of the table "**ITEMS**" existing in the above opened database "**STOCK**".
7. Write SQL queries for (a) to (d) based on the tables **CUSTOMER** and **TRANSACT** given below :

Table : CUSTOMER

CNO	NAME	GENDER	ADDRESS	PHONE
1001	Suresh	MALE	A-123, West Street	9310010010
1002	Anita	FEMALE	C-24, Court Lane	9121211212
1003	Harjas	MALE	T-1, Woods Avenue	9820021001

Table : TRANSACT

TNO	CNO	AMOUNT	TTYPE	TDATE
T1	1002	2000	DEBIT	2021-09-25
T2	1003	1500	CREDIT	2022-01-28
T3	1002	3500	CREDIT	2021-12-31
T4	1001	1000	DEBIT	2022-01-10

- (a) Write the SQL statements to delete the records from table **TRANSACT** whose amount is less than 1000.
- (b) Write a query to display the total **AMOUNT** of all **DEBITS** and all **CREDITS**.
- (c) Write a query to display the **NAME** and corresponding **AMOUNT** of all **CUSTOMERS** who made a transaction type (**TTYPE**) of **CREDIT**.
- (d) Write the SQL statement to change the Phone number of customer whose CNO is 1002 to 9988117700 in the table **CUSTOMER**.

Q. No.	Question	Mark
1.	<p>The code given below deletes the record from the table employee which contains the following record structure :</p> <p>E_code - String E_name - String Sal - Integer City - String</p> <p>Note the following to establish connectivity between Python and MySQL :</p> <ul style="list-style-type: none"> • Username is root • Password is root • The table exists in a MySQL database named emp. • The details (E_code, E_name, Sal, City) are the attributes of the table. <p>Write the following statements to complete the code :</p> <p>Statement 1 – to import the desired library.</p> <p>Statement 2 – to execute the command that deletes the record with E_code as 'E101'.</p> <p>Statement 3 – to delete the record permanently from the database.</p> <pre>import _____ as mysql # Statement 1 def delete() : mydb=mysql.connect(host="localhost",user="root", passwd="root",database="emp") mycursor=mydb.cursor() _____ # Statement 2 _____ # Statement 3 print ("Record deleted")</pre>	3

2.	<p>Predict the output of the code given below :</p> <pre>def makenew(mystr): newstr="" count=0 for i in mystr: if count%2!=0: newstr=newstr+str(count) else : if i.lower(): newstr=newstr+i.upper() else: newstr=newstr+i count+=1 print(newstr) makenew("No@1")</pre>	2
3.	<p>The code given below reads the following records from the table <code>employee</code> and displays only those records who have employees coming from city 'Delhi':</p> <pre>E_code - String E_name - String Sal - Integer City - String</pre> <p>Note the following to establish connectivity between Python and MySQL :</p> <ul style="list-style-type: none">• Username is <code>root</code>• Password is <code>root</code>• The table exists in a MySQL database named <code>emp</code>.• The details (<code>E_code, E_name, Sal, City</code>) are the attributes of the table.	3

	<p>Write the following statements to complete the code :</p> <p>Statement 1 – to import the desired library.</p> <p>Statement 2 – to execute the query that fetches records of the employees coming from city 'Delhi'.</p> <p>Statement 3 – to read the complete data of the query (rows whose city is Delhi) into the object named <code>details</code>, from the table <code>employee</code> in the database.</p> <pre>import _____ as mysql # Statement 1 def display(): mydb=mysql.connect(host="localhost",user="root", passwd="root",database="emp") mycursor=mydb.cursor() _____ # Statement 2 details = _____ # Statement 3 for i in details: print (i)</pre>	
4.	<p>fetchone () method fetches only one row in a ResultSet and returns a _____.</p> <p>(a) Tuple</p> <p>(b) List</p> <p>(c) Dictionary</p> <p>(d) String</p>	1

5.	<p>The table Bookshop in MySQL contains the following attributes :</p> <p>B_code – Integer B_name – String Qty – Integer Price – Integer</p> <p>Note the following to establish connectivity between Python and MySQL on a 'localhost' :</p> <ul style="list-style-type: none"> • Username is 'shop' • Password is 'Book' • The table exists in a MySQL database named Bstore. <p>The code given below updates the records from the table Bookshop in MySQL.</p> <p>Statement 1 – to form the cursor object.</p> <p>Statement 2 – to execute the query that updates the Qty to 20 of the records whose B_code is 105 in the table.</p> <p>Statement 3 – to make the changes permanent in the database.</p> <pre>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</pre>	3
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6.	<p>The table Bookshop in MySQL contains the following attributes :</p> <p>B_code – Integer B_name – String Qty – Integer Price – Integer</p> <p>Note the following to establish connectivity between Python and MySQL on a 'localhost' :</p> <ul style="list-style-type: none"> • Username is 'shop' • Password is 'Book' • The table exists in a MySQL database named Bstore. <p>The code given below reads the records from the table Bookshop and displays all the records :</p> <p>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.</p> <pre>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)</pre>	3
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