

General Instructions

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 02 questions carrying 04 marks each.
7. Section E has 03 Long Answer type questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

SECTION – A		
Q.No	Question	Marks
1.	Expand any two terms given below : HTTP , LAN , NIC , PPP	1
2.	Which of the following will delete key-value pair for key = "Red" from a dictionary D1? a. delete D1("Red") b. del D1["Red"] c. del.D1["Red"] d. D1.del["Red"]	1
3	Select the correct output of the following code : s="I#N#F#O#R#M#A#T#I#C#S" L=list(s.split('#')) print(L) a) [I#N#F#O#R#M#A#T#I#C#S] b) ['I', 'N', 'F', 'O', 'R', 'M', 'A', 'T', 'I', 'C', 'S'] c) ['I N F O R M A T I C S'] d) ['INFORMATICS']	1
4	Which of the following are the modes of both writing and reading in binary format in file? a) wb+ b) w c) w+ d) wb	1
5	_____ command is used to modify the attribute datatype or size in a table structure.	1
6	What possible outputs(s) will be obtained when the following code is executed? import random myNumber=random.randint(1, 3) COLOR= ["YELLOW", "WHITE", "BLACK", "RED"] for I in range (1, myNumber): print (COLOR [I], end="*") print () Options: a. RED* WHITE* BLACK* b. WHITE* BLACK* c. WHITE* WHITE* BLACK* BLACK* d. YELLOW* WHITE*WHITE* BLACK* BLACK* BLACK*	1

7	Which of the following are mandatory arguments required to connect any database from Python? a) Username, Password, Hostname, Database Name, Port b) Username, Password, Hostname c) Username, Password, Hostname, Database Name d) Username, Password, Hostname, Port	1
8	_____ is a set of one or more attributes, which can uniquely identify any tuple in a relation.	1
9	The _____ method of _____ module is used to read data from binary file.	1
10	Which keyword can be used to show only different values in a particular column in a table?	1
11	Which of the following is a mutable datatype in Python? a) String b) List c) Integer d) Tuple	1
12	What will the following expression be evaluated to in Python? print(75.0 / 4 + (2** 3)) a) 20.5 b)20.05 c) 18.25 d) 17.75	1
13	To establish a connection between Python and MySQL database, which of the following method is used? a) connector() b) connect() c) cont() d) con()	1
14	The correct syntax of read() function from text files is: a. file_object.read() b. file_object(read) c. read(file_object) d. file_object().read	1
15	Which module is imported for working with CSV files in Python? a. csv b. python-csv connector c. CSV d. python.csvconnector	1
16	Which function is used to display the number of records from a table in a database excluding all duplicates and nulls?	1
<p>Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as</p> <p>(a) Both A and R are true and R is the correct explanation for A</p> <p>(b) Both A and R are true and R is not the correct explanation for A</p> <p>(c) A is True but R is False</p> <p>(d) A is false but R is True</p>		
17	Assertion (A):- All the keyword arguments passed must match one of the arguments accepted by the function Reasoning (R):- You cannot change the order of appearance of the keyword.	1
18	Assertion (A): CSV file is a human readable text file where each line has a number of fields, separated by commas or some other delimiter. Reason (R): writerow() function can be used for writing into writer object.	1

SECTION – B		
19	Differentiate between char and varchar in SQL with appropriate examples. OR What are different types of SQL Aggregate Functions? Give two examples.	2
20	Aman has written the code to find the factorial of an integer number as follows. But he got some errors while running this program. Kindly help him to correct the errors. <pre> num=int(input("Enter any integer number")) fact=1 for x of range[num,1,-1] if num=1 or num=0 print ("Fact=1") break else fact=fact*x print(fact) </pre>	2
21	ABC Company wants to link its computers in Head office in New Delhi to its office in Sydney. Name the type of Network that will be formed. Which communication Technique should be used to form this Network for high speed? OR Differentiate between communication using Optical Fiber and Ethernet Cable in context of wired medium of communication technologies.	2
22	a) Given a list: List1=[10,[20,30,40],50,60,70,80,90] What will be the output of print(List1[1:3:2])? b) Write the output of following code: Tup1=(10,15,20,25,30) print(Tup1[-1:0:-2])	2
23	What do you understand by ORDER BY in SQL? Explain the use of Where clause with SELECT. OR What do you mean by degree and cardinality of table?	2
24	Predict the output of the following code: <pre> def CALLME(n1=1,n2=2): n1=n1*n2 n2+=2 print(n1,n2) CALLME() CALLME(3) </pre> OR	2

	<pre>def check(x,y=7): if x != Y: return x + 5 else: return y +10 print(check(10,5)) print (check(7))</pre>																																											
25	<p>Write two advantages of star topology and bus topology each. OR Briefly explain HTML and HTTP.</p>	2																																										
SECTION - C																																												
26	<p>Write the outputs of the SQL queries (i) to (iii) based on the given tables:</p> <p>Table: Event</p> <table border="1" data-bbox="289 868 1159 1051"> <thead> <tr> <th>EventID</th> <th>Event</th> <th>NumPerformers</th> <th>CelebrityID</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>Birthday</td> <td>10</td> <td>C102</td> </tr> <tr> <td>102</td> <td>Promotion Party</td> <td>20</td> <td>C103</td> </tr> <tr> <td>103</td> <td>Engagement</td> <td>12</td> <td>C102</td> </tr> <tr> <td>104</td> <td>Wedding</td> <td>15</td> <td>C104</td> </tr> </tbody> </table> <p>Table: Celebrity</p> <table border="1" data-bbox="289 1112 1159 1295"> <thead> <tr> <th>CelebrityID</th> <th>Event</th> <th>Phone</th> <th>FeeCharged</th> </tr> </thead> <tbody> <tr> <td>C101</td> <td>FaizKhan</td> <td>9910154555</td> <td>200000</td> </tr> <tr> <td>C102</td> <td>Sanjay Kumar</td> <td>6546454654</td> <td>250000</td> </tr> <tr> <td>C103</td> <td>Neera Khan</td> <td>4654656544</td> <td>300000</td> </tr> <tr> <td>C104</td> <td>Reena Bhatia</td> <td>9854664654</td> <td>100000</td> </tr> </tbody> </table> <p>a) SELECT Event, NumPerformers FROM Event where EventID>=104; b) SELECT max(FeeCharged) FROM Celebrity; c) SELECT Event.Event, Event.NumPerformers, Celebrity.Phone , Celebrity.FeeCharged FROM Event, Celebrity WHERE Event.CelebrityID= Celebrity.CelebrityID;</p>	EventID	Event	NumPerformers	CelebrityID	101	Birthday	10	C102	102	Promotion Party	20	C103	103	Engagement	12	C102	104	Wedding	15	C104	CelebrityID	Event	Phone	FeeCharged	C101	FaizKhan	9910154555	200000	C102	Sanjay Kumar	6546454654	250000	C103	Neera Khan	4654656544	300000	C104	Reena Bhatia	9854664654	100000	3		
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27	<p>Write a user-defined function named count() that will read the contents of text file named "Story.txt" and count the number of lines which starts with either "I" or "M". OR Write a function countmy() in Python to read the text file "Story.txt" and count the number of times "my" or "My" occurs in the file. For example if the file "Story.TXT" contains: "This is my website. I have displayed my preferences in the CHOICE section." The countmy() function should display the output as: "my occurs 2 times".</p>	3																																										
28	<p>Write SQL commands for (a) to (d) (attempt any two) and write output for (e) to (f) (attempt any one) on the basis of PRODUCTS table:</p> <p style="text-align: center;">PRODUCT TABLE</p> <table border="1" data-bbox="266 2045 1235 2247"> <thead> <tr> <th>Pcode</th> <th>Pname</th> <th>Company</th> <th>Price</th> <th>Stock</th> <th>Manufacture</th> <th>Warranty</th> </tr> </thead> <tbody> <tr> <td>P001</td> <td>TV</td> <td>BPL</td> <td>10000</td> <td>200</td> <td>12-JAN-2008</td> <td>3</td> </tr> <tr> <td>P002</td> <td>TV</td> <td>SONY</td> <td>12000</td> <td>150</td> <td>23-MAR-2007</td> <td>4</td> </tr> <tr> <td>P003</td> <td>PC</td> <td>LENOVO</td> <td>39000</td> <td>100</td> <td>09-APR-2008</td> <td>2</td> </tr> <tr> <td>P004</td> <td>PC</td> <td>COMPAQ</td> <td>38000</td> <td>120</td> <td>20-JUN-2009</td> <td>2</td> </tr> <tr> <td>P005</td> <td>HANDYCAM</td> <td>SONY</td> <td>18000</td> <td>250</td> <td>23-MAR-2007</td> <td>3</td> </tr> </tbody> </table> <p>a) To show details of all PCs with stock more than 110 b) To list the company which gives warranty for more than 2 years. c) To show number of products from each company. d) To show the PRODUCT name which is within warranty as on date. Give the output of following statements:- e) Select COUNT(distinct company) from PRODUCT; f) Select MAX(price) from PRODUCT where WARRANTY<=3;</p>	Pcode	Pname	Company	Price	Stock	Manufacture	Warranty	P001	TV	BPL	10000	200	12-JAN-2008	3	P002	TV	SONY	12000	150	23-MAR-2007	4	P003	PC	LENOVO	39000	100	09-APR-2008	2	P004	PC	COMPAQ	38000	120	20-JUN-2009	2	P005	HANDYCAM	SONY	18000	250	23-MAR-2007	3	3
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29	<p>A list contains following record of a student: [Rno, Name, Dob, Class] Write the following user defined functions to perform given operations on the stack named 'status':</p> <p>(i) Push_element() - To Push an record of student to the stack</p> <p>(ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.</p> <p style="text-align: center;">(OR)</p> <p>Write a function in Python, Push(book) where, book is a dictionary containing the details of a book in form of {bookno : price}. The function should push the book in the stack which have price greater than 300. Also display the count of elements pushed into the stack. For example: If the dictionary contains the following data: Dbook={"Python":350,"Hindi":200,"English":270,"Physics":600, "Chemistry":550} The stack should contain Chemistry Physics Python The output should be: The count of elements in the stack is 3</p>	3
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30	<p>Write definition of a method/function AddOddEven(VALUE) to display sum of odd and even values separately from the list of VALUES. For example: If the VALUES contain [15, 26, 37, 10, 22, 13] The function should display Even Sum: 58 Odd Sum: 65</p>	3
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SECTION -D

31	<p>Nishant creates a table RESULT with a set of records to maintain the marks secured by students in Sem 1, Sem2, Sem3 and their division. After creation of the table, he has entered data of 7 students in the table.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>ROLL_NO</th> <th>SNAME</th> <th>SEM1</th> <th>SEM2</th> <th>SEM3</th> <th>DIVISION</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>KARAN</td> <td>366</td> <td>410</td> <td>402</td> <td>I</td> </tr> <tr> <td>102</td> <td>NAMAN</td> <td>300</td> <td>350</td> <td>325</td> <td>I</td> </tr> <tr> <td>103</td> <td>ISHA</td> <td>400</td> <td>410</td> <td>415</td> <td>I</td> </tr> <tr> <td>104</td> <td>RENU</td> <td>350</td> <td>357</td> <td>415</td> <td>I</td> </tr> <tr> <td>105</td> <td>ARPIT</td> <td>100</td> <td>75</td> <td>178</td> <td>IV</td> </tr> <tr> <td>106</td> <td>SABINA</td> <td>100</td> <td>205</td> <td>217</td> <td>II</td> </tr> <tr> <td>107</td> <td>NEELAM</td> <td>470</td> <td>450</td> <td>471</td> <td>I</td> </tr> </tbody> </table> <p>Based on the data given above answer the following questions:</p> <p>(i) Identify the most appropriate column, which can be considered as Primary key.</p> <p>(ii) If two columns are added and 2 rows are deleted from the table result, what will be the new degree and cardinality of the above table?</p> <p>(iii) Write the statements to:</p> <p style="padding-left: 20px;">a. Insert the following record into the table Roll No- 108, Name- Aadit, Sem1- 470, Sem2-444, Sem3-475, Div – I.</p> <p style="padding-left: 20px;">b. Increase the SEM2 marks of the students by 3% whose name begins with 'N'.</p> <p style="text-align: center;">(OR) (Option for part iii only)</p> <p>(iii) Write the statements to:</p> <p style="padding-left: 20px;">a. Delete the record of students securing IV division.</p> <p style="padding-left: 20px;">b. Add a column REMARKS in the table with datatype as varchar(30)</p>	ROLL_NO	SNAME	SEM1	SEM2	SEM3	DIVISION	101	KARAN	366	410	402	I	102	NAMAN	300	350	325	I	103	ISHA	400	410	415	I	104	RENU	350	357	415	I	105	ARPIT	100	75	178	IV	106	SABINA	100	205	217	II	107	NEELAM	470	450	471	I	4
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32	<p>Anamika is a Python programmer. She has written a code and created a binary file data.dat with sid, sname and marks. The file contains 10 records. She now has to update a record based on the sid entered by the user and update the marks. The updated record is then to be written in the file extra.dat. If the sid is not found, an appropriate message should be displayed. As a Python expert, help him to complete the following code based on requirement given above:</p> <pre>import #Statement 1 import os def update_data(): rec={}</pre>	4
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	<pre> fin=open("data.dat","rb") fout=open("_____ ") #Statement 2 found=False eid=int(input("Enter student id to update their marks ")) try: while True: rec= _____ #Statement 3 if rec["student id"]==sid: found=True rec["marks"]=int(input("Enter newmarks:: ")) _____ #Statement 4 except: fin.close() fout.close() if found==True: print("The marks of student id ",sid," has been updated.") else: print("No student with such id is not found") os. _____ # Statement 5 </pre> <p>(Statement 1)</p> <p>a) Which module should be imported in the program?</p> <p>(Statement 2)</p> <p>b) Write the correct statement required to open a temporary file named extra.dat.</p> <p>c) Which statement should Anamika fill in Statement 3 to read the data from the binary file, data.dat.</p> <p style="text-align: center;">(OR) (only part c)</p> <p>Which statement should Anamika fill in Statement 4 to write the updated data in the file, extra.dat?</p> <p>d) Write statement 5 to rename the file extra.dat to updated.dat.</p>									
SECTION – E										
<p>33</p>	<p>Eduminds University of India is starting its first campus in a small town Parampur of central India with its centre admission office in Delhi. The university has three major buildings comprising of Admin Building, Academic Building and Research Building. As a network expert, you need to suggest the network plan as per (a) to (e) to the authorities keeping in mind the distance and other given parameters.</p> <div data-bbox="435 1545 1203 1903" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> </div> <p>Distances between various locations:</p> <ul style="list-style-type: none"> Research Building to Admin Building - 2 KM Research Lab to Academic Building - 80m Academic Building to Admin Building - 65m Delhi Admission Office to Parampur Campus - 1450km <p>Number of computers to installed :</p> <table style="margin-left: 20px;"> <tr> <td>Research Building</td> <td>20</td> </tr> <tr> <td>Academic Building</td> <td>150</td> </tr> <tr> <td>Admin Building</td> <td>35</td> </tr> <tr> <td>Delhi Admission Office</td> <td>5</td> </tr> </table>	Research Building	20	Academic Building	150	Admin Building	35	Delhi Admission Office	5	<p>5</p>
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	<p>a) Suggest the cable layout amongst various blocks inside university campus for connecting the buildings</p> <p>b) Suggest the most suitable place (i.e. block) to house the server of this university with a suitable reason</p> <p>c) Suggest an efficient device from the following to be installed in each of the blocks to connect all the computers</p> <p style="padding-left: 40px;">i) hub/switch ii) repeater</p> <p>d) Suggest the most suitable (very high speed) service to provide data connectivity between the Admission Building located in Delhi and the campus located in Parampur.</p> <p>e) Suggest the type of Network if following blocks are connected:</p> <p style="padding-left: 40px;">i) Research Building and Admin Building</p> <p style="padding-left: 40px;">ii) Research Lab and Academic Building</p>	
<p>34</p>	<p>a) Write the output of the code given below:</p> <pre> p=5 def sum(q,r=2): p=r+q**2 print(p, end= '#') a=10 b=5 sum(a,b) sum(r=p , q=1) </pre> <p>b) The code given below inserts the following record in the table Student:</p> <p style="padding-left: 40px;">RollNo – integer</p> <p style="padding-left: 40px;">Name – string</p> <p style="padding-left: 40px;">Class– integer</p> <p style="padding-left: 40px;">Marks – integer</p> <p>Note the following to establish connectivity between Python and MYSQL: Username is root, Password is tiger The table exists in a MYSQL database named school. The details (RollNo, Name, Class and Marks) are to be accepted from the user.</p> <p>Write the following missing statements to complete the code:</p> <p>Statement 1 – to form the cursor object</p> <p>Statement 2 – to execute the command that inserts the record in the table Student.</p> <p>Statement 3- to add the record permanently in the database</p> <pre> import MySQL. Connector as mysql def sql_data(): con1=mysql.connect("localhost","root","tiger","school") mycursor=_____#Statement 1 rno=int(input("Enter Roll Number :: ")) name=input("Enter name :: ") clas=int(input("Enter class :: ")) marks=int(input("Enter Marks :: ")) query="insert into student values(%s,%s,%s,%s)" tup = (rno,name,class,marks) _____#Statement 2 _____# Statement 3 print("Data Added successfully") </pre> <p style="text-align: center;">(OR)</p> <p>a) Predict the output of the code given below:</p> <pre> s = "hello kv *& INDia" n = len(s) m="" for i in range(0, n): if (s[i] >= 'a' and s[i] <= 'm'): m = m +s[i].upper() elif (s[i] >= 'n' and s[i] <= 'z'): m = m +s[i-1] elif (s[i].isupper()): m = m + s[i].lower() </pre>	<p>2+3</p>

	<pre> else: m = m + '&' print(m) </pre> <p>b) The code given below reads the following record from the table named student and displays only those records who have marks greater than 75:</p> <p>RollNo – integer Name – string Clas – integer Marks – integer</p> <p>Note the following to establish connectivity between Python and MYSQL:</p> <ul style="list-style-type: none"> · Username is root · Password is tiger · The table exists in a MYSQL database named school. <p>Write the following missing statements to complete the code: Statement 1 – complete the fill ups to create a connection Statement 2 – to form the cursor object Statement 3 - to read the complete result set from the cursor into the object named data</p> <pre> import mysql.connector as mysql def sql_data(): con1=mysql.connect(host="localhost", user="root", _____="tiger", database="_____") #statement 1 mycursor=_____#Statement 2 mycursor.execute("Select * from student where marks>75") data= _____ #Statement 3 for i in data: print(i) </pre>	
<p>35.</p>	<p>i) What is the advantage of using a csv file for permanent storage?</p> <p>ii) Write a Program in Python that defines and calls the following user defined functions:</p> <p>a) ADD() – To accept and add data of an employee to a CSV file 'record.csv'. Each record consists of a list with field elements as empid, name and salary store employee id, employee name and employee salary respectively.</p> <p>b) COUNTR() – To count the number of records present in the CSV file named 'record.csv'.</p> <p style="text-align: center;">(OR)</p> <p>i) Give any one point of difference between a binary file and a csv file.</p> <p>ii) Write a Program in Python that defines and calls the following user defined functions:</p> <p>a) add() – To accept and add data of an employee to a CSV file 'furdata.csv'. Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture prices respectively.</p> <p>b) search() - To display the records of the furniture whose price is more than 10000.</p>	<p>1+4</p>