

ARMY PUBLIC SCHOOL, ASC C&C BANGALORE
PRE BOARD-2 EXAMINATION 2020-21
CLASS XII – INFORMATICS PRACTICES (065)

Max Marks: 70

Time: 3 hrs

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
 - a. Section – I is short answer questions, to be answered in one word or one line.
 - b. Section – II has two case studies questions. Each case study has 4 case-based subparts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
 - a. Section-I is short answer questions of 2 marks each in which two questions have internal options.
 - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
 - c. Section-III is very long answer questions of 5 marks each in which one question has question has internal option.

Part - A		
Section - I		
Attempt any 15 questions from questions 1 to 21		
1	State whether True or False : i. Star topology is more reliable than mesh topology ii. IPR is the right given to users those who buy original products	1
2	Fill in the blanks : The command used to give title to x-axis as “No. of Students” in the graph is_____ a) plt.xlabel("No. of Students ") b) plt.ylabel("No. of Students ") c) plt.xaxis("No. of Students ") d) plt.plot(No. of Students,x=True)	1

3.	<p>Which of the following is not a string function :</p> <p>Left(),Right(),MID(),Truncate(),INSTR()</p>	1										
4	<p>The result of an arithmetic operation between Series of different index will result in _____.</p> <p>a) Error b) Wrong Output c) NaN d) NULL</p>	1										
5	<p>Given the following Series SR1</p> <table border="1" data-bbox="304 712 561 1025"> <thead> <tr> <th colspan="2">SR1</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>50</td> </tr> <tr> <td>4</td> <td>30</td> </tr> <tr> <td>6</td> <td>70</td> </tr> <tr> <td>8</td> <td>60</td> </tr> </tbody> </table> <p>Write the command to print the values greater than 50</p>	SR1		2	50	4	30	6	70	8	60	1
SR1												
2	50											
4	30											
6	70											
8	60											
6	<p>Pandas drop() function can be used to delete</p> <p>a. Row b. Column c. Row & Column d. None of the above</p>	1										
7	<p>_____ is the primary law in India dealing with cybercrime and electronic commerce.</p>	1										
8	<p>_____ method in Pandas can be used to change the index of rows and columns of a Series or Dataframe</p>	1										
9	<p>Write the output of the following SQL command. select ROUND(51.388,-1);</p> <p>a. 51.4 b. 50 c. 60 d. 0</p>	1										

10	Vinod accidentally cleared his browser cookies from settings. Now he is not able to reach his e-mail inbox directly. What could be the reason?	1
11	The sum() function in MySql is an example of _____. a) Math function b) Text function c) Date Function d) Aggregate Function	1
12	Software application that reside on a computer and is used to locate and display pages and information provided by web servers is defined as a _____	1
13	Name the network device that amplifies/regenerate signals transmitted on the network	1
14	You leave me when you surf internet People can track back to you using me Who am I?	1
15	Which SQL command can be used to makes changes in the rows of a table? a. Alter b. Update c. Row d. Modify	1
16	Write 2 advantages of FOSS	1
17	_____ is use personal information stolen from computers or computer networks, to commit fraud by using the data gained unlawfully	1
18	Which of the following is not a network device a. Modem b. Router c. Track Ball d. Hub	1

19	State one difference between static and dynamic website	1																				
20	_____ includes discarded electric or electronic gadgets and devices that are no longer in use.	1																				
21.	_____ is the number of data points that fall within a specified range of values in histogram	1																				
Section -II Both the case study based questions (22 & 23) are compulsory. Attempt any four sub parts from each question. Each sub question carries 1 mark .																						
22	<p>Consider the following DataFrame std and answer any four from (i) to (v)</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>IP</th> <th>CHE</th> <th>PHY</th> </tr> </thead> <tbody> <tr> <td>azad</td> <td>39</td> <td>30</td> <td>40</td> </tr> <tr> <td>baishnav</td> <td>23</td> <td>35</td> <td>25</td> </tr> <tr> <td>kiran</td> <td>34</td> <td>24</td> <td>27</td> </tr> <tr> <td>varsha</td> <td>28</td> <td>38</td> <td>28</td> </tr> </tbody> </table>		IP	CHE	PHY	azad	39	30	40	baishnav	23	35	25	kiran	34	24	27	varsha	28	38	28	
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azad	39	30	40																			
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kiran	34	24	27																			
varsha	28	38	28																			
(i)	<p>Which among the following option will add a new column total with sum of marks</p> <ol style="list-style-type: none"> <code>std[Total]=IP+CHE+PHY</code> <code>std[Total]=sum(IP,CHE,PHY)</code> <code>std[Total]=std[IP]+std[CHE]+std[PHY]</code> <code>std[Total]=std[IP+CHE+PHY]</code> 	1																				
(ii)	<p>Gokul needs to print details in the descending order of total marks. Help him to identify the correct set of statement/s from the given options :</p> <ol style="list-style-type: none"> <code>print(std.sort_values())</code> <code>print(std.sort_values(ascending=False))</code> <code>print(sort_values(std))</code> <code>print(sort_values.std(descending))</code> 	1																				

(iii)	<p>Which of the following statement/s will delete last row ?</p> <ul style="list-style-type: none"> i. del std['varsha'] ii. std.pop('varsha') iii. std.drop('varsha', inplace=True) iv. pop std['varsha'] <p>Choose the correct option:</p> <ul style="list-style-type: none"> a) both (i) and (iii) b) only (iii) c) (i), (ii) and (iii) d) Only (i) 	1																														
(iv)	<p>Which of the following command will display the number of dimesions in the DataFrame?</p> <ul style="list-style-type: none"> a. print(std.shape) b. print(std.ndim) c. print(std.size) d. print(std.dimensions) 	1																														
(v)	<p>Select correct output of the given statement print(std.iloc[2:3])</p> <ul style="list-style-type: none"> a. None b. kiran 34 24 27 varsha 28 38 28 c. kiran 34 24 27 d. baishnav 23 35 25 kiran 34 24 27 	1																														
23	<p>Consider the table EMP given below:</p> <table border="1" data-bbox="204 1512 1508 1809"> <thead> <tr> <th>CUST_ID</th> <th>CUST_NAME</th> <th>GENDER</th> <th>ACC_TYPE</th> <th>EMI</th> </tr> </thead> <tbody> <tr> <td>C01</td> <td>ARUN</td> <td>M</td> <td>CURRENT</td> <td>9500</td> </tr> <tr> <td>C02</td> <td>LATHA</td> <td>F</td> <td>SAVINGS</td> <td>1000</td> </tr> <tr> <td>C03</td> <td>CHOWHAN</td> <td>F</td> <td>SAVINGS</td> <td>4980</td> </tr> <tr> <td>C04</td> <td>KISHORE</td> <td>M</td> <td>SAVINGS</td> <td>12300</td> </tr> <tr> <td>C05</td> <td>KANCHAN</td> <td>F</td> <td>CURRENT</td> <td>5500</td> </tr> </tbody> </table>	CUST_ID	CUST_NAME	GENDER	ACC_TYPE	EMI	C01	ARUN	M	CURRENT	9500	C02	LATHA	F	SAVINGS	1000	C03	CHOWHAN	F	SAVINGS	4980	C04	KISHORE	M	SAVINGS	12300	C05	KANCHAN	F	CURRENT	5500	
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(i)	<p>State the command that will give the output as :</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <th style="padding: 2px 10px;">CUST_NAME</th> </tr> <tr> <td style="padding: 2px 10px;">ARUN</td> </tr> <tr> <td style="padding: 2px 10px;">KANCHAN</td> </tr> </table> <p>i. select CUST_NAME from emp where ACC_TYPE="CURRENT"; ii. select * from emp where ACC_TYPE="CURRENT"; iii. select CUST_NAME from emp where EMI>9000 iv. select CUST_NAME from emp where CUST_ID IN("C01", "C05");</p> <p>Choose the correct option: a. Both (i) and (ii). b. Both (i) and (iv). c. Any of the options (i), (iii) and (iv) d. Only (ii)</p>	CUST_NAME	ARUN	KANCHAN	1																											
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(ii)	<p>What will be the output of the following command? Select * from EMP where cust_name like '%A_';</p> <p>a.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="padding: 2px 10px;">CUST_ID</th> <th style="padding: 2px 10px;">CUST_NAME</th> <th style="padding: 2px 10px;">GENDER</th> <th style="padding: 2px 10px;">ACC_TYPE</th> <th style="padding: 2px 10px;">EMI</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px 10px;">C05</td> <td style="padding: 2px 10px;">KANCHAN</td> <td style="padding: 2px 10px;">F</td> <td style="padding: 2px 10px;">CURRENT</td> <td style="padding: 2px 10px;">5500</td> </tr> </tbody> </table> <p>b.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <th style="padding: 2px 10px;">CUST_NAME</th> </tr> <tr> <td style="padding: 2px 10px;">CHOWHAN</td> </tr> <tr> <td style="padding: 2px 10px;">KANCHAN</td> </tr> </table> <p>c.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <th style="padding: 2px 10px;">CUST_NAME</th> </tr> <tr> <td style="padding: 2px 10px;">KANCHAN</td> </tr> </table> <p>d.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="padding: 2px 10px;">CUST_ID</th> <th style="padding: 2px 10px;">CUST_NAME</th> <th style="padding: 2px 10px;">GENDER</th> <th style="padding: 2px 10px;">ACC_TYPE</th> <th style="padding: 2px 10px;">EMI</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px 10px;">C05</td> <td style="padding: 2px 10px;">KANCHAN</td> <td style="padding: 2px 10px;">F</td> <td style="padding: 2px 10px;">CURRENT</td> <td style="padding: 2px 10px;">5500</td> </tr> <tr> <td style="padding: 2px 10px;">C03</td> <td style="padding: 2px 10px;">CHOWHAN</td> <td style="padding: 2px 10px;">F</td> <td style="padding: 2px 10px;">SAVINGS</td> <td style="padding: 2px 10px;">4980</td> </tr> </tbody> </table>	CUST_ID	CUST_NAME	GENDER	ACC_TYPE	EMI	C05	KANCHAN	F	CURRENT	5500	CUST_NAME	CHOWHAN	KANCHAN	CUST_NAME	KANCHAN	CUST_ID	CUST_NAME	GENDER	ACC_TYPE	EMI	C05	KANCHAN	F	CURRENT	5500	C03	CHOWHAN	F	SAVINGS	4980	1
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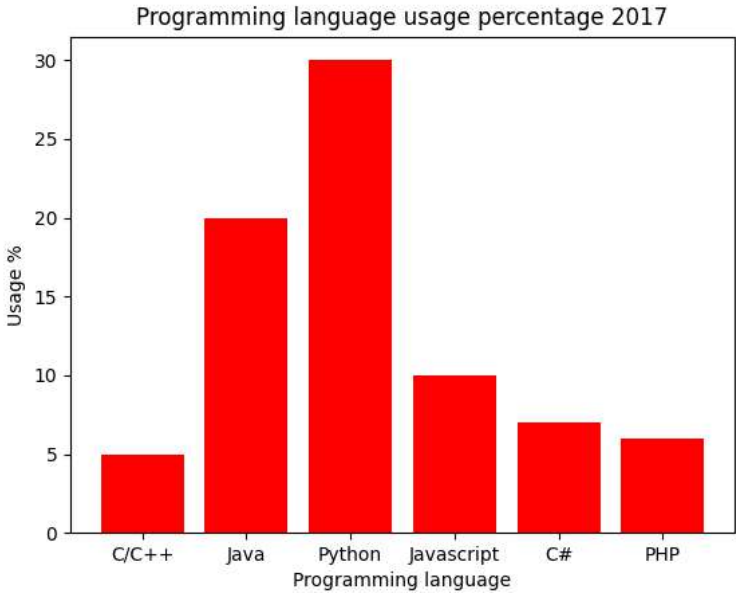
(iii)	<p>Gokul has given the following command to obtain the average EMI amount from each type of account</p> <p>Select avg(emi) from emp group by emi;</p> <p>but he is not getting the desired result. Help him by writing the correct command.</p> <p>a. Select avg(acc_type,emi) from emp where group by dept; b. Select avg(emi) from emp group by acc_type from emp; c. Select acc_type,avg(emi) from emp group by acc_type; d. Select mean(emi) from emp group by dept;</p>	1
(iv)	<p>State the command to display the highest emi of female customers in each account type</p> <p>i. Select acc_type, max(emi) from emp order by gender ii. Select max(emi) from student group by dept having gender= "f"; iii. Select acc_type, max(emi) from emp where gender= "f" group by acc_type iv. Select max(emi),gender from emp group by acc_type=current or acc_type=savings ;</p> <p>Choose the correct option: a. Both (ii) and (iii) b. Both (ii) and (iv) c. Both (i) and (iii) d. Only (iii)</p>	1
(v)	<p>Help Suraj to write the command to display the smallest emi of savings accounts?</p> <p>a. select min(emi) from emp ; b. select min(emi) from emp where acc_type='savings' ; c. select min(emi) from savings; d. select minimum(emi) from em having savings as acc_type;</p>	1

Part - B												
Section – I												
24	<p>Vinu writes the following commands with respect to table student</p> <p>Command1 : Select sum(marks) from student; Gives Output as: 300</p> <p>Command2: Select avg(marks) from student; Gives Output as: 50</p> <p>I. What will be the cardinality of the table if there is no NULL value for marks? II. Write the command to find out the no. of rows in this table.</p>	2										
25	<p>Mr. Anderson is a software developer who spend most of the time with computers. Give him two advises to avoid health issues due to excess use of computers</p> <p style="text-align: center;">OR</p> <p>Ms. Sneha has many electronic gadgets which are not usable due to outdated hardware. Help her to find any two best ways to dispose the used electronic gadgets.</p>	2										
26	<p>Write the output of the following SQL commands:</p> <p>(i) Select Mod(9,5); (ii) Select Truncate(67543.9876,3); (iii) Select Pow(2,2); (iv) Select Round(191.234,2);</p>	2										
27	<p>Consider the following DataFrame object, DF1</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Arun</td> </tr> <tr> <td>1</td> <td>Anu</td> </tr> <tr> <td>2</td> <td>Benit</td> </tr> <tr> <td>3</td> <td>Cilona</td> </tr> </tbody> </table> <p>i. Give Boolean indexing to DF1 ii. Write the command to print values with index TRUE .</p>		Name	0	Arun	1	Anu	2	Benit	3	Cilona	2
	Name											
0	Arun											
1	Anu											
2	Benit											
3	Cilona											

28	<p>Consider a given Series , SR:</p> <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td colspan="2" style="border: 1px solid green; padding: 5px;">Index</td> </tr> <tr> <td colspan="2" style="text-align: center;">↓</td> </tr> </table> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px 10px;">a</td> <td style="padding: 2px 10px;">50</td> </tr> <tr> <td style="padding: 2px 10px;">b</td> <td style="padding: 2px 10px;">40</td> </tr> <tr> <td style="padding: 2px 10px;">c</td> <td style="padding: 2px 10px;">55</td> </tr> <tr> <td style="padding: 2px 10px;">d</td> <td style="padding: 2px 10px;">45</td> </tr> </table> </div> <p style="text-align: center;">Write a program in Python Pandas to update the index to E,F,G,H and delete the first element.</p>	Index		↓		a	50	b	40	c	55	d	45	2													
Index																											
↓																											
a	50																										
b	40																										
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29	<p>Expand the following terms related to Computer Networks:</p> <p>a. HTTPS b. IMAP c. TCP/IP d. WWW</p>	2																									
30	<p>Ms. Jennie has copied her friend's work and submitted it to a competition as her own work. What do we call this type of activity? How such kind of activities can be avoided?</p>	2																									
31	<p>Consider the following DataFrame, stud</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Id</th> <th style="padding: 5px;">Name</th> <th style="padding: 5px;">Class</th> <th style="padding: 5px;">Section</th> <th style="padding: 5px;">Rank</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">S11</td> <td style="padding: 5px;">Arunima</td> <td style="padding: 5px;">11</td> <td style="padding: 5px;">A</td> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">S13</td> <td style="padding: 5px;">Rahul</td> <td style="padding: 5px;">12</td> <td style="padding: 5px;">A</td> <td style="padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;">S34</td> <td style="padding: 5px;">Baadsha</td> <td style="padding: 5px;">11</td> <td style="padding: 5px;">B</td> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">S56</td> <td style="padding: 5px;">Sanjay</td> <td style="padding: 5px;">12</td> <td style="padding: 5px;">B</td> <td style="padding: 5px;">2</td> </tr> </tbody> </table> <p>Write commands to :</p> <p>i. Add a new row with values S57, Neha, 12, B, 2 ii. Remove Rank Column</p>	Id	Name	Class	Section	Rank	S11	Arunima	11	A	1	S13	Rahul	12	A	2	S34	Baadsha	11	B	1	S56	Sanjay	12	B	2	2
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S56	Sanjay	12	B	2																							

32	Differentiate between WHERE and HAVING clauses with examples <p style="text-align: center;">OR</p> What is the difference between Single Row and Aggregate functions in SQL	2
33	Write the outputs of following commands: i) Select instr("ILoveSQL", "SQL"); ii) Select mid("ILoveSQL", 2,5);	2

Section - II		
34	a) What do you mean cybercrimes? Explain any two type with example. <p style="text-align: center;">OR</p> b) What do you understand by Netiquette? Explain any two do's and don'ts.	3
35	Write ouput for the given python code: <pre>import pandas as pd L1=[10,20,30,40,50] S1=pd.Series([10,20,30,40,50]) S2=pd.Series(25,index=[0,1,2,3,4]) S3=S1*S2 print("L1*2=",L1*2) print("S1*2=",S1*2) print("S1*S2=",S3)</pre>	3

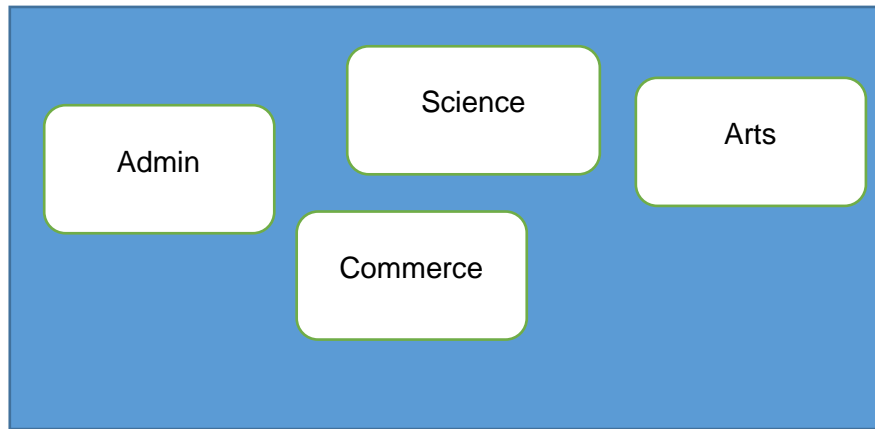
<p>36</p>	<p>a) Consider the following graph. Write the code to plot it.</p>  <p style="text-align: center;">OR</p> <p>b) Write a program to draw line charts for the following with suitable label in the X-axis, Y-axis and a title. Show the unemployment rate from 1930 to 2020</p> <p>Year = [1930,1940,1950,1960,1970,1980,1990,2000,2010,2020] Unemployment_Rate = [9.8, 12, 8, 7.2, 6.9, 7, 6.5, 6.2, 5.5, 9.3]</p>	<p>3</p>																																													
<p>37</p>	<p>Consider the table stock given below</p> <table border="1" data-bbox="411 1272 1311 1675"> <thead> <tr> <th>Acc_No</th> <th>Acc_Name</th> <th>Amount</th> <th>Loantype</th> <th>Interest</th> </tr> </thead> <tbody> <tr> <td>HD101</td> <td>Sanjeev</td> <td>55000</td> <td>Auto</td> <td>7.65</td> </tr> <tr> <td>HD102</td> <td>Abhishek</td> <td>3000000</td> <td>Home</td> <td>7.1</td> </tr> <tr> <td>HD103</td> <td>Shagun</td> <td>120000</td> <td>Personal</td> <td>9.85</td> </tr> <tr> <td>HD105</td> <td>Gunjan</td> <td>300000</td> <td>Auto</td> <td>6.90</td> </tr> <tr> <td>HD106</td> <td>Jyoti</td> <td>1000000</td> <td>Business</td> <td>8.50</td> </tr> <tr> <td>HD107</td> <td>Aarush</td> <td>1500000</td> <td>Home</td> <td>9.10</td> </tr> <tr> <td>HD108</td> <td>Lalit</td> <td>20000</td> <td>Auto</td> <td>6.66</td> </tr> <tr> <td>HD109</td> <td>Smriti</td> <td>250000</td> <td>Auto</td> <td>11.09</td> </tr> </tbody> </table> <p>Write SQL commands to:</p> <ol style="list-style-type: none"> Display the average amount of each Loan Type Display details in the increasing order of the Interest Display the total amount from each loan type with interest greater than 9 	Acc_No	Acc_Name	Amount	Loantype	Interest	HD101	Sanjeev	55000	Auto	7.65	HD102	Abhishek	3000000	Home	7.1	HD103	Shagun	120000	Personal	9.85	HD105	Gunjan	300000	Auto	6.90	HD106	Jyoti	1000000	Business	8.50	HD107	Aarush	1500000	Home	9.10	HD108	Lalit	20000	Auto	6.66	HD109	Smriti	250000	Auto	11.09	<p>3</p>
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Section -III																																
38	<p>Write a program in Python Pandas to create the following DataFrame Employee</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>E_No</th> <th>Name</th> <th>Desg</th> <th>Salary</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>21</td> <td>Arun E D</td> <td>Tester</td> <td>28000</td> </tr> <tr> <td>2</td> <td>22</td> <td>Anu M N</td> <td>Developer</td> <td>35000</td> </tr> <tr> <td>3</td> <td>23</td> <td>Benit Anto</td> <td>Designer</td> <td>32000</td> </tr> <tr> <td>4</td> <td>34</td> <td>Cilona David</td> <td>Administrator</td> <td>25000</td> </tr> <tr> <td>5</td> <td>35</td> <td>Vincent Gomas</td> <td>Administrator</td> <td>25000</td> </tr> </tbody> </table> <p>Perform the following operations on the DataFrame :</p> <ol style="list-style-type: none"> 1) Remove details of persons with employee number 34 and 35 2) Store the dataframe into a csv file 3) Sort values in the increasing order of salary 		E_No	Name	Desg	Salary	1	21	Arun E D	Tester	28000	2	22	Anu M N	Developer	35000	3	23	Benit Anto	Designer	32000	4	34	Cilona David	Administrator	25000	5	35	Vincent Gomas	Administrator	25000	5
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4	34	Cilona David	Administrator	25000																												
5	35	Vincent Gomas	Administrator	25000																												

39	<p>Write the SQL functions which will perform the following operations:</p> <ol style="list-style-type: none"> i) To remove spaces from the left side of the string, " army public school". ii) To display last name from the string "Alen Turing" iii) To display the present day name iv) To find the remainder of two numbers, 100 and 13 v) To print the string "QwErTy" in lower case letters <p style="text-align: center;">OR</p> <p>Consider a table Sales with the following data:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>ItemCode</th> <th>Category</th> <th>TotalSale</th> <th>Profit</th> </tr> </thead> <tbody> <tr> <td>201</td> <td>Cosmetics</td> <td>24000</td> <td>6500.34</td> </tr> <tr> <td>312</td> <td>Books</td> <td>22500</td> <td>4500.00</td> </tr> <tr> <td>407</td> <td>Stationary</td> <td>31000</td> <td>NULL</td> </tr> <tr> <td>471</td> <td>Gift</td> <td>27500</td> <td>2561.76</td> </tr> <tr> <td>232</td> <td>Baby Products</td> <td>35000</td> <td>1500.26</td> </tr> </tbody> </table> <p>Write SQL queries using SQL functions to perform the following operations:</p> <ol style="list-style-type: none"> a) Display the position of occurrence of the letter 's' in category b) Display the length of category names c) Display profit rounded off to one place before decimal point d) Display details in the ascending order of ItemCode e) Display the number of profit values entered 	ItemCode	Category	TotalSale	Profit	201	Cosmetics	24000	6500.34	312	Books	22500	4500.00	407	Stationary	31000	NULL	471	Gift	27500	2561.76	232	Baby Products	35000	1500.26	5
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40.

Ambedkar College of Arts and Science has 4 blocks of buildings at their main campus in Delhi



Shortest distances between various locations:

Admin to Science	100 M
Admin to Commerce	70 M
Admin to Arts	200 M
Science to Arts	50 M
Science to Commerce	70 M
Commerce to Arts	120 M

Number of Computer in various buildings:

Admin - 15
 Science - 40
 Commerce - 25
 Arts - 10

- I. Suggest the most appropriate block to place the SERVER to get the best and effective connectivity. Justify your answer
- II. Suggest the cable layout to efficiently connect various blocks in the campus
- III. Will there be any possibility of signal loss? If yes suggest a method to prevent it. If No justify your answer.
- IV. Suggest a method to ensure security of the entire college network
- V. Suggest an appropriate technology to connect their sister institution from rural village of patna. What type of network will be formed here?