

**Informatics Practices (065)****Class: XII (2023-24)****Sample Paper - 1****TIME: 03 HOURS****M.M.: 70****General Instructions**

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 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 questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

Question No.	Section-A	Marks
1.	As soon as we get any good news from any source in social media: a. We should forward to many people so that they can be benefited. b. We should never forward to anyone. c. We should confirm the news from any reliable source before forwarding. d. We should forward to our family and friends only.	1
2.	Which of the following can be called as cyber-crime? a. Stealing someone's computer b. Harassing someone over internet c. Downloading copyright free movies over the internet d. Sending emails to known people	1
3.	<pre>series1 = pd.Series({'India': 'NewDelhi',                     'UK': 'London', 'Japan': 'Tokyo'}) print(series1)</pre> Above code is an example of: a. Creating series from dictionary b. Creating series from scalar values c. Creating series from an array d. Creating series from Tuple	1
4.	Abhishek uses computer and mobile for his personal use. He uploaded one video in his YouTube channel where he used one background music downloaded from somewhere on Internet, he may be violating: a. Copyright b. Intellectual property rights c. Plagiarism d. None of the above	1

5.	Identify single-row functions of MySQL amongst the following. a. TRIM() c. MAX() b. ROUND() d. Both a and b	1
6.	Which of the following function is used to create DataFrame? a. DataFrame( ) c. NewFrame( ) b. CreateDataFrame( ) d. None of the Above	1
7.	In India, E-Waste management assumes greater significance because _____. a. generation of own e-waste b. dumping of e-waste from developed countries c. lack of awareness d. All of these	1
8.	Method or function to add a new row in a dataframe is _____. a. .loc() c. .iloc() b. .join() d. .add()	1
9.	Which of the following refers to a small, single site network? a. DSL c. RAM b. WAN d. PAN	1
10.	Write the output of the following SQL command. SELECT ROUND(47.89); a. 47.9 c. 47.8 b. 48.0 d. 50	1
11.	In a ring topology, how many neighbours does each node have? a. One c. Three b. Two d. Four	1
12.	Which type of function can accept Text as an input and provides string or numeric value as an output? a. String c. Date b. Time d. Math	1
13.	A software which is available for free, and the code is open for all, it is called as _____. a. Proprietary software b. Free and open-source software c. Free software d. None of the above	1
14.	Consider a table DOCTOR(ID, DocName, Department, DOJ, Gender, salary). Which of the following query will display the names and salaries of doctors in descending order of salaries. a. Select DocName, Salary from Doctor order by salary desc; b. Select DocName, Salary from Doctor where order by salary desc; c. Select DocName, Salary from Doctor order by salary asc; d. Select DocName, Salary from Doctor where order by salary asc;	1
15.	Which SQL clause is used to restrict the rows returned by a query? a. SELECT c. ORDER BY b. WHERE d. GROUP BY	1
16.	Which of the following is NOT a mathematical function? a. LENGTH() c. ROUND() b. MOD() d. SQRT()	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as a. Both A and R are true and R is the correct explanation for A b. Both A and R are true and R is not the correct explanation for A		

c. A is True but R is False d. A is false but R is True																																					
17.	<b>Assertion(A):</b> In this era of digital society, our daily activities like communication, social networking, banking, shopping, entertainment, education, transportation, etc., are increasingly being driven by online transactions. <b>Reason(R):</b> Managing our tasks digitally saves lot of time.	1																																			
18.	<b>Assertion(A):</b> A Series is a one-dimensional array containing a sequence of values of any data type (int, float, list, string, etc.). <b>Reason(R):</b> Pandas Series can be imagined as a column in a spreadsheet.	1																																			
<b>Section-B</b>																																					
19.	Write any two points of differences between LAN and WAN. OR Define home page. Give two advantages of home page.	2																																			
20.	Aditi is a travel agent, she has stored the data of all passengers in a table Travel(Pno, Pname, Tdate, Km, Coach). She has given the following command to count the number of passengers in each coach from Travel table. Select PName, Count(Coach) from Travel order by Coach; But she is not getting the desired result. Help her in identifying the reason of the error and write the correct query by suggesting the possible correction (s).	2																																			
21.	State differences between date functions NOW( ) and DAY( ) of MySQL.	2																																			
22.	Write a code to create a series object using a dictionary that stores the salary of employees in ABC organisation.	2																																			
23.	What is digital property rights? Write the names of some digital property rights.	2																																			
24.	Write the output of the given code. <pre>import pandas as pd S1=pd.Series([5,6,7,8,10],index=['v','w','x','y','z']) l=[2,6,1,4,6] S2=pd.Series(l, index=['z','y','a','w','v']) print(S1-S2)</pre>	2																																			
25.	Write the python statements for the following: i. To return both the first row and the second row in a Pandas DataFrame df. ii. To select first four rows and second to fourth columns from a DataFrame 'Data'.	2																																			
<b>Section-C</b>																																					
26.	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5" style="text-align: center;">Table BOOK</th> </tr> <tr> <th>Code</th> <th>Title</th> <th>Author</th> <th>Publication</th> <th>Price</th> </tr> </thead> <tbody> <tr> <td>D001</td> <td>Physics</td> <td>Vikas Sharma</td> <td>xxx</td> <td>250</td> </tr> <tr> <td>D002</td> <td>Chemistry</td> <td>Preeti Goyal</td> <td>yyy</td> <td>300</td> </tr> <tr> <td>D003</td> <td>Computer Science</td> <td>Swati Rana</td> <td>zzz</td> <td>275</td> </tr> <tr> <td>D004</td> <td>English</td> <td>Sanjeev Jain</td> <td>aaa</td> <td>150</td> </tr> <tr> <td>D005</td> <td>Mathematics</td> <td>Rajiv Rastogi</td> <td>bbb</td> <td>400</td> </tr> </tbody> </table> <p>Give the output of following SQL commands on basis of above table Book. i. Select SUBSTR(Title,2,3) from BOOK where Code='D002'; ii. Select CONCAT(Author, Publication) from BOOK Where</p>	Table BOOK					Code	Title	Author	Publication	Price	D001	Physics	Vikas Sharma	xxx	250	D002	Chemistry	Preeti Goyal	yyy	300	D003	Computer Science	Swati Rana	zzz	275	D004	English	Sanjeev Jain	aaa	150	D005	Mathematics	Rajiv Rastogi	bbb	400	3
Table BOOK																																					
Code	Title	Author	Publication	Price																																	
D001	Physics	Vikas Sharma	xxx	250																																	
D002	Chemistry	Preeti Goyal	yyy	300																																	
D003	Computer Science	Swati Rana	zzz	275																																	
D004	English	Sanjeev Jain	aaa	150																																	
D005	Mathematics	Rajiv Rastogi	bbb	400																																	

	Price=250; iii. Select Max(Price) from Book;																																				
<b>27.</b>	<p>Mr. Ankit is working in an organization as data analyst. He got a dataset of the passengers for the year 2010 to 2012 for January, March and December. His manager wants certain information from him, but he is facing some problems.</p> <table border="1"> <thead> <tr> <th></th> <th>Year</th> <th>Month</th> <th>Passengers</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>2010</td> <td>Jan</td> <td>25</td> </tr> <tr> <td>1</td> <td>2010</td> <td>Mar</td> <td>50</td> </tr> <tr> <td>2</td> <td>2012</td> <td>Jan</td> <td>35</td> </tr> <tr> <td>3</td> <td>2010</td> <td>Dec</td> <td>55</td> </tr> <tr> <td>4</td> <td>2012</td> <td>Dec</td> <td>65</td> </tr> </tbody> </table> <p>Write the python code to create the above data frame.</p>		Year	Month	Passengers	0	2010	Jan	25	1	2010	Mar	50	2	2012	Jan	35	3	2010	Dec	55	4	2012	Dec	65	<b>3</b>											
	Year	Month	Passengers																																		
0	2010	Jan	25																																		
1	2010	Mar	50																																		
2	2012	Jan	35																																		
3	2010	Dec	55																																		
4	2012	Dec	65																																		
<b>28.</b>	<p>Sanyukta is the event incharge in a school. One of her students gave her a suggestion to use Python Pandas and Matplotlib for analysing and visualising the data, respectively. She has created a DataFrame "df" to keep track of the number of First, Second and Third prizes won by different houses in various events.</p> <table border="1"> <thead> <tr> <th></th> <th>House</th> <th>First</th> <th>Second</th> <th>Third</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Chenab</td> <td>5</td> <td>7</td> <td>6</td> </tr> <tr> <td>1</td> <td>Gangas</td> <td>10</td> <td>5</td> <td>4</td> </tr> <tr> <td>2</td> <td>Jamuna</td> <td>8</td> <td>13</td> <td>15</td> </tr> <tr> <td>3</td> <td>Jhelum</td> <td>12</td> <td>9</td> <td>12</td> </tr> <tr> <td>4</td> <td>Ravi</td> <td>5</td> <td>11</td> <td>10</td> </tr> <tr> <td>5</td> <td>Satluj</td> <td>10</td> <td>5</td> <td>3</td> </tr> </tbody> </table> <p>Write Python commands to do the following:</p> <ol style="list-style-type: none"> <li>Display the house names where the number of Second prize are in the range of 12 to 20.</li> <li>Display all the records in the reverse order.</li> <li>Display the bottom 3 records.</li> </ol>		House	First	Second	Third	0	Chenab	5	7	6	1	Gangas	10	5	4	2	Jamuna	8	13	15	3	Jhelum	12	9	12	4	Ravi	5	11	10	5	Satluj	10	5	3	
	House	First	Second	Third																																	
0	Chenab	5	7	6																																	
1	Gangas	10	5	4																																	
2	Jamuna	8	13	15																																	
3	Jhelum	12	9	12																																	
4	Ravi	5	11	10																																	
5	Satluj	10	5	3																																	
<b>29.</b>	<p>The school offers Wi-Fi to the students of Class XII. For communication, the network security-staff of the school is having a registered URL "schoolwifi.edu". On 17th September 2017, E-mails were received by all the students regarding expiry of their passwords. Instructions were also given renew their password within 24 hours by clicking on particular URL provided.</p> <p>On the bases of the above information, answer the questions:</p> <ol style="list-style-type: none"> <li>Identify the name of cybercrime which is done by given information.</li> <li>Ideally, what characters should be used in a password to make it strong?</li> <li>What are unsolicited e-mails called as?</li> </ol> <p style="text-align: center;">OR</p> <p>Explain the features of IT Act 2000.</p>	<b>3</b>																																			

30.	<p style="text-align: center;">Table : Bookhouse</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>Title</th> <th>Author</th> <th>Subject</th> <th>Publisher</th> <th>Qty</th> <th>Price</th> </tr> </thead> <tbody> <tr><td>1</td><td>Data Structure</td><td>Lips Chute</td><td>DS</td><td>McGraw</td><td>4</td><td>217.00</td></tr> <tr><td>2</td><td>DOS Guide</td><td>Nortron</td><td>OS</td><td>PHI</td><td>3</td><td>175.00</td></tr> <tr><td>3</td><td>Turbo C++</td><td>Robert Lafore</td><td>Prog</td><td>Galgotia</td><td>5</td><td>270.00</td></tr> <tr><td>4</td><td>Dbase Dummies</td><td>Palmer</td><td>DBMS</td><td>PustakM</td><td>7</td><td>130.00</td></tr> <tr><td>5</td><td>Mastering Windows</td><td>Cowart</td><td>OS</td><td>BPB</td><td>1</td><td>225.00</td></tr> <tr><td>6</td><td>Computer Studies</td><td>French</td><td>FND</td><td>Galgotia</td><td>2</td><td>75.00</td></tr> <tr><td>7</td><td>COBOL</td><td>Stern</td><td>Prog</td><td>John W</td><td>4</td><td>1000.00</td></tr> <tr><td>8</td><td>Guide Network</td><td>Freed</td><td>NET</td><td>Zpress</td><td>3</td><td>200.00</td></tr> <tr><td>9</td><td>Basic for Beginners</td><td>Norton</td><td>Prog</td><td>BPB</td><td>3</td><td>40.00</td></tr> <tr><td>10</td><td>Advanced Pascal</td><td>Schildt</td><td>Prog</td><td>McGraw</td><td>4</td><td>350.00</td></tr> </tbody> </table> <p>Write the SQL statements for the following based on above table:</p> <ol style="list-style-type: none"> <li>Display number of books and average price for each type of publisher.</li> <li>Display title, price in descending order of price</li> <li>Display total number of books available in stock published by BPB.</li> </ol>	No	Title	Author	Subject	Publisher	Qty	Price	1	Data Structure	Lips Chute	DS	McGraw	4	217.00	2	DOS Guide	Nortron	OS	PHI	3	175.00	3	Turbo C++	Robert Lafore	Prog	Galgotia	5	270.00	4	Dbase Dummies	Palmer	DBMS	PustakM	7	130.00	5	Mastering Windows	Cowart	OS	BPB	1	225.00	6	Computer Studies	French	FND	Galgotia	2	75.00	7	COBOL	Stern	Prog	John W	4	1000.00	8	Guide Network	Freed	NET	Zpress	3	200.00	9	Basic for Beginners	Norton	Prog	BPB	3	40.00	10	Advanced Pascal	Schildt	Prog	McGraw	4	350.00	3
No	Title	Author	Subject	Publisher	Qty	Price																																																																									
1	Data Structure	Lips Chute	DS	McGraw	4	217.00																																																																									
2	DOS Guide	Nortron	OS	PHI	3	175.00																																																																									
3	Turbo C++	Robert Lafore	Prog	Galgotia	5	270.00																																																																									
4	Dbase Dummies	Palmer	DBMS	PustakM	7	130.00																																																																									
5	Mastering Windows	Cowart	OS	BPB	1	225.00																																																																									
6	Computer Studies	French	FND	Galgotia	2	75.00																																																																									
7	COBOL	Stern	Prog	John W	4	1000.00																																																																									
8	Guide Network	Freed	NET	Zpress	3	200.00																																																																									
9	Basic for Beginners	Norton	Prog	BPB	3	40.00																																																																									
10	Advanced Pascal	Schildt	Prog	McGraw	4	350.00																																																																									
<b>Section- D</b>																																																																															
31.	<p>Write outputs for SQL queries (i) to (iii) which are based on the given table</p> <p>STUDENT:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Student_ID</th> <th>Name</th> <th>Marks</th> <th>Grade</th> <th>Subject</th> </tr> </thead> <tbody> <tr><td>102121</td><td>Manpreet</td><td>412</td><td>B</td><td>Medical</td></tr> <tr><td>102122</td><td>Saman</td><td>420</td><td>A</td><td>Non Medical</td></tr> <tr><td>102123</td><td>Sanaya</td><td>395</td><td>C</td><td>Commerce</td></tr> <tr><td>102124</td><td>Prashansa</td><td>396</td><td>C</td><td>Humanities</td></tr> <tr><td>102125</td><td>Masood</td><td>400</td><td>C</td><td>Medical</td></tr> <tr><td>102126</td><td>Ravi</td><td>412</td><td>C</td><td>Non Medical</td></tr> <tr><td>102126</td><td>Ashish</td><td>395</td><td>C</td><td>Commerce</td></tr> </tbody> </table> <p>i. SELECT LENGTH(Name) FROM STUDENT WHERE MARKS &gt; 400;  ii. SELECT NAME FROM STUDENT WHERE GRADE = 'B';  iii. SELECT MIN(MARKS), MAX(MARKS) FROM STUDENT WHERE SUBJECT = 'Medical';</p> <p style="text-align: center;">OR</p> <p>Display the highest marks of the students who has opted for subject as Commerce.</p>	Student_ID	Name	Marks	Grade	Subject	102121	Manpreet	412	B	Medical	102122	Saman	420	A	Non Medical	102123	Sanaya	395	C	Commerce	102124	Prashansa	396	C	Humanities	102125	Masood	400	C	Medical	102126	Ravi	412	C	Non Medical	102126	Ashish	395	C	Commerce	1+1+2																																					
Student_ID	Name	Marks	Grade	Subject																																																																											
102121	Manpreet	412	B	Medical																																																																											
102122	Saman	420	A	Non Medical																																																																											
102123	Sanaya	395	C	Commerce																																																																											
102124	Prashansa	396	C	Humanities																																																																											
102125	Masood	400	C	Medical																																																																											
102126	Ravi	412	C	Non Medical																																																																											
102126	Ashish	395	C	Commerce																																																																											
32.	Naman has created the following dataframe 'climate' to record the data about climatic conditions of four years.	1+1+2																																																																													

Year	MaxTemp	MinTemp	Rainfall
2017	32	20	123
2018	33	22	140
2019	35	21	135
2020	34	23	160

What will be the output of the following?

- i. `Climate.iloc[1:3,1:2]`
- ii. `print (Climate.head(2))`
- iii. Write the python code to display:  
The temperature difference between MaxTemp and MinTemp for all the rows in the dataframe Climate.

OR

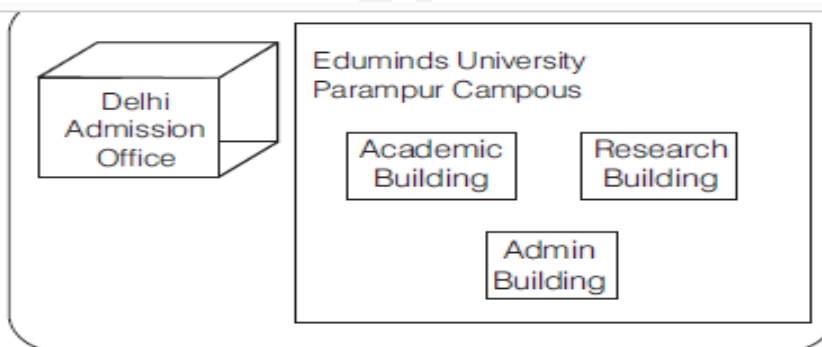
The exact number of values in each column of the dataframe.

**Section-E**

**33.**

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 in the 5 km area campus. As a network expert, you need to suggest the network plan as per (i) to (v) to the authorities keeping in mind the distances and other given parameters.

**5**



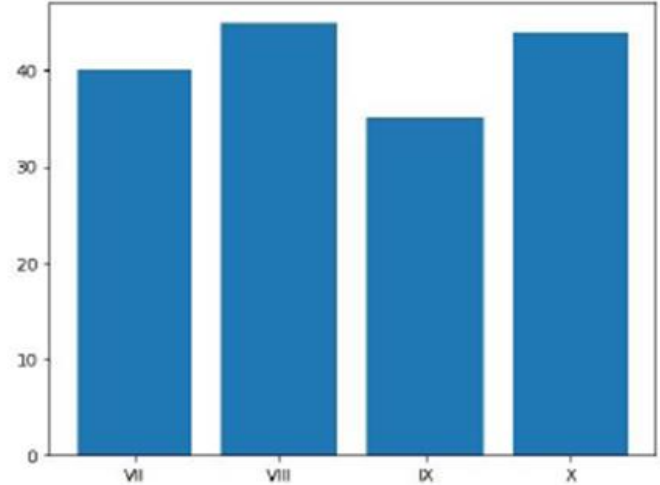
**Expected wire distances between various locations:**

Research Building to Admin Building	90 m
Research Building to Academic Building	80 m
Academic Building to Admin Building	15 m
Delhi Admission office to Parampur Campus	1450 km

**Expected number of computers to be installed at various locations in the university are as follows:**

Research Building	20
Academic Building	150
Admin Building	35
Delhi Admission Office	5

- i. Suggest the authorities, the cable layout amongst various buildings inside the university campus for connecting the building.

	<p>ii. Suggest the most suitable place (i.e. building) to house the server of this organisation, with a suitable reason.</p> <p>iii. Suggest an efficient device to be installed in each of the buildings to connect all computers.</p> <p>iv. University is planning to provide online facility to students for clearing their doubts. Which of the following is the online textual or multimedia conversation will they use?</p> <ol style="list-style-type: none"> <li>VoIP</li> <li>Chatting</li> <li>HTML</li> <li>None of the above</li> </ol> <p>v. Which software will students use to connect to Internet, create websites and view sites on web.</p>									
34.	<p>Write the SQL functions which will perform the following operations:</p> <ol style="list-style-type: none"> <li>To display the name of the day of the current date.</li> <li>To remove spaces from the beginning of a string " Python".</li> <li>To display the name of the month e.g. January or February from your date of birth(dob).</li> <li>To display the starting position of word "Information" from "Information Technology".</li> <li>To compute the power of two numbers a and b.</li> </ol> <p style="text-align: center;">OR</p> <p>Explain the following SQL functions using suitable examples.</p> <ol style="list-style-type: none"> <li>UCASE()</li> <li>TRIM()</li> <li>MID()</li> <li>DAYNAME()</li> <li>TRUNCATE()</li> </ol>	5								
35.	<p>District wise total number of houses are represented in the following table:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>VII Dist</th> <th>VIII Dist</th> <th>IX Dist</th> <th>X Dist</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">40</td> <td style="text-align: center;">45</td> <td style="text-align: center;">35</td> <td style="text-align: center;">44</td> </tr> </tbody> </table> <p>Draw the following bar graph representing the number of houses in each District(Dist VII, Dist VIII, Dist IX, Dist X).</p>  <p>Also, give suitable python statement to save this chart in E: drive of the computer with name 'house.png'</p>	VII Dist	VIII Dist	IX Dist	X Dist	40	45	35	44	5
VII Dist	VIII Dist	IX Dist	X Dist							
40	45	35	44							

OR

Write a python program to plot a line chart based on the given data to depict the weekly study patterns for all the seven days

Day = [1,2,3,4 ,5,6,7]

Study\_Hours = [5 4 6 5,7,8,10]

Also, give suitable python statement to save this chart in d: drive of the computer with name 'study.png'