

BAL BHARATI PUBLIC SCHOOL

SAMPLE PAPER -2020-21

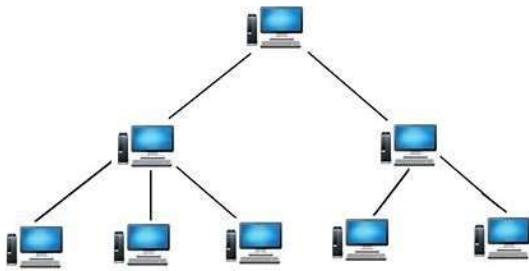
INFORMATICS PRACTICES (065) / XII

1. Please check that this question paper contains __ printed pages.
2. Code number given on the right hand side of the question paper should be written on the title page of the answer book by the candidate.
3. Please check that this question paper contains 40 questions.
4. **Please write down the serial number of the question before attempting it.**
5. 15 minutes time has been allotted to read this question paper. The question paper will be distributed at 10.00 a.m. From 10.00 a.m. to 10.15 a.m., the student will read the question paper only and will not write any answer on the answer script during this period.
6. Do all the parts of same questions together.
7. Programming language - Python
8. Database-MySQL
9. This question paper contains two parts A and B. Each part is compulsory.
10. Both Part A and Part B have choices.
11. 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.
12. Part - B is Descriptive Paper.
13. 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 internal option

Maximum Marks-70

Time Allowed -3 hour

PART A														
SECTION I														
Attempt any 15 questions from questions 1 to 21														
Q.No		Marks												
1	State True or False. (i) Copying content from the website is always safe. (ii) OSS software enables a person to contribute to further development of the program.	1												
2	Pyplot's _____ function is used to create line charts and _____ argument of legend() provides the location of legend.	1												
3	What will be the output of (i) SELECT ROUND (89012.556, -3) (ii) SELECT SUBSTR("90654312.0000543",7,2)	1												
4	To display the 3 rd , 4 th and 5 th columns from 6 th to 9 th rows of a dataframe DF, you can write _____ Choose the correct option. i. DF.loc[6:9,3:5] ii. DF.iloc[6:10,3:6] iii. DF.loc[6:10,3:6] iv. DF.iloc[6:9,3:5]	1												
5	Give a dataframe DF as shown below: <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: left;">Blood group</th> <th style="text-align: left;">HB count</th> </tr> </thead> <tbody> <tr> <td>Alia</td> <td>O</td> <td>12.5</td> </tr> <tr> <td>Baby</td> <td>A</td> <td>8</td> </tr> <tr> <td>Chris</td> <td>AB</td> <td>13</td> </tr> </tbody> </table> Write the single line code to add a new column RHfactor and the value of it +.		Blood group	HB count	Alia	O	12.5	Baby	A	8	Chris	AB	13	1
	Blood group	HB count												
Alia	O	12.5												
Baby	A	8												
Chris	AB	13												
6	Which of the following statements are True? i. The title() adds title to the legends. ii. Matplotlib allows us to plot nD graphs easily where n is any number. iii. Visual representation of data is possible in Python. iv. Histogram can be plotted in Python.	1												
7	Give one example each of Plug ins and Add-ons software	1												
8	Write the names of two functions used to iterate over data frames.	1												
9	_____ is used to connect similar networks.	1												
10	In the following URL https://www.green_society.com/data/first.htm	1												

	<p>i. What is the name of web site?</p> <p>ii. Is data a web page?</p>	
11	<p>Categorise the following into Text / Numeric functions of MySQL.</p> <p>i. MID()</p> <p>ii. ROUND()</p>	1
12	Define Plagiarism.	1
13	Consider the two Python Series S11 and S12. S11 contains the constant value 100 and consider any values for S12. Write the statement to find the sum of the series and also its output	1
14	<p>I belong to a Database language.</p> <p>I can create a folder of database.</p> <p>I don't allow to create duplicate folders of a database.</p> <p>Who am I?</p>	1
15	_____ website displays fixed content to each visitor.	1
16	A mail containing attachments of more than 20 MB is sent using _____ option.	1
17	Give one technique of reducing the electronic scrap.	1
18	Freeware, Shareware, Adware and Malware are OSS. Do you agree with it?	1
19	Write the MySQL function used to display the middle characters from the first name of a student.	1
20	<p>Identify the topology shown in the image and write its name.</p> 	1
21	Write one example of Indian operating system	1
	<p>Section -II</p> <p>Both the case study based questions (22 & 23) are compulsory. Attempt any four sub parts from each question. Each sub question carries 1 mark.</p>	
22	Consider the dataset STUDENT. Consider the name of the data frame as Sf1.	

NAME	Oxygen_level	Pulse_rate	Disease_risk_level
Sarat	90	110	Medium
Mahima	93	140	Low
Ishan	95	108	Low
Dhruv	94	80	Low
Siva	93	88	Low
Pranav	96	110	Low
Samir	89	88	High
Arpita	95	90	Low
Sushma	92	140	Medium
Brinda	93	110	Low

Answer any of the four parts out 22A to 22E.

22A	<p>Which command will create a data frame for the above dataset? (only last three rows and first two columns)</p> <ul style="list-style-type: none"> i. <code>import pandas as pd</code> <code>Sf1=pd.DataFrame({'Name':['Brinda','Sushma','Arpita'], 'Oxygen_level':[93,92,95]})</code> ii. <code>import pandas as pd</code> <code>Sf1=pd.DataFrame({Name:['Brinda','Sushma','Arpita'], Oxygen_level:[93,92,95]})</code> iii. <code>import pandas as pd</code> <code>Sf1=pd.DataFrame(['Name':['Arpita','Sushma','Brinda'], 'Oxygen_level':[95,92,93]])</code> iv. <code>import pandas as pd</code> <code>Sf1=pd.DataFrame({'Name':['Arpita','Sushma','Brinda'], 'Oxygen_level':[95,92,93]})</code> 	1
22B	<p>Write single line command to print the lowest of the Oxygen level and highest pulse rate of all the persons.</p>	1

22C	Write code to print the details of High risk person.	1																																																		
22D	Which command will decrease the Pulse_rate of all people by 5 ? i. Sf1=Sf1['Pulse_rate']-5 ii. Sf1=Sf1('Pulse_rate')-5 iii. Sf1{'Pulse_rate'}=Sf1{'Pulse_rate'}-5 iv. Sf1['Pulse_rate']=Sf1['Pulse_rate']-5	1																																																		
22E	Observer the three statements and comment on the functionality of all of them. i. del(Sf1['NAME']) ii. Sf1.pop('NAME') iii. Sf1.drop('NAME',axis=1)	1																																																		
23	In a database, there are two tables named ITEMMASTER and CUSTOMER. <p style="text-align: center;">CUSTOMER</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>CID</th> <th>CNAME</th> <th>CADDRESS</th> <th>CACCNO</th> <th>CBAL</th> </tr> </thead> <tbody> <tr> <td>20001</td> <td>MRIDU</td> <td>KOLKATTA</td> <td>120011</td> <td>1450</td> </tr> <tr> <td>20112</td> <td>MOHIKA</td> <td>CHANDIGARH</td> <td>120014</td> <td>80000</td> </tr> <tr> <td>20145</td> <td>PALLAVI</td> <td>PUNE</td> <td>124501</td> <td>5000</td> </tr> <tr> <td>20078</td> <td>KANTA</td> <td>JAIPUR</td> <td>120013</td> <td>2000</td> </tr> <tr> <td>20011</td> <td>MOKSH</td> <td>GURGOAN</td> <td>120023</td> <td>6000</td> </tr> </tbody> </table> <p style="text-align: center;">ITEMMASTER</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>ID</th> <th>NAME</th> <th>RATE</th> <th>CID</th> </tr> </thead> <tbody> <tr> <td>120013</td> <td>MASKS</td> <td>200</td> <td>20078</td> </tr> <tr> <td>120014</td> <td>SOAP</td> <td>120</td> <td>20001</td> </tr> <tr> <td>124501</td> <td>SANITISER</td> <td>225</td> <td>20145</td> </tr> <tr> <td>120011</td> <td>HEAD SHIELD</td> <td>400</td> <td>20112</td> </tr> </tbody> </table> <p><u>Answer any of the four parts out 23A to 23E</u></p>	CID	CNAME	CADDRESS	CACCNO	CBAL	20001	MRIDU	KOLKATTA	120011	1450	20112	MOHIKA	CHANDIGARH	120014	80000	20145	PALLAVI	PUNE	124501	5000	20078	KANTA	JAIPUR	120013	2000	20011	MOKSH	GURGOAN	120023	6000	ID	NAME	RATE	CID	120013	MASKS	200	20078	120014	SOAP	120	20001	124501	SANITISER	225	20145	120011	HEAD SHIELD	400	20112	
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23A	Complete SQL command that will give the following output. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>current balance</td></tr> <tr><td>80000</td></tr> <tr><td>5000</td></tr> <tr><td>2000</td></tr> <tr><td>6000</td></tr> </table> SELECT CBAL _____ from CUSTOMER WHERE CBAL _____;	current balance	80000	5000	2000	6000	1																																													
current balance																																																				
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23B	<p>Which SQL query will display the contents of the ITEMMASTER table in the descending order of rate and ID?</p> <p>i. SELECT * FROM ITEMMASTER ORDER BY RATE, ID;</p> <p>ii. SELECT * FROM ITEMMASTER ORDER BY ID, RATE;</p> <p>iii. SELECT * FROM ITEMMASTER ORDER BY RATE, ID DESC;</p> <p>iv. SELECT * FROM ITEMMASTER ORDER BY RATE DESC, ID ;</p>	1																				
23C	<p>Which query will display the CNAME, CID and 10% increased CBAL?</p> <p>i. SELECT CID, CNAME, CSTOCK*10/100 FROM CUSTOMER;</p> <p>ii. SELECT CNAME, CID, CSTOCK*1.1 FROM CUSTOMER;</p> <p>iii. SELECT CID, CNAME,CSTOCK+10/100 FROM CUSTOMER;</p> <p>iv. SELECT CNAME, CID, CSTOCK*1.1/100 FROM CUSTOMER;</p>	1																				
23D	<p>Which command will display the average balance of all the customers?</p> <p>i. SELECT SUM(CBAL) FROM CUSTOMER;</p> <p>ii. SELECT SUM(CBAL)/COUNT(*) FROM CUSTOMER;</p> <p>iii. SELECT TOTAL(CBAL) FROM CUSTOMER;</p> <p>iv. SELECT COUNT(CBAL)/SUM(CBAL) FROM CUSTOMER;</p>	2																				
23E	<p>Which of the following statement/s are true?</p> <p>i. SELECT is a DDL command.</p> <p>ii. FROM is a clause.</p> <p>iii. WHERE is used to display selected fields.</p> <p>iv. SELECT is a DML command.</p>	1																				
PART B																						
SECTION I																						
24	<p>Write python program to create a series named CONSUMABLE and print it. The series must have names of 5 consumable diary items along with its rate.</p>	2																				
25	<p>Write SQL command to display the average cost of the Apple and Pineapple fruits . Consider the table FRUITS as shown below. The table has 50 tuples like this. Also write in what order, the data is displayed.</p> <table border="1"> <thead> <tr> <th>ID</th> <th>NAME</th> <th>CLASS</th> <th>RATE</th> </tr> </thead> <tbody> <tr> <td>A1</td> <td>Apple</td> <td>EXPORT</td> <td>78</td> </tr> <tr> <td>M1</td> <td>Mango</td> <td>EXPORT</td> <td>87.5</td> </tr> <tr> <td>G1</td> <td>Grapes</td> <td>LOCAL</td> <td>90.5</td> </tr> <tr> <td>P2</td> <td>Pineapple</td> <td>LOCAL</td> <td>99</td> </tr> </tbody> </table>	ID	NAME	CLASS	RATE	A1	Apple	EXPORT	78	M1	Mango	EXPORT	87.5	G1	Grapes	LOCAL	90.5	P2	Pineapple	LOCAL	99	2
ID	NAME	CLASS	RATE																			
A1	Apple	EXPORT	78																			
M1	Mango	EXPORT	87.5																			
G1	Grapes	LOCAL	90.5																			
P2	Pineapple	LOCAL	99																			

	OR	
	Define LIKE clause. Support your answer with an example also. Can we arrange the data of a table using multiple attributes? Give example.	
26	Write the MySQL query for the following. Consider the FRUITS table shown in Q25. i. Display the name in capital letters. ii. Display the total characters on the name.	2
27	The data represents the information about cosmetics industry. Cosmetics data contains nme, rate and rank. The name of the series is COS. i. Write the command which will display the name of the companies on top four positions. ii. Write the command to name the series as cosmetics_COMPANY_RANK.	2
28	Differentiate between DML and DDL commands. Write one example also.	2
29	Which MySQL function displays the name of the month and day? What is the difference between SYSDATE() and NOW()? OR Consider the table RANK of Q25 and write the query to display the i. Display the total number of characters in name of the records where the rate is above 50. ii. Display the position of L in the name of all tuples.	2
30	What are the two numeric data type of a dataframe? How NaN affects the arithmetic operation of the data frames?	2
31	Compare Tree and Mesh topology with respect to one of the most important advantages and disadvantages. Draw diagram also.	2
32	Reading books was the passion of Sindhu. Her friend introduced her to the world of Facebook and Instagram. Sindhu was fascinated by these two platforms. She started spending too much time on making friends on facebook and posting pictures on Instagram. With the result she lost her interest in reading books. She also started ignoring her friends and her sister. Once her phone data got crashed and Sidhu became very restless. What measures do you suggest to Sindhu to reduce the excessive use of digital device.	2
33	Write two measures to perform the online banking safely.	2
	SECTION II	
34	Consider a data frame named DF1. a. It contains names and admission numbers of 10 students of a school.	3

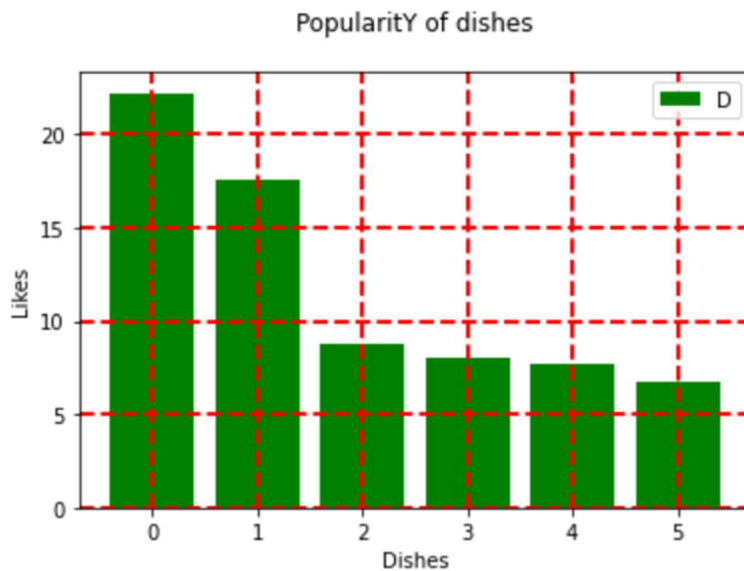
- b. Write a python program to display the names of first three students.
- c. Write the statements to display the admission numbers of last two students.

35 Do you think that Virtual world leaves the trails of our activities? What is it known as? How is it created?

OR

Mohan was a very good programmer and tried to hack the RBI website. He wanted to show his programming skills to his friends. Mohan was caught by the police and sent to jail. What is your opinion about Mohan’s activity? What is this activity known as? How can a person manage the virtual world?

36 Write Python code to draw this graph. (The data given is fictitious data).



37 Based on the table MARKETS given below . (The data given is fictitious data).

ID	NAME	VISITORS	NUMBER_SHOPS
K01	KAROL BAGH	19000000	120
D05	DEFENCE COLONY	8000000	200
S55	SAROJINI NAGAR	5800000	210
V12	ROHINI	400000	100

Write query for the following:

- i. Display the names of markets in the ascending order of visitors.
- ii. Delete the details of Rohini
- iii. Reduce the number of shops by 50 in Sarojini Nagar only.

SECTION III

38 Below mentioned data is of Pass percentage of Students in various school (in %).
(The data given in fictitious data)

School	1991	2001	2011
NN school	80	90.86	94.00
DL school	75.29	81.67	86.21
J1 school	71.29	69.14	78.03
HH school	-	55.52	67.16
AN school	41.59	54.34	65.38
MK school	65.75	76.88	82.34

- i. Write code to create a data frame for the above data. (1 mark)
- ii. Write code to display the row wise data for all the years in the form of series. (2 marks)
- iii. Write code to add a row for the UT school with the any values (2 marks)

39 Consider the table HOSPITAL. The rates of successful surgeries are in % for the years 1991,2001 and 2011. (The data given is fictitious data).

Name	Year1	Year2	Year3	OPD	Bed count
KU hospital	70	91	94	Yes	100
DH hospital	75	81.7	86.21	No	35
AD hospital	61.29	69.4	78.03	No	67
KK hospital	NULL	55.2	67	Yes	135
PD hospital	41.5	54	66	Yes	200
RS hospital	64.9	76.8	82.34	No	89
LP hospital	81.7	86.6	91.85	Yes	400

Write queries for (i) to (iv) and output for (v) to (vi).

- i. Display the record containing null values.
- ii. Display the names of hospital who have shown an improvement in the Year2 from Year1.
- iii. Display the number of hospitals having OPD facility.
- iv. Display the name of hospital and Year2 rounded off to 0 decimal place.
- v. `SELECT SUM(Year3) from HOSPITAL WHERE bedcount < 50;`
- vi. `SELECT Name, MOD(Year1,1) FROM HOSPITAL ORDER BY Year1;`

OR

Write the SQL functions which will perform the following operations:

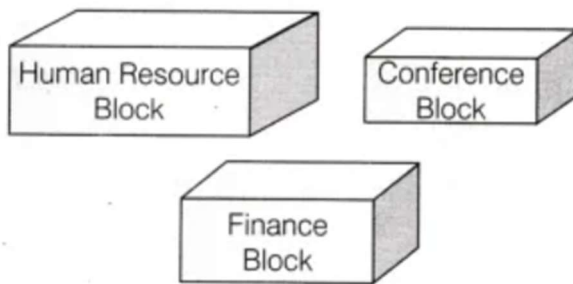
- i) To display the month number and year from “2020-03-22”.
- ii) To remove spaces from the string, “ COVID 19 “.
- iii) To display the weekday of today.
- iv) To display the starting position of your first name(fname) from your whole name (name).
- v) To compute the remainder of division between two numbers, n1 and n2.

40

Trine Tech Corporation (TTC) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below .

5

Physical locations of the blocks of TTC



Block to block distance (in m)

Block (From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Expected number of computers to be in each block

Block	Computers
Human Resource	25
Finance	120
Conference	90

- 1. Which will be the most appropriate block, where TTC should plan to install their server?

	<p>2. Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.</p> <p>3. What will be the best possible connectivity out of the following, you will suggest to connect the new set up of offices in Delhi with its London based office.</p> <ul style="list-style-type: none">• Satellite Link• Infrared• Ethernet <p>4. Which of the following device will be suggested by you to connect each computer in each of the buildings?</p> <ul style="list-style-type: none">• Switch• Modem• Gateway <p>5. Suggest the most suitable network topology to be setup in various blocks of Delhi office.</p>	
	<p>*****</p>	