



**INDIAN SCHOOL AL WADI AL KABIR**  
**INFORMATICS PRACTICES (065)( 2020-2021)**

**SAMPLE PAPER 3**

Part – A		
Section – I		
1	What is the correct option for ‘Cyber Bullying’ ? i) Punching a person on his face ii) ‘Saying I hate you’ to a friend iii) When a person is being harassed over the internet	1
2	Which communication channel is suitable when very fast communication between two offices in two different countries is required?	1
3	Online _____ is the theft of personal information in order to commit fraud.	1
4	Point out the correct statement: a) If data is a list, if index is passed the values in data corresponding to the labels in the index will be pulled out b) NaN is the standard missing data marker used in pandas c) Series acts very similarly to a array d) None of the Mentioned	1
5	Give the output for the above statement. a = pd.DataFrame([1, 1, 1, np.nan], index=['a', 'b', 'c', 'd'], columns=['one'])	1
6	Anjani wants to replace all NULLS in the column COMM of table EMPL with 100. Write the sql command that solves her problem.	1
7	In a database there is a table Cabinet. The data entry operator is not able to put a NULL value in a column of Cabinet. What might be the possible reason(s)?	1
8	By default value of bins in histogram is _____.	1
9	Predict the output of the query: 1 SELECT ROUND(75.95,1) – TRUNCATE(75.95,1);	1
10	Which of the following is NOT an intellectual property? (i) A poem written by a poet (ii) An original painting made by a painter (iii) Trademark of a Company (iv) A remixed song	1
11	Which function is used to sort a dataframe?	1
12	Which of the following is not a DDL command ? (i) UPDATE (ii) TRUNCATE	1

	(iii) ALTER (iv) None of the Mentioned																																											
13	What is web hosting?	1																																										
14	Write SQL command to see the fields and their corresponding datatypes of a table employee	1																																										
15	Find the output of following program : import numpy as np d=np.array([10,20,30,40,50,60,70]) print(d[-1:-4:-1])	1																																										
	<b>Section -II</b> Both the case study-based questions (22 & 23 ) are compulsory. Each sub question carries 1 mark .																																											
16	A dictionary smarks contains the following data: Smarks={'name':['rashmi','harsh','priya','jeet'],'age':[15,16,15,17],'grade':['A1','A2','B1','A2']} Write a statement to create DataFrame called df. i. find the output of df.iloc[ 0:2 , 2] ii. rearrange the columns as name, grade and age iii. delete the column grade using the drop() function.	4																																										
17	Consider the following table and answer the Queries:-  <b>PROJECTS</b> <table border="1" style="margin-left: auto; margin-right: auto;"><thead><tr><th>ID</th><th>ProjName</th><th>ProjSize</th><th>StartDate</th><th>EndDate</th><th>Cost</th></tr></thead><tbody><tr><td>1</td><td>Payroll-MMS</td><td>Medium</td><td>2006-03-17</td><td>2006-09-16</td><td>60000</td></tr><tr><td>2</td><td>Payroll-ITC</td><td>Large</td><td>2008-02-12</td><td>2008-01-11</td><td>500000</td></tr><tr><td>3</td><td>IDMgmt-LITL</td><td>Large</td><td>2008-06-13</td><td>2009-05-21</td><td>300000</td></tr><tr><td>4</td><td>Recruit-LITL</td><td>Medium</td><td>2008-03-18</td><td>2008-06-01</td><td>50000</td></tr><tr><td>5</td><td>IDMgmt-MTC</td><td>Small</td><td>2007-01-15</td><td>2007-01-29</td><td>20000</td></tr><tr><td>6</td><td>Recruit-ITC</td><td>Medium</td><td>2007-03-01</td><td>2007-06-28</td><td>50000</td></tr></tbody></table> Find the output of the following: i. select avg(cost) from projects where projsize = "mediem"; ii. select count(distinct projsize) from projects; iii. select id from projects where startdate > enddate; iv. select projsize,count(*) from projects group by projsize;	ID	ProjName	ProjSize	StartDate	EndDate	Cost	1	Payroll-MMS	Medium	2006-03-17	2006-09-16	60000	2	Payroll-ITC	Large	2008-02-12	2008-01-11	500000	3	IDMgmt-LITL	Large	2008-06-13	2009-05-21	300000	4	Recruit-LITL	Medium	2008-03-18	2008-06-01	50000	5	IDMgmt-MTC	Small	2007-01-15	2007-01-29	20000	6	Recruit-ITC	Medium	2007-03-01	2007-06-28	50000	4
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	<b>Part – B</b>																																											
	<b>Section – I</b>																																											
18	Consider the following dataframes :	2																																										

	<p>df1</p> <table border="1"> <thead> <tr> <th></th> <th>mark1</th> <th>mark2</th> </tr> </thead> <tbody> <tr><td>0</td><td>10</td><td>15</td></tr> <tr><td>1</td><td>40</td><td>45</td></tr> <tr><td>2</td><td>15</td><td>30</td></tr> <tr><td>3</td><td>40</td><td>70</td></tr> </tbody> </table> <p>df2</p> <table border="1"> <thead> <tr> <th></th> <th>mark1</th> <th>mark2</th> </tr> </thead> <tbody> <tr><td>0</td><td>30</td><td>20</td></tr> <tr><td>1</td><td>20</td><td>25</td></tr> <tr><td>2</td><td>20</td><td>30</td></tr> <tr><td>3</td><td>50</td><td>30</td></tr> </tbody> </table> <p>Write the commands to do the following operations on the dataframes given above :</p> <p>(i) To rename column mark1 as Score1 in both the dataframes df1 and df2.</p> <p>(ii) To change index label of df1 from 0 to zero and from 1 to one.</p>		mark1	mark2	0	10	15	1	40	45	2	15	30	3	40	70		mark1	mark2	0	30	20	1	20	25	2	20	30	3	50	30	
	mark1	mark2																														
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3	50	30																														
19	<p>Deeya wants to delete the records where the “First Name “ is “R Singhal” in the ‘Emp’ Table .She has entered the following SQL statement .An error is being displayed . Rewrite the correct statement.</p> <p>DELETE ‘ R Singhal ’ FirstName FROM Emp;</p>	2																														
20	What is e-waste? How we can manage it (two points)?	2																														
21	Write a small python code to drop a row from dataframe labelled as 0.	2																														
22	<p>i) State one difference between having and where clause.</p> <p>ii) “Pay” is a column name for the Pay of staff in a table “Schools”. The SQL queries</p> <p>SELECT count(*) FROM Schools;</p> <p>and</p> <p>SELECT count(Pay) FROM Schools;</p> <p>The outputs obtained are 40 and 39 in both the queries respectively.</p> <p>What is the reason behind different output?</p>	2																														
23	What is a repeater?	2																														
24	What is the difference between now () and sysdate() in SQL?	2																														
25	<p>Consider the following Teacher table: Write SQL commands for (i) and output for (ii).</p> <table border="1"> <thead> <tr> <th>Tid</th> <th>TName</th> <th>Department</th> <th>Salary</th> <th>Noof Periods</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>Joseph</td> <td>Physics</td> <td>45000</td> <td>25</td> </tr> <tr> <td>101</td> <td>Lakshmi</td> <td>Hindi</td> <td>55000</td> <td>25</td> </tr> <tr> <td>102</td> <td>Neelu</td> <td>Chemistry</td> <td>66000</td> <td></td> </tr> <tr> <td>103</td> <td>John</td> <td>Physics</td> <td>40000</td> <td>25</td> </tr> </tbody> </table> <p>(i) Display Department, total Teachers in each Department.</p> <p>(ii) What will be the output of the following SQL command?</p> <p>SELECT Department, count(*) from Teacher GROUP BY Department having 2 count(*)&gt;=2;</p>	Tid	TName	Department	Salary	Noof Periods	100	Joseph	Physics	45000	25	101	Lakshmi	Hindi	55000	25	102	Neelu	Chemistry	66000		103	John	Physics	40000	25	2					
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26	How are dictionaries different from lists?	2																														
27	Write the specific purpose of functions used in plotting: i) plot() ii) Legend()	2																														
Section II																																

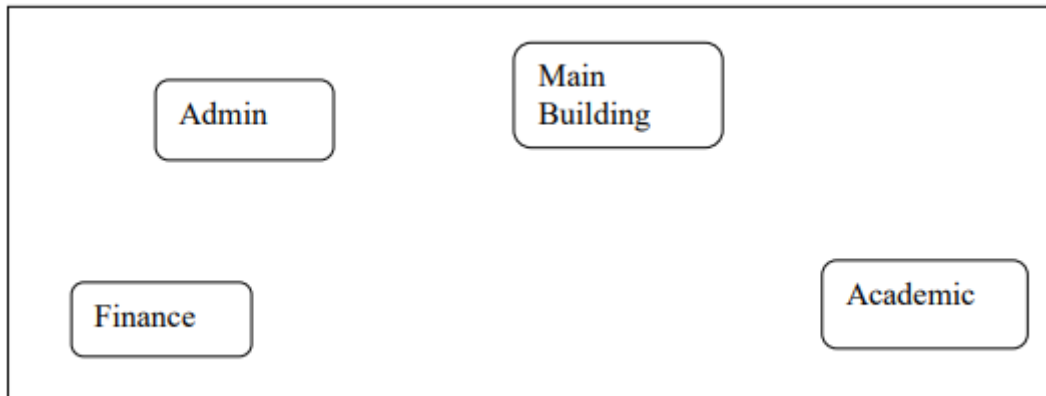
28	<p>Write python statements to create a data frame for the following data.</p> <p>Name    Age    Designation</p> <p>YAMINI 35    PRINCIPAL</p> <p>DINESH 40    SYSTEM MANAGER</p> <p>SHYAM 50    TEACHER</p> <p>1. add a column salary and give values</p> <p>2. write command to change the name as the index</p>	3																																				
29	What is net etiquitties? What are the rules that is to be followed for a good etiquitees?	3																																				
30	Write a python code using pyplot to create a histogram for the following data set: Marks=[38,10,15,25,28,35,47,49,50,63,67,53] Give appropriate labels and titles	3																																				
31	<p>Write an SQL query to create the table 'item' with the following structure.</p> <p>ItemCode ,itemName ,Category, Price</p> <p>i. Write a command to add a column qty of type integer .</p> <p>ii. Write command to make itemcode column as primary key.</p> <p>iii. Write command to insert a record with appropriate values.</p>	3																																				
	Section -III																																					
32	<p>A dictionary Grade contains the following:</p> <p>Grade={'Name':[ 'Rashmi', 'Harsh', 'Ganesh', 'Priya', 'Vivek'],</p> <p>'Grade':['A1', 'A2', 'B1', 'A1', 'B2']}</p> <p>Write statements for the following:-</p> <p>i) Create a Dataframe named "Gr".</p> <p>ii) Add a column called 'marks' with following data: [97,92,95,89,96,82]</p> <p>iii) Delete 3rd and 5th rows,</p>	5																																				
33	<p>Answer the following on the basis of table Shop.</p> <p style="text-align: center;"><b>Table : Shop</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th><b>Id</b></th> <th><b>Item</b></th> <th><b>Category</b></th> <th><b>CP</b></th> <th><b>SP</b></th> <th><b>DtManuf</b></th> </tr> </thead> <tbody> <tr> <td>101</td> <td>Oats Biscuits</td> <td>A</td> <td>25.00</td> <td>35.00</td> <td>2018-10-19</td> </tr> <tr> <td>102</td> <td>Ragi Chips</td> <td>B</td> <td>50.00</td> <td>65.00</td> <td>2018-11-14</td> </tr> <tr> <td>103</td> <td>Oats</td> <td>A</td> <td>90.00</td> <td>100.00</td> <td>2019-03-30</td> </tr> <tr> <td>104</td> <td>Honey Biscuits</td> <td></td> <td>50.00</td> <td>80.00</td> <td>2018-10-23</td> </tr> <tr> <td>105</td> <td>Pumpkin Seeds</td> <td>C</td> <td>75.00</td> <td>85.00</td> <td>2018-12-25</td> </tr> </tbody> </table> <p>(i) To display Id, Item, CP in descending order of CP.</p> <p>(ii) To display the Names of all the items with category as 'A'.</p>	<b>Id</b>	<b>Item</b>	<b>Category</b>	<b>CP</b>	<b>SP</b>	<b>DtManuf</b>	101	Oats Biscuits	A	25.00	35.00	2018-10-19	102	Ragi Chips	B	50.00	65.00	2018-11-14	103	Oats	A	90.00	100.00	2019-03-30	104	Honey Biscuits		50.00	80.00	2018-10-23	105	Pumpkin Seeds	C	75.00	85.00	2018-12-25	5
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- (iii) To list names of Items and their date of manufacturing of those items that were manufactured after 1st October 2018.
- (iv) To count and display the category and number of Items of each Category.
- (v) To display the Category of Items. (Duplicate Categories should not be displayed)

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Sanskar University of Himachal Pradesh is setting up a secured network for its campus at Himachal Pradesh for operating their day-to-day office & web based activities. They are planning to have network connectivity between four buildings. Answer the question (i) to (iv) after going through the building positions in the campus & other details which are given below:

5



The distances between various buildings of university are given as:-

Building 1	Building 2	Distance(in mtrs.)
Main	Admin	50
Main	Finance	100
Main	Academic	70
Admin	Finance	50
Finance	Academic	70
Admin	Academic	60

Number of computers:-

Building	No. of Computers
Main	150
Admin	75
Finance	50
Academic	60

As a network expert, you are required to give best possible solutions for the given queries of the university administration:-

- (a) Suggest cable layout for the connections between the various buildings,
- (b) Suggest the most suitable building to house the server of the network of the university,

(c) Suggest the placement of following devices with justification:

1. Switch/Hub
2. Repeater

(d) Suggest the technology out of the following for setting-up very fast Internet connectivity among buildings of the university

1. Optical Fibre
2. Coaxial cable
3. Ethernet Cable

(d) What is the type of network that is formed by the buildings?

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