LIONS SCHOOL MIRZAPUR

PreBoard Examination (2020-21)

Class: XII   **Time: 3 hrs**

Subject: Informatics Practices (065)   **M.M.: 70**

Note:

- *Please check, this question paper contains 8 printed pages.*
- *Please check, this question paper contains 5 questions.*
- *Q. No.-1 & 2 are short answer type and carry 1 Marks each.*
- *Q. No.-3 & 4(a), (b), (c) carry 2 Marks each.*
- *Q. No.-4(d), (e), (f) & 5(a) carry 3 Marks*
- *Q. No.-5(b), (c), (d) carry 4 marks and 5(e), (f) carry 5 Marks each.*
- *Attempt all the questions.*

Section – A

Q1 – a) State whether True/False –   (1)

- o   A copyright is automatically granted to authors or creators of contents.
- o   In FOSS source code is usually hidden from the users.

b) According to a survey, one of the major Asian country generates approximately about 2 million tons of electronic waste per year. Only 1.5% of the total e-waste gets recycled. Suggest a method to manage e-waste.   (1)

c) Which of the following is not an intellectual property?   (1)

(i) A poem written by a poet

(ii) An original painting made by a painter

(iii) Trademark of a Company

(iv) A remixed song

d) Jhilmil has stolen a credit card. She used that credit card to purchase a laptop. What type of offence has she committed?   (1)

e) I can keep you signed-in. I can remember your site preferences. I can give you locally relevant content. Who am I?   (1)

f) _____ is an attempt where a hacker tries to divert network traffic to a bogus site. (1)

g) Write the difference between Digital Signature and Digital Certificate. (1)

h) Unauthorized monitoring of other people's communications is called _____. (1)

i) URLs are of two types – (1)

i)   Absolute & Relative   ii)   Static & Dynamic

iii)   Absolute & Dynamic   iv)   None of the above

Q2 – a) For web pages where the information is changed frequently, for example stock prices, weather information etc., out of the following which option would you advice? (1)

i)   Static web page   ii)   Dynamic web page

Justify your answer.

b) The command used to give a heading to a graph is _____. (1)

c) In Pandas the function used to check for null values in a DataFrame is _____. (1)

d) Using python Matplotlib _____ can be used to count how many values fall into each interval. (1)

e) Write a program in python to create the following series – (1)

	Marks
Term1	45
Term2	65
Term3	24
Term4	89

f) Mr. Sanjay wants to plot a bar graph for the given set of values of subject on x-axis and number of students who opted for that subject on y-axis. Complete the code to perform the following : (1)

- To plot the bar graph in statement 1
- To display the graph in statement 2

```
import matplotlib.pyplot as plt
x=['Hindi', 'English', 'Science', 'SST']
y=[10,20,30,40]
_____ Statement 1
_____ Statement 2
```

g) Consider the following python code and write the output for statement S1. (1)

```
import pandas as pd
K=pd.series([2,4,6,8,10,12,14])
K.quantile([0.50,0.75]) ---------------------- S1
```

h) Hitesh wants to display the last four rows of the dataframe df and has written the following code:

```
df.tail()
```

But last 5 rows are being displayed. Identify the error and rewrite the correct code so that last 4 rows get displayed. (1)

i) Prachi has given the following command to obtain the highest marks – (1)

Select max(marks) from student where group by class;

But she is not getting the desired result. Help her by writing the correct command.

Q3 – a) A Company in Mega Enterprises has 4 wings of buildings as shown in the diagram – (2)
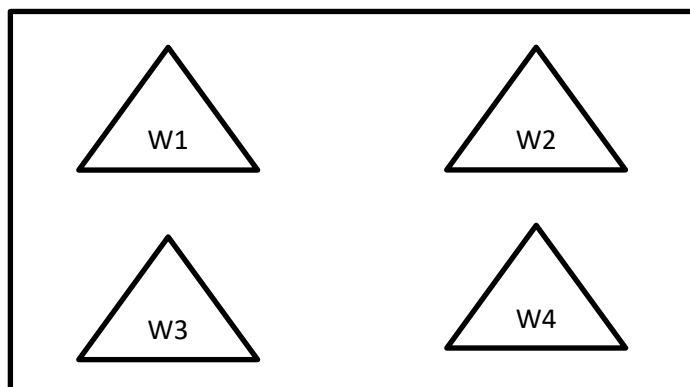
Center to Center distances	Distances
W3 to W1	50 m
W1 to W2	60 m
W2 to W4	25 m
W4 to W3	170 m
W3 to W2	125 m
W1 to W4	90 m

Wing	No of Computers
W1	150
W2	15
W3	15
W4	25

Computers in each wing are networked but wings are not networked. The company has now decided to connect the wings also.

- Suggest a most suitable cable layout for the above connections.
- Suggest the most appropriate topology of the connection between the wings.

- Suggest the placement of the following devices with justification if the company wants minimized network traffic :

  i)   Repeater
  ii)   Hub/Switch

- The company is planning to link its head office situated in New Delhi with the offices in hilly areas. Suggest a way to connect it economically.

b) Mr. Jayanto Das is confused between Shareware and Open Source software, mention at least two point of differences to help him to understand the same.   (2)

c) What is web server software? Name any two web server software.   (2)

d) Write two point difference of Router and Gateway.   (2)

e) How is PAN different from LAN? Write two point of difference.   (2)

f) Consider the following DataFrame, Classframe --   (2)

	Rollno	Name	Class	Section	CGPA	Stream
St1	1	Aman	IX	E	8.7	Science
St2	2	Preeti	X	F	8.9	Arts
St3	3	Kartikey	IX	D	9.2	Science
St4	4	Lakshay	X	A	9.4	Commerce

Write commands to –

- Add a new column Activity to the DataFrame with values(Poster, Drawing, Dance, Drama)
- Add a new row with values(5, Mridula, X, F, 9.8, Science)

Q4 – a) Given a DataFrame student –   (2)

	Rollno	Name	Marks	Grade	Section	Project
0	101	Ruhani	76.8	A	A	Pending
1	102	George	71.2	B	A	Submitted
2	103	Simran	81.2	A	B	Evaluated
3	104	Ali	61.2	B	C	Assigned
4	105	Kushal	51.6	C	C	Evaluated
5	106	Arsiya	91.6	A+	B	Submitted
6	107	Raunaq	32.5	F	B	Submitted

Write a program to print only the Name, Marks and Project for all the rows.

b) What is the difference between the order by and group by clause when used along with the select statement. Explain with example.   (2)

c) Shivani has recently started working in MySQL. Help her in understanding the difference between the following : (2)

- Where and having clause
- Count(column_name) and count(*)

d) The **Student** table of TEST database of MySQL stores student details as given below - (3)

Rollno	Name	Marks	Grade	Section	Project
101	Ruhani	76.8	A	A	Pending
102	George	71.2	B	A	Submitted
103	Simran	81.2	A	B	Evaluated
104	Ali	61.2	B	C	Assigned
105	Kushal	51.6	C	C	Evaluated
106	Arsiya	91.6	A+	B	Submitted
107	Raunaq	32.5	F	B	Submitted

- Write a program to load the data of this Student table in a DataFrame. Display the dataframe and also display the details of the topper student (student having the maximum marks).

e) A relation **Vehicle** is given below - (3)

V_No	Type	Company	Price	Qty
AW125	Wagon	Maruti	250000	25
J0083	Jeep	Mahindra	4000000	15
S9090	SUV	Mitsubishi	2500000	18
M0892	Mini Van	Datsun	1500000	26
W9760	SUV	Maruti	2500000	18
R2409	Mini Van	Mahindra	350000	15

Write SQL Commands for the following –

- Display the average price of each type of vehicle having quantity more than 20.
- Count the type of vehicles manufactured by each company
- Display the total price of all the types of vehicle.

f) On the basis of following table answer the given questions: (3)

Table: **CUSTOMER_DETAILS**

Cust_ID	Cust_Name	Acct_Type	Accum_Amt	DOJ	Gender
CNR_001	Manoj	Saving	101250.00	1992-02-19	M
CNR_002	Rahul	Current	132250.00	1998-01-11	M
CNR_004	Steave	Saving	18200.00	1998-02-21	M
CNR_005	Manpreet	Current	NULL	1994-02-19	M

- Write the degree and cardinality of the above table.

- What will be the output of the following query : Select max(DOJ) From Customer_Details;

- Write the sql query to delete the row from the table where customer has no accumulated amount.

Q5 – a) In an engineering college, number of admissions streamwise in the current year are: (3)

Civil=15, Electrical=35, Mechanical=40, Chemical=20, CS=50

Write a program to print above information on a **perfectly circular** pie chart with **Slice label** as Civil, Electrical etc, **Slice percentage** and creating **an explode** for CS stream.

b) Consider the following DataFrame dfm and answer the following questions --   (4)

Rollno	Name	UT1	UT2	UT3	UT4
1	Prerna Singh	24	24	20	22
2	Manish Arora	18	17	19	22
3	Tanish Goel	20	22	18	24
4	Falguni Jain	22	20	24	20
5	Kanika Bhatnagar	15	20	18	22
6	Ramandeep kaur	20	15	22	24

- Write down the command to show the following output –

    rollno   6

    name   Tanish Goel

    UT1   24

    UT2   24

    UT3   24

    UT4   24

    dtype: Object

- show the marks scored by the student with rollno 4.

- Show the exact no of values in each column of the dataframe.

- Display the column label of the DataFrame.

- Add a new column Grade with the values A, B, A, A, B, A   ,to the dataframe.

c) Write a program in Python to create the following DataFrame batsman using dictionary.   (4)

	B_No	Name	Score1	Score2
0	1	Sunil Pillai	90	80
1	2	Gaurav Sharma	65	45
2	3	Piyush Goel	70	90
3	4	Kartik Thakur	80	76

Perform the following operations on the DataFrame

- Add both the scores of a batsman and assign to a new column "Total"
- Display the highest score in both Score1 & Score2 of the DataFrame.

d) Consider the table **student** given below –   (4)

Rollno	Name	Class	DOB	Gender	City	Marks
1	Anand	XI	6/6/1997	M	AGRA	430
2	Chetan	XII	7/5/1994	M	MUMBAI	460
3	Geet	XI	6/5/1997	F	AGRA	470
4	Preeti	XII	8/8/1995	F	MUMBAI	492
5	Saniyal	XII	8/10/1995	M	DELHI	360
6	Maahi	XI	12/12/1994	F	DUBAI	256
7	Neha	X	8/12/1995	F	MOSCOW	324
8	Nishant	X	12/6/1995	M	MOSCOW	429

- Write the command that will give the following output –

Name
Anand
Chetan
Geet
Preeti

- Write the command to display the average marks scored by students of each gender who are in class XI.
- Write the command to display the name of youngest student.
- Write the output => select * from student where gender='F' order by marks;

e) Consider a table **SALESMAN** with the following data –   (5)

SNo	SName	Salary	Bonus	DOJ
A01	Beena Mehta	30000	45.23	29-10-2019
A02	K. L. Sahay	50000	25.34	13-03-2018
B03	Nisha Thakkar	30000	35.00	18-03-2017
B04	Leela Yadav	80000	NULL	31-12-2018
C05	Gautam Gola	20000	NULL	23-01-1989
C06	Trapti Garg	70000	12.37	15-06-1987
D07	Neena Sharma	50000	27.89	19-03-1999

Write SQL queries using SQL functions to perform the following operations –

- Display salesman name and bonus after rounding off to zero decimal places.
- Display the position of occurrence of the string "ta" in salesman name.

- Display the four characters from salesman name starting from second character.
- Display the month name for the DOJ of salesman.
- Display the name of the weekday for the DOJ of salesman.

f) Write commands in SQL for (i) to (iv) and output for (v) and (vi).   (5)

Table : **Store**

StoreID	Name	Location	City	NoOfEmp	DateOpen	SalesAmt
S101	Planet Fashion	Bandra	Mumbai	7	2015-10-16	40000
S102	Vogue	Karol Baagh	Delhi	8	2015-07-14	120000
S103	Trends	Powai	Mumbai	10	2015-06-24	30000
S104	SuperFashion	Thane	Mumbai	11	2015-02-06	45000
S105	Annabelle	South Extn	Delhi	8	2015-04-09	60000
S106	Rage	Defence Colony	Delhi	5	2015-03-01	20000

i.   To display names of stores along with SalesAmount of those stores that have 'fashion' anywhere in their store names.

ii. To display Stores names, Location and DateOfOpen of stores that were opened before 1st March, 2015.

iii. To display name and location of those store which have either 'u' as second character in their name.

iv. To display the City and the number of stores located in that City, only if number of stores is more than 2.

v.   Select Min(DateOpen) from Store;

vi. Select Count(Storeid), Noofemp

     From Store

     Group By Noofemp

     Having Max(Salesamt)<60000;