Kendriya Vidyalaya Sangathan, Ahmedabad Region
First Pre Board Examination 2020-21
Subject: Informatics Practices
Class XII

Max Marks: 70 **Time: 3 Hours**

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 sub- parts. An examinee is to attempt any 4 out of the 5subparts.
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. Shareware software allows you to try the software before you buy it. ii. Copyright is not the right of the creator of creative/artistic work.	1
2	Fill in the blanks : The command used to show legends is _____ a. display() b. show() c. legend() d. legends()	1
3.	Write the output of the following SQL command. select round(15.857,-1); a. 15.8 b. 15.9 c. 15.0 d. 20	1
4	Given a Pandas series called Sample, the command which will display the last 3 rows is_____. a. print(Sample.tail(3)) b. print(Sample.Tail(3)) c. print(Sample.tails(3) d. print(Sample.Tails(3))	1

5	Given the following Series S1 and S2: S1 S2 A 10 A 5 B 20 B 4 C 30 C 6 D 40 D 8 Write the command to find the multiplication of series S1 and S2	1
6	Which of the following is not a valid chart type? a. lineplot b. bargraph c. histogram d. statistical	1
7	The address of location of the document on the World Wide Web is called its_____.	1
8	A digital document hosted on a website is _____	1
9	Internet is an example of which topology: Star, Mesh , Tree, Bus	1
10	In a DataFrame, Axis= 0, represents the_____elements.	1
11	The now()function in MySql is an example of_____. a. Math function b. Text function c. Date Function d. Aggregate Function	1
12	The practice of taking confidential information from you through an original looking site and URL is known as _____	1
13	In Pandas the function used to delete a column in a DataFrame is a. remove b. del c. drop d. cancel	1
14	I am a fraudulent business practice. I can extract money from an unsuspecting, ignorant person. Who am I?	1
15	Which amongst the following is the first page we normally view on a Website? a. Home Page b. Master Page c. First Page d. Banner Page	1
16	A website store the browsing activity through _____	1
17	Give a solution to recycle the E-Waste in the country.	1
18	The _____command can be used to makes changes in the structure of a table in SQL.	1
19	Write the SQL command that will display the time and date at which the command got executed.	1
20	_____Network device is a broadcast device.	1
21.	Gaining unauthorized access to a network or computer with malicious intensions is an example of _____.	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 Consider the following DataFrame **emp** and answer any four questions from (i)- (v)

empno	Name	Dept	salary	Experience (in Years)
1	Ram Singh	IT	15000	2.5
2	Shyam Singh	HR	18000	3
3	Nidhi Gupta	IT	9000	2
4	Puja Sharma	EXE	24000	8
5	Rohan Malik	HR	20000	6

(i) Write down the command that will give the following output. 1

```
Empno        5
Name         Rohan Malik
Dept         HR
Salary       20000
Experience   6
dtype:  object
```

a. print(emp.max)
b. print(emp.max())
c. print(emp.max(axis=1))
d. print(emp.max,axis=1)

(ii) The CEO needs to know the salary of the employee with empno 4. Help him to identify the correct set of statement/s from the given options: 1

a. emp1=emp[emp['empno']==4]
print(emp1)
b. emp1=emp[emp]
print(emp1)
c. emp1=emp[emp.empno=4]
print(emp1)
d. emp1=emp[emp.empno==4]
print(emp1)

(iii) Which of the following statement/s will give the exact number of values in each column of the dataframe? 1

i. print(emp.count())
ii. print(emp.count(0))
iii. print(emp.count)
iv. print(emp.count(axis='index'))

Choose the correct option:
a. both (i) and(ii)
b. only(ii)
c. (i), (ii) and(iii)
d. (i), (ii) and(iv)

(iv) Which of the following command will display the column labels of the DataFrame? 1

a. print(emp.columns())
b. print(emp.column())
c. print(emp.column)
d. print(emp.columns)

(v) Mr. Satvik Ahuja, the CEO wants to add a new column, the rating of the performance of employees with the values, 'A', 'A', 'B', 'A', 'B', to the DataFrame. Help him choose the command to do so: 1

a. emp.column=['A','A','B','A','B']
b. emp['Performance']=['A','A','B','A','B']
c. emp.loc['Performance']= ['A','A','B','A','B']
d. Both (b) and (c) are correct

23 Consider the SchoolBus table given below:

Rtno	Area_covered	Capacity	Noofstudents	Distance	Transporter	Charges
1	Vasantkunj	100	120	10	Shivamtravels	100000
2	HauzKhas	80	80	10	Anand travels	85000
3	Pitampura	60	55	30	Anand travels	60000
4	Rohini	100	90	35	Anand travels	100000
5	Yamuna Vihar	50	60	20	Bhalla Co.	58000
6	Krishna Nagar	70	80	30	Yadav Co.	80000
7	Vasundhara	100	110	20	Yadav Co.	100000
8	PaschimVihar	40	40	20	Speed travels	55000

(i) State the command that will give the output as :

Area_covered
Yamuna Vihar
Krishna Nagar
Vasundhara

i. select area_covered from schoolbus where transporter='Yadav Co.'and transporter='Bhalla Co.';
ii. select area_covered from schoolbus where not transporter='Yadav Co.'and transporter='Bhalla Co.';
iii. select area_covered from schoolbus where transporter ='Yadav Co.' OR transporter='Bhalla Co.';
iv. select area_covered from schoolbus where transporter IN("Yadav co.", "Bhalla co.");

Choose the correct option:
a. Both (i) and (ii).
b. Both (iii) and (iv).
c. Any of the options (i), (ii) and(iv)
d. Only(iii)

(ii) What will be the output of the following command? 1
Select * from schoolbus where distance=20 order by charges;
a)

Rtno	Area_covered	Capacity	Noofstudents	Distance	Transporter	Charges
5	Yamuna Vihar	50	60	20	Bhalla Co.	58000
7	Vasundhara	100	110	20	Yadav Co.	100000
8	PaschimVihar	40	40	20	Speed travels	55000

b)

Rtno	Area_covered	Capacity	Noofstudents	Distance	Transporter	Charges
8	PaschimVihar	40	40	20	Speed travels	55000
5	Yamuna Vihar	50	60	20	Bhalla Co.	58000
7	Vasundhara	100	110	20	Yadav Co.	100000

c)

Distance	Charges
20	58000
120	100000
20	55000

d)

Distance	Charges
20	55000
20	58000
20	100000

(iii) Ravi has given the following command to obtain the Longest distance — 1

Select max(distance) from schoolbus where group by transporter;

But he is not getting the desired result. Help him by writing the correct command.

a. select max(distance) from schoolbus where group by transporter;
b. select transporter, max(distance) from schoolbus group by distance;
c. select transporter, max(distance) group by transporter from schoolbus;
d. select transporter, max(distance) from schoolbus group by transporter;

(iv) State the command to display the average of charges as per distance covered? — 1

(v) Help Saumya to write the command to display the name of the transporter who is having lowest capacity in his schoolbus? — 1

a. select transporter,min(capacity) from schoolbus;
b. select transporter,max(capacity) from schoolbus;
c. select transporter,min(capacity) from schoolbus group by transporter;
d. select transporter,maximum(capacity) fromschoolbus;

Part – B

Section – I

24 Consider a given Series , Subject: — 2

INDEX	MARKS
ENGLISH	75
HINDI	78
MATHS	82
SCIENCE	86

Write a program in Python Pandas to create this series.

25 State any two differences between CHAR and VARCHAR. — 2

OR

What is the difference between the where and having clause when used along with the **select** statement?
Explain with an example.

26 Consider the decimal number x with value 3875.4897. Write commands in SQL to: — 2

i. Round it off 3 places after the decimal
ii. Round it to 3 places before the decimal.

<table>
<tr><td>27</td><td>Consider the following Series object, “company” and its profit in Crores
TCS 350
Reliance 200
L&T 800
Wipro 150

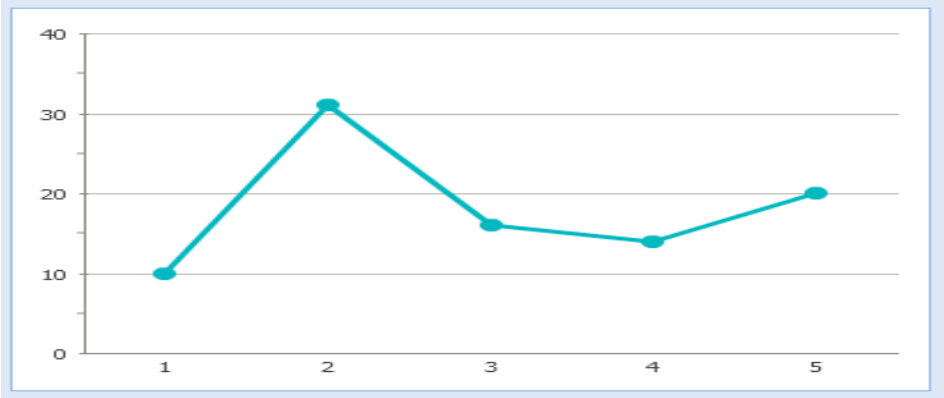
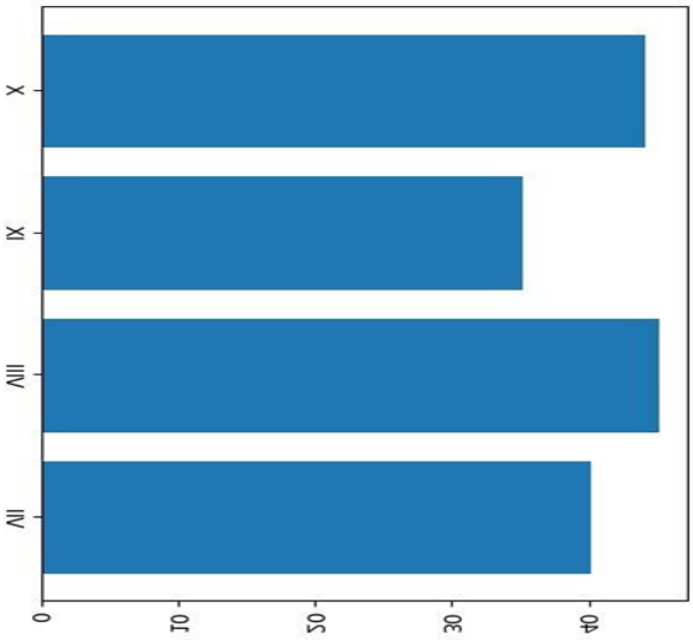
i. Write the command which will display the name of the company having profit>250.
ii. Write the command to name the series as Profit.</td><td>2</td></tr>
<tr><td>28</td><td>Mr. Sharma writes the following commands with respect to a table department having fields, deptno, dept_name, head_of_department, manager.
Command1 : Select count(*) from department;
Command2: Select count(manager) from department;

He gets the output as 8 for the first command but gets an output 6 for the second command. Explain the output with justification.</td><td>2</td></tr>
<tr><td>29</td><td>Consider the following SQL string: “Informatics Practices”
Write commands to display:

a. “Practices”
b. “matics”
OR
Considering the same string “Computer”
Write SQL commands to display:

a. the position of the substring ‘ter’ in the string“Computer”
b. the first 4 letters of the string</td><td>2</td></tr>
<tr><td>30</td><td>Consider the following DataFrame, sports
<table><tr><th></th><th>Sports_Id</th><th>Name</th><th>Student</th><th>Team</th></tr><tr><td>s1</td><td>1</td><td>Hockey</td><td>15</td><td>B</td></tr><tr><td>s2</td><td>2</td><td>Cricket</td><td>20</td><td>D</td></tr><tr><td>s3</td><td>3</td><td>Chess</td><td>4</td><td>C</td></tr><tr><td>s4</td><td>4</td><td>Carrom</td><td>4</td><td>A</td></tr></table>Write commands to :
i. Add a new column ‘Winner’ to the Dataframe
ii. Add a new row with values (s5 , 5 ,Handball, 20)</td><td>2</td></tr>
<tr><td>31</td><td>Expand the following terms related to Computer Networks:
a. PPP
b. HTTPS
c. VoIP
d. PAN</td><td>2</td></tr>
<tr><td>32</td><td>List any two net etiquettes related to use of Internet Technology.</td><td>2</td></tr>
<tr><td>33</td><td>Mr. Amit Mishra is using his internet connection for checking the online account of company’s admin without his knowledge. What do we call this type of activity? What are the ways by which we can avoid such type of activities?</td><td>2</td></tr>
<tr><td></td><td>Section –II</td><td></td></tr>
<tr><td>34</td><td>Consider two objects a and b.
a is a list whereas b is a Series. Both have values 10,20,25,50.
What will be the output of the following two statements considering that the above objects have been created already

a. print(a*2) b. print(b*2)
Justify your answer.</td><td>3</td></tr>
</table>

35	What do you mean by Phishing? Explain with the help of an example. **OR** List any two health hazards related to excessive use of Technology.	3
36	Consider the following graph. Write the code to plot it.  **OR** Write code to draw the following bar graph representing the number of students in each class.  	3
37	A relation Toys is given below : **T_no** **Name** **Company** **Price** **Qty** T001 Doll Barbie 1200 10 T002 Car Seedo_wheels 550 12 T003 Mini House Barbie 1800 15 T004 tiles Seedo_wheels 450 20 T005 Ludo Seedo_wheels 200 24 Write SQL commands to: a. Display the average price of each type of company having quantity more than 15. b. Count the type of toys manufactured by each company. c. Display the total price of all toys.	3

Section –III

38 Write a program in Python Pandas to create the following DataFrame toppers from a Dictionary: **5**

T_NO	Name	PB1	PB2
1	Pavan	90	80
2	Sugandha	85	75
3	Pulkita	70	72
4	Sahil	69	71

Perform the following operations on the DataFrame :

1) Add both the marks from PB1 and PB2 of a student and assign to column "Final"
2) Display the highest marks in both PB1 and PB2 of the DataFrame.
3) Display the DataFrame

39 Write the SQL functions which will perform the following operations: **5**

i) To display the name of the day of the current date.
ii) To remove spaces from the beginning of a string, " Python".
iii) To display the name of the month eg, January or February from your date of birth.
iv) To display the starting position of word "Information" from "Information Technology"
v) To compute the power of two numbers a and b

OR

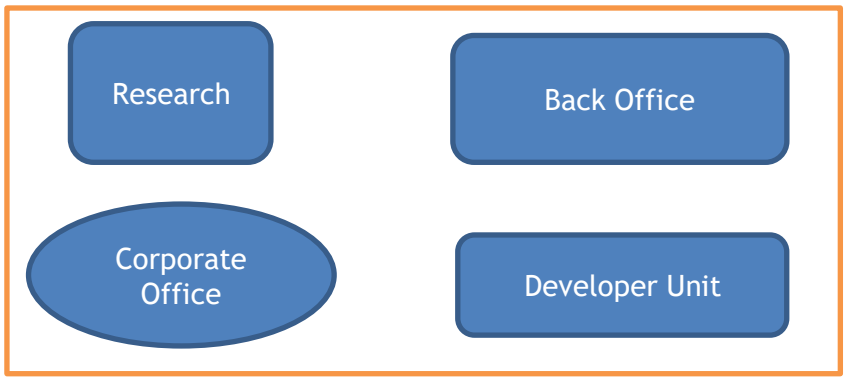
Consider a table Employee with the following data:

ENO	ENAME	SALARY	BONUS	DATE OF JOINING
E01	RamMehta	35000	NULL	02-11-2020
E02	ShyamSahay	55000	32.34	16-03-2008
E03	AlishaThakkar	32000	NULL	18-09-2020
E04	Neena Gupta	85000	28.54	31-11-1993
E05	GautamSingh	24000	NULL	30-09-2020
E06	Tez Singh	75000	22.47	25-07-1985
E07	ReemaSaxena	55000	NULL	30-10-2020

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

a) Display employee name and bonus after rounding off to zero decimal places.
b) Display the position of occurrence of the string "ee" in employee names.
c) Display the four characters from employee name starting from second character.
d) Display the day name for the date of joining of employee
e) Display the name of the month from the date of joining of employee

40. A company in Cyntel Enterprises has 4 departments of buildings as shown in the diagram : **5**



	Center to center distances between various Buildings: Research to Back Office - 50m Back Office to Developer Unit - 60m Developer Unit to Corporate Office - 25m Corporate Office to Research - 170m Research to Developer Unit - 125m Back Office to w4 - 90m Number of computers in each of the department: Back Office - 150 Developer Unit - 15 Research -15 Corporate Office – 25 Computers in each department are networked but departments are not networked The company has now decided to connect the departments also. i. Suggest a most suitable cable layout for the above connections. ii. Suggest the most appropriate topology of the connection between the departments. iii. The company wants internet accessibility in all the departments. Suggest a suitable technology. iv. Suggest the placement of the following devices with justification if the company wants minimized network traffic a) Repeater b) Hub /switch v. 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.	