

Pre Board Examination, 2020-21
Informatics Practices Class – XII

Max. Marks: 70
Time Allowed: 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 has 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.
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 question of 5 marks each in which one question has internal option.

Part -A

Section – I

Attempt any 15 questions from questions 1 to 21

1. State whether True or False: [1]
 - i. Free software is same as freeware.
 - ii. An important factor of privacy is consumer consent.
2. The part of the chart which identifies different sets of data plotted on plot by using different colours is called: [1]
 - a. title
 - b. xlabel
 - c. legend
 - d. ylabel

3. If column “Salary” contains the data set [10000,15000,25000,10000,15000], what will be the output after the execution of the given query? [1]

`SELECT SUM (DISTINCT SALARY) FROM EMPLOYEE;`

- a. 75000
 - b. 25000
 - c. 10000
 - d. 50000
4. Given a series object namely s1 with values 12,45,67,89. Find the output of the following statement: [1]

`print (s1*2)`

- a. [12,45,67,89,12,45,67,89]
 - b. 0 12
1 45
2 67
3 89
 - c. 0 24
1 90
2 134
3 178
 - d. [12,12,45,45,67,67,89,89]
5. Given the following Series S1 and S2: [1]

S1		S2	
A	12	A	-12
B	56	D	56
C	-90	E	-9
D	89	B	8

What would be the output of the given code?
`print (s1+s2)`

6. Using Python Matplotlib _____ can be used to count how many values fall into each interval. [1]
- a. line plot
 - b. bar graph
 - c. histogram
7. Using someone else's twitter handle to post something will be termed as _____. [1]
8. Selecting a subset from a data frame requires _____ function. [1]
9. Sheetal Enterprises has offices in different cities. Two of the offices are using different networks. Ravi, a network engineer is assigned the job to connect these two networks. Which device should he choose out of the given listed devices? [1]
- a. hub
 - b. gateway
 - c. router
10. For webpages, where the information is changed frequently, for example, stock prices, weather information which out of the following options would you advise? [1]
- a. Static web page
 - b. Dynamic web page
11. We apply the aggregate function to a group of sets of tuples using the _____ clause. [1]
- a. group by
 - b. group
 - c. group set
 - d. group attribute
12. _____ are the rights of the owner of information to decide how much information is to be exchanged, shared or distributed. [1]
13. In Pandas, the attribute used to get the row labels of Data Frame is _____. [1]
14. Robin wanted to gift his friend a football or a wrist watch. So he searched for many sports items and wrist watches online. [1]

But after that every time he goes online, his web browser shows him advertisements about sports items and wrist watches.

What is this happening?

15. Which amongst the following is not an example of browser? [1]
- Netscape navigator
 - Chrome
 - Safari
 - Avira
16. Nivedita has recently shifted to new city and new school. She does not know many people in her new city and school. But all of a sudden, someone is posting negative, demeaning comments on her social networking profile, school site's forum etc. What is happening to Nivedita? [1]
17. What is E-waste management? [1]
18. The _____ command can be used to make changes to the columns of a table. [1]
19. What is difference between the SQL functions sysdate() and now()? [1]
20. The _____ device that handles different protocols. [1]
21. _____ is the criminally fraudulent process of attempting to acquire sensitive information pertaining to a user. [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 Data Frame **teams** and answer any four questions from (i) –(v)

	Matches	Won	Lost	Deuce
Arsenal	45	23	11	12
Chelsea	40	18	10	12
Manchester_city	54	25	17	12
Liverpool	45	30	8	7
Everton	51	17	25	9
Newcastle_united	54	30	20	8
Southampton	48	20	24	4

(i) Write down the command that will give the following output: [1]

```
Lost      8
Won      17
dtype: int64
```

- a) `print(teams[['Lost', 'Won']].min())`
- b) `print(teams.min(axis=0))`
- c) `print(teams.min(axis=1))`
- d) `print(teams.min(['Lost', 'Won']))`

(ii) Write python statement to print the details of the teams who won more than 20 matches. [1]

(iii) Change the indices of the data frame **teams** as shown below: [1]

```
      matches  Won  Lost  Deuce
Team1      45   23   11    12
Team2      40   18   10    12
Team3      54   25   17    12
Team4      45   30    8     7
Team5      51   17   25     9
Team6      54   30   20     8
Team7      48   20   24     4
```

(iv) Which of the following command will display the column labels of the Data Frame? [1]

- a. `print(teams.columns())`
- b. `print(teams.column())`
- c. `print(teams.column)`
- d. `print(teams.columns)`

(v) Predict the output of the given statement: [1]

```
print(len(teams['Won']))
```

23. Consider the table **Training** given below:

Trd_id	Name	Emailid	Topic	City	Fee
ND01	Mr. Rajan	raj@gmail.com	Cyber Security	New Delhi	10000
GU01	Ms. Urvashi	urv@yahoo.com	ICT in Education	Gurugram	15000
FD01	Ms. Neena	neena@rediff.com	Cyber Security	Faridabad	12000
ND02	Mr. Vinay	NULL	ICT in Education	New Delhi	13000
GU02	Mr. Naveen	nav@gmail.com	Cyber Security	Gurugram	NULL

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

[1]

count(name)
2

- A. `select count(name) from training where city='New Delhi';`
- B. `select count(name) from training where emailid like '%@%';`
- C. `select count(name) from training where name like 'Ms%';`
- D. `select count(name) from training where fee>=14000;`

Choose the correct option:

- a. Both A and B
- b. Option C only
- c. Option A and C
- d. Option D only

(ii) What will be the output of the following command?

[1]

`select avg(fee) from training group by topic having avg(fee)>12000;`

a.

avg(fee)
11000.0000
14000.0000

b.

avg(fee)
11500.0000

c.

avg(fee)
14000.0000

d.

avg(fee)
12000.0000
15000.0000
11500.0000

- (iii) Suguna wants to display the maximum fee topic wise. She wrote the following command: [1]
`Select topic, max(fee) from training;`
 But she did not get the desired result. Rewrite the above query with necessary changes to help her to get the desired result.
- (iv) State the command to display the minimum fees in each city. [1]
 A. `select min(fee) from training;`
 B. `select min(fee), city from training group by city;`
 C. `select min(fee) from training group by city;`
 D. `select min(fee) from training order by city;`
- a. A only
 b. D only
 c. Both B and C
 d. Only C and D
- (v) Help Suguna to write the command to display the Name, fees of trainer who takes maximum fee. [1]
 a. `select max(fee) from student;`
 b. `select name, max(fee) from student;`
 c. `select name, max(fee) from student group by name;`
 d. `select name, maximum(fee) from student;`

Part –B
Section -I

24. Consider the given series **marks**: [2]

index	sameera	78
	suma	77
	farhan	56
	anjana	87
	sugandha	54
	Shraddha	65
	Mahesh	78

Write a program in Python Pandas to create the series.

25. What is the difference between where and having clause when used along with the select statement? Explain with an example. [2]

OR

State any two differences between primary key and foreign key.

26. Consider the decimal number x with value 278574.9754. Write commands in SQL to: [2]
 i. round up to 3 decimal places
 ii. truncate up to 2 places

27. Consider the following Series object, S_amt [2]
- | | |
|-------|-----|
| Table | 350 |
| Chair | 200 |
| Sofa | 800 |
| Stool | 150 |

- i. Write the command which will display the name of the furniture having rent>250
 ii. Write the command to name the series as Furniture.

28. Sarthak, a student of class XII, created a table “Class”. Grade is one of the columns of this table. To find the details of students whose Grades have not been entered, he wrote the following MySQL query, which did not give the desired result. [2]
`SELECT * FROM Class WHERE Grade='Null' ;`

Why is it happening and help Sarthak to run the query by identifying and removing the errors from the query and write the correct Query.

29. Consider the following string 'manager had a new team'. [2]
 Write commands to display
 i. anager had a new tea
 ii. team

OR

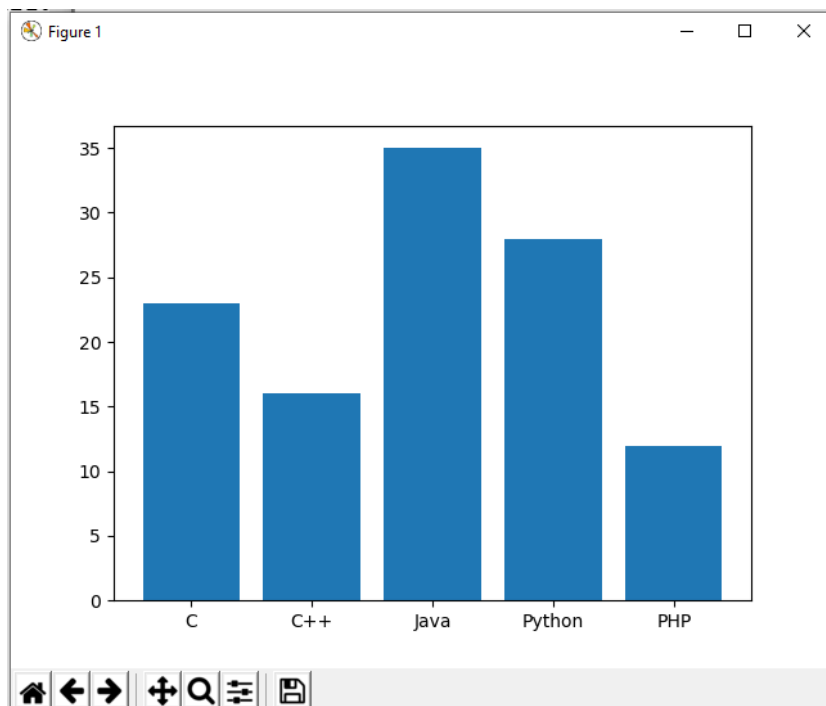
Considering the same string 'manager had a new team'.
 Write SQL commands to display:
 i. the position of new in the string
 ii. the first 7 letters of the string

30. Consider the data frame product shown below: [2]

	item	stock	price
0	Pen	1000	100
1	Pencil	800	50
2	Eraser	1200	150
3	ink	900	200

- i. Add a new column cost to the data frame product and calculate it as stock X price
 ii. Add a new row to the data frame product with the values
 item : record
 price: 28

Write a python program to display a bar graph of popularity of programming Languages as shown below:



37. A relation Vehicles 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	Datsum	1500000	26
W9760	SUV	Maruti	2500000	18
R2409	Mini van	Mahindra	350000	15

Write SQL commands to:

- 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 vehicles.

Section -III

38. Consider the data frame(**BP**) given below: [5]

	Name	Systolic	Diastolic
0	Anjum	130	90
1	Pravallika	140	80
2	Rajkumar	110	75
3	Sadhana	119	85
4	Bharat	120	80
5	Vijay	110	85
6	Meher	120	78

- Write python code to create the above data frame using dictionary.
- Display the minimum systolic and diastolic reading.
- Print the rows whose systolic reading is between 110 and 125.

39. Write the SQL functions which will perform the following operations: [5]

- Function to find the power of a number
- Function to find the week day of a given date
- Function to find the number of characters in SQL data
- Function to find the year of a given date
- Function to find the time and date of a current instance

OR

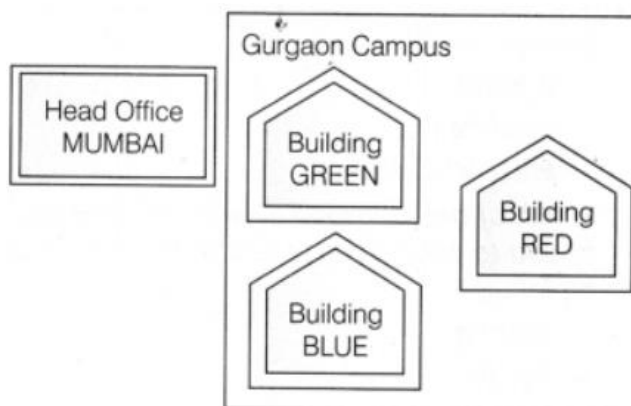
Consider the table SALESMAN with the following data:

SNO	SNAME	SALARY	BONUS	DATE OF JOIN
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	18-03-1999

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

40. Workalot consultants are setting up a secured network for their office campus of Gurgaon for their day-to-day office and web based activities. They are planning to have connectivity between 3 buildings and the head office situated in Mumbai. Answer the questions (i) to (iv) after going through the building positions in the campus and other details, which are given below:



Distance between various blocks	
Building GREEN to Building RED	110m
Building GREEN to Building BLUE	45m
Building BLUE to Building RED	65m
Gurgaon Campus to Head Office	1760km

Number of computers installed at various blocks	
Building GREEN	32
Building RED	150
Building BLUE	45
Head Office	10

- i) Suggest the most suitable place (i.e. building) to house the server of this organisation. Also, give a reason to justify your suggested location.
- ii) Suggest a cable layout of connections between the buildings inside the campus.
- iii) Suggest the placement of the following devices with justification :
 - (a) Switch
 - (b) Repeater
- iv) The organisation is planning to provide a high speed link with its head office situated in the Mumbai using a wired connection. Which of the following cables will be most suitable for this job?
 - (a) Optical fibre
 - (b) Co-axial cable
 - (c) Ethernet cable
- v) What type of network out of the following is formed by connection the computers of these three buildings?
