

INFORMATICS PRACTICES (065)
PREBOARD1:2022-23
CLASS XII

Maximum Marks: 70

Time Allowed: 3 hours

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only

Section A

1. If DataFrame is created using a 2D dictionary , then the indexes/row labels are formed from
a) Dictionary's values b) inner dictionary keys c) outer dictionary keys d) none of these
2. Which of the following statement is wrong in the context of DataFrame?
a) Two-dimensional size is mutable b) can perform arithmetic operations on rows and columns
c) Homogenous Tabular data structure d) Create DataFrame from numpy ndarray
3. Which method is used to delete rows from DataFrame?
a) .drop() b) .del() c) .remove() d) .delete()
- ASSERTION AND REASONING based questions. Mark the correct choice as
a) . Both A and R are true and R is the correct explanation for A
b) Both A and R are true and R is not the correct explanation for A
c) A is True but R is False
d) A is false but R is True.
4. Assertion (A):- DataFrame has both a row and column index.
Reasoning (R): - A DataFrame is a two-dimensional labelled data structure like a table of MySQL.
5. Assertion (A): An Internet troll is a person who deliberately sows discord on the Internet by starting quarrels or upsetting people.
Reason (R): We can download and use any material available on the Internet.
6. The following is automatically granted to the creator or owner of any invention:
a) Patent b) Copyright c) Trademark d) License
7. _____ is defined as the crime in which computer is the medium of crime.
A) Computer Crime b) Cybercrime c) Internet Crime d) Digital Crime
8. Which of the following is not a cybercrime?
a) Phishing b) Ransom ware c) Hacking d) Tracking
9. Intellectual property rights protect the use of information and ideas that are of:
a) Ethical value b) Moral value c) Social value d) Commercial value
10. Unsolicited commercial email is known as _____.
a) Spam b) Malware c) Virus d) Spyware
11. In which topology are all the nodes connected through a single coaxial cable?
a) Star b) tree c) bus d) mesh
12. Which network device connects dissimilar networks?
a) Router b) Gateway c) Bridge d) Repeater
13. Which of these is not a communication channel?
a) Satellite ii) Microwave iii) Radio wave d) Wifi
14. Which clause is used in query to place the condition on groups in MySQL ?
a) where b) having c) group by d) both a and b

15. Which of the following function is not an aggregate function?
 a) Round() b) Sum c) Count() d) Avg()
16. If column "Fees" contains the data set (5000,8000,7500,5000,8000), what will be the output after the execution of the given query? SELECT SUM (DISTINCT Fees) FROM student;
 a) 20500 b) 10000 c) 20000 d) 33500
17. Which SQL statement do we use to find out the total number of records present in the table ORDERS?
 a) SELECT * FROM ORDERS; b) SELECT COUNT (*) FROM ORDERS;
 c) SELECT FIND (*) FROM ORDERS; d) SELECT SUM () FROM ORDERS;
18. _____ is the trail of data we leave behind when we visit any website (or use any online application or portal) to fill-in data or perform any transaction.
 a) Offline phishing b) Offline footprint c) Digital footprint d) Digital phishing

Section B

19. Explain the terms web page and home page .
 Or

Explain the difference between static and dynamic web page.

20. What is the purpose of group by clause in SQL. Explain with the help of example.
21. Write a program to create a series object using a dictionary that stores the number of students in each house of class 12C of your school.
 Note: Assume four house names are Ganga, Yamuna, Thames, Niagra having 18, 2, 20, 18 students respectively and pandas library has been imported as pd.
22. Discuss measures to recycle your e-waste safely.

Or

Describe some common forms of student plagiarism.

23. What is the difference between single row and multiple row function. Explain with the help of example.
24. What will be the output of the following code:

```
>>>import pandas as pd
>>>B=pd.Series(data=[35,85,55,40])
>>>print(B>45)
```

25. Carefully observe the following code:

```
import pandas as pd
Year1={'Q1':5000,'Q2':8000,'Q3':12000,'Q4': 18000}
Year2={'A' :13000,'B':14000,'C':12000}
totSales={1:Year1,2:Year2}
df=pd.DataFrame(totSales)
print(df)
```

Answer the following:

- List the index of the DataFrame df
- List the column names of DataFrame df

Section C

26. Write outputs for SQL queries (i) to (iii) which are based on the given table PURCHASE:

CNO	CNAME	CITY	QUANTITY	DOP
C01	RAM	DELHI	150	2022-02-04
C02	HARNOOR	DALHOUSE	10	2021-06-07
C03	YASHWARDHAN	CHNADIGARH	110	2022-11-25
C04	ASHUTOSH	CHANDIGARH	50	2021-10-16
C05	KANIKA	HYDERABAD	25	2020-01-01

- SELECT LEFT(CNAME,2) FROM PURCHASE WHERE QUANTITY<100;
- SELECT CNAME FROM PURCHASE WHERE MONTH(DOP)=11;
- SELECT MOD (QUANTITY, DAY(DOP)) FROM PURCHASE WHERE CITY= 'DALHOUSE';

27. Write a Python code to create a DataFrame with appropriate column headings from the list given below: `[[101,'KHANAK',98],[102,'Rajinder',95],[103,'Samar',96],[104,'Yuvraj',88]]`

28. Consider the given DataFrame 'Stock':

	Name	Price
0	Nancy Drew	150
1	Hardy boys	180
2	Diary of a wimpy kid	225
3	Harry Potter	500

Write suitable Python statements for the following:

- Add a column called Quantity with the following data: [135,150,200,440].
- Add a new book named 'The Secret' having price 800.
- Remove the column Quantity.

29. What do you understand by plagiarism? Why is it a punishable offence? Mention any two ways to avoid plagiarism.

Or

Mr. Vinod is the administrator of a school computer network. Help him to take appropriate decision to achieve computer security and safe online access.

- Suggest a device to be used to filter network traffic to/from school network to provide network security.
- Which software he can use to get protection from Viruses and Spyware
- Tell him what he has to disable if possible in browser so that online patterns are not tracked. Also Explain its type in brief.

30. Consider the table EXAM with details of marks. Write MySQL commands for the following questions:

Table: EXAM

Adno	SName	Percentage	Clsection	Stream
R001	Sushant	90.2	12A	Science
R002	Vaidyanath	80.5	12B	Humanities
R003	Meera	68.9	12B	Science
R004	Niara	96.0	12C	Commerce
R005	Sanjhi	88.9	12D	Commerce

- Display stream wise highest percentage.
- Display section wise lowest percentage.
- Display all the details of the students whose name starts with S.

or

Discuss the significance of wild cards in pattern matching with the help of example.

Section D

31. Write suitable SQL query for the following:

- Display 5 characters extracted from 5th left character onwards from the string 'INDIA SHINING'.
- Display the position of occurrence of string 'CREDIB' in the string 'INCREDIBLE INDIA'.
- Round off the value 343.985 to one decimal place.
- Display the remainder of 800 divided by 13.

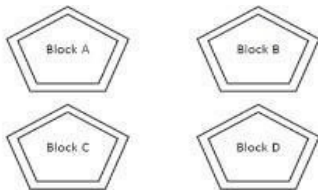
v. Remove all the expected leading and trailing spaces from a column SName of the table 'EXAM' (in section C).

or

Explain the following SQL functions using suitable examples.

- i. LCASE()
- ii. LTRIM()
- iii. SUBSTR()
- iv. MONTHNAME()
- v. MOD()

32.



Distance between the various blocks is as follows:

A to B	40 m
B to C	120 m
C to D	60 m
A to D	170 m
B to D	150 m
A to C	70 m

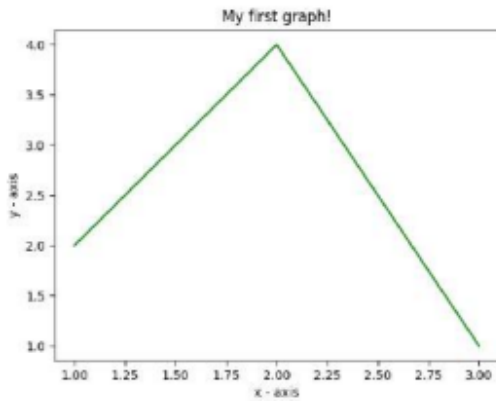
Number of computers:

Block A	25
Block B	50
Block C	125
Block D	10

The Virtual Connects organization has set up its new centre at Noida for its office and web-based activities. It has 4 blocks of buildings as shown in the diagram below:

- (i) Suggest the most suitable place (the Block) to install the server of this organization with asuitable reason.
- (ii) Which device will you suggest to be placed/installed in each of these blocks to efficiently connect all the computers within these blocks?
- (iii) Suggest the placement of a Repeater in the network with justification.
- (iv) The organization is planning to link its office to an office in the hilly areas. Suggest a way to connect it economically. Justify your answer.

33. Mr. Sharma is trying to write a code to plot the line graph. Write a python code to create the given chart. Give suitable title for x and y axis.



or

Write a program to plot a bar chart to depict the changing weekly onion prices for four weeks. Give appropriate axes labels.

Week = [1,2,3,4]

Price = [40,80,100,70]

Section E

34. Shreya, a database administrator has designed a database for a clothing shop. Help her by writing answers of the following questions based on the given table:

CLOTHS

CCODE	CNAME	SIZE	COLOR	PRICE	DOP
C001	JEANS	XL	BLUE	990	2022-01-21
C002	T SHIRT	M	RED	599	2021-12-12
C003	TROUSER	M	GREY	399	2021-11-10
C004	SAREE	FREE	GREEN	1299	2019-11-12
C005	KURTI	L	WHITE	399	2021-12-07

- Write a query to display first two letters of cloth names.
- Write a query to display the lowest price of the cloths size wise.
- Write a query to count total number of cloths purchased of medium size.

Or

Write a query to count year wise total number of cloths purchased.

35. Mr. Som, a data analyst has designed the DataFrame df that contains data about Computer Olympiad with 'CO1', 'CO2', 'CO3', 'CO4', 'CO5' as indexes shown below. Answer the following questions:

	School	Tot_students	Topper	First_Runnerup
CO1	PPS	40	32	8
CO2	JPS	30	18	12
CO3	GPS	20	18	2
CO4	MPS	18	10	8
CO5	BPS	28	20	8

A. Predict the output of the following python statement:

- df.size
- df[1:3]

B. Write Python statement to display the data of Topper column of indexes CO1 to CO3.

OR (option for part B only)

Write Python statement to compute and display the difference of data of Tot_students column and First_Runnerup column of the above given DataFrame.