SAMPLE QUESTION PAPER

CLASS XII (2023-24)

INFORMATICS PRACTICES (065)

TIME : 03 HOURS **M. M. : 70**

General Instructions :

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 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 02 questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

SECTION A

1. From the followings statements which is/are not correct? (1)

(i) Switch and Hub are network devices and both are used to connect multiple devices

(ii) Gateway connects two similar networks

(iii) Modem is a network device used for converting protocols

(iv) Repeater is used to strengthen weak signals in a network

Find the correct answer :

(a) (i) and (iii)

(b) (i) , (iii) and (iv)

(c) (ii) , (iii) and (iv)

(d) (ii) and (iii)

2. **AADYA SINGHANIA** of **AGCS, Purulia** abides by some rules, regulations, manners and shows good behavior while working online. Her acts are collectively known as _____. (1)

(a) Computer Etiquettes

(b) Secured Etiquettes

(c) Digital Etiquettes

(d) Net Etiquettes

3. State True or False : (1)

(i) Plagiarism is known as Academic Theft.

(ii) Intellectual Property Rights safeguards your investments made in share market.

Choose the correct option :

(a) (i) True (ii) False

(b) (i) False (ii) True

(c) (i) True (ii) True

(d) (i) False (ii) False

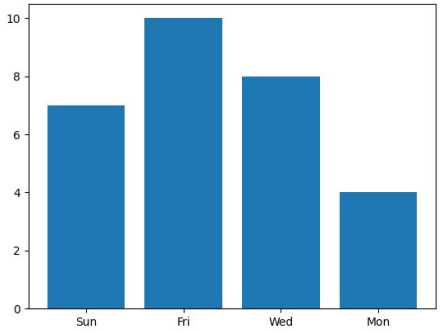
4. **GORAV DUDHERIA** wants to write equivalent command of the following MySQL command. (1)
Suggest him the correct one.
Select ALL Book_Name From Library;
(a) Select * Book_Name From Library;
(b) Select Book_Name(*) From Library;
(c) Select Book_Name From Library;
(d) None of these

5. What will be displayed after the execution of the following command? (1)
Select TName From Teacher Where TName Like '%D%';
(a) All names of the teachers which contains D in the end.
(b) All names of the teachers which contains D in the middle.
(c) All names of the teachers which contains D in the start.
(d) All names of the teachers which contains D anywhere.

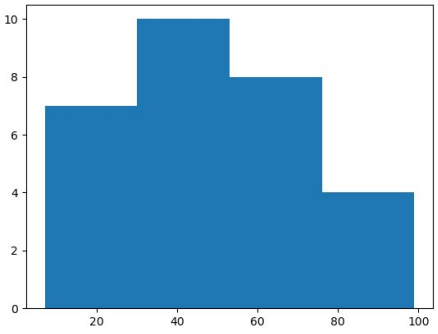
6. Which of the followings is a unique data trace of a user's activities, actions, communications or transactions in the world of internet. (1)
(a) Internet Footprint
(b) Digital Footprint
(c) Digital Record
(d) Browser History

7. Identify the type of charts given below : (1)

(i)



(ii)



(a) (i) Histogram (ii) Bar Chart
(b) (i) Bar Chart (ii) Histogram
(c) (i) Bar Chart (ii) Bar Chart
(d) (i) Histogram (ii) Histogram

8. Which of the following statements show the correct use of DISTINCT clause? (1)
(i) Select DISTINCT Name From Student;
(ii) Select Name DISTINCT From Student;
(iii) Select DISTINCT (Name) From Student;
(iv) Select Name = DISTINCT From Student;
Choose the correct option :
(a) (ii) , (iii) , (iv)
(b) (i) , (iii)
(c) (i) , (ii) , (iv)
(d) (ii) , (iii)

9. What will be the output of the given MySQL command? (1)

SELECT MOD(73.2 , 6) + ROUND(7326.6237 , -2);

(a) 7312.2

(b) 7362.0

(c) 7301.2

(d) 7401.2

10. Given an import statement in Python. Find the equivalent statement for the same. (1)

import matplotlib.pyplot as plt

(a) from matplotlib import pyplot

(b) from matplotlib import pyplot as plt

(c) import pyplot from matplotlib as plt

(d) import pyplot as plt from matplotlib

11. What will be the Degree and Cardinality of the given MySQL table? (1)

Id	Name	Address	Job
E206	**RAJOSHEE MUKHERJEE**	Kolkata	Doctor
E387	**SHREYA BHAGAT**	Mumbai	Teacher
E422	**ANGANA PALIT**	Purulia	Scientist
E641	**PRACHI TULSYAN**	Indore	Designer
E714	**RONIT SINGH**	Ambala	Professor

(a) Degree = 4, Cardinality = 6

(b) Degree = 4, Cardinality = 5

(c) Degree = 5, Cardinality = 4

(d) Degree = 6, Cardinality = 4

12. **HARSHITA JAISWAL** has created the following Series object named 'Series' : (1)

0 567.0

1 194.0

2 NaN

3 206.0

dtype: float64

What will be the output of following statement?

print(series.shape , series.size)

(a) 4 (4,)

(b) 3 (4,)

(c) (4,) 4

(d) (3,) 4

13. Out of the following statements related to E-waste management which is/are correct? (1)

(i) E-waste can be sold back to its manufacturer

(ii) E-waste can be dumped to the waste dumping grounds

(iii) E-waste can be given to certified E-waste recycler

(iv) E-waste can be donated to NGOs

Select the appropriate option from the followings:

(a) (i) , (ii) and (iv)

(b) (ii) , (iii) and (iv)

(c) (i) , (iii) and (iv)

(d) (i) , (ii) and (iii)

14. **SRISHTI DHARAMSIKA** needs your help to find out the correct statement from the followings : (1)

(a) A Primary Key is one of the Alternate Key

(b) A Foreign Key is one of the Primary Key

(c) A Primary Key is one of the Candidate Key

(d) A Candidate Key is one of the Foreign Key

15. Name the device which is used for connecting multiple networks over different protocols. (1)

(a) Bridge

(b) Switch

(c) Router

(d) Gateway

16. Which of the following software does not comes under FOSS? (1)

(a) Ubuntu

(b) OpenOffice

(c) MS Windows

(d) Python

17. Answer the question based on the Assertion A and Reason R given. (1)

Assertion : Web Servers store and secure website data and serve the end user requests.

Reason : Web Servers are computers with small memory and limited storage space.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is not the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

18. Answer the question based on the Assertion A and Reason R given. (1)

Assertion : A bar chart in Python requires values for both x and y axis whereas a histogram requires values for only y axis.

Reason : In Python a bar chart plots categorical data whereas a histogram plots quantitative data.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is not the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

SECTION B

19. **NANDINI MOHTA** of **The Assembly of God Church School, Purulia** is confused about the given address : http://www.abc.com/main/doc/index.htm (2)

Identify the address and mention its parts.

OR

Name the network devices used for the given purposes :

(a) To convert digital signals to analog and vice versa.

(b) To regenerate the data and voice signals over a network.

20. **ADITYA CHOURASIA** has created a DataFrame 'df'. Now he wants to remove the column 'Age' from it and for that he has written the following command : (2)

```
df = df.drop('Age')
```

But he is getting error message. Rectify and rewrite the command to help him.

21. Which of the following command(s) will raise error and why? Also rectify the code(s). (2)

(a) UPDATE Emp SET Comm = NULL WHERE Comm = 500;

(b) UPDATE Emp SET Comm = 500 WHERE Comm = NULL;

22. A Python DataFrame named 'DFrame' exists as shown below : (2)

	Fruits	Price
0	Orange	70
1	Guava	45
2	Apple	90

Based on the above DataFrame answer the following questions :

(a) Write a statement to modify the values of the column Price to : [60 , 40 , 75].

(b) Write a statement to modify the fruit name from Guava to Banana.

23. **AASTHA KEDIA** is not sure about the differences between a Freeware and an Open Source Software in terms of their cost and customizability. Help her to understand the facts by writing the differences. (2)

24. Answer the questions given below : (2)

(a) Why is the following code producing error? In order to make it correct write only one missing statement.

```
import matplotlib.pyplot as pl
import numpy as np
set1 = np.arange(6 , 19 , 3)
set2 = np.arange(10 , 60 , 10)
pl.plot(set1 , set2)
pl.show( )
```

(b) Find out the error(s) in the code given below and rewrite the corrected code underlining the corrections made.

```
import Pandas as pd
LOD = [{'a' : 10 , 'b' : 20} , {'a' : 6 , 'b' : 32 , 'c' : 22}]
DF = pd.Dataframe(data = LOD , rows = ['Row1' , 'Row2'] , columns = ['a' , 'b' , 'x' , 'y'])
print(DF)
```

25. **ABHIRUP ROY** of **BSS School, Purulia** has created the following 'BSS' table in MySQL : (2)

Roll	Name	Stream
11	**BHAVESH CHURIWALA**	Sc
17	**ABHINAV JALAN**	Com
22	**ADRIJA PAYIN**	Sc
26	**SANNIDHI JALAN**	Com
31	**MAHI JAIN**	Com
42	**DISHA TEWARY**	Com

Write down the output of the following commands :

(a) SELECT LENGTH(MAX(Name)) FROM BSS;

(b) SELECT MAX(LENGTH(Name)) FROM BSS;

SECTION C

26. Write MySQL commands for the followings : (3)

(a) To change the first name from Suraj to Chand in the FName column in 'Student' table.

(b) To delete the rows with marks below 33 in the 'Exam' table.

(c) To show all the details from the 'EMP' table for those employees whose Ename and Job columns contain equal number of characters.

OR

What will be the output of the following MySQL commands?

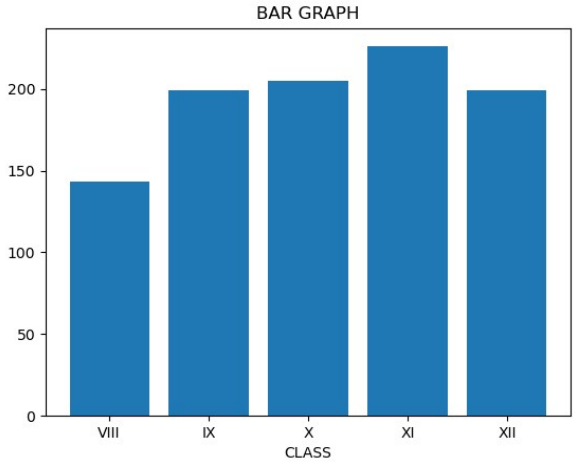
(a) SELECT MID("Bharat Ratna Award" , LENGTH("Java") , 3);

(b) SELECT MOD(14 * 9 , POW(2 , 3));

(c) SELECT MOD(MONTH("2022-12-18") * 7 , 25);

27. Observe the DataFrame named 'School' and the Bar chart as shown below. Write code to create the given DataFrame and to plot the given chart using the DataFrame. (3)

	Class	Sections	Students
C1	VIII	3	143
C2	IX	4	199
C3	X	4	205
C4	XI	3	226
C5	XII	3	199



28. **JAHNAVI AGARWAL** has created a table 'Payment' with the following data : (3)

ID	NAME	SALARY	BONUS	DATEOFJOIN
E05	**MUSKAN FOGLA**	64000	NULL	2021-09-30
E04	**ANNANYA AGARWAL**	80000	4000.00	2007-11-31
E03	**MUSKAN SARAWGI**	72000	NULL	2020-09-18
E02	**RAHEE HANSDA**	95000	4750.00	2008-03-16
E06	**SHYAM PANCHARIA**	69000	3450.00	2009-07-25
E07	**SHREYA SINGH**	55000	NULL	2018-10-30

Based on the above table, write SQL statements for the followings :

(a) Display the names and name of the month from date of joining of those employees who have joined after 2010.

(b) Display the name, salary and joining date of those employees whose bonus is unknown.

(c) Display first three characters from the name whose name contains more than 12 characters.

29. **VINAYAK SARAWGI** does not understand Plagiarism. Help him to understand it by defining Plagiarism. Also write any two ways to avoid Plagiarism. (3)

OR

What is the difference between Copyright and Licensing?

30. Observe the following DataFrame named 'df' and answer the given questions. (3)

	Single	Double
a	3	6
b	5	10
c	4	8
d	6	12

(a) Write code to change the values of the 3rd row to [7 , 14].

(b) Write code to add a new column named Triple having triplicate values of the column Single.

(c) Write code to change the column labels from ['Single' , 'Double' , 'Triple'] to ['C1' , 'C2' , 'C3'].

SECTION D

31. Consider the following tables 'EVENT' and 'PARTICIPANT'. Write commands for questions (a) to (c) and output for question (d). (4)

Table : EVENT

ECode	EName	NoofParticipants	PrizeMoney	ScheduleDate
104	Shot Put	12	8000	2024-03-23
105	High Jump	10	12000	2024-01-12
106	Relay 100x4	16	10000	2024-02-14
108	Long Jump	12	9000	2024-03-01
109	Discuss Throw	10	15000	2024-02-19

Table : PARTICIPANT

PCode	PName	ECode
1	**SOURAV LODHA**	104
2	**PLABAN GUPTA**	108
3	**BHUMI SHUKLA**	104
4	**ANISH BUDHIA**	106
5	**CHAHAT PRASAD**	109

(a) Write MySQL command to display the name of all events, their schedule date and corresponding participant names.

(b) Write a MySQL statement to list event codes, prize money and number of participants of those events which are scheduled in the month of February.

(c) Write MySQL query to show the event name, prize money and player's code for those records where the number of participants are more than 11.

(d) SELECT EName, PrizeMoney, PCode FROM Event, Participant
WHERE Event.ECode = Participant.ECode AND PName LIKE '%N%';

32. Given below a Python code. Observe the code and answer the questions that follow. (4)

```
import pandas as pd
L = [ [55 , 44] , [100 , 900 , 400] , [67 , 70] , [414 , 185] ]
dframe1 = pd.DataFrame(L)
print(dframe1)
```

(a) How many rows and columns will be there in the DataFrame?

(b) Write statement to count the number of rows of the DataFrame.

(c) Write statement to change the value from 70 to 75 in the given DataFrame.

OR

(Option for part (c) only)

Show the DataFrame which will be created after the execution of the given code.

SECTION E

33. **NAVANSHU JALAN** and **ROUNAK AGARWAL**, both are very much interested in cricket. They have created the following 'ODI' table showing the batting records of Indian players in One Day International cricket matches. Write SQL commands for (a) to (c) and give output for (d) and (e) on the basis of the table ODI given below : (5)

Table : ODI

PName	Matches	Innings	Notouts	Runs	Highest	Average	Hundreds	Fifties
Rohit Sharma	262	254	36	10709	264	49.12	31	55
Subhaman Gill	44	44	7	2271	208	61.37	6	13
K L Rahul	75	70	14	2820	112	50.35	7	18
R Ashwin	116	63	NULL	707	65	16.44	0	1
Virat Kohli	292	280	44	13848	183	58.67	50	72
Shreyas Iyer	59	54	6	2383	128	49.64	5	18

(a) To show all the details of the players having scored hundreds and not played matches less than 100.

(b) To display player's name, matches played, runs scored of those players who have remained not out and scored more than 5000 runs.

(c) To count the number of players who have scored more hundreds than their not outs.

(d) SELECT PName, Innings, Notouts, Innings – Notouts "Total Outs" FROM ODI
WHERE Runs BETWEEN 2820 AND 14000;

(e) SELECT PName, Runs, Average FROM ODI WHERE Fifties > (SELECT MAX(Hundreds) FROM ODI);

OR

Consider the string "The AGCS Purulia". Write MySQL statements to implement the followings :

(a) To display the first six characters from the given string.

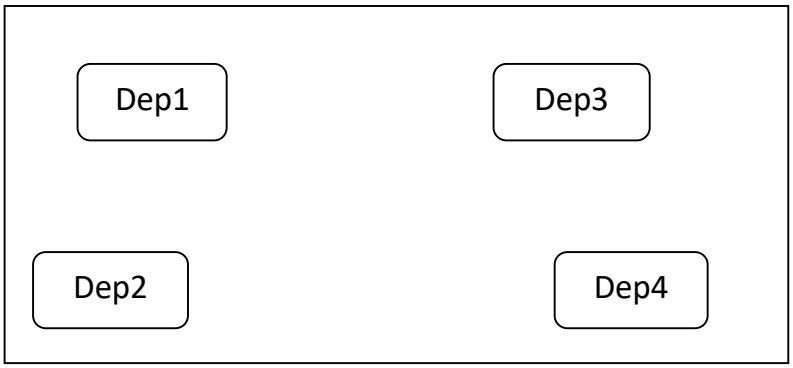
(b) To count the number of characters in the given string.

(c) To display the substring starting from index 4 and ending at index 8.

(d) To display the starting index for the substring "AG".

(e) To change the case of the given string to upper case.

34. **PRACHI KATARUKA** owns a company named **'PRACHI Enterprises'** situated in Mumbai. The company has four departments in its campus as shown below : (5)



Center to center distance between various departments :

Dep3 TO Dep1	50 M
Dep1 TO Dep2	60 M
Dep2 TO Dep4	25 M
Dep4 TO Dep3	170 M
Dep3 TO Dep2	125 M
Dep1 TO Dep4	90 M

Number of computers in each department :

Dep1	20
Dep2	15
Dep3	60
Dep4	25

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

(a) Suggest the most appropriate topology for the connections between the departments and draw the cable lay-out for the network of various departments.

(b) The company wants internet accessibility in all the departments. The suitable and cost-effective technology for that would be :

(c) Suggest the most appropriate location of the server, to get the best connectivity for the network.

(d) Which device will you suggest for connecting all the computers within each of the departments?

(e) The company is planning to link its company of Mumbai with its head office situated in New Delhi. Suggest an economical way to connect them and also mention the type of network that will be formed in this case.

35. Observe the DataFrame 'AGCS' given below and write the answers of the questions that follow. (5)

	Name	Stream	Roll
0	**VIDHI SARAWGI**	Science	27
1	**SNEHA JAISWAL**	Commerce	13
2	**GITIKA JAIN**	Commerce	21
3	**ISSIKA NAG**	Humanities	25
4	**SAMPA MAHATO**	Science	22

(a) Write the code to modify the column labels to Col1, Col2 and Col3.

(b) Write the command that will change the name from ISSIKA NAG to **SAMUEL PRODHAN**.

(c) What will be the command to create a Series object named 'S1' which will contain all the values from the Name column of the DataFrame 'AGCS'?

(d) Write code to create a DataFrame named 'Commerce' having only those rows whose stream is Commerce.

(e) Write code to create a Series named 'S2' having all the values from the Name column of only those rows whose stream is Science.

OR

Given below a Pandas Series named 'Series1'. Observe it and answer the question that follows.

```
VI      45
VII     60
VIII    52
IX      49
X       54
```

(a) Write code to add a new row with label as XI and value as 76.

(b) Write statement to remove the row labelled as VIII.

(c) Write command to change the row label from IX to 9.

(d) Find the output of the given code :

```
for x in Series1.index :
    if Series1[x] < 50 :
        print(x , Series1[x] + 5)
```

(e) Using Series1, write a command that will create the following Series :

```
45    VI
60    VII
52    VIII
49    IX
54    X
```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