

CLASS:12
SUBJECT: Informatics Practices (065)

TIME: 3 HRS

MARKS: 70

	General Instructions: ● Please check this question paper contains 37 questions. ● All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions ● The paper is divided into 5 Sections- A, B, C, D and E. ● Section A consists of 21 questions (1 to 21). Each question carries 1 Mark. ● Section B consists of 7 questions (22 to 28). Each question carries 2 Marks. ● Section C consists of 4 questions (29 to 32). Each question carries 3 Marks. ● Section D consists of 2 case study type questions (33 to 34). Each question carries 4 Marks. ● Section E consists of 3 questions (35 to 37). Each question carries 5 Marks. ● All programming questions are to be answered using Python Language only. ● In case of MCQ, text of the correct answer should also be written.	
	Sections A	
1	Television cable network is an example of: i. LAN ii. WAN iii. MAN iv. Internet	1
2	Which of the following is not a type of cybercrime? i. Data theft ii. Installing antivirus for protection iii. Forgery iv. Cyber bullying	1
3	Which type of values will not be considered by SQL while executing the following statement? SELECT COUNT(column name) FROM inventory; i. Numeric value ii. text value iii. Null value iv. Date value	1
4	Predict the output of the following query: SELECT MOD (9,0); i. 0 ii. NULL iii. NaN iv. 9	1
5	_____ is not a FOSS tool. i. Libre Office ii. Mozilla Firefox iii. Google Chrome iv. Python	1
6	Copyright, Patent and Trademark comes under: i. Intellectual Property Right ii. Individual Property Right iii. Industrial Property Right	1

	iv. International Property Right	
7	Which of the following command will show the last 3 rows from a Pandas Series named NP? i. NP.Tail () ii. NP.tail(3) iii. NP.TAIL(3) iv. All of the above	1
8	With reference to SQL, identify the invalid data type. i. Date ii. Integer iii. Varchar iv. Month	1
9	By restricting the server and encrypting the data, a software company's server is unethically accessed in order to obtain sensitive information. The attacker blackmails the company to pay money for getting access to the data, and threatens to publish sensitive information unless price is paid. This kind of attack is known as: i. Phishing ii. Identity Theft iii. Plagiarism iv. Ransomware	1
10	In SQL, the equivalent of UCASE() is: i. UPPERCASE () ii. CAPITALCASE() iii. UPPER() iv. TITLE ()	1
11	Collection of hyper linked documents available on the internet is known as _____. i. Website ii. Webpage iii. Web Server iv. Web Hosting	1
12	Assertion (A):- MODEM stands for modulator-demodulator. Reasoning (R):- It is a computer hardware device that converts data from a digital format to analog and vice versa. i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True	1
13	Assertion (A):- To use the Pandas library in a Python program, one must import it. Reasoning (R):- The only alias name that can be used with the Pandas library is pd. i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True	1
14	The purpose of WHERE clause in a SQL statement is to: (A) Create a table (B) Filter rows based on a specific condition (C) Specify the columns to be displayed (D) Sort the result based on a column	1
15	Identify the SQL command used to delete a relation (table) from a relational database. (A) DROP TABLE (B) REMOVE TABLE	1

	(C)DELETE TABLE (D)ERASE TABLE	
16	_____ is a non-profit organization that aims to build a publicly accessible global platform where a range of creative and academic work is shared freely. i. Creative Cost ii. Critical Commons iii. Creative Commons iv. Creative Common	1
17	'F' in FOSS stands for: a. Free b. Forever c. Fire d. Freezing	1
18	Following are the impact of e-waste on the environment. Choose the odd one out. a. Soil Pollution b. Water Pollution c. Air Pollution d. Sound Pollution	1
19	Which function will be used to read data from a CSV file into pandas data frame? a. readcsv() b. to_csv() c. read_csv() d. csv_read()	1
20	Name any two popular web browsers.	1
21	In SQL, which function is used to display current date and time? i. Date () ii. Time () iii. Current () iv. Now ()	1
	Sections B	
22	Write the URL and domain name from given link: www.pmindiascheme.in/roposo-app	2
23	The python code written below has syntactical errors. Rewrite the correct code and underline the corrections made. Import pandas as pd df={"Technology":["Programming","Robotics"],"3D Printing"],"Time(in months)":[4,4,3]} df= Pd.dataframe(df) Print(df)	2
24	Consider the given SQL string: "12#All the Best!" Write suitable SQL queries for the following: i. Returns the position of the first occurrence of the substring "the" in the given string. ii. To extract last five characters from the string.	2

25	Predict the output of the given Python code: import pandas as pd list1=[-10,-20,-30] ser = pd.Series(list1*2) print(ser)	2															
26	Complete the given Python code to get the required output as: Itanagar import _____ as pd di = {'Rhino': 'Kaziranga', 'Gayal':Itanagar, 'serow': "Izole", 'sangai': 'Imphol'} NP = _____. Series(_____) print(NP[_____])	2															
27	What are aggregate functions in SQL? Name any two.	2															
28	Help Reshma in predicting the output of the following queries: i) select round(8.72,3); ii) select round(9.8);	2															
SectionsC																	
29	Consider the given DataFrame 'Genre': <table border="1" style="margin: 10px auto; border-collapse: collapse;"><thead><tr><th></th><th>Type</th><th>Code</th></tr></thead><tbody><tr><td>0</td><td>Fiction</td><td>F</td></tr><tr><td>1</td><td>Non Fiction</td><td>NF</td></tr><tr><td>2</td><td>Drama</td><td>D</td></tr><tr><td>3</td><td>Poetry</td><td>P</td></tr></tbody></table> Write suitable Python statements for the following: i. Add a column called Num_Copies with the following data: [300,290,450,760]. ii. Add a new genre of type 'Folk Tale' having code as "FT" and 600number of copies. iii. Rename the column 'Code' to 'Book_Code'.		Type	Code	0	Fiction	F	1	Non Fiction	NF	2	Drama	D	3	Poetry	P	3
	Type	Code															
0	Fiction	F															
1	Non Fiction	NF															
2	Drama	D															
3	Poetry	P															
30	Alpana, recently started using her social media account. Within a few days, she befriends many people she knows and some that she does not know. Aftersome time, she starts getting negative comments on her posts. She also findsthat her pictures are being shared online without her permission. Based on the given information, answer the questions given below. i. Identify the type of cybercrime she is a victim of. ii. Under which act, she can lodge a complaint to the relevant authorities? iii. Suggest her any two precautionary measures which she should take infuture while being online to avoid any such situations.	3															
31	Write MySQL statements for the following: i. To create a database named FOOD. ii. To create a table named Nutrients based on the following specification:	3															

Column Name	Data Type	Constraints
Food_Item	Varchar(20)	Primary Key
Calorie	Integer	

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

3

Section D

- 33 Dr. Kavita has created a database for a hospital's pharmacy. The database includes a table named MEDICINE whose column (attribute) names are mentioned below:

4

MID: Shows the unique code for each medicine.

MED_NAME: Specifies the medicine name

SUPP_CITY: Specifies the city where the supplier is located.

STOCK: Indicates the quantity of medicine available.

DEL_DATE: Specifies the date when the medicine was delivered.

Table: MEDICINE

MID	MED_NAME	SUPP_CITY	STOCK	DEL_DATE
M01	PARACETAMOL	MUMBAI	200	2023-06-15
M02	AMOXICILLIN	KOLKATA	50	2023-03-21
M03	COUGH SYRUP	BENGALURU	120	2023-02-10
M04	INSULIN	CHENNAI	135	2023-01-25
M05	IBUPROFEN	AHMEDABAD	30	2023-04-05

Write the output of the following SQL Queries.

I. Select LENGTH(MED_NAME) from MEDICINE where STOCK > 100;

II. Select MED_NAME from MEDICINE where month(DEL_DATE)= 4;

III. Select MED_NAME from MEDICINE where STOCK between 120 and 200;

IV. Select max(DEL_DATE) from MEDICINE;

OR

Rahul, who works as a database designer, has developed a database for a bookshop. This database includes a table BOOK whose column (attribute) names are mentioned below:

BCODE: Shows the unique code for each book.

TITLE: Indicates the book's title.

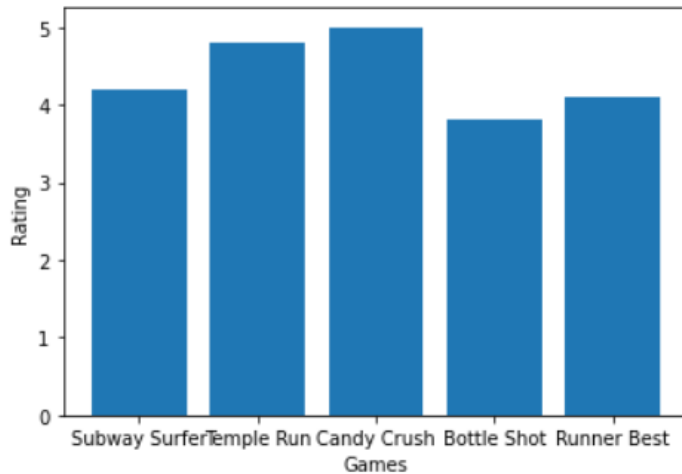
AUTHOR: Specifies the author's name.

PRICE: Lists the cost of the book.

BCODE	TITLE	AUTHOR	PRICE
B001	MIDNIGHT'S CHILDREN	SALMAN RUSHDIE	500
B002	THE GOD OF SMALL THINGS	ARUNDHATI ROY	450
B003	A SUITABLE BOY	VIKRAM SETH	600
B004	THE WHITE TIGER	ARAVIND ADIGA	399
B005	TRAIN TO PAKISTAN	KHUSHWANT SINGH	350

Table: BOOK

	I. Write SQL query to display book titles in lowercase. II. Write SQL query to display the highest price among the books. III. Write SQL query to display the number of characters in eachbook title. IV. Write SQL query to display the Book Code and Price sorted byPrice in descending order.																									
34	Write Python statement to export the DataFrame to a CSV file named data.csvstored at D: drive. OR Ekam, a Data Analyst with a multinational brand has designed the DataFramedf that contains the four quarter’s sales data of different stores as shown below: <table><tr><th></th><th>Store</th><th>Qtr1</th><th>Qtr2</th><th>Qtr3</th><th>Qtr4</th></tr><tr><td>0</td><td>Store1</td><td>300</td><td>240</td><td>450</td><td>230</td></tr><tr><td>1</td><td>Store2</td><td>350</td><td>340</td><td>403</td><td>210</td></tr><tr><td>2</td><td>Store3</td><td>250</td><td>180</td><td>145</td><td>160</td></tr></table> Answer the following questions: i. Predict the output of the following python statement: a. print(df.size) b. print(df[1:3]) ii. Delete the last row from the DataFrame. iii. Write Python statement to add a new column Total_Sales which is the addition of all the 4 quarter sales.		Store	Qtr1	Qtr2	Qtr3	Qtr4	0	Store1	300	240	450	230	1	Store2	350	340	403	210	2	Store3	250	180	145	160	4
	Store	Qtr1	Qtr2	Qtr3	Qtr4																					
0	Store1	300	240	450	230																					
1	Store2	350	340	403	210																					
2	Store3	250	180	145	160																					
	SectionE																									
35	Mr. Sharma is working in a game development industry and he was comparing the given chart on the basis of the rating of the various games available on the play store.	5																								



He is trying to write a code to plot the graph. Help Mr. Sharma to fill in the blanks of the code and get the desired output.

```
import _____ #Statement 1
Games=["Subway Surfer","TempleRun","CandyCrush","BottleShot","Runner
Best"]
Rating=[4.2,4.8,5.0,3.8,4.1]
plt. _____(Games,Rating) #Statement 2
plt.xlabel("Games")
plt. _____("Rating") #Statement 3
plt. _____ #Statement
```

A. Choose the right code from the following for statement 1.

- matplotlib as plt
- pyplot as plt
- matplotlib.pyplot as plt
- matplotlib.pyplot as pyplot

B. Identify the name of the function that should be used in statement 2 to plot the above graph.

- line()
- bar()
- hist()
- barh()

C. Choose the correct option for the statement 3.

- title("Rating")
- ytitle("Rating")
- ylabel("Rating")
- yaxis("Rating")

D. Choose the right function/method from the following for the statement 4.

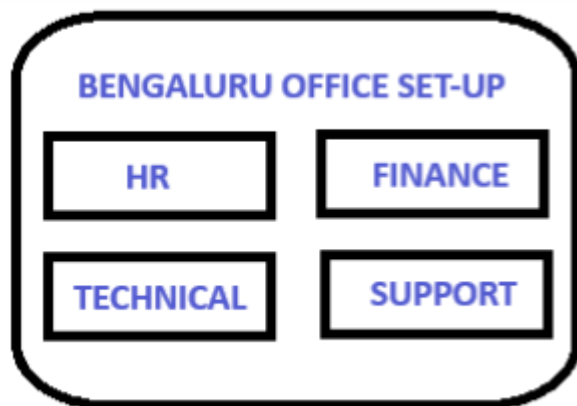
- display()
- print()
- bar()
- show()

E. In case Mr. Sharma wants to change the above plot to the any other shape, which statement, should he change.

- i. Statement 1
- ii. Statement 2
- iii. Statement 3
- iv. Statement 4

- 36 ABC Pvt. Ltd., a multinational technology company, is looking to establish its Indian Head Office in Bengaluru, and a regional office branch in Lucknow. The Bengaluru head office will be organized into four departments: HR, FINANCE, TECHNICAL, AND SUPPORT. As a network engineer, you have to propose solutions for various queries listed from I to V.

5



The

shortest distances between the departments/offices are as follows:

HR TO FINANCE	65 M
HR TO TECHNICAL	80 M
HR TO SUPPORT	70 M
FINANCE TO TECHNICAL	60 M
FINANCE TO SUPPORT	75 M
TECHNICAL TO SUPPORT	50 M
BENGALURU OFFICE TO LUCKNOW	1900 KM

The number of computers in each department/office is as follows:

HR	175
FINANCE	35
TECHNICAL	50
SUPPORT	15
LUCKNOW OFFICE	40

- I. Suggest the most suitable department in the Bengaluru Office Setup, to install the server. Also, give a reason to justify your suggested location.
- II. Draw a suitable cable layout of wired network connectivity between the departments in the Bengaluru Office.
- III. Which networking device would you suggest the company to purchase to interconnect all the computers within a department in Bengaluru Office?
- IV. The company is considering establishing a network connection between its Bengaluru Head Office and Lucknow regional office. Which type of network—LAN, MAN, or WAN—will be created? Justify your answer.
- V. The company plans to develop an interactive website that will enable its employees to monitor

their performance after login. Would you recommend a static or dynamic website, and why?

37

Consider the DataFrame shown below

	MovieID	Title	Year	Rating
0	1	LAGAAN	2001	8.4
1	2	TAARE ZAMEEN PAR	2007	8.5
2	3	3 IDIOTS	2009	8.4
3	4	DANGAL	2016	8.4
4	5	ANDHADHUN	2018	8.3

Write Python statements for the DataFrame to:

I. Print the first two rows of the DataFrame.

II. Display titles of all the movies.

III. Remove the column rating.

IV. Display the data of the 'Title' column from indexes 2 to 4 (both included)

V. Rename the column name 'Title' to 'Name'.

5