THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

Date:_____ **GRADE: XII**	**FIRST TERM EXAMINATION (2023-24)** **INFORMATICS PRACTICES (065)**	**Max Marks:70** **Time: 3 hours.**

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.

ANSWER KEY

Qn. No	**SECTION A**	Marks
1	A device used in telecommunications to enhance or extend the signal of a network. i. Hub ii. Modem iii. Gateway iv. Repeater	1
2	When e-waste such as electronic circuit boards are burnt for disposal, the elements contained in them create a harmful chemical called _____which causes skin diseases, allergies and an increased risk of lung cancer. i. Nitrogen ii. Beryllium iii. Chlorine iv. Oxygen	1
3	Copyright, Patent and Trademark comes under: i. Intellectual Property Right ii. Individual Property Right iii. Industrial Property Right iv. International Property Right	1
4	Predict the output of the following query: SELECT MOD (0,9); i. 0 ii. NULL iii. NaN iv. 9	1
5	Which of the following SQL functions does not belong to the Math functions category? i. POWER() ii. ROUND() iii. LENGTH()iv. MOD()	1
6	_____ is not a FOSS tool. i. Libre Office ii. Mozilla Firefox iii. Google Chrome iv. Python	1
7	CSV stands for: i. Column Separated Value ii. Class Separated Value iii. Comma Separated Value iv. Comma Segregated Value	1

8	Mohan, a Database Administrator, needs to display the average pay of workers from those departments which have more than six employees. He is experiencing a problem while running the following query:
	
	SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) > 6
	GROUP BY DEPT;
	Which of the following is a correct query to perform the given task?
	
	i. SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) > 6 GROUP BY DEPT;
	ii. SELECT DEPT, AVG(SAL) FROM EMP HAVING COUNT(*) >6 GROUP BY DEPT;
	iii. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT WHERE COUNT(*) > 6;
	iv. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT HAVING COUNT(*) > 6;
		1

9	Predict the output of the following query: SELECT LCASE("MAY"); i. May ii. mAY iii. MAY iv. may	1
10	Which of the following command will show the last 4 rows from a Pandas Series named NP? i. NP.Tail( ) ii. NP.tail(4) iii. NP.TAIL(4) iv. NP.Head()	1
11	With reference to SQL, identify the invalid data type. i. Date ii. Integer iii. Varchar iv. Day	1
12	In Python Pandas, while performing mathematical operations on series, index matching is implemented and all missing values are filled in with _____by default. i. Null ii. Blank iii. NaN iv. Zero	1
13	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
14	In SQL, the equivalent of LCASE() is: i. LOWERCASE () ii. SMALLCASE() iii. LOWER() iv. TITLE ()	1
15	Collection of hyper linked documents available on the internet is known as_____. i. Website ii. Webpage iii. Web Server iv. Web Hosting	1
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	1

	iii. Creative Commons iv. Creative Common	
17	Assertion (A) : pandas is an open source Python library which offers high performance, easy-to-use data structures and data analysis tools. Reason (R) : Professionals and developers are using the pandas library in data science and machine learning. 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 E. Both A and R are false	1
18	Assertion (A) : Digital footprint 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. Reason (R) : While online, all of us need to be aware of how to conduct ourselves, how best to relate with others and what ethics, morals and values to maintain. 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 E. Both A and R are false	1
	SECTION B	
19	Briefly explain the basic concepts of a web server and web hosting. Web server: A web server is used to store and deliver the contents of a website to clients such as a browser that request it. A web server can be software or hardware. Web hosting: It is a service that allows to put a website or a web page onto the Internet, and make it a part of the World Wide Web. OR Rati is doing a course in networking. She is unable to understand the concept of URL and Domain name. Help her by explaining it with the help of suitable example. URL: It stands for Uniform Resource Locator. It provides the location and mechanism (protocol) to access the resources over the internet. URL is sometimes also called a web address. It not only contains the domain name, but other information as well that completes a web address. Examples: https://www.cbse.nic.in, https://www.mhrd.gov.in, http://www.ncert.nic.in, http://www.airindia.in, etc	2
20	The python code written below has syntactical errors. Rewrite the correct code and underline the corrections made. import Pandas as pd d ={"Tech":["AI","Robotics","3D Printing"],"Duration":[4,4,3]}	2

	df= PD.dataframe(d) Print[df] Corrected Code: import pandas as pd d ={"Tech":["AI","Robotics","3D Printing"],"Duration":[4,4,3]} df= pd.DataFrame(d) print(df)	
21	Consider the given SQL string: **"ATTITUDE_IS_EVERYTHING"** Write suitable SQL queries for the following: i. Returns the position of the first occurrence of the substring "T" in the given string. SELECT INSTR(**"ATTITUDE_IS_EVERYTHING","T");** ii. To extract first five characters from the string. SELECT LEFT(**"ATTITUDE_IS_EVERYTHING",5);**	2
22	Predict the output of the given Python code: import pandas as pd lst=[10,20,30] S = pd.Series(lst*2) print(S) 0 10 1 20 2 30 3 10 4 20 5 30 dtype: int64	2
23	What is netiquette? Write any two rules of netiquettes. Netiquette is a set of guidelines or rules for online behavior that promote respectful and appropriate communication and interaction on the internet. The term "netiquette" is a combination of "net" (short for internet) and "etiquette". Here are two basic rules of netiquette: Do not post copyrighted material to which you do not own the rights. It is also called Plagiarism . Respect others' privacy and opinions: Just like in real life, it is important to respect others' privacy and opinions when interacting online. Avoid sharing personal information about others without their consent, and avoid attacking or insulting others based on their opinions or beliefs.	2
24	Complete the given Python code to get the required output as: Madhya Pradesh import _____ as pd dict = {'Corbett': 'Uttarakhand', 'Sariska':'Rajasthan', 'Kanha': 'Madhya Pradesh','Gir':'Gujarat'} NP = ___.Series(___) print(NP[_____])	2

	import pandas as pd dict = {'Corbett': 'Uttarakhand', 'Sariska':'Rajasthan', 'Kanha': 'Madhya Pradesh','Gir':'Gujarat'} NP = pd.Series(dict) print(NP['Kanha']) (1/2 mark for each correct fill-up)	
25	What are aggregate functions in SQL? Name any two. Aggregate functions: These are also called multiple row functions. These functions work on a set of records as a whole, and return a single value for each column of the records on which the function is applied. Max(), Min(), Avg(), Sum(), Count() and Count(*) are few examples of multiple row functions.	2

SECTION C

26 Based on the SQL table Friends, write suitable queries for the following: 3

Table: Friends

ID	SALARY	DESIGNATION	SUBJECT	SCHOOL
1	95000	PGT	Physics	Delhi Public School
2	75000	TGT	Maths	Army Public School
3	65000	PGT	Chemistry	Jawahar Navodaya Vidyalaya
4	80000	PGT	Maths	Delhi Public School
5	50000	TGT	Maths	Jawahar Navodaya Vidyalaya
6	45000	TGT	Science	Army Public School
7	48000	TGT	Maths	Jawahar Navodaya Vidyalaya

i. Display the average salary based on designation.
SELECT DESIGNATION, AVG(SALARY) FROM FRIENDS GROUP BY DESIGNATION;
ii. Display subject-wise highest salary from the table.
SELECT SUBJECT, MAX(SALARY) FROM FRIENDS GROUP BY SUBJECT;
iii. Display all the records in the descending order of SALARY.
SELECT * FROM FRIENDS ORDER BY SALARY DESC;

OR

Predict the output of the following queries based on the table Friends given above:

i. SELECT LEFT(SUBJECT,3) FROM Friends WHERE ID=7;

LEFT(SUBJECT,3)
Mat

ii.SELECT AVG(Salary) "AVG SALARY" FROM Friends WHERE SUBJECT= "Maths";

AVG SALARY
63250

iii. SELECT SUM(SALARY) "TOTAL SALARY" FROM FRIENDS WHERE SUBJECT= "Maths";

TOTAL SALARY
2,53,000

27 | Create a DataFrame '**df**' in Python from the given list: | 3

[["Maya","HR",85000],["Manoj","Marketing",99000],["Pramod","IT",90000],["Deeksha","Sales",89000]]

Also give appropriate column headings as shown below:

```
      Name        Dept  Salary
0     Maya          HR   85000
1    Manoj   Marketing   99000
2   Pramod          IT   90000
3  Deeksha       Sales   89000
```

```
import pandas as pd
df=[["Maya","HR",85000],["Manoj","Marketing",99000],["Pramod","IT",90000],
   ["Deeksha","Sales",89000]]
df=pd.DataFrame(df,columns=["Name","Dept","Salary"])
print(df)
```

28 | Write MySQL statements for the following: | 3

i. To create a database named HOTEL.

```
CREATE DATABASE HOTEL;
```

ii. To create a table named FOOD based on the following specification:

```
CREATE TABLE FOOD(FID INT(5) PRIMARY KEY, FNAME CHAR(20) NOT NULL,
FPRICE DOUBLE(6,2), FQTY INT);
```

Column Name	**Data Type**	**Constraints**
FID	Int(5)	Primary Key
FNAME	Char(20)	NOT NULL
FPRICE	DOUBLE(6,2)	
FQTY	Int	

29 | Surya, recently started using her social media account. Within a few days, she befriends many people she knows and some that she does not know. After some time, she starts getting negative comments on her posts. She also finds that her pictures are being shared online without her permission.
Based on the given information, answer the questions given below. | 3

i. Identify the type of cybercrime she is a victim of.

She is a victim of Cyber Bullying

ii. Under which act, she can lodge a complaint to the relevant authorities?

Information Technology Act, 2000 (also known as IT Act).

iii. Suggest her any two precautionary measures which she should take in future while being online to avoid any such situations.

a. Need to be careful while befriending unknown people on the internet.
b. Never share personal credentials like username and password with others.

OR

Mention any three health hazards associated with inappropriate and excessive use of gadgets.

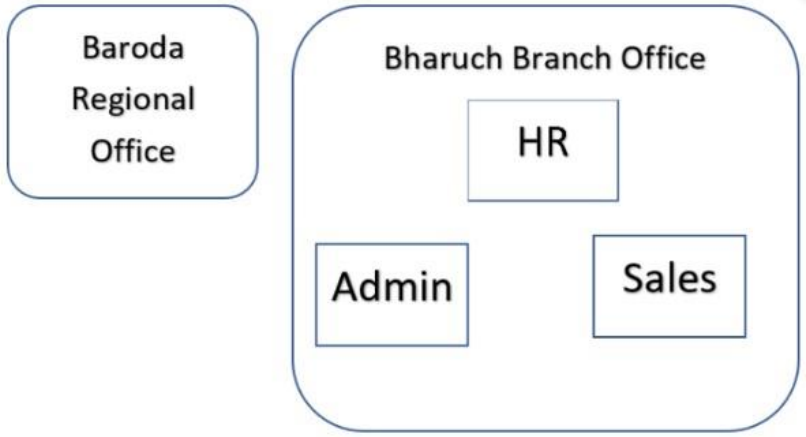
	Surya needs to be made aware of the following consequences: i) Eye strain ii) Painful muscles and joints iii) Poor memory iv) Lack of sleep v) Back pain and neck pain	

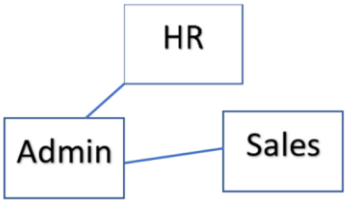
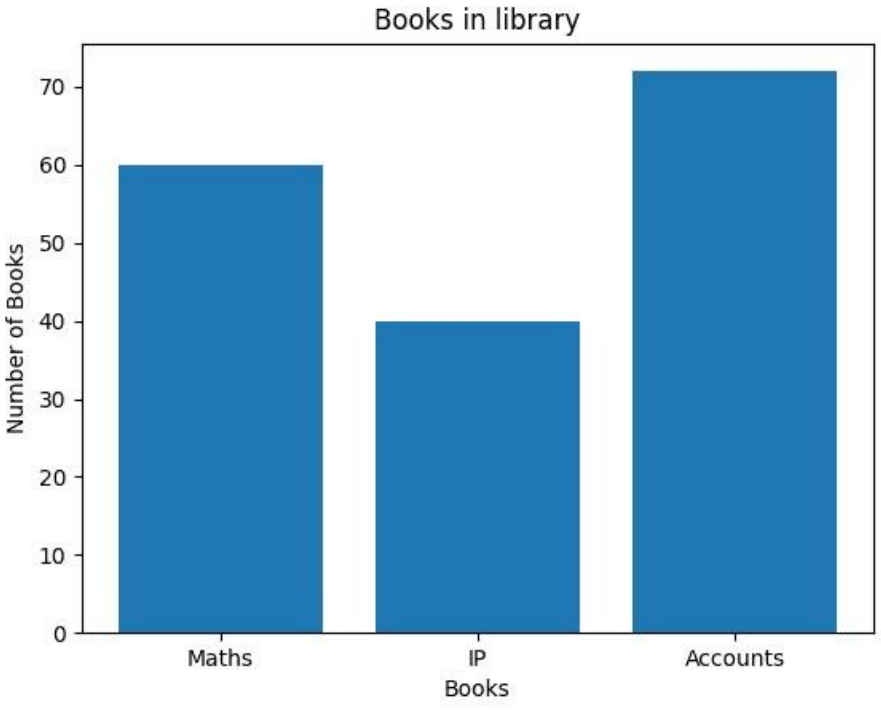
30	Consider the given DataFrame 'df'
	
	`   Rno   Name  Marks`
	`0    1  Anvid     68`
	`1    2  Krish     56`
	`2    3  Kiran     55`
	`3    4  Laksh     45`
	`4    5  Shiva     52`
	
	Write suitable Python statements for the following:
	
	i. Add a column called Fee with the following data:
	[300,290,450,760,800]
	`df["Fee"]=[300,290,450,760,800]`
	ii. Add a new row with following values.
	6, Thomas,69,590
	`df.loc[5]=[6, 'Thomas',69,590]`
	iii. Rename the column 'Name' to 'Student'.
	`df=df.rename({"Name":"Student"}, axis=1)`
	or
	`df=df.rename({"Name":"Student"}, axis='columns')`
		3

	SECTION D	

31	Pallavi manages database in a company. For business purposes, she created a table named EMP. Assist her by writing the following queries:
	TABLE: EMP
	`+-------+---------+-------------+`
	`| Sl_No | Name  | Transaction |`
	`+-------+---------+-------------+`
	`|  1 | Sathyan | 1999-02-01 |`
	`|  2 | Ajay  | 2002-04-18 |`
	`|  3 | Surya  | 2007-06-08 |`
	`|  4 | Chithra | 2010-07-09 |`
	`|  5 | Babu  | 2009-08-03 |`
	`|  6 | Seema  | 2000-07-07 |`
	`|  7 | Raju  | 2006-09-10 |`
	`|  8 | Renju  | 2006-05-05 |`
	`|  9 | Mathew | 1990-01-01 |`
	`+-------+---------+-------------+`
	
	i. Write a query to display the year of oldest transaction.
	`SELECT YEAR(MIN(TRANSACTION)) FROM EMP;`
	ii. Write a query to display the month of most recent transaction.
	`SELECT MONTH(MAX(TRANSACTION)) FROM EMP;`
	iii. Write a query to display all the transactions done in the month of May.
	`SELECT * FROM EMP WHERE MONTHNAME(TRANSACTION)='May';`
	iv. Write a query to count total number of transactions in the year 2006.
		4

	SELECT COUNT(*) FROM EMP WHERE YEAR(TRANSACTION)=2006;	
32	Jairam, a Data Analyst has designed the DataFrame **df** that contains the four quarter's sales data of different stores as shown below: Store Qtr1 Qtr2 Qtr3 Qtr4 0 A 300 240 450 230 1 B 350 340 403 210 2 C 250 180 145 160 Answer the following questions: i. Predict the output of the following python statement: a. print(df.size) 15 b. print(df[1:3]) Store Qtr1 Qtr2 Qtr3 Qtr4 1 B 350 340 403 210 2 C 250 180 145 160 ii. Delete the last row from the DataFrame. df=df.drop(2) OR df.drop(2,axis=0) iii. Write Python statement to add a new column Total_Sales which is the addition of all the 4 quarter sales. df["Total_Sales"]=df["Qtr1"]+df["Qtr2"]+df["Qtr3"]+df["Qtr 4"] **OR** (Option for part iii only) Write Python statement to export the DataFrame to a CSV file named data.csv stored at **E:** drive. df.to_csv("E:\data.csv")	4
	SECTION E	
33	Write suitable SQL queries for the following: i. To calculate the exponent for **3** raised to the power of **3**. SELECT POW(3,3); ii. To display current date and time. SELECT NOW(); iii. To round off the value **34.4567** to **3** decimal place. SELECT ROUND(**34.4567,3);** iv. To remove all the probable leading and trailing spaces from the column **NAME** of the table named **STUDENT**. SELECT TRIM(NAME) FROM STUDENT; v. To display the length of the string **'FIRST TERM EXAM'**. SELECT LENGTH(**'FIRST TERM EXAM');** **OR** Yadav has created following table named **DOCTOR**:	5

	+-----+---------+------------+------+------------+ | ID | NAME | DEPT | SEX | EXPERIENCE | +-----+---------+------------+------+------------+ | 101 | John | ENT | M | 12 | | 104 | Smith | ORTHPEDIC | M | 5 | | 105 | Johnson | ORTHPEDIC | M | 10 | | 107 | George | CARDIOLOGY | M | 10 | +-----+---------+------------+------+------------+ Help him in writing SQL queries to the perform the following task: i. Insert a new record in the table having following values: **[109,'Mathew','ENT','M',15]** INSERT INTO DOCTOR VALUES(**109,'Mathew','ENT','M',15);** ii. To change the value "ORTHPEDIC" to "ORTHO" in DEPT column. UPDATE DOCTOR SET DEPT="ORTHO" WHERE DEPT="ORTHPEDIC"; iii. To remove the records of those doctors whose experience is less than 10 . DELETE FROM DOCTOR WHERE EXPERIENCE<10; iv. To add a new column Rank of integer datatype. ALTER TABLE DOCTOR ADD RANK INT; v. To display records of "ENT" department. SELECT * FROM DOCTOR WHERE DEPT='ENT';	
34	Biswas Enterprise is starting its first regional office in Baroda, Gujarat. And a branch office in Bhruch. Bharuch office has three units Admin, HR and Sales. As a network admin, you need to suggest the network plan keeping in mind the distances and other parameters:  The approximate distance between these units are as follows: HR to Admin 70 M HR to Sales 50 M Admin to Sales 100 M Baroda Office to Bharuch Office 95 KM The number of computers installed in each unit are: HR 30 Admin 50	5

	Sales 20 Baroda 10 (i) Suggest the best suitable cable layout for the given case to connect each unit of the Bharuch office.  STAR TOPOLOGY (ii) Suggest the most suitable place to install the server and specify the reason. Admin unit is the most suitable place to install a server as it has a maximum number of computers. (iii) Which device is out of the following to be installed in each unit of the Bharuch office? Router, Repeater, Swich, Modem (iv) Which topology is best for each unit of the Bharuch Office? Bus, Star, Tree, Mesh (v) Which type of network is formed between the following: (a) HR to Admin Unit LAN Baroda office to Bharuch Office WAN	
35	Write python code to plot a bar chart for Library Books as shown below:  Also give a suitable python statement to save this graph. [Save as “Books.jpg”] import matplotlib.pyplot as plt book=['Maths','IP','Accounts'] qty=[60,40,72] plt.bar(book,qty) plt.title("Books in library")	5

	plt.xlabel("Books") plt.ylabel("Number of Books") plt.savefig("Books.jpg") plt.show()	
-ALL THE BEST-		