



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

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	<p>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:</p> <pre>SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) &gt; 6 GROUP BY DEPT;</pre> <p>Which of the following is a correct query to perform the given task?</p> <p>i. SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) &gt; 6 GROUP BY DEPT;  ii. SELECT DEPT, AVG(SAL) FROM EMP HAVING COUNT(*) &gt;6 GROUP BY DEPT;  iii. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT WHERE COUNT(*) &gt; 6;  iv. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT HAVING COUNT(*) &gt; 6;</p>	1
9	<p>Predict the output of the following query:</p> <pre>SELECT LCASE("MAY");</pre> <p>i. May ii. mAY      iii. MAY      iv. May</p>	1
10	<p>Which of the following command will show the last 4 rows from a Pandas Series named NP?</p> <p>i. NP.Tail()      ii. NP.tail(4)  iii. NP.TAIL(4)      iv. NP.Head()</p>	1
11	<p>With reference to SQL, identify the invalid data type.</p> <p>i. Date      ii. Integer  iii. Varchar      iv. Day</p>	1
12	<p>In Python Pandas, while performing mathematical operations on series, index matching is implemented and all missing values are filled in with _____ by default.</p> <p>i. Null      ii. Blank  iii. NaN      iv. Zero</p>	1
13	<p>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:</p> <p>i. Phishing      ii. Identity Theft  iii. Plagiarism      iv. Ransomware</p>	1
14	<p>In SQL, the equivalent of LCASE() is:</p> <p>i. LOWERCASE ()      ii. SMALLCASE()  iii. LOWER()      iv. TITLE ()</p>	1
15	<p>Collection of hyper linked documents available on the internet is known as _____.</p> <p>i. Website      ii. Webpage  iii. Web Server      iv. Web Hosting</p>	1
16	<p>_____ 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.</p> <p>i. Creative Cost      ii. Critical Commons</p>	1

	iii. Creative Commons          iv. Creative Common	
17	<p>Assertion (A) : pandas is an open source Python library which offers high performance, easy-to-use data structures and data analysis tools.</p> <p>Reason (R) : Professionals and developers are using the pandas library in data science and machine learning.</p> <p>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</p>	1
18	<p>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.</p> <p>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.</p> <p>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</p>	1
<b>SECTION B</b>		
19	<p>Briefly explain the basic concepts of a web server and web hosting.</p> <p>OR</p> <p>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.</p>	2
20	<p>The python code written below has syntactical errors. Rewrite the correct code and underline the corrections made.</p> <pre>import Pandas as pd d={"Tech":["AI","Robotics","3D Printing"],"Duration":[4,4,3]} df= PD.dataframe(d) Print[df]</pre>	2
21	<p>Consider the given SQL string:</p> <p><b>“ATTITUDE_IS_EVERYTHING”</b></p> <p>Write suitable SQL queries for the following:</p>	2

	<p>i. Returns the position of the first occurrence of the substring “T” in the given string.</p> <p>ii. To extract first five characters from the string.</p>	
22	<p>Predict the output of the given Python code:</p> <pre>import pandas as pd lst=[10,20,30] S = pd.Series(lst*2) print(S)</pre>	2
23	<p>What is netiquette? Write any two rules of netiquettes.</p>	2
24	<p>Complete the given Python code to get the required output as: Madhya Pradesh</p> <pre>import _____ as pd dict = {'Corbett': 'Uttarakhand', 'Sariska':'Rajasthan', 'Kanha': 'Madhya Pradesh','Gir':'Gujarat'} NP = _____.Series(____) print(NP[_____])</pre>	2
25	<p>What are aggregate functions in SQL? Name any two.</p>	2

### SECTION C

26	<p>Based on the SQL table Friends, write suitable queries for the following:</p> <p><b>Table: Friends</b></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>ID</th> <th>SALARY</th> <th>DESIGNATION</th> <th>SUBJECT</th> <th>SCHOOL</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>95000</td> <td>PGT</td> <td>Physics</td> <td>Delhi Public School</td> </tr> <tr> <td>2</td> <td>75000</td> <td>TGT</td> <td>Maths</td> <td>Army Public School</td> </tr> <tr> <td>3</td> <td>65000</td> <td>PGT</td> <td>Chemistry</td> <td>Jawahar Navodaya Vidyalaya</td> </tr> <tr> <td>4</td> <td>80000</td> <td>PGT</td> <td>Maths</td> <td>Delhi Public School</td> </tr> <tr> <td>5</td> <td>50000</td> <td>TGT</td> <td>Maths</td> <td>Jawahar Navodaya Vidyalaya</td> </tr> <tr> <td>6</td> <td>45000</td> <td>TGT</td> <td>Science</td> <td>Army Public School</td> </tr> <tr> <td>7</td> <td>48000</td> <td>TGT</td> <td>Maths</td> <td>Jawahar Navodaya Vidyalaya</td> </tr> </tbody> </table> <p>i. Display the average salary based on designation.  ii. Display subject-wise highest salary from the table.  iii. Display all the records in the descending order of SALARY.</p> <p style="text-align: center;"><b>OR</b></p> <p>Predict the output of the following queries based on the table Friends given above:</p> <p>i. SELECT LEFT(SUBJECT,3) FROM Friends WHERE ID=7;  ii. SELECT AVG(Salary) "AVG SALARY" FROM Friends WHERE SUBJECT= "Maths";  iii. SELECT SUM(SALARY) "TOTAL SALARY" FROM FRIENDS WHERE SUBJECT= "Maths";</p>	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	3
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27	<p>Create a DataFrame 'df' in Python from the given list:</p> <pre>[["Maya","HR",85000],["Manoj","Marketing",99000],["Pramod","IT",90000],["Deeksha","Sales",89000]]</pre> <p>Also give appropriate column headings as shown below:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Name</th> <th>Dept</th> <th>Salary</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Maya</td> <td>HR</td> <td>85000</td> </tr> <tr> <td>1</td> <td>Manoj</td> <td>Marketing</td> <td>99000</td> </tr> <tr> <td>2</td> <td>Pramod</td> <td>IT</td> <td>90000</td> </tr> <tr> <td>3</td> <td>Deeksha</td> <td>Sales</td> <td>89000</td> </tr> </tbody> </table>		Name	Dept	Salary	0	Maya	HR	85000	1	Manoj	Marketing	99000	2	Pramod	IT	90000	3	Deeksha	Sales	89000	3				
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28	<p>Write MySQL statements for the following:</p> <p>i. To create a database named HOTEL.</p> <p>ii. To create a table named FOOD based on the following specification:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Column Name</th> <th>Data Type</th> <th>Constraints</th> </tr> </thead> <tbody> <tr> <td>FID</td> <td>Int(5)</td> <td>Primary Key</td> </tr> <tr> <td>FNAME</td> <td>Char(20)</td> <td>NOT NULL</td> </tr> <tr> <td>FPRICE</td> <td>DOUBLE(6,2)</td> <td></td> </tr> <tr> <td>FQTY</td> <td>Int</td> <td></td> </tr> </tbody> </table>	Column Name	Data Type	Constraints	FID	Int(5)	Primary Key	FNAME	Char(20)	NOT NULL	FPRICE	DOUBLE(6,2)		FQTY	Int		3									
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29	<p>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.</p> <p>Based on the given information, answer the questions given below.</p> <p>i. Identify the type of cybercrime she is a victim of.</p> <p>ii. Under which act, she can lodge a complaint to the relevant authorities?</p> <p>iii. Suggest her any two precautionary measures which she should take in future while being online to avoid any such situations.</p> <p style="text-align: center;"><b>OR</b></p> <p>Mention any three health hazards associated with inappropriate and excessive use of gadgets.</p>	3																								
30	<p>Consider the given DataFrame 'df'</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Rno</th> <th>Name</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>Anvid</td> <td>68</td> </tr> <tr> <td>1</td> <td>2</td> <td>Krish</td> <td>56</td> </tr> <tr> <td>2</td> <td>3</td> <td>Kiran</td> <td>55</td> </tr> <tr> <td>3</td> <td>4</td> <td>Laksh</td> <td>45</td> </tr> <tr> <td>4</td> <td>5</td> <td>Shiva</td> <td>52</td> </tr> </tbody> </table>		Rno	Name	Marks	0	1	Anvid	68	1	2	Krish	56	2	3	Kiran	55	3	4	Laksh	45	4	5	Shiva	52	3
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Write suitable Python statements for the following:

- i. Add a column called Fee with the following data:  
[300,290,450,760,800]
- ii. Add a new row with following values.  
6, Thomas,69,590
- iii. Rename the column 'Name' to 'Student'.

### 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: 4

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.
- ii. Write a query to display the month of most recent transaction.
- iii. Write a query to display all the transactions done in the month of May.
- iv. Write a query to count total number of transactions in the year 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: 4

	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)
  - 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.

**OR**

(Option for part iii only)

Write Python statement to export the DataFrame to a CSV file named data.csv stored at **E:** drive.

**SECTION E**

- 33 Write suitable SQL queries for the following:
- To calculate the exponent for **3** raised to the power of **3**.
  - To display current date and time.
  - To round off the value **34.4567** to **3** decimal place.
  - To remove all the probable leading and trailing spaces from the column **NAME** of the table named **STUDENT**.
  - To display the length of the string '**FIRST TERM EXAM**'.

**OR**

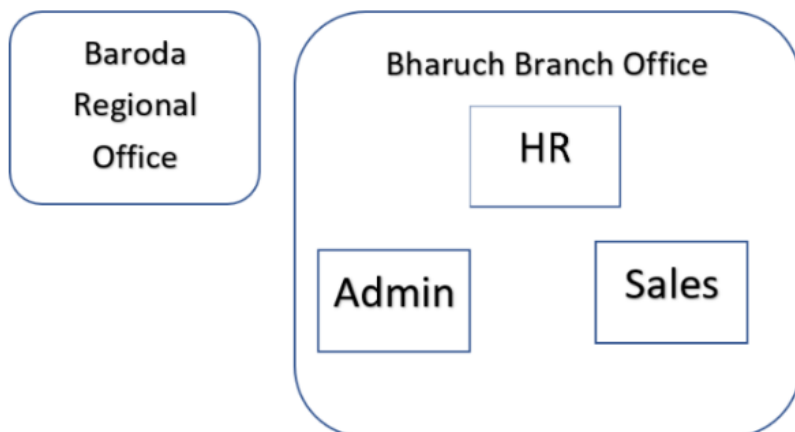
Yadav has created following table named **DOCTOR**:

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:

- Insert a new record in the table having following values:  
**[109,'Mathew','ENT','M',15]**
- To change the value "ORTHPEDIC" to "ORTHO" in DEPT column.
- To remove the records of those doctors whose experience is less than 10 .
- To add a new column Rank of integer datatype.
- To display records of "ENT" department.

- 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
Sales	20
Baroda	10

(i) Suggest the best suitable cable layout for the given case to connect each unit of the Bharuch office.

(ii) Suggest the most suitable place to install the server and specify the reason.

(iii) Which device is out of the following to be installed in each unit of the Bharuch office?

Router, Repeater, Switch, Modem

(iv) Which topology is best for each unit of the Bharuch Office?

Bus, Star, Tree, Mesh

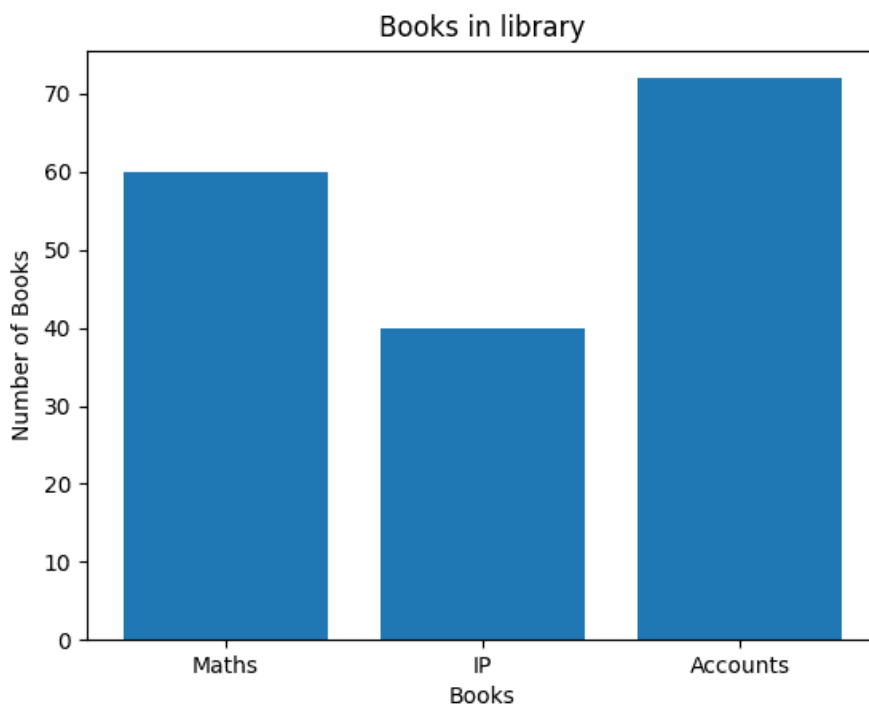
(v) Which type of network is formed between the following:

(a) HR to Admin Unit

(b) Baroda office to Bharuch Office

35 Write python code to plot a bar chart for Library Books as shown below:

5



Also give a suitable python statement to save this graph. [Save as “Books.jpg”]

-ALL THE BEST-