HS/XI/A.Sc.Com/IP/Pr/Set-I/22

2022

INFORMATICS PRACTICES

Full Marks : 30

Time : 4 hours

SET–I (One)

(Answer question 1 and 2 from Group-A and One question from Group-B)

GROUP – A

(PYTHON PROGRAMMING :: 8 MARKS)

1. Write a program to swap two numbers without using a third variable. 4

OR

Write a program to find the sum of first 20 natural numbers. 4

2. Create a Pandas Series that stores the marks of 10 students with indexes of their names. Display the names of students who secured marks > = 40. 4

OR

Create a Dataframe using the following Dictionary and do the following. 4

1. Display the dataframe as integer based index.

Country	Population	Birth Rate	Update Date
CHINA	1,379,750,000	14	2016-08-11
INDIA	1,330,780,000	21.76	2016-08-11
UNITED STATES	324,882,000	13.82	2016-08-11
INDONESIA	260,581,000	18.43	2016-08-11
BRAZIL	206,918,000	7.67	2016-08-11
PAKISTHAN	194,754,000	6.40	2016-08-11

GROUP – B

(SQL COMMANDS :: 4 MARKS)

3. Create the following table "Employee" as shown below : 4

Emp_ No.	Emp Name	Designation	Pay scale
101	Harish	Manager	60,000
102	Praveen	Sr. Executive	50,000
103	Kamal	Prod. Manager	60,000
104	Gopal	Designs	40,000
105	Aman	Sales Manager	60,000
106	Rajesh	Tech. Head	75,000

List the details of employees who has a salary > = 50,000

OR

Create a table "Books" based on the following structure: 4

Column Name	Datatype	Size	Constraint
Book_id	Number	4	Primary Key Unique
Book Name	Varchar	20	
Author Name	Varchar	30	
Publisher	Varchar	20	
Price	Number	6,2	

Insert the following data into the above table:

1476	Waterfire Saga	Jennifer Donnelly	Disney Production	1760
1728	Here and Now	Ann Brashares	Delacorte Press	1400
1346	Jane, the Fox and Me	Fanny Britt	Groundwood Books	1700
1466	Sing Sweet Nightingle	Erica Cameron	Disney Production	700

Display all records.

★★★

2022

INFORMATICS PRACTICES

Full Marks : 30

Time : 4 hours

SET–II (Two)

(Answer question 1 and 2 from Group-A and One question from Group-B)

GROUP – A

(PYTHON PROGRAMMING :: 8 MARKS)

1. Write a program to check if the input 3-digit number is a palindrome? 4

OR

Write a Python program to find the area of a triangle using 4

$S = \frac{a+b+c}{2}$, Area $= \sqrt{s(s-a)(s-b)(s-c)}$

2. Create a Pandas series 'Students' consisting of Name, Roll No., Class, DOB and Total Marks of 5 different students. Display the last two records only. 4

OR

Write a program to print an initialized list of cities in India 4

GROUP – B

(SQL COMMANDS :: 4 MARKS)

1. Create the following table 'Customers' as per the following 4

FIELD NAME	DATA TYPE	SIZE	CONSTRAINT
Cust_ID	Number	3	Primary Key
Cust_Name	Varchar	30	
Cust_Address1	Varchar	30	
Cust_Address2	Varchar	30	
Pin Code	Number	6	
Cust_Phone	Varchar	10	

(1) Add a column Birthday of Date data type

(2) Insert at least four records into the table and display in ascending order of Customer Name.

OR

Create the following table : Employee 4

COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS
Empid	Number	4	Primary key not null
EmpName	Varchar	30	
EmpAddress	Verchar	30	
EmpPhone	Varchar	10	
EmpSal	Number	7,2	
DeptID	Varchar	3	Foreign key.

Insert the following records for the above table

1001	Ajay Dutta	Laitumkhrah	9767948419	50,000	S01
1002	Pronobesh Singh	Bishnupur	9114541091	75,000	S02
1003	Vijay Das	Lalit Nagar	7643001412	60,000	M03
1004	Vedika Kumari	Patna	7001476541	50,000	G10

★★★

HS/XI/A.Sc.Com/IP/Pr/Set-III/22

2022

INFORMATICS PRACTICES

Full Marks : 30

Time : 4 hours

SET–III (Three)

(Answer question 1 and 2 from Group-A and One question from Group-B)

GROUP – A

(PYTHON PROGRAMMING :: 8 MARKS)

1. Write a Python program to print the following pattern. 4

```
*  *  *  *  *
*  *  *  *
*  *  *
*  *
*
```

OR

Write a program to find the sum of the following series 4

$$x - \frac{x^2}{2!} + \frac{x^3}{3!} - \frac{x^4}{4!} \ldots\ldots \frac{x^n}{n!}$$

2. Create a Panda Series that stores EmployeeId, EmployeeName, JobTitle and Salary, of five employees, with employeeId as index. Display the names of employees who get the highest salary. 4

OR

Create a Panda Dataframe using the two list and then display the dataframe. 4

Name = [Amy, Sandrie,Jreddy, Aurelia, Stalin]

Marks = [47, 73,80, 64, 92].

GROUP – B

(SQL COMMANDS :: 4 MARKS)

3. Create a table 'Teacher' using the following structure: 4

COLUMN NAME	DATA TYPE	SIZE	CONSTRAINT
TNO	Char	(4)	Primary key, not null
TName	Varchar	20	
TAddress	Varchar	30	
Salary	Decimal	6,2	(=5000–40,000)
Dept_No	Char	4	
DOJ	Date		

Inster at least four rows of data and display the table.

OR

Create a table Book using appropriate datatypes size and constraint having the following fields :– BNO, Title, Author, Publisher, Quantity, Price. 4
Insert at least 4 records and delete the column quantity.

★★★

HS/XI/A.Sc.Com/IP/Pr/Set-IV/22

2022

INFORMATICS PRACTICES

Full Marks : 30

Time : 4 hours

SET–IV (Four)

(Answer question 1 and 2 from Group-A and One question from Group-B)

GROUP – A

(PYTHON PROGRAMMING :: 8 MARKS)

1. Write a Python program to print the following pattern 4

```
1
2  6
3  7  10
4  8  11  13
5  9  12  14  15
```

OR

Write a Python program to take year as input and check if it is a leap year or not. 4

2. Create a Pandas series to store the names and phone numbers of 5 students with student name as index . Display the entire series. 4

OR

Open Ms_Excel and create the following and save as student Details. CSV 4

Student_id	SName	DOB	Address
32	Angela	2005-01-23	M G Road, Bangalore
33	Amanda	2004-06-17	Bishnupur
34	Rosana	2005-08-12	Lalit Nagar
35	Sumarlin	2004-05-19	Patna

Create a Dataframe (*df*) to read the above file print the dataframe in ascending order of student names.

GROUP – B

(SQL COMMANDS :: 4 MARKS)

3. Create the table 'Marks' having the following structure. 4

Field Names	Data Types	Constraints
Name	varchar (25)	Not Null
Roll No.	int (3)	Primary key
Age	int (3)	
Mark	double (5,2)	

Enter 5 rows of data and check that age should not be less than 12 and greater than 16.

OR

Create the table 'Product' with the following structure: 4

Field Name	Data Type	Size	Constraint
P_id	Number	4	Primary key
PName	Varchar	20	
Manufacturer	Varchar	20	
Price	Number	(6,2)	

Insert at least 4 records and display the table in ascending order of Product Name.

★★★

HS/XI/A.Sc.Com/IP/Pr/Set-V/22

2022

INFORMATICS PRACTICES

Full Marks : 30

Time : 4 hours

SET–V (Five)

(Answer questions 1 and 2 from Group-A and One question from Group-B)

GROUP – A

(PYTHON PROGRAMMING :: 8 MARKS)

1. Write a program to print the following pattern 4

```
*   *   *   *   *
*           *
*       *
*   *
*
```

OR

Write a Python program to enter a three digit number and reverse its digits.

2. Create a Pandas dataframe using the list below, display the first two rows of data 4

Artist = ['Lenon', 'Ahcia', 'Cat Stevens', 'Elvis']

Genre = ['pop', 'R&B', 'Folk', 'Rock and Roll']

GROUP – B

(SQL COMMANDS :: 4 MARKS)

3. Create the following table with appropriate data types using SQL commands. 4

Teacher

TID	TNAME	DEPT.	SALARY	SEX
T10	Pankaj	Chemistry	40,000	M
T17	Sanjeev	Biology	75,000	M
T12	Sangeeta	Maths	60,500	F
T13	Ruksar	Physics	50,100	F
T14	Parineeti	Maths	56,427	F
T15	Priyanka	Physics	70,728	F
T16	Sonali	Physics	50,147	F

– Write SQL commands to count the number of teachers in Physics department.

– Display the details of only Male Teachers.

OR

Create the following table having the following structure. 4

Field Names	Data Types	Size	Constraint
Book_id	Number	4	Primary key
BookName	Varchar	20	
Author	Varchar	30	
Publisher	Varchar	20	
Price	Number	(5,2)	

Enter five rows of data and display all the records.

★★★

HS/XI/A.Sc.Com/IP/Pr/Set-VI/22

2022

INFORMATICS PRACTICES

Full Marks : 30

Time : 4 hours

SET–VI (Six)

(Answer question 1 and 2 from Group-A and One question from Group-B)

GROUP – A

(PYTHON PROGRAMMING :: 8 MARKS)

1. Write a Python program to find the largest of three input numbers 4

OR

Write a Python program to enter the side of a square and find its area. 4

2. Create a Panda series that stores the marks of 10 students with indexes of their names. Display the last 5 records. 4

OR

Create the following CVS file using Excel and save it as product.CVS 4

	A	B	C	D
1	CODE	ITEM	QUANTITY	PRICE
2	1001	Plastic Folder 14"	100	3400
3	1003	Penstand (Standard)	200	4500
4	1005	Stapler Mini	250	1200
5				
6	1009	Punching Machine	200	1400
7	1004	Stapler (Big)	100	1500
8	1002	Fountain Pen	100	3000

Read the CVS file as a dataframe using columns : Code, Item and Quantity.

GROUP – B

(SQL COMMANDS :: 4 MARKS)

3. Create the following table using appropriate datatypes, size and constraints. 4

Emp_Id	Emp_Name	Designation	Salary
1004	Suresh	Manager	70,000
1005	Amanda	Clerk	20,000
1006	Sujit	Sales	35,500
1007	Danny	Sales	21,500
1008	Shimti	Clerk	20,000

– List the employees whose designation is "Sales"

– List the employees whose designation is not manager.

OR

Create a table 'Athletics' 4

Name	Age	Event
Ariana	14	100 mtrs
Cordilia	13	200 mtrs
Tanisha	10	100 mtrs
Stephenia	11	200 mtrs relay

Display records of athletics participating in 100 mtrs event.

★★★

HS/XI/A.Sc.Com/IP/Pr/Set-VII/22

2022

INFORMATICS PRACTICES

Full Marks : 30

Time : 4 hours

SET–VII (Seven)

(Answer question 1 and 2 from Group-A and One question from Group-B)

GROUP – A

(PYTHON PROGRAMMING :: 8 MARKS)

1. Write a Python program to display the multiplication table of any input number. 4

OR

Write a Python program to find the factorial of any given number. 4

2. Write a program to enter any 10 numbers in a tuple and find their sum, the largest and smallest value in the tuple. 4

OR

Create the following Pandas Dictionary called students. 4

Name	TMarks	City
Adiel	480	Aizawl
Naphi	446	Lucknow
Ramesh	450	Delhi
Vicky	477	Chennai
Arnel	415	Ludhiana

– Print the rows whose TMarks is more than 450

– Print the first 3 rows of data.

GROUP – B

(SQL COMMANDS :: 4 MARKS)

3. Create the following table as shown below : 4

Field Name	Data Types	Size	Constraint
Student_Id	Numeric	3	Primary key
St_Name	Varchar	30	
Class	Char	3	
Dance	Varchar	20	
Transportation	Varchar	20	

Insert the following data into it

101	Riya	8	Bharatnatyam	School Bus
102	Somum	7	Kathak	Private Car
103	Suzie	8	Salsa	Walker
104	Tony	8	Jazz	School Bus
105	Jerry	7	Bharatnatyam	School Bus

– Display the students taking up Bharatnatyam

– List the student details who use the School Bus.

OR

Create the table students and list the names of students who obtained Percentage of marks >80. 4

R. No.	Name	Marks
1	Ranjan	75
2	Rose	85
3	David	90
4	Susana	93

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