

TERM-1 (2023-24) KEY

Name of the student:

Date: 03.08.2023

Grade: XII

Time: 3hrs

Subject: INFORMATICS PRACTICES (065)

Marks: 70

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory. But internal choice is there for the questions 19, 26, 29, 32 (for option iv only), 33 and 35.
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.

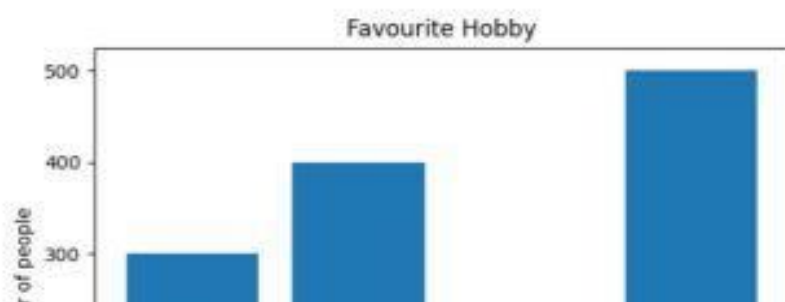
	SECTION – A	
1.	Which of the following command will show the last 4 rows from a pandas Series named GR? a. GR.Tail() b. GR.TAIL(4) c. GR.tail(4) d. All of the above	1
2.	Pandas Series is: a. 2 Dimensional b. 3 Dimensional c. 1 Dimensional d. Multidimensional	1
3.	The name “Pandas” is derived from the term: a. Panel Data b. Panel Series c. Python Document d. Panel Data Frame	1
4.	Which of the following import statement is not correct? a) import pandas as class12 b) import pandas as 1pd c) import pandas as pd1 d) import pandas as pd	1
5.	What will be the output of the given code? import pandas as pd S = pd.Series([1,2,3,4,5], index = ['akram', 'brijesh', 'charu', 'deepika', 'era']) Print(S['charu']) a. 1 b. 2 c. 3 d. 4	1
6.	To iterate over horizontal subsets of DataFrame, _____ function may be used. a.iterate() b.iterrows() c.itercols() d.iteritems()	1
7.	Which of the following is not a valid plotting function of pyplot? a.plot() b.bar() c.line() d.pie()	1
8.	The data points plotted on a graph are called _____ a.Points b.Pointers c.Marks d.markers	1
9.	Which function would you use to set the limits for x-axis of the plot? a.limits() b.xlimits() c.xlim() d.lim()	1
10.	What is the full form of SQL? a. Structured Query Language b. Structure Query List	1

	c. Simple Query Language	d. None of these																	
11.	What is the full form of DDL? a. Dynamic Data Language c. Data Definition Language	b. Detailed Data Language d. Data Derivation Language	1																
12.	Which of the following is a DDL command? a. SELECT c. INSERT	b. ALTER d. UPDATE	1																
13.	Which of the following types of table constraints will prevent the entry of duplicate rows? a. Unique c. Primary Key	b. Distinct d. Null	1																
14.	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. a) Both A and R are true and R is the correct explanation for A. b) Both A and R are true and R is not the correct explanation for A. c) A is True but R is False. d) A is False but R is True.		1																
15.	Which of the following sublanguages of SQL is used to query information from the database and to insert tuples into, delete tuples from and modify tuples in the database? a. DML c. Query	b. DDL d. Relational Schema	1																
16.	Which MySQL command is used to delete a table from database? a. Del c. Both a and b	b. DROP d. None of the above	1																
17.	A _____ key is used to uniquely identify each row in a table. a. Foreign key c. Both a and b	b. Primary key d. None of the above	1																
18.	The number of tuples in a relation is called as a. Degree c. View	b. Cardinality d. None of the above	1																
	SECTION B																		
19.	The Python code written below has syntactical errors. Do the needful corrections and rewrite the correct program. import pandas as @pd dic = {Technology = ["Maths","Physics","chemistry"],"Duration": [25,24,26]} df = pd.dataframe(dic) PRINT(df) import pandas as pd dic = { "Technology" : ["Maths","Physics","chemistry"],"Duration": [25,24,26]} df = pd.DataFrame(dic) print(df) OR Write any two differences between Series and DataFrames <table><tr><td>Series</td><td>DataFrames</td></tr><tr><td>1-dimensional</td><td>2-dimensional</td></tr><tr><td>Homogeneous i.e. all the elements must be of same data type in a Series object.</td><td>Heterogeneous i.e. a DataFrame object can have elements of different data types.</td></tr></table>		Series	DataFrames	1-dimensional	2-dimensional	Homogeneous i.e. all the elements must be of same data type in a Series object.	Heterogeneous i.e. a DataFrame object can have elements of different data types.	2										
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20.	Create a DataFrame from the given table and also give appropriate column headings as shown below: <table><tr><td>0</td><td>Divya</td><td>HR</td><td>95000</td></tr><tr><td>1</td><td>Mamta</td><td>Marketing</td><td>97000</td></tr><tr><td>2</td><td>Payal</td><td>IT</td><td>980000</td></tr><tr><td>3</td><td>Deepak</td><td>Sales</td><td>97000</td></tr></table>		0	Divya	HR	95000	1	Mamta	Marketing	97000	2	Payal	IT	980000	3	Deepak	Sales	97000	2
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	<pre>import pandas as pd list = [['Divya','HR',95000],['Mamta', 'Marketing', 97000],['Payal','IT', 980000],['Deepak', 'Sales', 97000]] df = pd.DataFrame(list,columns = ['Names','Department','Salary']) print(df)</pre>	
21.	What is the role of inplace argument in rename() function. What does drop function do? To make changes in the index/columns names in original dataframe, you need to specify additional argument inplace = True in the rename(). The drop() method removes the specified row or column. By specifying the column axis (axis='columns'), the drop() method removes the specified column. By specifying the row axis (axis='index'), the drop() method removes the specified row.	2
22.	Predict the output of the given python code? <pre>import pandas as pd list = [-37, -43, -72] ser = pd.Series(list*2) print(ser)</pre> OutPut <pre>0 -37 1 -43 2 -72 3 -37 4 -43 5 -72 dtype: int64</pre>	2
23.	Write any two SQL commands for Data Definition Language (DDL) and Data Manipulation Language (DML). Data Definition Language: CREATE, ALTER, DROP Data Manipulation Language: INSERT, SELECT, UPDATE	2
24.	Differentiate between CHAR and VARCHAR datatypes. The difference between CHAR and VARCHAR is that of fixed length and variable length. The CHAR datatype specifies a fixed length character string. VARCHAR specifies a variable length string.	2
25.	Write a short notes on Relation and Domain. A Relation is a table storing logically related data. A Domain is a pool of values from which the actual values appearing in a given column are drawn.	2
SECTION C		
26.	Consider the given DataFrame 'df'. <pre> yr1 yr2 yr3 qtr1 34500 44900 54500 qtr2 56000 46100 51000 qtr3 47000 57000 57000 qtr4 49000 59000 58500 </pre> Write a program in python to create the above DataFrame df and extract data from DataFrame df row wise. Program <pre>import pandas as pd df = {'yr1':[34500,56000,47000,49000],'yr2':[44900,46100,57000,59000],'yr3':[54500,51000,57000,58500]} df = pd.DataFrame(df,index = ['qtr1','qtr2','qtr3','qtr4']) print(df) for row,rowseries in df.iterrows():</pre>	

	<pre>print(row) print(rowseries)</pre> OR Write a program in python to create the above DataFrame df and extract data from DataFrame df column wise. <pre>import pandas as pd dif = {'yr1':[34500,56000,47000,49000],'yr2':[44900,46100,57000,59000],'yr3':[54500,51000,57000,58500]} df = pd.DataFrame(dif,index = ['qtr1','qtr2','qtr3','qtr4']) print(df) for column,columnseries in df.iteritems(): print(column) print(columnseries)</pre>																					
27.	Explain what the following statements are doing? df is the name of a DataFrame i. df.iloc[:5,] ii. df.iloc[5,0] iii. df.iloc[1:5,:5] iv. df.iloc[1:5,] v. df.iloc[1:5,0] vi. df.iloc[2:7,1:3] (i) It will display first 5 rows of DataFrame df. (ii) It will display Sixth row's 1st column value of DataFrame df. (iii) It will display Second to Fifth rows, first 5 columns values of DataFrame df. (iv) It will display second (which has index as 1) to Fifth row of DataFrame df. (v) It will display Second to Fifth rows, first column's values of DataFrame df. (vi) It will display Third to Seventh rows 2nd and 3rd columns values of DataFrame df.	3																				
28.	What will be the output of the following program? <pre>import pandas as pd fst = [9, 10, 11] scd = pd.Series(fst) obj1 = pd.Series(data = fst * 2) obj2 = pd.Series(data = scd * 2) print("obj1") print(obj1) print("obj2") print(obj2)</pre> <pre>obj1 0 9 1 10 2 11 3 9 4 10 5 11 dtype: int64 obj2 0 18 1 20 2 22 dtype: int64</pre>	3																				
29.	<table><thead><tr><th>studid</th><th>studname</th><th>studcity</th><th>studphno</th></tr></thead><tbody><tr><td>s001</td><td>Harshith</td><td>Mumbai</td><td>55667744</td></tr><tr><td>s002</td><td>Sajid</td><td>Lucknow</td><td>45678912</td></tr><tr><td>s003</td><td>Phanindra</td><td>Chennai</td><td>412365478</td></tr><tr><td>s004</td><td>Sridhar</td><td>Hyderabad</td><td>77881234</td></tr></tbody></table>	studid	studname	studcity	studphno	s001	Harshith	Mumbai	55667744	s002	Sajid	Lucknow	45678912	s003	Phanindra	Chennai	412365478	s004	Sridhar	Hyderabad	77881234	3
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	Write the MYSQL commands to create the above table student and to enter the above records in it. create table student(studid char(5),studname varchar(25),studcity varchar(25), studphno int); insert into student values('s001','Harshith','Mumbai',55667744); insert into student values('s002','Sajid','Lucknow',45678912); insert into student values('s003','Phanindra','Chennai',412365478); insert into student values('s004','Sridhar','Hyderabad',77881234); OR Write the MYSQL commands to retrieve the details of the students whose studcity is Lucknow and Chennai. select * from student where studcity in('Lucknow','Chennai'); <pre> +-----+-----+-----+-----+ studid studname studcity studphno +-----+-----+-----+-----+ s002 Sajid Lucknow 45678912 s003 Phanindra Chennai 412365478 +-----+-----+-----+-----+ </pre> Write the MYSQL command to delete the table student. drop table student;	
30.	i. Write the MYSQL command to view the structure for the above table. desc student; ii. Write the MYSQL command to retrieve the students with “S” as starting letter in their names. select * from student where studname like 'S%'; <pre> +-----+-----+-----+-----+ studid studname studcity studphno +-----+-----+-----+-----+ s002 Sajid Lucknow 45678912 s004 Sridhar Hyderabad 77881234 +-----+-----+-----+-----+ </pre> iii. Write the MYSQL command to change the city of the student ‘Sajid’ to Bengaluru. update student set studcity = 'Bengaluru' where studid = 's002';	3
	SECTION D	
31.	i. Write the MYSQL command to add one more column with the name ‘studgroup’ with the groups as MPC, BiPC, MEC, BEC.to the above table student. alter table student add studgroup varchar(10); update student set studgroup = 'MPC' where studid = 's001'; update student set studgroup = 'BiPC' where studid = 's002'; update student set studgroup = 'MEC' where studid = 's003'; update student set studgroup = 'BEC' where studid = 's004'; ii. Write the MYSQL command to change the position of ‘studgroup’ column before ‘studcity’ in the above table student. alter table student modify studgroup varchar(10) after studname; iii. Write the MYSQL command to increase the datasize of studname to varchar(45) in the above table student. alter table student modify studname varchar(45);	4

	iv. Write the MYSQL command to rename studcity as stud_city in the above table student. alter table student change studcity stud_city varchar(25);																					
32.	<table><thead><tr><th></th><th>studname</th><th>studcity</th><th>studphno</th></tr></thead><tbody><tr><td>0</td><td>Harshith</td><td>Mumbai</td><td>55667744</td></tr><tr><td>1</td><td>Sajid Lucknow</td><td>45678912</td><td></td></tr><tr><td>2</td><td>Phanindra</td><td>Chennai</td><td>412365478</td></tr><tr><td>3</td><td>SridharHyderabad</td><td>77881234</td><td></td></tr></tbody></table> Based on the above data write the Python statements i. Write the Python statement to import the data from the csv file named student which is stored in the folder westberry in D: drive to the DataFrame df. import pandas as pd df = pd.read_csv('E:\\westberry\\student.csv') print(df) ii. Write the Python statement to display first 2 rows only. df = pd.read_csv('E:\\westberry\\student.csv',nrows=2) print(df) iii. Write the Python statement to display only 1st and 3rd rows only. df = pd.read_csv('E:\\westberry\\student.csv',skiprows=[1,3]) print(df) iv. Write the Python statement to make studcity as the index. df = pd.read_csv('E:\\westberry\\student.csv',index_col = 'studcity') print(df) OR (Choice for iv question only) Write the Python statement to provide statement to provide your own column names in the DataFrame. df = pd.read_csv('E:\\westberry\\student.csv',names = ['studentname','studentcity','studentphno']) print(df)		studname	studcity	studphno	0	Harshith	Mumbai	55667744	1	Sajid Lucknow	45678912		2	Phanindra	Chennai	412365478	3	SridharHyderabad	77881234		4
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SECTION E																						
33.	The marks of 15 students of Grade 12 are given below: Marks = [52, 53, 54, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65] Write suitable Python code to generate a histogram based on the given data, along with an appropriate chart title and both axis labels. import matplotlib.pyplot as plt height_cms = [52,53,54,54,55,56,57,58,59,60,61,62,63,64,65] plt.hist(height_cms) plt.xlabel('height in cms') plt.ylabel('number of people') plt.show() OR Write suitable Python code to create 'Favourite Hobby' Bar Chart as shown below: 	5																				

```
import matplotlib.pyplot as plt
hobby = ['Dance','Music','Painting','Playing Sports']
users = [300, 400, 100, 500]
plt.bar(hobby, users)
plt.title('Favourite Hobby')
plt.xlabel('Hobbies')
plt.ylabel('Number of people')
plt.show()
```

34. Consider the following lists. Write a program to plot a bar chart from the medals won by Australia. In the same chart plot medals won by India too. Both should be displayed with different colors.

Medals = ['Gold', 'Silver', 'Bronze', 'total']

India = [26, 20, 24, 68]

Australia = [54, 25, 28, 73]

```
import matplotlib.pyplot as plt
medals = ['Gold','Silver','Bronze','total']
India = [26, 20, 24, 68]
Australia = [54, 25, 28, 73]
plt.bar(medals,Australia)
plt.bar(medals,India)
plt.show()
```

35.

name	owner	species	sex	birth	death
Fluffy	Harold	cat	f	1993-02-04	NULL
Claws	Gwen	cat	m	1994-03-17	NULL
Buffy	Harold	dog	f	1989-05-13	NULL
Fang	Benny	dog	m	1990-08-27	1999-10-22
Bowser	Diane	dog	m	1979-08-31	1995-07-29
Chirpy	Gwen	bird	f	1998-09-11	NULL
Whistler	Gwen	bird	NULL	1997-12-09	NULL
Slim	Benny	snake	m	1996-04-29	2000-01-29
Puffball	Diane	hamster	f	1999-03-30	2004-03-27

Table name = pet

i. Write the MYSQL command to create the above table.

create table pet(name char(20),owner char(20),species char(20),sex char(5),birth date, death date);

ii. Write the MYSQL command to retrieve distinct species.

select distinct species from pet;

iii. Write the MYSQL command to retrieve all the rows whose birth date should be between 1994-01-01 to 1996-12-31.

select * from pet where birth between '1994-01-01' and '1996-12-31';

iv. Write the MYSQL command to retrieve the rows whose values are equal to NULL under death.

select * from pet where death is NULL;

- v. Write the MYSQL command to retrieve species = cat and sex = f or m.

select * from pet where species = 'cat' and (sex = 'm' or sex = 'f');

OR

- i. Write the MYSQL command to create the above table.

create table pet(name char(20),owner char(20),species char(20),sex char(5),birth date, death date);

- ii. Write the MYSQL command to retrieve all the names of owner (only owner column).

select all owner from pet;

- iii. Write the MYSQL command to retrieve the rows whose values are not equal to NULL under death.

select * from pet where death is not null;

- iv. Write the MYSQL command to retrieve all the rows where species is either cat or dog.

select * from pet where species = 'cat' or species = 'dog';

- v. Write the MYSQL command to delete the rows where species is bird.

delete from pet where species = 'bird';