CLASS XII

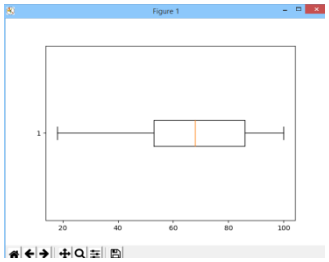
INFORMATICS PRACTICES- NEW(065)

FIRST PRE BOARD 2019-20

Marking Scheme

MAX. MARKS- 70 **TIME- 3 Hrs.**

		Section: A	
Q1	A	Predict the output of following program- import numpy as np arr=np.array([21,22,23,24,25,26,27,28,29,30]) print(arr[4:9]) **Ans-** **[25 26 27 28 29]-----1 mark**	1
	B	Consider the following array ary- 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Write the appropriate numpy method get the following resultant arrays by following command- Ar1,Ar2,Ar3= _____(ary,[2,5],axis=1) Resultant Array- Ar1-[[1 2 3 4 5] [6 7 8 9 10] [11 12 13 14 15] [16 17 18 19 20]] Ar2-[[1 2] [6 7] [11 12] [16 17]] Ar3-[[3 4 5] [8 9 10] [13 14 15] [18 19 20]]= **Ans-** **Ar1,Ar2,Ar3= np.split (ary,[2,5],axis=1)----1 mark**	1
	C	Mr. Gupta run a manufacturing unit of BP Machines. He wants to draw a line chart using quantities of machines produced per month to get an idea of production growth in various months. Complete the code to perform following operations- i. To plot a line chart using the quantities produced per month. Statement1 ii. To give y-axis label as 'Total Production'. Statement 2 import matplotlib.pyplot as pl Quantities=[36,37,32,31,35,39] Month=['Jan','Feb','Mar','Apr','May','Jun'] **pl.plot(Month,Quantities) Statement1----1/2 mark** **pl.ylabel("Total Production") Statement 2-----1/2 mark** pl.xlabel("Month") pl.show() OR Ms. Sujata, a class teacher want to plot a bar graph for the name of days on x-axis and total students present on those days on y-axis to get the average weekly attendance.	1

		Complete the code to perform the following- i. To plot the bar chart in statement 1 ii. To show the chart in statement 2 import matplotlib.pyplot as pl Days=['Mon','Tue','Wed','Thurs','Fri','Sat'] Present=[36,37,32,31,35,39] **pl.bar(Days,Present) Statement 1-----1/2 mark** **pl.show() Statement 2------1/2 mark**	
	D	Write the output of the following code- import numpy as np arr=np.array([[0,1,2,3,4], [6,7,8,9,10], [11,12,13,14,15], [16,17,18,19,20]]) res=arr-6 print(res) **Ans-** **[[-6 -5 -4 -3 -2]** **[0 1 2 3 4]** **[5 6 7 8 9]** **[10 11 12 13 14]]---- 1/2 mark for each correct row**	2
E		Create the given box plot from the following set of data: 34,18,100,27,54,52,93,59,61,87,68,85,78,82,91 with the orientation to horizontal.  **Ans-** **import matplotlib.pyplot as pl** **a=[34,18,100,27,54,52,93,59,61,87,68,85,78,82,91]** **pl.boxplot(a,vert=False)** **pl.show() -------2 mark** ***or any other possible correct code.**	2
	F	What is the difference between Numpy Array and Python Lists? Give any two differences. ------**2 mark for correct difference**.	2
	G	An ndarray X contains the following values: [[11,12,13,14,15] [16,17,18,19,20] [21,22,23,24,25] [26,27,28,29,30]] What will be returned by following statements- a. print(X[0:3,0:3]) b- print(X[2:0:-1,2:0:-1]) **Ans- a-** **[[11 12 13]** **[16 17 18]** **[21 22 23]]** **b-** **[[23 22]** **[18 17]]** **1.5 mark for each.**	3

		Or Given a list L=[7,8,9] and an ndarray having elements 7,8,9 . what will be the result produced by- a. L*4 b. L+L c. N*4 **Ans-** **a- [7, 8, 9, 7, 8, 9, 7, 8, 9, 7, 8, 9]** **b- [7, 8, 9, 7, 8, 9]** **c- [28 32 36]** **1 mark for each.**	
Q2	A	Mr. Sinha want to sort a dataframe as per the column "Number_of_Participants" in decreasing order of values. But he is not getting the desired result. Identify the error and rewrite the code. DF.sort_values(by=["Number_of_Participants"]) **Ans-** **DF.sort_values(by=["Number_of_Participants"], ascending=False) --- 1mark**	1
	B	Consider a dataframe df having 3 columns in it as population, avg_income and per_capita_income. Write the code to add a new column namely "Density" with the value 1000 for all rows. **Ans- df['Density']=1000 ----- 1 mark**	1
	C	_____ method in Pandas does not raise errors for multiple enteries of a row, column combinations. **Ans- pivot_table()------ 1 mark**	1
	D	A dataframe Student is consisiting the details of 10 students as per following criteria- Rollno, Name, Gender, Age(same order in dataframe). Write the code(command) to display only first 5 records and only Name, Gender and Age. **Ans- df.iloc[0:5,1:4]-----1 mark** ***or any other possible correct code.**	1
	E	What is the difference between the function apply() and applymap()? **Ans-** **apply() is a series function, so it applies to one row or one column.** **applymap() is an element function, so it applies to each individual element separately.** **Ex- np.mean([333,666,444]) would yied 481.0** **np.mean(333) would yield 333.0** **1 mark for each function definition.**	2
	F	Write a python code to create a dataframe with appropriate headings(Empcode, Name, Age) from the data given below. ['EC101','Jakson',35], ['EC102','Peter',42], ['EC107','Robert',37], ['EC109','Smith',54], **Or** Write a python code to create a dataframe with appropriate headings(Sport, total_eligible_Boys) from the data given below.	2

[[‘Vollyball’,17], [‘Cricket’,15], [‘Football’,19], [‘Kho-Kho’, 20]]

2 MARK FOR CORRECT CODE.

G

A dataframe TD stores data about tourists to a visiting place. First few rows of the dataframe are shown below- 3

	Year	Month	Tourists
0	2019	Jan	240
1	2019	Feb	220
2	2019	Mar	154
3	2019	Apr	160
4	2019	May	455

Considering the above dataframe, write commands for the following-

i. Compute total tourists per year.

ii. Compute average tourists per month.

Ans-

i. TD.pivot_table(index=’Year’,value=’Tourists’,aggfunc=’sum’)

ii. TD.pivot_table(index=’Year’,value=’Tourists’,aggfunc=’mean’)

1.5 mark for each command.

Or

	Name	Deptt	Salary
0	Sunita Sharma	Sales	47600
1	Sudhir Rawat	Accounts	27000
2	Vinod Goel	Research	41900
3	Manoj Singh	Operations	67000
4	Jyoti S.	Sales	45600
5	Chetan Singh	Research	43700
6	Martin M.	Accounts	32000

Consider above dataframe DF and write commands for following-

i. Display the department-wise total salary.

ii. Display the department-wise total and average salary.

Ans-

i. DF.pivot_table(index=’Deptt’, value=’Salary’,aggfunc=’sum’)

ii. DF.pivot_table(index=’Deptt’, value=’Salary’,aggfunc=[’sum’,’mean’])

1.5 mark for each command.

H

Predict the output of the following code- 3

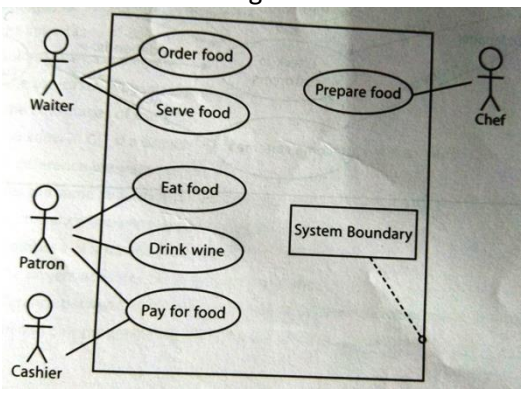
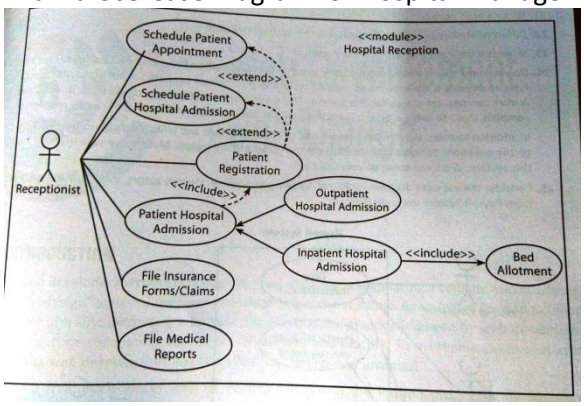
```
import numpy as np
import pandas as pd
dict={'Name':pd.Series(['Anu','Abhishek','Rajeev','Ritu']),
'Age':pd.Series([26,25,24,31]), 'Score':pd.Series([87,67,89,55])}
df=pd.DataFrame(dict)
print("Dataframe contents are")
print(df)
print(df.count())
```

Ans-

```
Dataframe contents are
       Name  Age  Score
0       Anu   26     87
1  Abhishek   25     67
2    Rajeev   24     89
3      Ritu   31     55
Name      4
Age       4
Score     4
dtype: int64
```

2 mark for dataframe display. 1 mark for count() function display

	I	Cls1 |	Eng	Maths	Hindi | |---|---|---|---| | 0 | 43 | 42 | 40 | | 1 | 23 | 41 | 53 | | 2 | 65 | 57 | 62 | | 3 | 12 | 14 | 17 | Cls2 |	Eng	Maths	Hindi | |---|---|---|---| | 0 | 32 | 53 | 31 | | 1 | 54 | 21 | 65 | | 2 | 31 | 73 | 36 | | 3 | 21 | 51 | 43 | Write the code in Pandas to create the above dataframes and write the command to perform following operatins on the dataframes Stud1 and Stud2- i. To subtract Cls2 from Cls1. ii. To add Cls1 and Cls2. iii. To rename column Hindi as Science in Cls1. iv. To change the index label of Cls1 from 2 to Two and from 3 to Three. Ans- **Import numpy as np** **Import pandas as pd** **Cls1=pd.DataFrame({'Eng':[43,23,65,12],'Maths':[42,41,57,14],'Hindi':[40,53,62,17]})** **Cls2=pd.DataFrame({'Eng':[32,54,31,21],'Maths':[53,21,73,51],'Hindi':[31,65,36,43]})** **---- 1 Mark** **i. print(Cls1.subtract(Cls2)) ---1/2 mark** **ii. print(Cls1.add(Cls2))-----1/2 mark** **iii. Cls1.rename(columns={'Hindi':'Science'},inplace=True) ----1 mark** **iv. Cls1.rename(index={2:"Two",3:"Three"},inplace=True)-----1 mark** ***or any other possible correct code.**	4
		Section-B	
Q3	A	_____ is a linear and sequesntial approach of software development. i. Spiral ii. Waterfall iii. Concurrent iv. None of above **Ans- Wtaerfall---- 1 mark**	1
	B	_____ finds out that how practical and beneficial the software project development will prove to the organization. i. Design and implementation. ii. Verification and validation. iii. Feasibility study. iv. Evolution. **Ans- Feasibility Study---- 1 mark**	1
	C	Write down any one drawback of Spiral Model? **1 mark for correct drawback.**	1

	D	How many members are there in a Scrum Team and what are their responsibilities? OR Write a short note on Scrum Events. **3 marks for correct note.**	3
	E	Differentiate between the term commit and update. **OR** Differentiate the terms Push and Pull. **2 mark for corrcet difference.**	2
	F	What is Pair Programming? What are its benefits? **1.5 mark for definition. 1.5 marks for benefits.**	3
	G	Draw a Use-Case Diagram for Restaurant Management System.  **Or** Draw a Use-Case Diagram for Hospital Management System.  *or any other possible correct diagram.	4
		Section-C	
Q4	A	Write the Django command to start a new Project named “Restaurant”. **Django-admin startproject Restaurant--- 1 mark**	1
	B	Name the application in which you can open a csv file other than notepad. **Excel----1 mark**	1
	C	What is the use of ALTER command? Give one eample **Or** What is the command UPDATE used for? Give one example. **1 mark for correct use and 1 mark for example.**	2
	D	Write a view function named “Display” that can process a get request and displays “main.html” as template. Required file(s) and method(s) are already imported.	2

Ans-

```
def Display(request):
    return render (request,"main.html")
```

2 mark for correct code.

***or any other possible correct code.**

E

ORGANIZATION

EMPID	ENAME	DESIG	SAL	DEPTT
5001	SMITH	CLERK	15000	OFFICE
5002	JACOB	SALESMAN	10000	SALES
5003	MARIA	MANAGER	25000	ADMIN
5004	GRACE	ANALYST	15000	RESEARCH
5005	CHARLES	CLERK	20000	OFFICE
5006	SCOTT	SALESMAN	12000	SALES
5007	WILLIAM	MANAGER	33000	ADMIN

I. Write the command to create the structure of above table having the EMPID as primary key.

II. Write a command to add a new column "Phone" of integer type in the above table.

III. Write the command to delete the column "Deptt" from the above table.

Ans-

i. Create table ORGANIZATION (EMPID INT PRIMARY KEY, ENAME VARCHAR(15), DESIG VARCHAR(10), SAL DECIMAL, DEPTT VARCHAR(10));

ii. ALTER TABLE ORGANIZATION ADD PHONE INT;

iii. ALTER TABLE ORGANIZATION DROP DEPTT;

1 mark for each command.

3

F

Mr. Srivastava, a database administrator in " Hitech Training Institute", has created the following table named"Training" for the upcoming training schedule.

Training

Training_ID	Name	Topic	Fee	City
C001	Mr. Ajay	Cyber Security	10000	New Delhi
I001	Mr. Amit	ICT in Educatior	15000	Chennai
C001	Mrs. Neha	Cyber Security	12000	Agra
I001	Mrs. Usha	ICT in Educatior	13000	Jaipur
C001	Mr. Manoj	Cyber Security	NULL	Panipat

Write the commands from I to III and find out the output from IV to V on the basis of Table Training.

I. To count total female candidates who will be attending the training.

II. To display the candidates enjoying free training.

III. To display all the cities along with fee where Cyber Security training is scheduled.

IV. Select AVG(Fee) from Training where Topic=' ICT in Education';

V. Select city from Training where topic=' Cyber Security';

Ans-

i. Select count(name) from training where name like "Mrs%";

ii. Select * from training where fee is NULL;

4

		iii. Select city, fee from training where topic='ICT in Education'; **iv. 14000** **v.** City New Delhi Agra Panipat **1 mark for commands i., ii and iii each.** **½ mark for iv., and v each.** **OR** Write a Database Connectivity code that reads and display all the records from the table Items of Database Shop. Ans- **import mysql.connector as sl** **mycon=sl.connect(host="localhost",user="root","passwd="new",database="Shop")** **if mycon.isconnected()==False:** **print("Error connecting to MYSql Database")** **cursor=mycon.cursor()** **cursor.execute("select * from items")** **data=cursor.fetchall()** **for r in data:** **print(r)** **mycon.close()** **1 mark for connection statement.** **½ mark for checking the connection for success.** **½ mark for execute command.** **½ mark for fetch command.** **½ mark for conenction closing command.** *Or any other possible/correct code. * student can input other names for localhost, user and password.	
	G	Write the command to close a connetion to a database named "Library" connectced by a connection object con. **Ans-** **con.close()--- 1mark**	1
	H	Mr. Arvind developed an application using python and MySQL. Name the front end and back end of this application. **Ans-** **Front End- Python---1/2 mark** **Back-End- MYSQL----1/2 mark**	1
		Section-D	
Q5	A	Which of the following comes under cyber crime? i. Theft of a brand new sealed laptop. ii. Access to a bank account for an unauthorized money transaction. iii. Modification in a company's data with unauthorized access. iv. Photocopying of a printed report. **Ans- ii and iii ½ mark for each**	1
	B	Name the crimes for which cyber laws are enforced strictly in India. **Ans-** **These are-** **a. Cybercrimes.**	1

		b. Electronic and digital signatures. **c. Intellectual property.** d. **Data protection and privacy.** **1 marks for any two correct laws.**	
	C	Priyanka got an opportunity to write an article for School Magazine. She wrote a very nice article with impressive quotations of famous poets without citing their names. What kind of offence she has done? **Ans- Plagiarism—1mark**	1
	D	What are the different ways in which authentication of a person can be performed? Or Describe measures to recycle your e-waste. **Ans-** **Diff. methods of user identification are:** **a. Password** **b. Token** **c. Biometrics** **d. OTP** **2 mak for any four correct ways.** **Or** **Following measures can be adopted to recycle the e-waste safely-** **a. Use a certified e-waste recycler.** **b. Visit civic institutions.** **c. Explore retail options.** d. **Donate your electronics.** **2 marks for any four correct measures.**	2
	E	Expand the terms –OSS and OSI **Ans-** **OSS- Open Source Software.** **OSI- Open Source Initiative.** **½ mark for each**	1
	F	List the benefits that ICT can bring about to people with learning disabilities. **2 marks for correct note.** OR What is Net Neutrality? Do India impose Net Neutrality by Laws. Ans- **Net Neutrality is the principle that individuals should be free to access all content and applications equally, regardless of the source, without Internet Service Providers discriminating against online services or websites.** **Yes, India impose Net Neutrality by Laws.** **2 mark for correct note.** ***or any other possible correct note.**	2
	G	If someone hacks your website, who would you complain to? Ans- **The complaint has to be lodged to the police under the IT Act.--- 1 mark**	1
	H	Software for which licence fee is aplicable after some time limit. **1 mark**	1