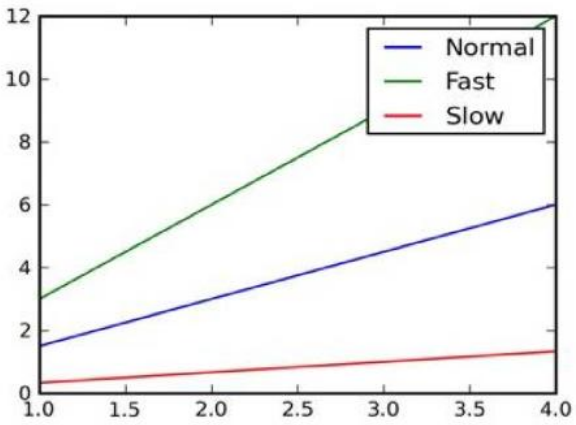
CLASS XII
INFORMATICS PRACTICES NEW (065)
SAMPLE QUESTION PAPER (2019-20)

Max Marks: 70 **Time: 3 hrs**

General Instructions:

- All questions are compulsory
- Question Paper is divided into 4 sections A,B,C and D.
- Section A comprises of questions(1 and 2)
  (i) Question 1 comprises Data Handling-2(DH-2)(Series,Numpy)
  (ii) Question 2 comprises of question from Data Handling -2(DH-2)(Data Frames and its operations)
- Section B comprises of questions from Basic Software Engineering.
- Section C comprises of questions from Data Management-2(DM-2)
- Section C comprises of questions from Society, Law and Ethics-2(SLE-2)

Section A			
Answer the following questions :			
1	a)	Find the output of following program. import numpy as np d=np.array([10,20,30,40,50,60,70]) print(d[-4:])	**1**
	b)	Fill in the blank with appropriate numpy method to calculate and print the variance of an array. import numpy as np data=np.array([1,2,3,4,5,6]) print(np.___(data,ddof=0)	**1**
	c)	Mr. Sanjay wants to plot a bar graph for the given set of values of subject on x-axis and number of students who opted for that subject on y-axis. Complete the code to perform the following : (i) To plot the bar graph in statement 1 (ii) To display the graph in statement 2 import matplotlib.pyplot as plt x=['Hindi', 'English', 'Science', 'SST'] y=[10,20,30,40] _____ Statement 1 _____ Statement 2	**1**

		OR Mr. Harry wants to draw a line chart using a list of elements named LIST. Complete the code to perform the following operations: (i) To plot a line chart using the given LIST, (ii) To give a y-axis label to the line chart named "Sample Numbers". import matplotlib.pyplot as PLINE LIST=[10,20,30,40,50,60] _____ Statement 1 _____ Statement 2 PLINE.show()	
	d)	Write the output of the following code : import numpy as np array1=np.array([10,12,14,16,18,20,22]) array2=np.array([10,12,15,16,12,20,12]) a=(np.where(array1==array2)) print(array1[a])	**2**
	e)	Write a code to plot the speed of a passenger train as shown in the figure given below: 	**2**
	f)	What is series? Explain with the help of an example.	**2**
	g)	Write a NumPy program to create a 3x3 identity matrix, i.e. diagonal elements are 1, the rest are 0. Replace all 0 to random number from 10 to 20 **OR** Write a NumPy program to create a 3x3 identity matrix, i.e. non diagonal elements are 1, the rest are 0. Replace all 0 to random number from 1 to 10	**3**

Answer the following questions			
2	a)	_____ method in Pandas can be used to change the index of rows and columns of a Series or Dataframe : (i) rename() (ii) reindex() (iii) reframe() (iv) none of the above	**1**
	b)	Hitesh wants to display the last four rows of the dataframedf and has written the following code : **df.tail()** But last 5 rows are being displayed. Identify the error and rewrite the correct code so that last 4 rows get displayed. **OR** Write the command using Insert() function to add a new column in the last place(3rd place) named "Salary" from the list Sal=[10000,15000,20000] in an existing dataframe named EMP already having 2 columns.	**1**
	c)	Consider the following python code and write the output for statement S1 import pandas as pd K=pd.series([2,4,6,8,10,12,14]) K.quantile([0.50,0.75]) ---------- S1	**1**
	d)	Write a small python code to drop a row fromdataframe labeled as 0.	**1**
	e)	What is Pivoting? Name any two functions of Pandas which support pivoting.	**2**
	f)	Write a python code to create a dataframe with appropriate headings from the list given below : ['S101', 'Amy', 70], ['S102', 'Bandhi', 69], ['S104', 'Cathy', 75], ['S105', 'Gundaho', 82] **OR** Write a small python codeto create a dataframewith headings(a and b) from the list given below : [[1,2],[3,4],[5,6],[7,8]]	**2**
	g)	Consider the following dataframe, and answer the questions given below: import pandas as pd df = pd.DataFrame({"Quarter1":[2000, 4000, 5000, 4400, 10000], "Quarter2":[5800, 2500, 5400, 3000, 2900], "Quarter3":[20000, 16000, 7000, 3600, 8200], "Quarter4":[1400, 3700, 1700, 2000, 6000]}) (i) Write the code to find mean value from above dataframedf over the index and column axis. (Skip NaN value) (ii) Use sum() function to find the sum of all the values over the index axis. (iii) Find the median of the dataframedf.	**3**

OR

Given a data frame **df1** as shown below:

City	Maxtemp	MinTemp	RainFall
Delhi	40	32	24.1
Bengaluru	31	25	36.2
Chennai	35	27	40.8
Mumbai	29	21	35.2
Kolkata	39	23	41.8

(i) Write command to compute sum of every column of the data frame.
(ii) Write command to compute mean of column Rainfall.
(iii) Write command to compute average maxTemp, Rainfall for first 5 rows

h) Find the output of the following code: **3**

```
import pandas as pd
data = [{'a': 10, 'b': 20},{'a': 6, 'b': 32, 'c': 22}]
#with two column indices, values same as dictionary keys
df1 = pd.DataFrame(data, index=['first', 'second'], columns=['a', 'b'])
#With two column indices with one index with other name
df2 = pd.DataFrame(data, index=['first', 'second'], columns=['a', 'b1'])
print(df1)
print(df2)
```

i) Write the code in pandas to create the following dataframes : **4**

df1

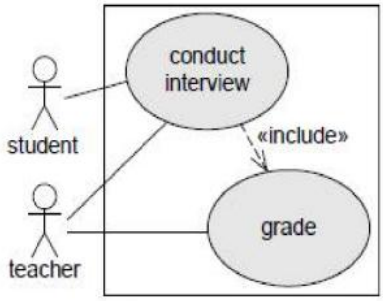
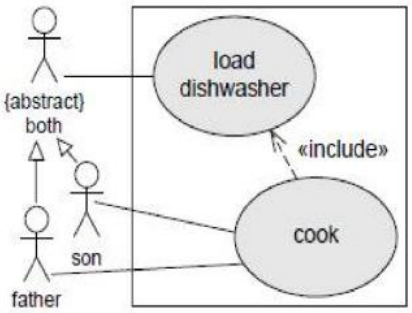
	mark1	mark2
0	10	150
1	40	45
2	15	302
3	40	703

df2

	mark1	mark2
0	30	20
1	20	25
2	20	30
3	50	30

Write the commands to do the following operations on the dataframes given above :
(i) To add dataframes df1 and df2.
(ii) To subtract df2 from df1
(iii) To rename column mark1 as marks1in both the dataframes df1 and df2.
(iv) To change index label of df1 from 0 to zero and from 1 to one.

Section B			
3	a)	Which software model is best suitable for client server application? (i) Waterfall (ii) Spiral (iii) Concurrent (iv) None of the above	**1**
	b)	_____ is the process of checking the developed software for its correctness and error free working (i) Specification (ii) Design/Implementation (iii) Validation/Testing (iv) Evolution	**1**
	c)	Write down any one benefit of pair programming.	**1**
	d)	In the Scrum process, a ScrumMaster differs from a traditional project manager. Justify the statement. **OR** List any two differences betweenIncremental model and Spiral model in developing complex software projects.	**2**
	e)	Write down any one situation where waterfall software process can be used. Also mention one advantage and one disadvantage of waterfall software process. **OR** Write down any one situation where spiral delivery model can be used. Also mention one advantage and one disadvantage of spiral delivery model.	**3**
	f)	Gunveen, Marshy and Aloha are three developers working on an exciting new app, and the launch day is just a day away. Gunveen creates an unmanaged package and saves it Aloha's folder. Marshy also writes a new piece of code and saves it in Aloha's folder. What could go wrong on the day of the launch? Explain and also mention how version control can help teams in this scenario.	**3**
	g)	Draw a use case diagram and identify the actors for the situations (i) do (ii) as directed: (i) A repair can be made by a master, a trainee or any other repair shop employee. (ii) Consider an ATM system. Identify at least three different actors that interact with this system.	**4**

		OR (i) Look at the following use case diagrams and write the actors and the situation depicted by the use case diagrams :   (ii) Look at the use case diagram shown below and explain the relationship depicted between A and B	
		Section C	
4	a)	Write the Django command to start a new app named 'users' in an existing project?	**1**
	b)	What is the use of COMMIT in sql ? **OR** What is the function of ALTER command?	**1**
	c)	CSV stands for _____	**1**
	d)	NULL value means : (i) 0 value (ii) 1 value (iii) None value (iv) None of the above	**1**

	e)	is_connected() is the MYSQL function to : (i) establish a connection to a mysql database from python. (ii) verify whether the python application is connected to mysql database. (iii) traverse through records in mysql database. (iv) None of the above	**1**
	f)	Shewani has recently started working in MySQL. Help her in understanding the difference between the following : (i) Where and having clause (ii) Count(column_name) and count(*)	**3**
	g)	On the basis of following table answer the given questions: Table: CUSTOMER_DETAILS +---------+-----------+-----------+-------------+------------+--------+ | Cust_ID | Cust_Name | Acct_Type | AccumIt_Amt | DOJ | Gender | +---------+-----------+-----------+-------------+------------+--------+ | CNR_001 | Manoj | Saving | 101250 | 1992-02-19 | M | | CNR_002 | Rahul | Current | 132250 | 1998-01-11 | M | | CNR_004 | Steve | Saving | 18200 | 1998-02-21 | M | | CNR_005 | Manpreet | Current | NULL | 1994-02-19 | M | +---------+-----------+-----------+-------------+------------+--------+ (i) Write the degree and cardinality of the above table. (ii) What will be the output of the following query : Select max(DOJ) From Customer_Details; (iii) Write the sql query to delete the row from the table where customer has no accumulated amount.	**3**
	h)	Write commands in SQL for (i) to (iv) and output for (v) and (vi). **Table : Store** **+---------+---------------+---------------+--------+---------+-----------+---------+** **| StoreId | Name | Location | City | NoOfEmp | DateOpen |SalesAmt |** **+---------+---------------+---------------+--------+---------+-----------+---------+** **| S101 | Planet Fashion | Bandra | Mumbai | 7 | 2015-10-16 | 40000 |** **| S102 | Vogue | Karol Bagh | Delhi | 8 | 2015-07-14| 120000 |** **| S103 | Trends | Powai | Mumbai | 10 | 2015-06-24 | 30000 |** **| S104 | SuperFashion | Thane | Mumbai | 11 | 2015-02-06 | 45000 |** **| S105 | Annabelle | South Extn. | Delhi | 8 | 2015-04-09 | 60000 |** **| S106 | Rage | Defence Colony | Delhi | 5 | 2015-03-01 | 20000 |** **+---------+---------------+---------------+--------+---------+-----------+---------+** (i) To display names of stores along with SalesAmount of those stores that have 'fashion' anywhere in their store names. (ii) To display Stores names, Location and DateOfOpen of stores that were opened before 1st March, 2015. (iii) To display name and location of those store which have either 'u' as second character in their name. (iv) To display the City and the number of stores located in that City, only if number of stores is more than 2. (v) Select Min(DateOpen) from Store; (vi) Select Count(Storeid), Noofemp From Store Group By Noofemp Having Max(Salesamt)<60000;	**4**

		OR (i) In a school, a database named "**school**" is created in mysql whose password is "**cbse**". Smith is trying to add a new record of a student havingdetails(3,'Michelle','Agartala') in a"**student**"table. (ii) Write the code in python to read the contents of "number.csv" file consisting of data from a mysql table and print the data of the table on the screen in tabular form of the table.	
		Section D	
5	a)	Which of the following is not an intellectual property? (i) A poem written by a poet (ii) An original painting made by a painter (iii) Trademark of a Company (iv) A remixed song	**1**
	b)	Jhilmalini has stolen a credit card. She used that credit card to purchase a laptop. What type of offence has she committed?	**1**
	c)	Name the primary law in India dealing with cybercrime and electronic commerce.	**1**
	d)	Sutapa received an email from her bank stating that there is a problem with her account. The email provides instructions and a link, by clicking on which she can logon to her account and fix the problem. Help Sutapa by telling her the precautions she should take when she receives these type of emails.	**2**
	e)	Explain any two ways in which technology can help students with disabilities.	**2**
	f)	Explain the role of online social media campaigns, crowdsourcing and smart mobs in society. **OR** Ms Samtha has many electronics gadgets which are not usable due to outdated hardware and software. Help her to find any three best ways to dispose the used electronic gadgets.	**3**