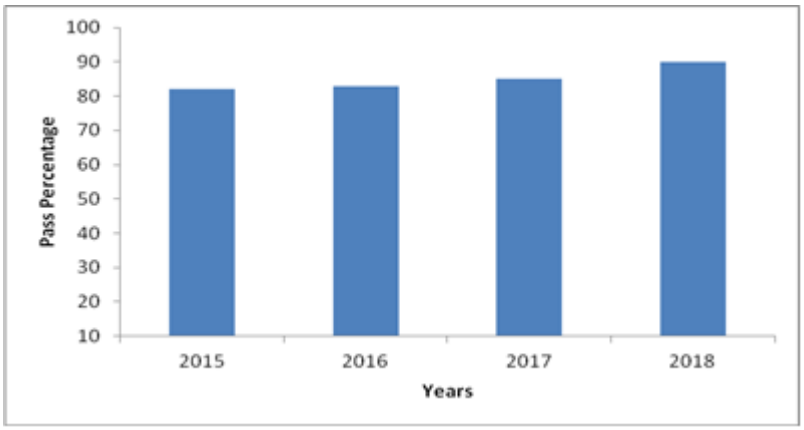
CLASS XII INFORMATICS PRACTICES
NEW (065) SAMPLE QUESTION PAPER (2019-20)

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 D 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 covariance of an array. import numpy as np data=np.array([1,2,3,4,5,6]) print(np.___(data,ddof=0))	**1**
	c)	Write a suitable Python code to create an empty dataframe. **OR** Consider the following dataframe : student_df Name class marks Anamay XI 95 Aditi XI 82 Mehak XI 65 Kriti XI 45 Write a statement to get the minimum value of the column marks.	**1**

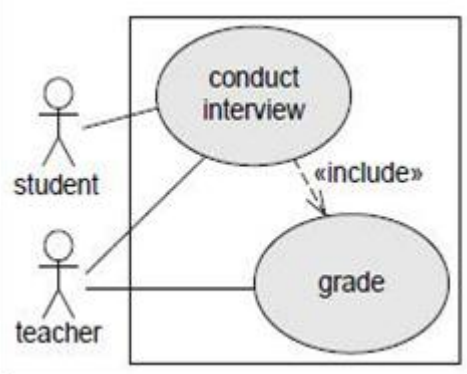
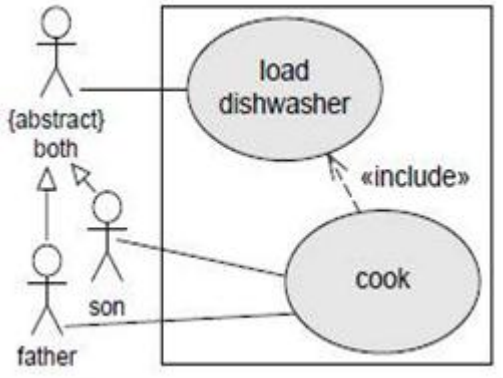
	d)	Write the output of the following code : import numpy as np array1=np.array([10,12,14,16,18,20,22]) print(array1[1:5:2])	**2**
	e)	Write a code to plot a bar chart to depict the pass percentage of students in CBSE exams for the years 2015 to 2018 as shown below-  	2
	f)	What is series? Explain with the help of an example.	**2**
	g)	Write a code in Python to search for a given value in a list of elements(Without using in-built function) Example: If the List contains: [20,30,40,50,60,80,120] and the element to be searched is:60 Then the output should be: Found at position 4 OR Write a code in python to find the minimum value in a list. Example: If the List contains: [100,150,90,65,180,200] Then the output should be: Minimum Value is 65	**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 data frame df 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** A dataframe studdf stores data about the students stream, marks. A part of it is shown below: Class Stream Marks 11 Science 95 11 Commerce 80 11 Arts 75 11 Vocational 65 Using the above dataframe, write the command to compute Average marks stream wise.	**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 from dataframe 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 code to create a dataframe with 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 dataframe df over the index and column axis. (ii) Use sum() function to find the sum of all the values over the index axis. (iii) Find the median of the dataframe df. **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 Median of the Maxtemp Column.	**3**

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

	i)	Write the code in pandas to create the following dataframes : df1 df2 mark1 mark2 mark1 mark2 0 10 15 0 30 20 1 40 45 1 20 25 2 15 30 2 20 30 3 40 70 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.	**4**
		Section B	
3	a)	Which of this is NOT an advantage of the waterfall model ? (a) Simplicity (b) Easy to arrange the task (c) Clearly defined stages (d) Difficult to measure the progress in phases	**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 between Incremental 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. **OR** (i) Look at the following use case diagrams and write the actors and the situation depicted by the use case diagrams. Also explain the relationship depicted between A and B. A  B  	**4**

Section C

4 a) Write the Django command to start a new app named 'users' in an existing project? **1**

b) What do you understand by Primary Key? **1**

OR

Write the command to delete a table STUDENT.

c) CSV stands for _____ **1**

d) NULL value means : **1**
(i) 0 value
(ii) 1 value
(iii) None value
(iv) None of the above

e) is_connected() is the MYSQL function to : **1**
(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

f) Shewani has recently started working in MySQL. Help her in understanding the difference between the following : **3**
(i) Where and having clause
(ii) Count(column_name) and count(*)

g) On the basis of following table answer the given questions: **3**

Table: CUSTOMER_DETAILS

CUST_ID	CUST_NAME	ACCT_TYPE	ACCUMLT_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 sql query to delete the record of customer Manpreet.
(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.

h) Write commands in SQL for (i) to (iii) and output for (iv) and (v). **4**

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	Super Fashion	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 Sales Amount of those stores that are located in Mumbai.

(ii) To display the details of store in alphabetical order of name.

(iii) To display the City and the number of stores located in that City, only if number of stores is more than 2.

(iv) SELECT MIN(DATEOPEN) FROM STORE;

(v) SELECT COUNT(STOREID), NOOFEMP FROM STORE GROUP BY NOOFEMP HAVING MAX(SALESAMT)<60000;

OR

(i) Consider the table FANS and answer the following.

FANS

FAN_ID	FAN_NAME	FAN_CITY	FAN_DOB	FAN_MODE
F001	SUSHANT	MUMBAI	1998-10-02	MAIL
F002	RIYA	MUMBAI	1997-12-12	LETTER
F003	ANIKA	DELHI	2001-06-30	BLOG
F004	RUDRA	AJMER	2005-08-22	MAIL
F006	MIARA	KOLKATTA	1998-11-01	BLOG

Write MySQL queries for the following:

i. To display the details of fans in decending order of their DOB
ii. To display the details of FANS who does not belong to AJMER
iii. To count the total number of fans of each fan mode
iv. To display the dob of the youngest fan.

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**