Informatics Practices Class 12

MARKS: 70

All the questions are compulsory.
The paper have five sections .Section A, Section B, Section C, Section D, Section E
- Section A has 10 questions carrying 1 marks each
- Section B has 5 questions carrying 2 marks each
- Section C has 5 questions carrying 3 marks each
- Section D has 5 questions carrying 4 marks each
- Section E has 3 questions carrying 5 marks each

Section A

Q1. Bydefault value of width bars in bar chart is
a.)0.5 unit   b.)0.8 unit   c.)0.6 unit   d.)0.08 unit

Q2. Bydefault datatype of Ndarry is
a.)int   b.)float   c.)Both a and b   d.)none of these

Q3. **What is the output of the code shown below?**

```
sets = {3, 4, 5}
sets.update([1, 2, 3])
print(sets)
```

a) {1, 2, 3, 4, 5}   b){3, 4, 5, 1, 2, 3}

c){1, 2, 3, 3, 4, 5}   d)Error

Q4. Frequency polygon is-_____.
Q5.By default value of bins in histogram is_____.
Q6..In mean/median function skipna Parameters use for._____
Q7. What is vectored operation?
Q8.What is the use of aggregation?
Q9.What is the application of mad () and std () function?
Q10. What is array slicing?

Section B

Q11.What is the relationship between the rank of an array and the shape of the array?
Q12. How are apply () and applymap () function similar and different?
Q13.What is scatter chart? How can we create scatter chart through function?
Q14.What are various types of histogram that can be created through hist () function?
Q15. What are functional and non-functional requirement?

Section C

Q16.How are 2D array internally stored? Explain with the help of example.

Q17.What is 5 point summary? Explain with the help of example.

Q18.Write Numpy functions for calculating:

   i.)Covariance   ii.)Correlation   iii.)Linear regression

Q19.Consider the following Ary ([[1, 2, 3],

                                  [4, 5, 6],

                                  [7, 8, 9]])

    Answer the following array slices   i.)Ary [:2,:3]

                                         ii.)Ary [:3,:: 2]

                                         iii.)Ary [::-1,::-1]

Q20. What do you understand by xlimit and ylimit? How are these linked to data being plotted?

Section D

Q21. Explain waterfall model with its advantages and disadvanges.

Q22.What is agile manifesto? Explain its four guidelines.

Q23.What is Pair programming? Explain its advantages and its limitations?

Q24.Explain the functions that we use to joining two or more ndarry in python with help of example.

Q25.What is Scrum? How does it work?

Section E

Q26.Explain Spiral model with its advantages and disadvantages ?

Q27.Output the following Ary:

2	4	6	8	10
12	14	16	18	20
22	24	26	28	30
32	34	36	38	40

i.)Slice Ary [1::2,:3]   ii.) Slice Ary [-3:-1,-5::2]   iii)Slice [-3:-1,-4: :2]

iv.) Slice Ary[3,]   v.) Slice Ary[1:4:2,1:5:3]

Q28. Draw a use-case diagram for a banking system.

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MARKS: 30

Practical set 1:

Q1. Create an Ndarry with values ranging from 10 to 49 each spaced either with a difference of 3

Q2. Create an array in the range 1 to 20 with values 1.25 apart. Another array contains the log values of elements in first array.
  i.) Create a plot of first vs. second array; specify the x-axis (contain first array's values) title as 'Random Values' and y-axis title as '**Logarithm values**'.
ii.) Create a third array that stores the COS values of first array and then plot both the second and third arrays vs. first array. The Cos values should be plotted with a **dashdotted line**.
iii) Change the marker type as a circle with blue color in second array.
iv.) Create scattered chart as this: Second array data points as blue small diamonds, third array data points as **black circles**.

Q3Consider the following data given below:

App Name	App price in Rs	Total Download
Angry Bird	75	197000
Teen Titan	120	209000
Marvel Comics	190	414000
Color Me	245	196000
Fun Run	550	272000
Crazy Taxi	55	311000
Igram pro	175	213000
WApp pro	75	455000
Maths Formulas	140	278000

Using the above data, plot the following:
(a) A line chart depicting the prices of the apps.
(b) A bar chart depicting the downloads of the apps.
(c) Covert the Est. downloads sequence that ha each downloads value divided by 1000. Now create a bar chart that plots multiple bars for prices as well Est. downloads.
(d)The charts show, Have proper titles for the charts, axes, legends etc.

Q4Create an ndarray containing16 values and then plot this array along with dataset of (in grams) is 78,72,69,81,63,67,65,75,79,74,71,83,71,79,80,69
i) Create normal histogram
ii.) Cumulative histogram
iii.) Horizontal histograms
iv.)Create Boxplot
v) Show the means in the boxplot

Q1 write a python program to perform the following operations on dataframe.

	Name	Age	Score
0	Sachin	26	87
1	Dhoni	25	67
2	Virat	25	89
3	Rohit	24	55
4	Shikhar	31	47

i.)Write a python program to apply all aggregation/descriptive statistics (Count, Max score, Min age ,mean of age , mode of age, median of score ,sort the datafram by index in descending order, sum of Score ,

Q2.Write a python program to create the pie chart By using color and explode property in chart.
Candidate1, Candidate2, Candidate3, Candidate4 and their votes are 315, 130,245,210.

Q3. Write a python program to create a dataframe and apply following function

Item	Company	Rupees	USD
TV	LG	12000	700
TV	VIDECON	10000	650
AC	LG	15000	800
AC	SONY	14000	750
MOBILE	NOKIA	12000	700
MOBILE	LG	25000	900

i.) Write a python program to apply pivot function with UDS also.
ii.) Write a python program to apply pivot table function.

iii.) Write a python program to extract the information about Mobile of LG.

Q4.Write a python program to plot bar graph of following data with proper lim ,title, legend,ticks,label function.
Student: [Anil, vikas, Dharma, Rajesh, Mahi, Manish]
Percentage:[94,85,45,25,50,54]