

Half Yearly Examination – 2021-22

Class - XII

Sub: Informatics Practices New (065)

Time:

M.M. 70

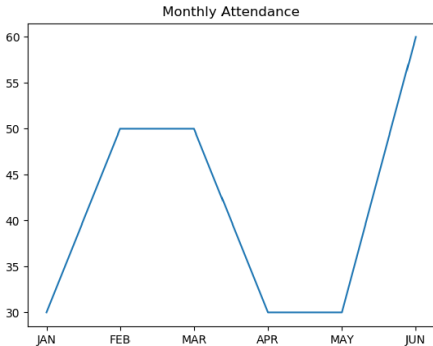
General Instructions:

- ☐ All the questions are compulsory.
- ☐ The questions are based on case study, read the questions carefully and answer accordingly.
- ☐ If more than one answers are given, it would be treated as wrong answer.
- ☐ Marks are indicated against each question.

1.	There are two data frames DS1 and DS2: Mr. Singh wants to add column B & Y but he is unable to do it. Help him by adding the two given dataframe: DS1 <table><tr><th></th><th>A</th><th>B</th></tr><tr><td>0</td><td>CAT</td><td>10</td></tr><tr><td>1</td><td>DOG</td><td>20</td></tr><tr><td>2</td><td>COW</td><td>30</td></tr></table> DS2 <table><tr><th></th><th>X</th><th>Y</th></tr><tr><td>0</td><td>OWL</td><td>10</td></tr><tr><td>1</td><td>CROW</td><td>20</td></tr><tr><td>2</td><td>SWAN</td><td>30</td></tr></table> Choose the correct command to find the sum of columns B and Y. (a) DS1.B+DS2.Y (b) DS1.B-DS2.Y (c) DS1.B * DS2.Y (d) None of the above Ans: DS1.B+DS2.Y		A	B	0	CAT	10	1	DOG	20	2	COW	30		X	Y	0	OWL	10	1	CROW	20	2	SWAN	30	1
	A	B																								
0	CAT	10																								
1	DOG	20																								
2	COW	30																								
	X	Y																								
0	OWL	10																								
1	CROW	20																								
2	SWAN	30																								
2	Given a Pandas series called p_series, the command which will display the last 4 rows is _____. a. print(p_series.Tail(4)) b. print (p_series.Tails(4)) c. print (p_series.tail(4)) d. print(p_series.Tails(4)) c. print (p_series.tail(4))	1																								
	Q.3 to 7 related to below dataframe Each question carries 1 mark Consider the Data Frame below and answer the questions (3 to 7) that follow: <table><tr><th>Name</th><th>Weight</th><th>Height</th></tr></table>	Name	Weight	Height																						
Name	Weight	Height																								

	<table><tr><td>A_1</td><td>Pawan</td><td>50</td><td>153</td></tr><tr><td>A_2</td><td>Piyush</td><td>60</td><td>165</td></tr><tr><td>A_3</td><td>Prem</td><td>40</td><td>150</td></tr><tr><td>A_4</td><td>Prakash</td><td>70</td><td>145</td></tr><tr><td>A_5</td><td>Prateek</td><td>55</td><td>160</td></tr></table>	A_1	Pawan	50	153	A_2	Piyush	60	165	A_3	Prem	40	150	A_4	Prakash	70	145	A_5	Prateek	55	160	
A_1	Pawan	50	153																			
A_2	Piyush	60	165																			
A_3	Prem	40	150																			
A_4	Prakash	70	145																			
A_5	Prateek	55	160																			
3	Which command will produce the following output to extract only a part of dataframe? <table><tr><td>Piyush</td><td>60</td></tr><tr><td>Prem</td><td>40</td></tr><tr><td>Prakash</td><td>70</td></tr></table> (a) <i>df.iloc[1:4,0:2]</i> (b) <i>df.loc[1:4,1:2]</i> (c) <i>df.iloc[1:3,1:2]</i> (d) <i>df.iloc[1:2,1:2]</i> Ans: (a) <i>df.iloc[1:4,0:2]</i>	Piyush	60	Prem	40	Prakash	70	1														
Piyush	60																					
Prem	40																					
Prakash	70																					
4	What is the correct syntax to display the record of Piyush? (a) <code>df_data[df_data['Name']='Piyush']</code> (b) <code>df_data[df_data['Name']=='Piyush']</code> (c) <code>df_data[df_data-Name=='Piyush']</code> (d) <code>df_data['Name']=='Piyush'</code> Ans:	1																				
5	What output of the command >>> df_data.max() (a) Name Prem Weight 70 Height 165 (b) Name Prateek Weight 70 Height 160 (c) Name Prem Weight 70 Height 145 (d) Name Prateek	1																				

	Weight 60 Height 165 Answer: (a)	
6	How do you display only the index of the dataframe df_data? (a) df_data.index (b) df_data.values (c) df_data.sort (d) df_data.valueindex Ans: (a) df_data.index	1
7	What is the above shape of the dataframe df_data? (a) (4, 6) (b) (5, 2) (c) (5, 3) (d) (4, 4) Ans(c) (5,3)	1
8	Using Python Matplotlib histograms can be used to count how many values fall into each interval. Each interval is known as a. hist b. class c. bin d. label c. bin	1
9	To represent data column wise in a DataFrame the axis is _____ (a) 4 (b) 2 (c) 1 (d) 0 Ans: (c) 1	1
10	In Pandas the function used to check for null values in a DataFrame is _____ (a) isnull (b) null (c) not (d) del Ans:(a) isnull	1

	Write a code to plot the Monthly Attendance of students in class as shown in the figure given below and answer the question no. 11 to 13.  <pre> import _____ #Statement 1 months = ['jan','feb','mar','apr','may','jun'] attd=[30,50,50,30,30,60] plt._____(attd,months) #Statement 2 plt._____('Monthly Attendance') #Statement 3 plt.show() </pre>	
11	Choose the right code from the following for statement 1. (a) matplotlib.pyplot as plt (b) matplotlib as plt (c) pyplot as plt (d) pyplot.matplot as plt Ans: (a) matplotlib.pyplot as plt	1
12	Choose the right code from the following for statement 2. (a) barh() (b) scatter() (c) plot() (d) line() Ans: (c) plot()	1
13	Choose the right code from the following for statement 3. (a) xlabel() (b) title() (c) ylabel() (d) xtabel()	1

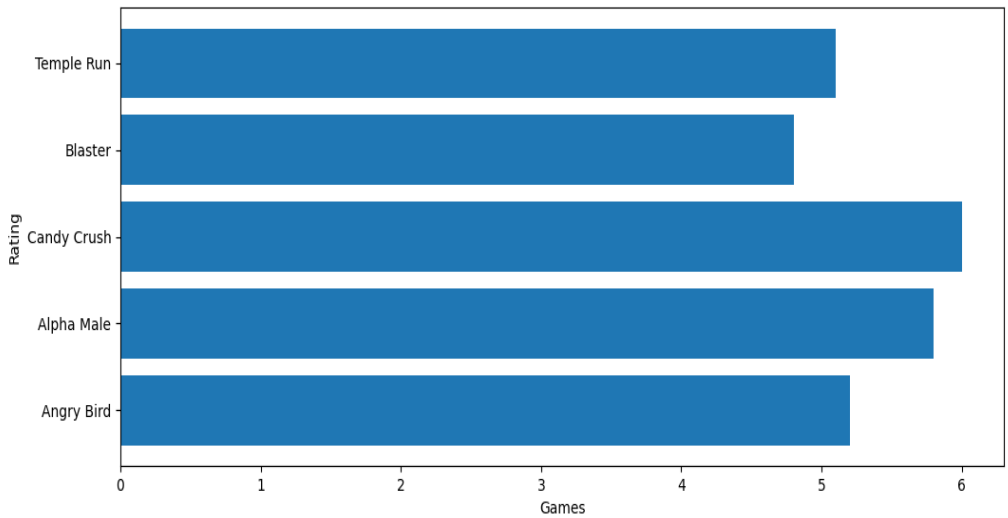
	Ans: (b) title()																									
14	Which of the following is not a descriptive statics function? a. Count() b. Add() c. Sum() d. Max() Ans: Add()	1																								
15	Which of the following is not an aggregate function? a. Avg b. Sum c. With d. Min Ans: With	1																								
16	The name “Pandas” is derived from the term: (a) Panel Data (b) Panel Series (c) Python Document (d) Panel Data Frame Answer: (a) Panel Data	1																								
	Attempt to question no. 17 to 21. Each sub question carries 1 mark. Consider the following DataFrame df and answerthe questions. <table><tr><th>City</th><th>Maxtemp</th><th>Mintemp</th><th>Rainfall</th></tr><tr><td>Delhi</td><td>40</td><td>32</td><td>24.1</td></tr><tr><td>Bengaluru</td><td>31</td><td>25</td><td>36.2</td></tr><tr><td>Chennai</td><td>35</td><td>27</td><td>40.8</td></tr><tr><td>Mumbai</td><td>29</td><td>21</td><td>35.2</td></tr><tr><td>Kolkata</td><td>39</td><td>23</td><td>41.8</td></tr></table>	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	
City	Maxtemp	Mintemp	Rainfall																							
Delhi	40	32	24.1																							
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Chennai	35	27	40.8																							
Mumbai	29	21	35.2																							
Kolkata	39	23	41.8																							
17	1. Write down the command that will give the following output. City Mumbai Maxtemp 40 Mintemp 32 Rainfall 41.8 dtype: object a. print(df.max()) b. print(df.max()) c. print(df.max(axis=1)) d. print(df.max, axis=1) Ans: b. print(df.max())	1																								

18	2. Write down the command that will give the following output. <pre>City DelhiBengaluruChennaiMumbaiKolkata Maxtemp 174 Mintemp 128 Rainfall 178.1 dtype: object</pre> a. <code>print(df.sum())</code> b. <code>print(df.sum(axis=1))</code> c. <code>print(df.add())</code> d. <code>print(df.sum())</code> Ans: <code>print(df.sum())</code>	1
19	3. Which of the following command will display the column labels of the DataFrame? a. <code>print(df.columns())</code> b. <code>print(df.column())</code> c. <code>print(df.columns)</code> d. <code>print(df.column)</code> Ans: c. <code>print(df.columns)</code>	1
20	4. Which of the following statements will give the exact number of values in each column of the dataframe? 1. <code>print(df.count())</code> 2. <code>print(df.count(0))</code> 3. <code>print(df.count)</code> 4. <code>print(df.count(axis='index'))</code> Choose the correct option: a. both (1) and (2) b. only (2) c. (1), (2) and (3) d. (1), (2) and (4) Ans: a. both (1) and (2)	1
21	5. Add a new column, the values of Moderate [55.6,45.8,33.7,67.2,65.3], to DataFrame. Identify the correct command. a. <code>df.column = [55.6,45.8,33.7,67.2,65.3]</code> b. <code>df['Moderate'] = [55.6,45.8,33.7,67.2,65.3]</code> c. <code>df[['Moderate'] = [55.6,45.8,33.7,67.2,65.3]]</code> d. <code>df.['Moderate'] = [55.6,45.8,33.7,67.2,65.3]</code> 5. Ans: b. <code>df['Moderate'] = [55.6,45.8,33.7,67.2,65.3]</code>	1
22	Write the output of the following code: <pre>import numpy as np array1 = np.array([10,12,14,16,18,20,22])</pre>	1

	<pre>array2 = np.array([10, 12, 15, 16, 12,20,12]) a = (np.where(array1 == array2)) print(array1[a])</pre> (a) [10, 12, 15, 16] (b) [10 ,15, 18, 20] (c) [10, 12, 16, 20] (d) (10, 12, 19, 20) Ans: [10, 12, 16, 20]									
	Consider the following Series object, S_amt. And choose the correct option of Que. no.23 and 24. Mr. Mohan created a Series object, S_amt, Help Mr. Mohan in writing the command of Que no. 23 and 24. <table><tr><td>Table</td><td>350</td></tr><tr><td>Chair</td><td>200</td></tr><tr><td>Sofa</td><td>800</td></tr><tr><td>Stool</td><td>150</td></tr></table>	Table	350	Chair	200	Sofa	800	Stool	150	
Table	350									
Chair	200									
Sofa	800									
Stool	150									
23	Write the command which will display the name of the furniture having rent>250. (a) print (S_amt [S_amt > 250]) (b) print (S_amt [S_amt < 250]) (c) print (S_amt [S_amt = 250]) (d) print (S_amt [S_amt : 250]) Ans: (a) print (S_amt [S_amt > 250])	1								
24	Write the command to name of the series as Furniture. (a) S_amt.Table = 'Furniture' (b) S_amt.name = 'Furniture' (c) S_amount.name = 'Furniture' (d) S_amt:name = 'Furniture' Ans: (b) S_amt.name = 'Furniture'	1								
	Consider the commands below: <pre>>>> import pandas as pd >>> lst=[10,20] >>> ds=pd.Series([10,20])</pre> Here lst is a list and ds is a series of Que. No. 25 and 26. Both have same values 10 and 20. What will be the output of the following commands.									

25	Find the output of the following command <pre>print (lst * 2)</pre> (a) [10, 20] (b) [10, 20, 30] (c) [10, 20, 10, 20] (d) [10, 30, 40] Ans:(c) [10,20,10,20] – Replication	1																								
26	Find the output of the following command <pre>print (ds * 2)</pre> (a) [10, 20] (b) [20, 30] (c) [20, 60] (d) [20, 40] Ans: [20,40] – Multiplication	1																								
Que. No. 27 to 31 are based on the given below dataframe: Mr. Sharma is working in Takshila Academy as data analyst. He uses Python Pandas and Matplotlib for the same. He got a dataset of the students for the year 2019 to 2021 for July, Sept and March. His principal wants certain information from him, but he is facing some problems. Help him by answering few questions given below: <table><tr><th></th><th>Year</th><th>Month</th><th>Students</th></tr><tr><td>0</td><td>2019</td><td>July</td><td>70</td></tr><tr><td>1</td><td>2019</td><td>Sep</td><td>90</td></tr><tr><td>2</td><td>2021</td><td>July</td><td>60</td></tr><tr><td>3</td><td>2019</td><td>March</td><td>80</td></tr><tr><td>4</td><td>2021</td><td>March</td><td>110</td></tr></table> Code to create the above data frame: <pre>import pandas as _____ #Statement 1</pre> <pre>data={"Year":[2019, 2019, 2021, 2019, 2021], "Month":["July", "Sep", "July", "March", "March"], "Students":[70,90,60,80,110]}</pre> <pre>df=pd._____(data) #Statement 2</pre> <pre>print(df)</pre>				Year	Month	Students	0	2019	July	70	1	2019	Sep	90	2	2021	July	60	3	2019	March	80	4	2021	March	110
	Year	Month	Students																							
0	2019	July	70																							
1	2019	Sep	90																							
2	2021	July	60																							
3	2019	March	80																							
4	2021	March	110																							
27	Choose the right code from the following for statement 1. (a) pd (b) df (c) data	1																								

	(d) None of these																									
	Ans: (a) pd																									
28	Choose the right code from the following for the statement 2. i. Dataframe ii. DataFrame iii. Series iv. Dictionary Ans (ii) DataFrame	1																								
29	Choose the correct <u>statement/ method</u> for the required output: (5,3) i. df.index ii. df.shape() iii. df.shape iv. df.size Answer: (iii) df . shape	1																								
30	He wants to print the details of "July" month along with the number of students, Identify the correct statement: <table><tr><td></td><td>Month</td><td>Students</td></tr><tr><td>0</td><td>July</td><td>70</td></tr><tr><td>2</td><td>July</td><td>60</td></tr></table> i. df.loc[['Month','Students']][df['Month']=='July'] ii. df[['Month',' Students']][df['Month']=='July'] iii. df.iloc[['Month','Students']][df['Month']=='July'] iv. df(['Month','Students'])(df['Month']=='July') Answer: (ii) df[['Month' , 'Students']][df['Month']=='July']		Month	Students	0	July	70	2	July	60	1															
	Month	Students																								
0	July	70																								
2	July	60																								
31	Mr. Sharma wants to change the index of the Data Frame and the output for the same is given below. Identify the correct statement to change the index. <table><tr><td></td><td>Year</td><td>Month</td><td>Students</td></tr><tr><td>Class VI</td><td>2019</td><td>July</td><td>70</td></tr><tr><td>Class VII</td><td>2019</td><td>Sep</td><td>90</td></tr><tr><td>Class VIII</td><td>2021</td><td>July</td><td>60</td></tr><tr><td>Class IX</td><td>2019</td><td>March</td><td>80</td></tr><tr><td>Class X</td><td>2021</td><td>March</td><td>110</td></tr></table> i. df.index=["Class VI", "Class VII", "Class VIII", "Class IX", "Class X"]		Year	Month	Students	Class VI	2019	July	70	Class VII	2019	Sep	90	Class VIII	2021	July	60	Class IX	2019	March	80	Class X	2021	March	110	1
	Year	Month	Students																							
Class VI	2019	July	70																							
Class VII	2019	Sep	90																							
Class VIII	2021	July	60																							
Class IX	2019	March	80																							
Class X	2021	March	110																							

	ii. df.index["Class VI", "Class VII", "Class VIII", "Class IX", "Class X"] iii. df.index=["Class VI", "Class VII", "Class VIII", "Class IX", "Class X"] iv. df.index()=["Class VI", "Class VII", "Class VIII", "Class IX", "Class X"] Answer: (iii) df.index=["Class VI", "Class VII", "Class VIII", "Class IX", "Class X"]	
	Question no. 32 to 25 is based on given below graph: Mr. Shekhar is working in a game development industry and he was comparing the given chart on the basis of the rating of the various games available on the play store  <pre> import_____ #Statement 1 Games=["Angry Bird","Alpha Male","Candy Crush","Blaster","Temple Run"] Rating=[5.2,5.8,6.0,4.8,5.1] plt._____ (Games,Rating) #Statement 2 plt.xlabel("Games") plt._____ ("Rating") #Statement 3 plt._____ #Statement 4 </pre>	
32	Choose the right code from the following for statement 1. (a) matplotlib as plt (b) pyplot as plt (c) matplotlib.pyplot as plt (d) matplotlib.plt as pyplot Ans: (c) matplotlib.pyplot as plt	1
33	Identify the name of the function that should be used in statement 2 to plot the above graph. (a) line() (b) bar() (c) barh() (d) hist()	1

	Ans: (c) barh()	
34	Choose the correct option for the statement 3. (a) title("Rating") (b) ytitle("Rating") (c) ylabel("Rating") (d) yaxis("Rating") Ans: (c) ylabel("Rating")	1
35	Choose the right function/method from the following for the statement 4. (a) display() (b) print() (c) plot() (d) show() Ans: (d) show()	1
36	In case Mr. Shekhar wants to change the above plot to the any other shape, which statement, should be change. (a) Statement 1 (b) Statement 2 (c) Statement 3 (d) Statement 4 Ans: (b) Statement 2	1
	Question no. 37 to 41 are based on given below dataframe read the dataframe carefully and choose the python statement using suitable functions for the following tasks: Account Department of Infotec Co. has created following data frame to store data about salaries and bonus paid to their employees: <pre>import pandas as pd import numpy as np x={'EName': ['Rashmi', 'Vinita', 'Shalini'], 'Sal': [55000, 67000, 75000], 'Bonus': [5000, 6000, 7000]} df1=pd.DataFrame(x) print(df1)</pre>	
37	1. Display the columns Sal and Bonus (a) df1 [:Sal : Bonus] (b) df1.loc([Sal, Bonus]) (c) df1.iloc(['Sal', 'Bonus']) (d) df1[['sal', 'Bonus']] Ans: (d) df1[['Sal', 'Bonus']]	1
38	2. Display the details of employee Rashmi. (a) df1[df1.EName= 'Rashmi'] (b) df1.loc[df1.EName=='Rashmi'] (c) df1.iloc[df1.EName=='Rashmi'] (d) df1[EName=='Rashmi']	1

	Ans: b) df1.loc[df1.ENAME=='Rashmi']	
39	3. Display the details of first employee. (a) df1.head(-1) (b) df1.head(n=1) (c) df1.head(1) (d) df1.head() Ans: (c) df1.head(1)	1
40	4. Write a python statement to print the details of employees having Sal more than 65000. (a) df1.Sal>=65000 (b) df1[df1.Sal>=65000] (c) df1[df1.'Sal'>=65000] (d) df1.iloc[df1.Sal>=65000] Ans: (b) df1[df1.Sal>=65000]	1
41	5. Add a new column named 'Email' with the value "xyz@yahoo.com" (a) df1['Email'] = 'xyz@yahoo.com' (b) df1.Email = 'xyz@yahoo.com' (c) df1.loc['Email'] = 'xyz@yahoo.com' (d) df1('Email') = 'xyz@yahoo.com' Ans: (a) df1['Email'] = 'xyz@yahoo.com'	1
42	Python pandas was developed by: (a) Guido van Rossum (b) Travis Oliphant (c) Wes McKinney (d) Brendan Eich Answer: (c) Wes McKinney	1
43	Pandas is a: (a) Package (b) Language (c) Library (d) Software Answer: (c) Library	1
44	We can analyse the data in pandas with: (a) Series (b) Data Frame (c) Both of the above (d) None of the above Answer: (c) Both of the above	1
45	Out of the following which function cannot be used for customization of chart in Python?	1

	(a) xlabel() (b) colour() (c) title() (d) xticks() Answer: (b) colour()	
46	Pyplot is an interface of Python's _____ library. (a) seaborn (b) plotly (c) ggplot (d) matplotlib Ans: (d) matplotlib	1
47	The plot which tells the trend between two graphed variables is the _____ graph/chart. (a) line (b) scatter (c) bar (d) pie Ans: bar	1
48	The plot which tells the correlation between two variables which may not be directly related is _____ graph/chart. (a) line (b) scatter (c) bar (d) pie Ans: scatter	1
49	A _____ is a summarization tool for discrete or continuous data. (a) quartile (b) histogram (c) mean (d) median Ans: (b) histogram	1
50	Which of the following function will create a horizontal bar chart? (a) plot() (b) bar() (c) plotbar() (d) barh() Ans: (d) barh()	1
51	Which argument of bar() lets you set the thickness of bar?	1

	(a) thick (b) thickness (c) width (d) barwidth Ans: (c) width											
52	Which function would you use to set the limits for x-axis of the plot? (a) limits() (b) xlimits() (c) xlim() (d) lim() Ans: (c) xlim()	1										
53	Which function is used to show legends? (a) display() (b) show() (c) legend() (d) legends() Ans: (c) legend()	1										
	State government wants to check the weekly onion price for four weeks. Write the answer of Quesstion no. 54 to 58 it accordingly: Check Onion Graph <table><thead><tr><th>Week</th><th>Onion Prices Rs.</th></tr></thead><tbody><tr><td>1.0</td><td>40</td></tr><tr><td>2.0</td><td>80</td></tr><tr><td>3.0</td><td>100</td></tr><tr><td>4.0</td><td>50</td></tr></tbody></table> Write the answer it accordingly: import matplotlib.pyplot as plt week = [1,2,3,4] prices = [40,80,100,50] plt._____(week, prices) #Statement 1 plt._____("Check Onion Price") #Statement 2 plt._____('Week') #Statement 3 plt._____('Onion Prices Rs. ') #Statement 5 plt._____ #Statement 5	Week	Onion Prices Rs.	1.0	40	2.0	80	3.0	100	4.0	50	
Week	Onion Prices Rs.											
1.0	40											
2.0	80											
3.0	100											
4.0	50											
54	Choose the right code from the following for statement 1. (a) bar() (b) line() (c) plot()	1										

	Ans: (a) pd	
61	Choose the appropriate code for the Statement 2. (a) pd (b) np (c) cp (d) pc Ans: (b) np	1
62	Choose the right code from the following for statement 3. (a) Series (b) DataFrame (c) Both (a) and (b) (d) None of these Ans(a) Series	1
63	Choose the right code from the following for statement 4. (a) Series (b) index (c) DataFrame (d) All of the above Ans(b) index	1
64	_____ is the function to save a graph. (a) savefig() (b) savefigure() (c) savegraph() (d) savechart()) Answer: (a) savefig()	1
65	Which command will be used to delete 3 and 5 rows of the data frame? Assuming the data frame name as DF (a) DF.drop([2, 4], axis =0) (b) DF.drop([2, 4], axis =1) (c) DF.drop([3, 5], axis =1) (d) DF.drop([3, 5]) Answer: (a) DF.drop([2, 4], axis =0)	1
66.	What will be the output of the given code? <pre>import pandas as pd s=pd.Series([1,2,3,4,5], index=['akram', 'brijesh','charu','deepika','era']) print(s['charu'])</pre> (a) 1	1

	(b) 2 (c) 3 (d) 4 Answer: (c) 3	
67.	Assuming the given series, name stud, which command will be used to print 5 as output? <pre>Amit 90 Ramesh 100 Mahesh 50 John 67 Abdul 89 Name: Student, dtype: int64</pre> (a) stud.index (b) stud.length (c) stud.values (d) stud.size Answer: (d) stud.size	1
68.	Which graph should be used where each column represents a range of values, and the height of a column corresponds how many values are in that range? (a) plot (b) line (c) bar (d) histogram Answer: (d) histogram	1
69.	Difference between loc() and iloc(): (a) Both are Label indexed based functions. (b) Both are integer position-based functions. (c) loc() is label based function and iloc() integer position based function. (d) loc() is integer position based function and iloc() index position based function. Answer: (c) loc() is label based function and iloc() integer position based function.	1
70.	What is a correct syntax to return the values of first row of a Pandas DataFrame? Assuming the name of the DataFrame is dfRent. (a) dfRent[0] (b) dfRent.loc[1] (c) dfRent.loc[0] (d) df.Rent.iloc[1] Answer: (c) dfRent.loc[0]	1