 **Indian School Al Wadi Al Kabir**

**Unit Test – 1**

INFORMATICS PRACTICES (Code: 065)

SET- 1

CLASS: XII Max. Marks:30

Date: 06/06/2024 Time: 1 hour

**General Instructions:**

1. This question paper contains four sections, Section A to D.
2. All questions are compulsory
3. Section A has 10 questions carrying 01 mark each.
4. Section B has 03 Very Short Answer type questions carrying 02 marks each.
5. Section C has 02 Short Answer type questions carrying 03 marks each.
6. Section D has 02 questions carrying 04 marks each.
7. All programming questions are to be answered using Python Language only.

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|  | **SECTION A** |  |
| 1. | Assuming the given series, named stud, which command will be used to print 5 as output?  Amit 90  Ramesh 100  Mahesh 50  john NaN  Abdul 89  Name: Student, dtype: int64  a. stud.index b. stud. length c. stud. values d. stud.size | 1 |
| 2. | What will be produced by the following python code? (Assuming that all necessary libraries and modules are imported)  series1 = pd.Series(np.array([31,28,31,30]), index = ["Jan", "Feb", "Mar"])  print(series1)  a. Error: Length of passed values is 4, index implies 3  b. No output  c. Jan 31  Feb 28  Mar 31  d. Jan 31  Feb 28  Mar 31  Apr NaN | 1 |
| 3. | What is the correct syntax to return both the first column and the second column in a pandas DataFrame df? (considering default labels for rows and columns)  a. df.loc [ : ,0,1]  b. df[[0,1]]  c. df.loc[[0-1]]  d. df.loc[[0,1]] | 1 |
| 4. | |  | | --- | | To rename the row indices ‘Emp1’ to ‘Manisha’, ‘Emp2’ to ‘Shreya’, ‘Emp3’ to  ‘Roshan’ and ‘Emp4’ to ‘Rakesh’ in a data frame EmpD, Which of the following  statement (a) to (d) will be used?    a. EmpDF=EmpDF.rename({‘Emp1’:’Manisha’, ‘Emp2’: ‘Shreya’, ‘Emp3’: ‘Roshan’,  ‘Emp4’: ‘Rakesh’}, axis = ‘index’)  b. EmpDF=EmpDF.rename({‘Emp1’:’Manisha’, ‘Emp2’: ‘Shreya’, ‘Emp3’: ‘Roshan’, 4’: ‘Emp ‘Emp4’: ‘Rakesh’}, axis = ‘rows’)  c. EmpDF=EmpDF.rename([‘Emp1’:’Manisha’, ‘Emp2’: ‘Shreya’, ‘Emp3’: ‘Roshan’,  ‘Emp’: ‘Rakesh’], axis = ‘index’)  d. None of the above | | 1 |
| 5. | The correct statement to read from a CSV file in a DataFrame is:  a. <DF>.read\_csv(<File>)  b. <file>. read\_csv( )(<DF>)  c. <DF>=pandas.read(<file>)  d. <DF>= pandas.read\_csv(<File>) | 1 |
| 6. | Which of the following command is used to display values of all the records having price>3?  a. print(df[df[‘price’]>3])  b. print(df[‘price’]>3)  c. print(df.price>3])  d. print(df(‘price’)>3) | 1 |
| 7. | Which of the following can be used to specify the data while creating a DataFrame?  a. Series  b. List of Dictionaries  c. Structured ndarray  d. All of these | 1 |
| 8. | Identify the command to display last 5 rows of the dataFrame.  a. Df1.head(5)  b. Df1.Tail(5)  c. Df1.bottom(5)  d. Df1.tail(5) | 1 |
| 9. | |  | | --- | | EApp is a dictionary with the following elements,  {’Photomath’:35,’Simply Piano’:20, ‘Google Classroom’:50,  ‘Kahoot’:30, ‘Duolingo’:40}  A series EduApp is created with the above dictionary ‘EApp’. Which statement  given below will produce the following output?  Output:  Simply Piano 20  Google Classroom 50  Kahoot 30  a. print(EduApp.loc[‘Simply Piano’:’Duolingo’])  b. print(EduApp.iloc[1:3])  c. print(EduApp.loc[‘Simply Piano’:’Kahoot’])  d. print(EduApp.iloc[2:5]) | | 1 |
| 10. | ASSERTION(A): The shape attribute returns the number of rows and  number of columns available in data frame.  REASONING (R): The shape attribute returns the values in form of list.  a. Both A and R are true and R is the correct explanation for A.  b. Both A and R are true and R is not the correct explanation for A.  c. A is True but R is False.  d. A is false but R is True. | 1 |
|  | **SECTION B** |  |
| 11. | Find the output of the following code:  import pandas as pd  x= {'IP': [50,10],’CS': [80,20],'ENG': [12,30],'PHY': [18,40]}  sub=pd.Series(x)  df=pd.DataFrame({'Count': sub})  print(df)  Count  IP [50, 10]  CS [80, 20]  ENG [12, 30]  PHY [18, 40] | 2 |
| 12. | Consider a given Series, S1 with subject and marks where subject is index.  Subject  ENG 76  HINDI 88  MATH 60  SCI 85  SST 81  Name: Marks  Write a program in Python Pandas to create the series. Name the series with “Marks” label and index with “Subject” label.  import pandas as pd  s1=pd.Series([76,88,60,85,81], index=[‘Eng’,’Hindi’,’Math’,’Sci’,’SST’])  s1.name=’Marks’  s1.name.index=’Subject’  print(s1) | 2 |
| 13. | Write the output of the given program:  import pandas as pd  S1=pd.Series([3,6,9,12],index=['a','b','c','e'])  S2=pd.Series([2,4,6,8],index=['c','d','b','f'])  S3=S1\*S2  S4=S2.add (S3, fill\_value=2)  print(S4)  print (S3. count ( ), S4.empty, sep=” and ”)  a NaN  b 42.0  c 20.0  d 6.0  e NaN  f 10.0  2 and False | 2 |
|  | **SECTION C** |  |
| 14. | i. Write a program in Python Pandas to create the following DataFrame **sports**  from a List of Dictionary:  SportName Players Coachname  S001 Cricket 21 Rahul Dravid  S002 Football 25 Roshan Lal  S003 Hockey 40 Sardar Singh  S004 Cricket 19 Chetan Sharma  import pandas as pd  L=[{'SportName':'Cricket','Players':21,'CoachName':'Rahul Dravid'},  {'SportName':'Football','Players':25,'CoachName':'Roshan Lal'},  {'SportName':'Hockey','Players':40,'CoachName':'SardarSingh'},  {'SportName':'Cricket','Players':19,'CoachName':'Chetan Sharma'}]  a=['S001','S002','S003','S004']  sports=pd.DataFrame(L,index=a)  print(sports)  ii. Write Python statement to export the DataFrame “sports” to a CSV file named  sports.csv stored at D:\game.  sports.to\_csv(‘D:/game.sports.csv’) | 3 |
| 15. | Consider the given DataFrame shop and write a python command for the following tasks:   |  |  |  |  | | --- | --- | --- | --- | |  | APPLIANCE\_NAME | DISCOUNT | PRICE | | 0 | REFRIGERATOR | 15 | 19800 | | 1 | SMART PHONE | 20 | 12900 | | 2 | AIR CONDITIONER | 15 | 23500 | | 3 | WASHING MACHINE | 18 | 18900 | | 4 | WASHING MACHINE | 15 | 20110 |   i. Add a column called Special\_Quantity with the following data:  [62,26,12,32,48].  shop[‘Special\_Quantity’]=[ 62,26,12,32,48]  ii. Add a new Electronics item named ’TELEVISION’,12 having price 35600 and quantity as 23.  shop.loc[5]=[‘Television’,12,35600,23]  iii. Remove the column Special\_Quantity.  shop=shop.drop(‘Special\_Quantity’,axis=1) | 3 |
|  | **SECTION D** |  |
| 16. | Consider the following Data Frame **ProjectDF**.    (A) Predict the output of the following python statements:  i. ProjectDF[‘PROJNAME’]  ii. ProjectDF.loc[‘M138’: ‘M164’]  i)  PROJNAME  M100 SUPPLY CHAIN  M103 SHIPMENT BILLING  M109 CAD DESIGN  M138 COST ACCOUNTING  M143 STOCK MANAGEMENT  M153 TAX MANAGEMENT  M164 INVENTORY CONTROL  M178 ORDER TRACKING  ii)    (B) Write a python command for the following statements:  i. To display the project name of M143 and M164.  ProjectDF.loc[[‘M143’:’M164’],’PROJNAME’] or ProjrctDF.iloc[[4,6],1]  ii. To display the budget and sanction for all the projects.  ProjectDF.loc[:,[‘BUDGET’,’SANCTION’]]  or  ProjectDF.iloc[[‘Budget’,’Sanction’]] | 4 |
| 17. | Mr. Ravi, a data analyst has designed the DataFrame df that contains data about  Car Sales with ‘T1’, ‘T2’, ‘T3’, ‘T4’ as indexes shown below. Answer the  following questions:    (A) Predict the output of the following python statement:  i. df.index  index([‘T1’,’T2’,’T3’,’T4’])  ii. df [1:3]    (B)  i. Write Python statement to display the data of Col3 column of indexes T2 to T4.  df.loc[[‘T2’:’T4’],’col3’] or df.iloc[[1:4],2]  **OR**  i. Write Python statement to compute and display the difference of data of Col2 column and Col3 column of the above given Data Frame and label it as a difference.  df[‘difference’]=df[‘col2’]-df[‘col3’]  ii. Write a python command to change the column label of ‘Res’ to ‘Result’.  df=df.rename({‘Res’:’Result1’},axis=’columns’) | 4 |