 **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.

|  |  |  |
| --- | --- | --- |
|  | **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 andnumber 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 pdx= {'IP': [50,10],’CS': [80,20],'ENG': [12,30],'PHY': [18,40]}sub=pd.Series(x)df=pd.DataFrame({'Count': sub})print(df) CountIP [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: MarksWrite a program in Python Pandas to create the series. Name the series with “Marks” label and index with “Subject” label.import pandas as pds1=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\*S2S4=S2.add (S3, fill\_value=2)print(S4)print (S3. count ( ), S4.empty, sep=” and ”)a NaNb 42.0c 20.0d 6.0e NaNf 10.02 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 CoachnameS001 Cricket 21 Rahul DravidS002 Football 25 Roshan LalS003 Hockey 40 Sardar SinghS004 Cricket 19 Chetan Sharmaimport pandas as pdL=[{'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)  PROJNAMEM100 SUPPLY CHAINM103 SHIPMENT BILLINGM109 CAD DESIGNM138 COST ACCOUNTINGM143 STOCK MANAGEMENTM153 TAX MANAGEMENTM164 INVENTORY CONTROLM178 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 aboutCar Sales with ‘T1’, ‘T2’, ‘T3’, ‘T4’ as indexes shown below. Answer thefollowing 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 |