 **Indian School Al Wadi Al Kabir**

**Assessment – 1**

**INFORMATICS PRACTICES (Code: 065)**

CLASS : XII Max. Marks:70

Date: 21/09/2023 Time: 3 hours

**General Instructions:**

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 02 questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

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|  | **SECTION A** |  |
| 1. |  Which plot is used to show results of continuous data?  a. Bar plot b. Line graph c. Histogram d. Pie chart | 1 |
| 2. | Which of the following is not an aggregate function?  a. Avg ()  b. Trim ()  c. Min ()  d. Sum ()  | 1 |
| 3. | Consider a DataFrame Df1  0 1 2 one 2 4 5 two 3 2 5 three 5 6 4 Which of the following statements results in ValueError? a. Df1[3]=[3,4,5]b. Df1[3]=[10,2] c. Df1[4]=[9,9,9] d. Df1[‘Three’]=[8,6,5]  | 1 |
| 4. | Which of the following function displays the unique values under the column DEPARTMENT in STAFF table?SELECT \_\_\_\_\_\_\_\_\_\_\_ FROM STAFF; a. DISTINCT DEPARTMENT b. UNIQUE DEPARTMENT c. DIFFERENT DEPARTMENT d. DEPARTMENT | 1 |
| 5. |  Which of the following is a DML command? a. DROP  b. DELETE c. DESC  d. ALTER | 1 |
| 6. | Consider the following series named color:  1 Red 2 Green 3 Orange 4 Yellow 5 Black dtype: objectWrite the command that generates the output as: 1 Red 3 Orange dtype: object a. color[0:4] b. color[1:3:2] c. color[ :4:2]  d. color[1,3] | 1 |
| 7. |  In Pandas the function used to get rows (or columns) with particular label index.a. iloc()b. loc()c. ilabel() d. id() | 1 |
| 8. | After writing all the command/functions to make a graph/chart we need to use\_\_\_\_\_\_\_ to display the graph. a. plt.show() b. plt.display() c. plt.title() d. pyplot.picture() | 1 |
| 9. | Which among the following argument is used in hist() to specify the number of intervalsa. intervalb. binc. binsd. range | 1 |
| 10. |  Consider a dataframe df having 3 columns in it as name, salary and allowance .  Write the code to add a new column namely comm with the value 500 for  all rows. a. df(‘comm’) =[500,500,500] b. df[‘comm’]=[500] c. df[‘comm’]=500 d df(‘comm’) = 500 | 1 |
| 11. | Consider a Series ‘numbers’: a 20 b 30 c 10 d 40 e 50 dtype: int64What will be the output of the following command?print(numbers['e':'b':-2]-5) i. e 45 c 5 ii. a 20 c 10 iii. c 5 e 45 iv. Error | 1 |
| 12. | Write the command to write the dataframe Record in to a csv file “mark.csv”.a. Record.to\_csv(“mark.csv”)b. Record.read\_csv(“mark.csv”)c. Record.writecsv(“mark.csv”)d. mark.to\_csv(record.csv) | 1 |
| 13. | In a relation Employee, if a column “Emp\_name” contains the data set (“Raju”,“Shreya”, “Nitya”, “Raju”,“Nitya”, “Nikhil”, “Kavya”, “Raju”), what will be the output after the execution of the given query?SELECT COUNT (DISTINCT Emp\_name) FROM Employee;a. Error – cannot work on char data type b. 5 c. “Five” d. No output | 1 |
| 14. | Which of the following command will display all the records of a dataframe df in the reverse order? a. print(df[::1]) b. print(df.iloc[::-1]) c. print(df[-1:]+df[:-1]) d. print(df.reverse()) | 1 |
| 15. | Out of the following, which function cannot be used for customization of charts in Python? a. xlabel() b. colour() c. title() d. xticks() | 1 |
| 16. |  What will be the output of the following code?  import pandas as pd S1= pd.Series([21,42,35,54]) S2= pd.Series([7,8]) S3= S1 / S2 print (S3.count()) a. 2 b. 4 c. 6 d. 8 | 1 |
| 17. |  Assertion (A): The shape attribute returns the total number of rows and columns  in the data frame.Reason (R): The shape attribute returns the values in the form of a list.  i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True | 1 |
| 18. | Assertion (A): To display the first four elements of a Series object, you may  write S[:4]. Reason (R): To display the first five rows of a Series object S, you may use  tail() function. i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True | 1 |
|  | **SECTION B** |  |
| 19. |

|  |
| --- |
| Create a Series object with first five odd numbers as data and index as [‘a’, ‘b’, ‘c’, ‘d’, ‘e’]  |

 | 2 |
| 20. | What will be the output of the following code:import pandas as pdS=pd.Series(data=[12,9,3,15,25],index=[11,22,33,44,55])print(S[S>10]+S[22]) | 2 |
| 21. | Write the output of the following code: import pandas as pd S1 = pd.Series([31, 28, 31, 30, 31], index = ["Jan", "Feb", "Mar", "Apr",  "May"]) print(S1[1:3]) print(S1["Jan":"Mar"]) | 2 |
| 22. |  What will be the output of the following code?import pandas as pddata= {'Name':['Sachin','Dhoni','Virat','Rohit'],'Age':[26,27,25,24],'Score':[87,89,89,55]}df=pd.DataFrame(data, index=['a','b','c','d']) print(df[df['Score']>=87]) | 2 |
| 23. |  Create a DataFrame in Python from the given list:[[‘Diya’,’HR’,95000],[‘Manoj’,’Accounts’,97000],[‘Priya’,’IT’,980000], [‘Deepak’,’Sales’,79000]] Also give appropriate column headings. | 2 |
| 24. |  Find the output of the following code: -import pandas as pdStationery = ['pencils', 'notebooks', 'scales', 'erasers']S1 = pd. Series ([20, 33, 52, 10], index = Stationery)S2 = pd. Series ([17, 13, 31, 32], index = Stationery)S3 = S1 + S2print (S3)S3[0:2] = 12 print(S3) | 2 |
| 25. | What is the difference between char and varchar datatypes in SQL? Explain with examples. | 2 |
|  | **SECTION C** |  |
| 26. | Based on the SQL table CAR, write suitable queries for the following:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NUMBER | SEGMENT | FUEL | QT1 | QT2 |
| 1 | Compact HatchBack | Petrol | 56000 | 70000 |
| 2 | Compact HatchBack | Diesel | 34000 | 40000 |
| 3 | MUV | Petrol | 33000 | 35000 |
| 4 | MUV | Diesel | 14000 | 15000 |
| 5 | SUV | Petrol | 27000 | 54000 |
| 6 | SUV | Diesel | 18000 | 30000 |
| 7 | Sedan | Petrol | 8000 | 10000 |
| 8 | Sedan | Diesel | 1000 | 5000 |

i. Display the segment and fuel of all cars with QT1 in the range 20000 to  30000. ii. Display the different segments of cars. iii. Display the average QT1 and the greatest QT2 of all SUV. | **3** |
| 27. | Write a program to create a data frame LibraryDF with the help of a **dictionary of series** that represents BCode, Title, Author and Price of 4 books and print all the book details. **BCode Title Author Price**0 5478 Software Engineering Patrick 18001 7382 System Analysis and Design Mathews 6502 4727 Business Computing Viveka 8203 1683 Compiler Design Dan 1230 | 3 |
| 28. | Write MySQL statements for the following:1. To display the list of tables in the database FACTORY .
2. Create the table PRODUCT as per the following :

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Type** | **Size** | **Constraint** |
| productID | Int | 4 | Primary Key |
| Name | Varchar | 20 | Not Null |
| Category | Varchar | 20 |  |
| Price | Int | 5 |  |
| Stock | Int | 4 |  |

 | 1+2 |
| 29. |  A dataframe ‘**stud’** contains the following information about students

|  |  |  |  |
| --- | --- | --- | --- |
| RollNo | Name | Class | Section |
| 1 | Atul | II | A |
| 2 | Nilesh | III | B |

(a) Write the code to change the Class of ‘Atul ‘ to ‘IV’ (b) Write the code to display the number of elements in the data frame. (c) Write the code to delete column Class of data frame  | 3 |
| 30. | Consider the given DataFrame ‘Teacher’: Name Salary0 Ajay 750001 Amrita 780002 Sohail 552253 Sujata 48500Write suitable Python statements for the following:i. Add a column called ‘Designation’ with the following data:  [‘PGT’ , ‘TGT’ , ‘TGT’, ‘PRT’].ii. Add a new teacher named ‘Rohit' having salary 80000 and designation as  PGT. iii. Write a command to change the name of column ‘Salary’ as  ‘Remuneration’ | 3 |
|  | **SECTION D** |  |
| 31. | Mr. Som, a HR Manager in a multinational company “Star-X world” has created the following table to store the records of employees:Table: **Emp**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Eid | EName  | Department  | DOB | DOJ |
| Star1 | Ivan | Sales | 1994-08-28 | 2020-02-14 |
| Star2 | Melinda | IT | 1997-10-15 | 2021-11-19 |
| Star3 | Raj | Accounts | 1998-10-02 | 2019-04-02 |
| Star4 | Michael | Sales | 2000-02-17 | 2020-05-01 |
| Star5 | Sajal | NULL | 2001-12-05 | 2018-06-13 |
| Star6 | John | Accounts | 1995-01-03 | 2019-07-15 |
| Star7 | Julia | Sales | 1985-11-13 | 2020-08-19 |

Write the output of the following queries:a. SELECT DISTINCT DEPARTMENT FROM EMP;b. SELECT ENAME,DEPARTMENT FROM EMP WHERE ENAME  LIKE “%J%”;c. SELECT MAX(DOB), MIN(DOJ) FROM EMP;d. SELECT ENAME,DOB FROM EMP WHERE DEPARTMENT IN  ( ‘SALES’, ‘IT’); | **4** |
| 32. | i. Write a python code to create DataFrame “Vendor” with the following data  using dictionary of list.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Vname | Item | Area | Qty |
| 200 | A | Chair | East | 30 |
| 201 | B | Table | West | 45 |
| 202 | C | Pen | South | 23 |
| 203 | E | Eraser | SW | 12 |
| 204 | F | Sketch Pen | NE | 100 |

ii. Change the index to 100,101,102,103,104iii. Find the output of the following: x=Vendor.columns[:2] print(x) | 2+1+1 |
|  | **SECTION E** |  |
| 33. | Write SQL queries for (i) to (v) which are based on the given table  **TEACHER.**i. Display the name and department of female PGT teachers.ii. Display the name ,category and salary of teachers whose hiredate is before  2018-07-20 .iii. Change the category of Sonali to PGT .iv. Delete the details of female teachers in Hindi department. v. Display the details of all PGT and TGT teachers in English Department. | 5 |
| 34. | Consider the DataFrame ‘exam’ and write suitable Python statements for the following questions: name score1 score2 qualifyA Anand 6 9 yesB Dema 2 8 noC Clark 9 7 yesD James 3 5 noE Emily 4 6 noi. Add a column ‘avgscore’ that contains the average score of  score1 and score2.ii. Remove the row at index C.iii. Predict the output of the following: a. print(exam.loc[‘ B’:’D’, [‘name’, ‘avgscore’]] b. print(exam.iloc[1 : 3, 2]) c. print(exam[exam[‘qualify’]==’yes’]) | 5 |
| 35. | Write a python program to plot a line chart based on the given data to analyse the Temperature of different cities. city=["surat","baroda","rajkot", "bhuj","Vapi"]temp=[85,105,68,35, 55] Add legend and necessary markers for the line graph.  **OR**Write python code to draw the following bar graph representing the Salary of 5 employees of ABC Co.Ltd company.Also give suitable python statement to save this chart. | 5 |