

AIRPORT SENIOR SECONDARY SCHOOL

TERMINAL EXAMINATION I - 2023-24

INFORMATICS PRACTICES (065)

CLASS: XII

Time : 3 hrs

Marks:70

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 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 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each.
8. Internal choice is given in Q29, Q30, Q33. One internal choice is given in Q34 and Q35 against part (iii) only.

SECTION A

1. Which of the following statement will import pandas library?
 - a. Import pandas as pd
 - b. import Pandas as py
 - c. import pandas as pd
 - d. import panda as pd
2. Pandas object which cannot grow in size.
 - a. Dataframe
 - b. Panel
 - c. Series
 - d. None of these
3. The command to install the pandas is:
 - a. install pip pandas
 - b. install pandas
 - c. pip pandas
 - d. pip install pandas
4. Python Pandas was developed by:
 - a. Guido van Rossum
 - b. Travis Oliphant
 - c. Wes McKinney
 - d. Brendan Eich
5. Pandas data frame cannot be created using:
 - a. Dictionary of tuples
 - b. Series
 - c. Dictionary of List
 - d. List of Dictionaries
6. Write the output of the following SQL command ?
SELECT ROUND(49.88)
 - a. 49.88
 - b. 49.8
 - c. 49.0
 - d. 50
7. Which command will be used to delete 3rd and 5th 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])

8. A social science teacher wants to use a pandas series pd to teach about Indian historical monuments and its states. The series should have the monument names as values and state names as indexes which are stored in the given lists, as shown in the code. Choose the statement which will create the series:

```
import pandas as pd
Monument = ['Qutub Minar','Gateway of India','Red Fort','Taj Mahal']
State = ['Delhi','Maharashtra','Delhi','Uttar Pradesh']
```

- a. S = df.Series(Monument,index=State)
- b. S = pd.Series(State,Monument)
- c. S = pd.Series(Monument,index=State)
- d. S = pd.series(Monument,index=State)

9. Write the output of the following program segment

```
import pandas as pd
s=pd.Series([1,2,3,4,5,6],index=['a','b','c','d','e','f'])
print(s[s%2==0])
```

10. The count() function in Mysql is an example of _____.

11. Which clause is used with aggregate functions?

- a. Group by b. Having c. Where d. Both (a) and (b)

12. The axis 0 in a data frame identifies _____ and axis 1 identifies _____

13. Write the output of the following SQL command.

```
SELECT SUBSTR ("COMPUTER", 3, 4);
```

- a. MPUT b. PUTE c. PU d. MP

14. What is the correct syntax to return both the first row and the second row in a DataFrame df

- a. df.loc[[0,1]]
- b. df.[[0,1]]
- c. df.loc[[0-1]]
- d. df.[[0-1]]

15. Primit wants to display the current month from the date and time. Which function should he use?

16. Given the following DataFrames DF1 and DF2: Write a command to find the sum of columns B and Y.

DS1	
A	B
0	CAT 10
1	DOG 20
2	COW 30

DS2	
X	Y
0	OWL 10
1	CROW 20
2	SWAN 30

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice

- 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

17. Assertion (A) :- Bar graph and histogram are sam

Reasoning (R) :- A bar graph represents categorical data using rectangular bars. A histogram represents data which is grouped into continuous number ranges and each range correspond to a vertical bar.

18. Consider the list $L1 = [2,3,5]$ and Series $S1 = [2,3,5]$

Assertion (A) : `print(L1*2)`, gives as output, `[2,3,5,2,3,5]`

`print(S1*2)` gives a different output as: `0 4 1 6 2 10`

Reasoning (R): Series allows vector operation on scalar values while List when multiplied by any integer value gets replicated that many times. As per the above statements choose the correct answer:

SECTION B

19. Write a program to create the following series named M1 and write the command to print the last 2 row of the series.

	Marks
Term1	45
Term2	65
Term3	24
Term4	89

index {

20. Write the output of the following :

```
import pandas as pd
d1={"one":33, "two":44}
d2={"one":55, "two":66}
d3={"one":77, "two":88}
d =[d1,d2,d3]
df3=pd.DataFrame(d, index=["r1","r2","r3"])
print(df3)
```

21. Consider the series object S below. It depicts number of items in each category.

```
stationery = ['pen', 'rubber', 'pencil', 'scale']
s=pd.Series( [20,33,52,10], index=stationery)
```

pen	20
rubber	33
pencil	52
scale	10

dtype: int64

Write the statement to print the row details from 'rubber' to 'scale'.

22. Consider the series object 'consonants'

```
consonants = pd.Series(0,index = ['b', 'c', 'd', 'k'])
print (consonants.empty)
```

What will be printed as output?

23. Rashmi, a database administrator needs to display house wise total number of records of 'Red' and 'Yellow' house. She is encountering an error while executing the following query:

```
SELECT HOUSE, COUNT (*) FROM STUDENT GROUP BY HOUSE
WHERE HOUSE='RED' OR HOUSE='YELLOW';
```

Help her in identifying the reason of the error and write the correct query by suggesting the possible corrections.

24. What is the purpose of Order By clause in MySQL? Explain with example?

25. Write a program to create a series object using a dictionary that stores the number of students in each house of class 12 A of your school.

Note: Assume 4 house names as Diamond, Emerald, Sapphire, Topaz having 18,15,12,13 students respectively

SECTION C

26. Consider the following table Club :

COACH_ID	COACH_NAME	AGE	SPORTS	DATE OF JOINING	PAY
1	Rajesh	30	Karate	1999-08-25	1000
2	Anuj	35	Swimming	2001-01-05	750
3	Shardha	25	Basketball	2002-08-25	1200
4	Reetika	28	Badminton	2002-08-25	1400
5	Virendra	32	Cricket	1996-05-17	1500

Give the answer for the following questions on the basis of the above table.

- a. Write a query to display the substring of 4 characters of the name of each coach, starting from second character, with their age.
- b. What will be the output of the following query ?
`SELECT LENGTH(COACH_NAME) FROM Club WHERE AGE>30;`
- c. Write a query to display 3 characters from left of COACH_NAME

27. Write a Python code to create the following dataframe student

	Name	Maths	Science
0	Maria	87	83
1	Tim	91	99
2	Rohan	97	84
3	Geeta	95	76

- a. Write the python statement to sort the dataframe on the ascending order of column 'Name'
- b. Write the statement to write the above dataframe to a csv file with name student.csv?
- c. Write the statement to read the above student csv file without the headings.

28. Consider the Dataframe Humanoid

Humanoid		
	SName	Amount
H_1	Alexa	7000
H_2	Cortana	5000
H_3	Siri	4000

- a. Write a command to display the records of the dataframe which have amount greater than equal to 5000.
- b. How will you change the index from H_1,H_2,H_3 to 101,102,103
- c. Add a column called Sale_Price with the following data: [6000,3700,2800]

29. Consider a MySQL table 'product'

P_ID	PROD_NAME	PROD_PRICE	PROD_QTY
P01	Notebook	85	500
P02	Pencil Box	76	200
P03	Water Bottle	129	50
P04	School Bag	739	70

- Display maximum PROD_QTY.
- Display the value of each product where the value of each product is calculated as
 $PROD_PRICE * PROD_QTY$
- Display average PROD_PRICE.

OR

Find the output of the following SQL queries

- SELECT SUBSTR("CLIMATE CHANGE",4,4);
- SELECT UCASE(RIGHT("POLLUTION",3));
- SELECT LENGTH("HAPPY")+3;

30. Based on table STOCK given here, write suitable SQL queries for the following:

STOCKID	NAME	COMPANY	TYPE	DOPURCHASE	Quantity
1	Photoshop	Adobe	SW	5-Oct-2022	1
2	Windows 10	Microsoft	SW	15-Apr-2021	5
3	Mother Board	ASUS	HW	8-Sep-2022	5
4	Office 2007	Microsoft	SW	8-Jul-2022	2
5	Hard Disk	Seagate	HW	6-Feb-2021	10
6	Azure	Microsoft	SW	17-Jul-2022	6
7	CD ROM	Seagate	HW	31-Jul-2021	5
8	Reader	Adobe	SW	28-Aug-2022	2

- Display company wise highest Quantity available
- Display year wise lowest Quantity available
- Display total number of Software and Hardware type stock

OR

Explain the difference between WHERE CLAUSE and HAVING CLAUSE in detail with the help of suitable example.

SECTION D

31. Consider the dataframe `empdf` given below

	Name	Age	Salary
0	Ann	30	16000
1	Arpit	24	15000
2	Anjali	33	12000
3	Jeena	40	10000

- a. Arpit needs to store 20 % of his salary in a new column HRA. Help him do that task .
- b. Consider the above dataframe `df` and write the suitable slicing option for the output below .

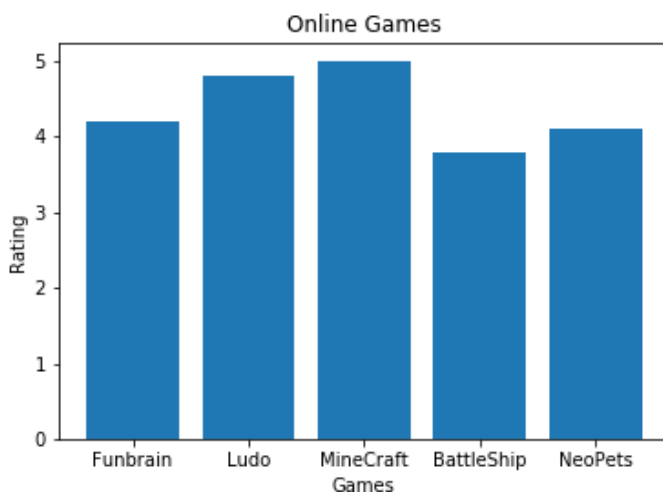
	Name	Age	Salary
0	Ann	30	16000
1	Arpit	24	15000

- c. Write the python statement to add a new employee details to the above dataframe.
[‘Swapna’, 34, 25000]
- d. Write the command to display the details of employees with salary above 13000.
- e. Write the command to update the salary of employee ‘Anjali’ to 15000.

32. Write suitable SQL query for the following:

- a) Display 4 characters extracted from 3rd character onwards from string ‘IMPOSSIBLE’.
- b) Display the position of occurrence of string ‘GO’ in the string “LET’s GO to GOA”.
- c) Round off the value 257.75 to nearest ten rupees.
- d) Display the remainder of 18 divided by 5.
- e) Remove all the leading and trailing spaces from a column `passwd` of the table ‘USER’.

33. Sharma is working in a game development industry and he wants to compare the given chart on the basis of the rating of the various games available on the play store. Write a Python code to get the following bar chart. Save the chart in png format.



OR

Write a python program to plot a line chart based on the given data to depict the changing weekly average temperature in Jhansi for four weeks.

Week=[1, 2, 3, 4]

Avg_week_temp=[30, 26, 28, 24]

SECTION E

(2+1+1)

34. Harsh, a movie information collector has designed a database for Indian movies. Help him by writing answers of the following questions based on the given table MOVIE

movieID	Name	Rating	Production	Collection	DORelease
201	Nadiya Ke Par	A+	Rajshree	400	15-Aug-1989
202	Hum Aapke Hain Kaun	A+	Dharma	1500	4-May-1992
203	Veer Zara	A	Yashraj	1100	25-Oct-2004
204	Chandni	A+	Yashraj	2000	8-Nov-1989
205	Om Shanti Om	A	Red Chillies	2007	14-Nov-2007

- i) Write a query to display movie name in uppercase and production in lower case in the descending order of the movie names.
- ii) Write a query to display all details of movies released in the month of November
- iii) Write a query to count production wise total number of movies

OR (Option for part iii only)

Write a query to count rating wise total number of movies

35. Mr. Summit, a data analyst has designed the DataFrame df that contains data about Computer infrastructure with 'S01', 'S02', 'S03', 'S04', 'S05', 'S06' as indexes shown below. Answer the following questions (2+1+1)

	school	computers	non-working	working
S01	MPS	80	10	70
S02	SFC	88	12	76
S03	JPS	25	4	21
S04	APS	45	6	39
S05	RLPS	90	15	75
S06	DPS	60	6	54

- i) Predict the output of the following python statement:
A) df.shape B) df [2:4]
- ii) Write Python statement to display the data of column working from indexes S03 to S05.
- iii) Write Python statement to delete the column non-working

OR (Option for part iii only)

Write Python statement to compute and display the last 2 records in the dataframe.