

## SAMPLE PAPER - 2023-24

### General Instruction:

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 02 questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.

All programming questions are to be answered using Python Language only

### **SECTION A(18 MARKS)**

- Q1. URLs are of two types: 1
- |                            |                      |
|----------------------------|----------------------|
| i. Absolute & Relative     | ii. Static & Dynamic |
| v. iii. Absolute & Dynamic | iv. None of these    |
- Q2. Network Device that sends the data over optimizing paths through connected hops is: 1
- |                |             |
|----------------|-------------|
| i. Hub         | ii. Bridge  |
| v. iii. Router | iv. Gateway |
- Q3. Removal of parts containing dangerous, valuable substances are: 1
- |                   |                 |
|-------------------|-----------------|
| i. Treatment      | ii. Segregation |
| v. iii. Recycling | iv. Dismantling |
- Q4. What type of values should be considered by SQL, while executing the following command if all columns have null values: 1
- SELECT COUNT (\*) FROM BILL;
- |                   |                    |
|-------------------|--------------------|
| (i) Non-numeric   | (ii) Date          |
| (v) (iii) Numeric | (iv) None of these |
- Q5. If columns "Price" contain the data set (4000,8000,12000,8000,5000,4000,1000), what will be the output of the following query. 1
- SELECT AVG(DISTINCT(PRICE)) FROM PRODUCT
- |                |           |
|----------------|-----------|
| (i) 6000       | (ii) 5000 |
| (v) (iii) 6500 | (iv) 9000 |
- Q6. 'C' in W3C stands for 1
- |                   |                |
|-------------------|----------------|
| i. Copylefted     | ii. Consortium |
| v. iii. Copyright | iv. Corporate  |
- Q7. Which SQL statement do we use to find the total no of unique records of column productname of product table 1
- |  |
|--|
| i. SELECT DISTINCT (PRODUCTNAME) FROM PRODUCT;       |
| ii. SELECT COUNT(*) FROM PRODUCT                     |
| iii. SELECT COUNT(PRODUCTNAME) FROM PRODUCT;         |
| iv. SELECT COUNT(DISTINCT (PRODUCTNAME))FROM PRODUCT |
- Q8. Which of the following is not a Scalar function? 1
- |                |            |
|----------------|------------|
| i. Dayofweek() | ii. Char() |
| v. iii. Avg()  | iv. Sign() |
- Q9. Which of the following function is used to find the total of values from given data in MySQL? 1
- |                    |             |
|--------------------|-------------|
| i. Count()         | ii. Sum()   |
| v. iii. Addition() | iv. Total() |
- Q10. To display the dimension of DataFrame df, you may write 1
- |              |                   |
|--------------|-------------------|
| i. df.dim    | ii. df.panel      |
| iii. df.ndim | iv. None of these |

- v.
- Q11. Which of the following attributes should display the size of pandas data structure individually. 1
- i. Size ii. Ndim  
v. iii. Itemsized iv. index
- Q12. Which of the following can be used to specify the date while creating a series? 1
- i. Ndate ii. List  
v. iii. Scalar Values iv. All of these
- Q13. -----is an attempt where hacker tries to divert network traffic to a bogus site. 1
- i. Phishing Scam ii. Eavesdropping  
v. iii. Spoofing iv. Pharming Attack
- Q14. In MySQL, which function is used to extract the date part? 1
- i. Sysdate() ii. Now()  
v. iii. Curdate() iv. All of these
- Q15. ----- are the rights of the owner of the information to decide how much information is to be exchanged, shared or distributors also, it gives the owner a right to decide the price for doing 1
- i. GPL ii. IPR  
iii. BSD iv. All of these
- Q16. Every activity you perform on the internet is saved for how long? 1
- i. One month ii. As per my setting  
v. iii. One Year iv. Forever
- Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as
- 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
- Q17. **Assertion(A):** Internet is a private network used to share information and data. 1
- Reasoning(R):** Internet is responsible for connecting the real world with each other
- Q18. **Assertion(A):** Dataframe and its size is mutable 1
- Reasoning(R):** In Series, data is represented column wise
- SECTION B(14 MARKS)**
- Q19. How is spam different from junk mail? 2
- OR**
- Write two advantages and two disadvantages of VOIP.
- Q20. Ramesh wants to display the participant's number (pno) of each participants and identify the youngest participants. 2
- SELECT PNO,MIN(DOB) FROM PARTICIPANTS ORDER BY PNO
- Write the correct query by removing the possible error / logic
- Q21. Write the purpose of a like operator? Explain with an example. 2
- Q22. Write a program to create a series by using a list which displays cricket player name with their maximum score. 2
- Q23. Give any four advantages of e-waste Recycling? 2
- OR**
- Explore any four Email etiquette
- Q24. What will be the output of the following code: 2
- ```
>>> import pandas as pd
>>> info=pd.Series(data=[31,41,51])
```

```
>>>print(info)
>>>print(info>40)
```

Q25. Find an output of the following code:

```
import pandas as pd
d={{'a':10,'b':20},{a':6,'b':32,'c':22}}
df1=pd.DataFrame(d,index=['first','second'],columns=['a','b'])
df2=pd.DataFrame(d,index=['first','second'],columns=['a','b1'])
print(df1)
print(df2)
```

2

### **SECTION C – 15 MARKS**

Q26. Write the output for SQL server:

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| Admno | Name     | Stream      | Optional | Average |
|-------|----------|-------------|----------|---------|
| 1001  | Shrishti | Science     | CS       | 90      |
| 1002  | Ashi     | Humanities  | Maths    | 80      |
| 1003  | Aditya   | Commerce    | IP       | 60      |
| 1004  | Ritu Raj | Science     | IP       | 65      |
| 1005  | Sonali   | Commerce    | Maths    | 60      |
| 1006  | Saumya   | Science     | IP       | 65      |
| 1007  | Ashutosh | Science     | IP       | 95      |
| 1008  | Prashant | Commerce    | IP       | 95      |
| 1009  | Aman     | Commerce    | IP       | 70      |
| 1010  | Rsihabh  | Humantities | P.Ed.    | 85      |

- (i) Select concat(Name, Stream) from student where optional = 'Maths'
- (ii) Select upper(stream) , lcase(optional), average from student except average 90,65,80
- (iii) Select mod(average, length(optional) ) from student where stream='commerce'

Q27. Write a Python code to create a dataframe from a 2D list , specify own index labels

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Q28. Consider the given dataframe namely Product:

3

|    | Pid | PName    | Qty  | Price |
|----|-----|----------|------|-------|
| UP | 101 | TV       | 1000 | 20000 |
| MP | 102 | Mobile   | 500  | 15000 |
| AP | 103 | Mouse    | 400  | 100   |
| HP | 104 | Keyboard | 200  | 200   |

Write a suitable Python statement for the following:

- (i) Add a new product for the state of Punjab(assume data)
- (ii) Rename column price by payment
- (iii) Delete column qty

Q29. Mr. Raj is working in Microsoft . He has been assigned to do work from home. He is using the Microsoft Team for audio and video calls as well as using email services. He wants to know about the following:

3

- i. Which protocol is responsible for sending email?
- ii. Which protocol is responsible for video conferecncing?
- iii. Which protocol is responsible to open www. microsoft.com?

**OR**

What do you mean by cyber troll? How is it different from cyber bullying?

Q30. Based on table STORE. Write SQL queries:

3

Table: Store

| Store Id | Name           | Location       | City   | No of Emp | Date open  | Sales Amt |
|----------|----------------|----------------|--------|-----------|------------|-----------|
| S101     | pLanet Fashion | Bandra         | Mumbai | 7         | 2015-10-16 | 40000     |
| S102     | Vogue          | Karol Bagh     | Delhi  | 8         | 2015-07-14 | 120000    |
| S103     | Trends         | Powai          | Mumbai | 10        | 2015-06-24 | 30000     |
| S104     | Super Fashion  | Thane          | Mumbai | 11        | 2015-02-06 | 45000     |
| S105     | Annabelle      | South Extn.    | Delhi  | 8         | 2015-04-09 | 60000     |
| S106     | Rage           | Defense Colony | Delhi  | 5         | 2015-03-01 | 20000     |

- (i) To display the city and number of stores located in that city , only if number of stores is more than 2
- (ii) To display detail's location wise
- (iii) Display details of the stores table in alphabetical order of date of open

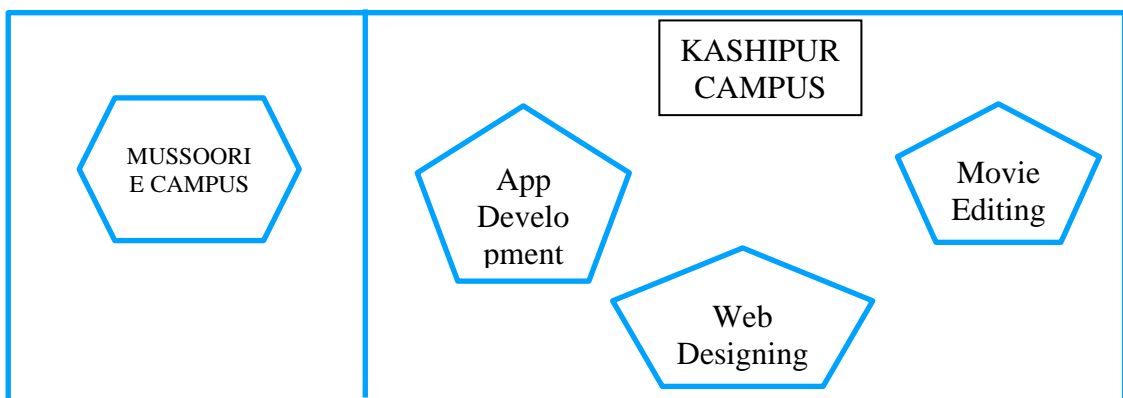
#### **SECTION D – 15 MARKS**

- Q31.
  - i. Round the number 78.911 before one decimal places
  - ii. Round the no 64.822 upto Zero decimal places
  - iii. To verify the status of a number -6544
  - iv. To extract the word 'CUP' from the string "T-20 WORLD CUP"
  - v. Extract date part from given date

**OR**

Explain SQL function from the following:

- i. Char()
  - ii. Trim()
  - iii. Sysdate()
  - iv. Substring()
  - v. Sign()
- Q32. Make in India Corporation , an uttarkhand based IT training company , is planning to set up training centre in various cities in next 2 years. Their first campus is coming up in Kashipur district . At Kashipur Campus they are planning to have 3 different blocks for App development , Web designing and Movie editing . Each block has no of computers , which are required to be connected in a network for communication , data and resource sharing. As a network consultant of this company , you have to suggest the best network related solutions for them for issues/problems raised in question nos (i) to (v). keeping in mind the distances between various blocks /locations and other given parameters.



Distance between various blocks/ locations

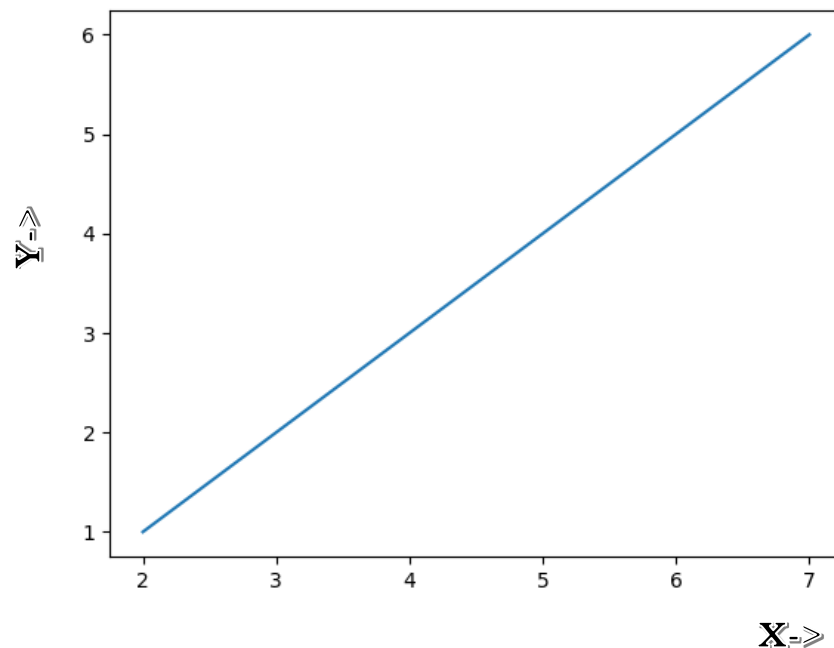
| Block                               | Distance |
|-------------------------------------|----------|
| App Development to Web Designing    | 28 m     |
| App Development to Movie Editing    | 55m      |
| Web Designing to Movie Ticket       | 32m      |
| Kashipur Campus to Mussoorie Campus | 232km    |

No of Computers:

| Block           | No of Computers |
|-----------------|-----------------|
| App Development | 75              |
| Web Designing   | 50              |
| Movie Editing   | 80              |

- Suggest the most appropriate locations to house the server in the Kashipur campus to get best and effective connectivity . Justify your answer
- Suggest a device / software to be installed in Kashipur Campus to take care of data security
- Suggest the best wired medium and draw a cable layout to economically connect various blocks within Kashipur campus
- Suggest the placement of the following devices (a) Hub/ Switch (b) Repeater
- Suggest a type of network between Kashipur and Mussoorie Campus

Q33. Consider the following graph , Write the code to plot it.



OR

Write a program to draw a bar graph according to the following data:

Classes=['I','II','III','IV']

Students=[50,55,45,44]

**SECTION E – 8 MARKS**

Q34. Sunita is working as DBA in Infosys. Help her by writing answers to the following queries based on the given table:

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Table: Emp

| Eid    | EName   | Department | DOB        | DOJ        |
|--------|---------|------------|------------|------------|
| Star 1 | Ivan    | Sales      | 1994-08-28 | 2020-02-14 |
| Star 2 | Melinda | IT         | 1997-10-15 | 2021-11-19 |
| Star 3 | Raj     | Accounts   | 1998-10-02 | 2019-04-02 |
| Star 4 | Michael | Sales      | 2000-02-17 | 2020-05-01 |
| Star 5 | Sajal   | IT         | 2001-12-05 | 2018-06-13 |
| Star 6 | John    | Accounts   | 1995-01-03 | 2019-07-15 |
| Star 7 | Julia   | Sales      | 1985-11-13 | 2020-08-19 |

- (i) Write a query to return length of department whose eid is Star 3
- (ii) Write a query to display DOB of the eldest employee
- (iii) Write a query to display total no of employees of sales department

**OR**

**(Option for part (iii) only)**

Write a query to display the total no of employees year wise of DOJ

Q35. Ms. Ramandeep Kaur maintains the records of all students of her class using dataframe df.

4

|     | Name  | Marks | Fees |
|-----|-------|-------|------|
| del | Ishan | 97    | 5000 |
| mum | Ajay  | 98    | 6000 |
| hry | Vijay | 99    | 7000 |
| pnb | Raj   | 100   | 6000 |

Based on the given information , answer the following questions:

- (i) Predict an output of the following (a) df.size (b) df[:]
- (ii) Display data of columns Name and Fees of indexes del and pnb
- (iii) Assign a new row (assume meaningful data) in dataframe

**(Option for part (iii) only)**

Write a code to compute and display multiplication of columns marks and fees of dataframe