

Roll Number

SET B



INDIAN SCHOOL MUSCAT
FIRST PRE-BOARD EXAMINATION
INFORMATICS PRACTICES

CLASS: XII

Sub. Code: 065

Time Allotted: 3 Hrs.

07.03.2021

Max. Marks: 70

General Instructions:

1. This Question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
 - a. Section-I is short answer questions, to be answered in one word or one line.
 - b. Section-II has two case studies questions. Each case study has 5 case-based subparts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part-B is Descriptive Paper.
5. Part-B has three sections:
 - a. Section-I is short answer questions of 2 marks each, in which two questions have internal options.
 - b. Section-II is long answer questions of 3 marks each, in which two questions have internal options.
 - c. Section-III is very long answer questions of 5 marks each, in which one question has internal option.

Part - A

Section - I

Attempt any 15 questions from questions 1 to 21

- 1 The command used to give a heading "Name" to the X-axis of a graph is _____ 1
 - a. matplotlib.pyplot.xlabel("Name")
 - b. matplotlib.pyplot.xtitle("Name")
 - c. matplotlib.pyplot.xlabel(Name)
 - d. matplotlib.pyplot.xtitle(Name)
- 2 Expand : (a) ARPANET (b) VoIP 1
- 3 Which of the following command will display the number of non NaN values in a Pandas Series Salary ? 1
 - a. print(count(Salary))
 - b. print(Salary.count())
 - c. print(Salary.len())
 - d. print(len(Salary))
- 4 State True or False : 1
 - (i) Publishing Rumours hurting Religious sentiments is a Cyber Crime, according to IT Act of India.
 - (ii) A copyright is automatically granted to authors or creators of content.

- 5 Give the output of the following SQL command: 1
SELECT ROUND(6712.4675,-3);
(a) 6700
(b) 6712.468
(c) 7000
(d) 6712.47
- 6 Which of the following is an example of Math function in SQL ? 1
(a) SUM()
(b) MAX()
(c) MOD()
(d) LEN()
- 7 Which action was penalized by Section 66 (A), an Amendment to the IT Act, introduced 1
in the year 2008?
- 8 Given two Series A and B, Write a Python command to display the remainder obtained 1
when B is divided by A.
- 9 _____ is known as "The Law of Internet". 1
- 10 In a DataFrame, _____ attribute gives the index of the rows and columns. 1
- 11 _____ is a general term which refers to defaming / intimidating / harassing a 1
person using digital devices.
- 12 _____ attribute can be used to check if a Series has a NaN value. 1
- 13 Switch is an intelligent hub. Why? 1
- 14 _____ is a device that transmits data packets in a network using the shortest path. 1
- 15 In which of the following topology, a node can be easily added? 1
a. Bus topology
b. Star topology
c. Mesh topology
- 16 Which term describes a software component, which is a complete program by itself, that 1
adds a specific feature to an existing program?
- 17 Which amongst the following is not an example of browser? 1
a. Edge
b. Firefox
c. Konqueror
d. Malwarebytes
- 18 In the URL, <https://www.w3schools.com/python/default.asp>, which term describes 1
www.w3schools.in?
- 19 UCASE() and _____ perform the same function in SQL. 1

- 20 Which SQL Command is used to remove a column / field from a table? 1
- 21 Which of the following graph is appropriate using matplotlib pyplot interface in Python to display category wise data? 1
- Bargraph
 - Lineplot
 - Histogram
 - None of these

Section - II

Both the case study based questions (22 & 23) are compulsory. Attempt any four sub parts from each question. Each sub question carries 1 mark.

- 22 Consider the following data frame Student, which contains the marks of the students in two tests (T1 and T2) and answer any four questions from (i) to (v) 4

| | Name | Section | T1 | T2 |
|---|----------|---------|----|----|
| 1 | Deepak | A | 31 | 20 |
| 2 | Raviraj | B | 15 | 28 |
| 3 | Manish | A | 24 | 5 |
| 4 | Raveena | B | 12 | 33 |
| 5 | Shraddha | C | 37 | 23 |

- (i) Which of the following command(s) will display the total number of elements in the above data frame? 1

- `print(Student.size)`
- `print(Student.size())`
- `print(Student.len())`
- `print(Student.len)`

- (ii) Which command(s) gives the following output : 1

| | Name | Section | T1 | T2 |
|---|---------|---------|----|----|
| 2 | Raviraj | B | 15 | 28 |
| 3 | Manish | A | 24 | 5 |

- `print(Student.loc[2:3])`
- `print(Student.loc[1:2])`
- `print(Student.loc[2:3, :])`
- `print(Student.loc[2:4, :])`

- (iii) The Teacher wants to add a column Attendance with values 89,82,78,65,89 to the DataFrame. Help him to choose the command(s) to do so. 1

- `Student.loc['Attendance']=[89,82,78,65,89]`
- `Student['Attendance']=[89,82,78,65,89]`
- `Student.column=[89,82,78,65,89]`
- Both (a) and (b) are correct

- (iv) Which of the following statement(s) will display the details of B section students?

1
- a) `print(Student[Student['Section']=='B'])`
 b) `print(Student.loc[Student[Section]=='B'])`
 c) `print(Student.loc[Student.'Section']=='B'])`
 d) `print(Student[Student.Section=='B'])`
- (v) The Teacher wants to get the highest marks in first test (T1). Help him to get the correct command(s) from the given options.

1
- a) `print(max(Student))`
 b) `print(Student['T1'].max())`
 c) `print(Student.max())`
 d) `print(max(Student['T1']))`

23 Consider the table GAMES given below :

4

| GCode | GName | Number | PrizeMoney | ScheduleDate | City |
|-------|--------------|--------|------------|--------------|---------|
| 1001 | Relay 100x4 | 14 | 10000 | 12-Jan-2022 | Delhi |
| 1002 | High Jump | 10 | 8000 | 10-Dec-2021 | Chennai |
| 1003 | Shot Put | 12 | 6000 | 04-Feb-2022 | Delhi |
| 1005 | Long Jump | 12 | 12000 | 01-Jan-2022 | Mumbai |
| 1008 | Discus Throw | 16 | 5000 | 15-Dec-2021 | Chennai |

GCode = Game Code
 GName - Game Name
 Number - Number of Players
 PrizeMoney - amount of Prize money
 ScheduleDate - Date on which the game is scheduled
 City - City in which the game is scheduled

- (i) State the command(s) that gives the following output:

1

| GCode | GName |
|-------|--------------|
| 1002 | High Jump |
| 1008 | Discus Throw |

- i. `select GCode, GName from GAMES where Number<>12 and PrizeMoney<10000;`
 ii. `select GCode, GName from GAMES where Number<>12 or PrizeMoney<10000;`
 iii. `select GCode, GName from GAMES where Number in (16, 10, 14) and PrizeMoney<10000;`
 iv. `select GCode, GName from GAMES where Number!=12 or PrizeMoney<10000;`

- Choose the correct option
- a) (i) and (iv)
 b) (i) and (iii)
 c) Only (i)
 d) Only (iv)
 e) Only (iii)

- (ii) Keerthana has given the following command to get the average prize money for the games scheduled in the year 2022, for each city. 1
 Select City, Average(prize) group by city having year=2022;
 But she did not get the desired result. Help her to get the correct command.
- Select City, Avg(PrizeMoney) from GAMES where year(ScheduleDate)=2022;
 - Select City, Average(PrizeMoney) group by City from GAMES having year(ScheduleDate) = 2022;
 - Select City, Avg(PrizeMoney) from GAMES where year(ScheduleDate)=2022 group by City;
 - Select City, Average(PrizeMoney) from GAMES where year(ScheduleDate)=2022 group by City;

- (iii) What is the output of the following command ? 1
 Select GName, Number, PrizeMoney, City from GAMES order by PrizeMoney desc;
 a)

| GCode | GName | Number | PrizeMoney | ScheduleDate | City |
|-------|--------------|--------|------------|--------------|---------|
| 1001 | Relay 100x4 | 14 | 10000 | 12-Jan-2022 | Delhi |
| 1002 | High Jump | 10 | 8000 | 10-Dec-2021 | Chennai |
| 1003 | Shot Put | 12 | 6000 | 04-Feb-2022 | Delhi |
| 1005 | Long Jump | 12 | 12000 | 01-Jan-2022 | Mumbai |
| 1008 | Discus Throw | 16 | 5000 | 15-Dec-2021 | Chennai |

b)

| GName | Number | PrizeMoney | City |
|--------------|--------|------------|---------|
| Relay 100x4 | 14 | 10000 | Delhi |
| High Jump | 10 | 8000 | Chennai |
| Shot Put | 12 | 6000 | Delhi |
| Long Jump | 12 | 12000 | Mumbai |
| Discus Throw | 16 | 5000 | Chennai |

c)

| GName | Number | PrizeMoney | City |
|--------------|--------|------------|---------|
| Discus Throw | 16 | 5000 | Chennai |
| Shot Put | 12 | 6000 | Delhi |
| High Jump | 10 | 8000 | Chennai |
| Relay 100x4 | 14 | 10000 | Delhi |
| Long Jump | 12 | 12000 | Mumbai |

d)

| GName | Number | PrizeMoney | City |
|--------------|--------|------------|---------|
| Long Jump | 12 | 12000 | Mumbai |
| Relay 100x4 | 14 | 10000 | Delhi |
| High Jump | 10 | 8000 | Chennai |
| Shot Put | 12 | 6000 | Delhi |
| Discus Throw | 16 | 5000 | Chennai |

- (iv) Help Sameer to choose the command to get the earliest schedule date.
- Select min(ScheduleDate) from GAMES;
 - Select max(ScheduleDate) from GAMES;
 - Select * from GAMES group by ScheduleDate;
 - Select GName, max(ScheduleDate) from GAMES;
- (v) State the command(s) to get the city and the highest prize money of the games, for the cities which have scheduled more than one game. 1
- Select City, max(PrizeMoney) from GAMES group by City;
 - Select City, max(PrizeMoney) from GAMES group by City where number>1;
 - Select City, max(PrizeMoney) from GAMES group by City where count(number)>1;
 - Select City, max(PrizeMoney) from GAMES group by City having count(*)>1;

Part -B

Section - I

- 24 Write a Python Program to create the following Series S, which shows the Code (as index) and Price of Products. 2

| | Price |
|------|-------|
| A101 | 350 |
| B221 | 434 |
| A132 | 376 |
| C004 | 125 |

- 25 Distinguish between where and having clause in SQL with an example for each. 2

(OR)

What do you mean by aggregate functions in SQL ? Name any two of them. How are they different from other in-built functions in SQL. Explain with an example.

- 26 Given a string in SQL "Latest"
Write SQL Commands to display 2

- "test"
- "Late"

- 27 Given the following Series Object M, with name (as index) and marks of the students 2

| | |
|--------|----|
| Sharan | 82 |
| Keshav | 78 |
| Anil | 56 |
| Reham | 67 |

- Write the Python code to name the series as Term1
- Write the Python code to display the names of the students whose marks are below 60.

- 28 Rohan created a table SAMPLE with 8 records. He gave the following command - S1
Select count(*) from SAMPLE;
Then he gave the following command - S2
Select count(Name) from SAMPLE;
He got the output 5. 2

Answer the following questions based on the above :

- (i) What is the output of the first command S1 ?
- (ii) What do you infer based on the output of the two commands S1 and S2 ?

- 29 Write SQL commands to perform the following : 2
- (a) To round the number 6754.4782 to 3 decimal places
 - (b) To get the result for 34^4

(OR)

Given a number 867.45, Write SQL commands to get the following output :

- (a) 870.45
- (b) 867

- 30 Consider the following data frame Product 2

| | Name | Cost |
|------|-----------|------|
| S001 | Treadmill | 270 |
| S120 | Cycle | 108 |
| S234 | Stepper | 134 |

Write Python commands to do the following:

- (i) To add a column Qty with values 5, 8 and 7.
- (ii) To delete the details of the product with index S120 from the Dataframe.

- 31 Fill in the blanks: 2
- (i) Skype is an example of _____ app.
 - (ii) Msn messenger is a _____ software.
 - (iii) An e-commerce site, in general, contains _____ type web pages.
 - (iv) _____ are messages a web server transmits to a web browser to keep track of user's activities, to prepare customized web pages.

- 32 Explain any four ways in which the confidentiality of information can be maintained in internet. 2

- 33 Reena is doing an assignment in Cyber Safety. She searched for the topic using internet and got some pictures and information. Suggest any four ways in which she can use them appropriately to avoid plagiarism. 2

Section - II

- 34 Consider two objects p and q, where p is a Series and q is a list. Both have values 20, 12, 35, 11. 3

What will be the result of the following statements (a) and (b)

(a) print(p+5)
 (b) print(q+5)
 Justify your answer.

35 What do you understand by Netiquette ? List any four of them.

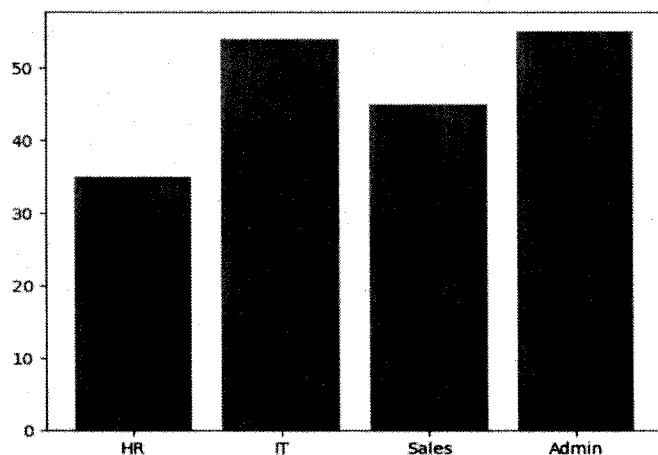
3

(OR)

What is meant by Intellectual Property Rights ? What is the ethical issue in it ? Why do you think it must be protected ?

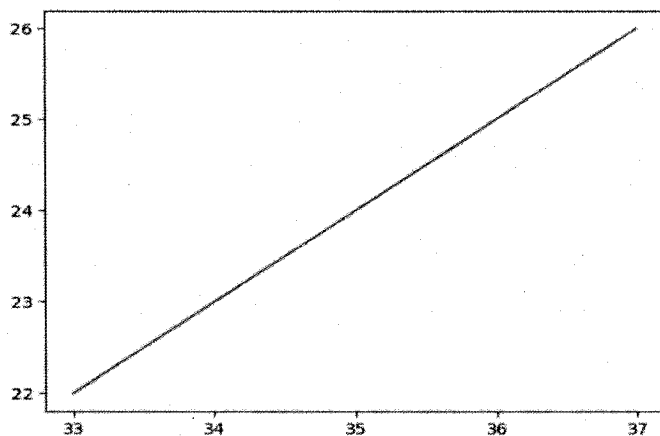
36 Write the Python code to display the following bar graph representing the number of employees in each department.

3



(OR)

Write the Python code to plot the following graph.



37 Given the following table PRODUCTS in SQL

3

| I_Code | Name | Qty | Price | Category |
|--------|--------|-----|-------|-------------|
| S101 | Pen | 25 | 10 | Stationery |
| E110 | LCD TV | 12 | 285 | Electronics |
| S230 | Pencil | 40 | 2 | Stationery |

Write SQL commands to perform the following on the above table

- To remove the details of the items whose names end with 'n'
- To display the details of the items whose price is in the range 100 to 300 in descending order of price.
- To display the highest and least quantity for each category along with category.

Section - III

38 Write a Python Pandas Program to create the following DataFrame Employee

5

| | Eno | Name | Salary | Bonus |
|---|-----|--------|--------|-------|
| 1 | 121 | Vijay | 5000 | 900 |
| 2 | 231 | Rachna | 4580 | 1200 |
| 3 | 342 | Kevin | 5100 | 800 |

Include code in the Program to perform the following operations :

- Find the least Bonus amount.
- Display the details of employees whose Bonus is not 1200.
- Display Eno and Salary of Vijay and Kevin.

39 Write the SQL functions which will perform the following operations :

5

- To display the date from the current date
- To display the starting position of 'put' in the text 'Computer'
- To remove the trailing spaces from the text ' Best Wishes '
- To display the number of letters in your first name (FName)
- To display the square of a number A

(OR)

Consider a table SPORTS with the following data :

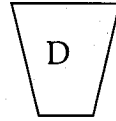
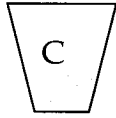
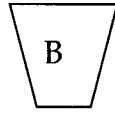
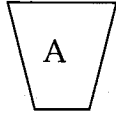
| PID | Name | Matches | Points | DOJ |
|-----|--------------|---------|--------|------------|
| A01 | Neena Sharma | 18 | 210 | 19-10-2019 |
| B04 | Nisha Kumar | 30 | 340 | 12-02-2018 |
| A11 | Ajay Gupta | 20 | 278 | 23-08-2019 |

Write SQL Queries using SQL functions to perform the following operations :

- Display the names of the players who have 'sh' as their 3rd and 4th letters in their names.
- Display the Id and names in lower case for the players who have joined the team in the month of 'May'
- Display the last three letters of the Player names.
- Display the remainder when points are divided by Matches for each player.
- Display the name of the weekday of the date of join for the player who has played more than 20 matches.

40 GCS Company has 4 wings of buildings as shown in the diagram :

5



The distance between various buildings are :

| | |
|--------|-------|
| A to B | 30 m |
| D to C | 120 m |
| B to D | 15 m |
| C to B | 40 m |
| A to D | 80 m |

Number of computers in each of the wing :

| | |
|---|----|
| A | 20 |
| B | 40 |
| C | 35 |
| D | 75 |

The Company has decided to connect the wings.

As a network administrator, answer the following questions :

- (i) In which building / Wing, the Server has to be placed ? Why ?
- (ii) Give a suitable cable layout for connecting various wings.
- (iii) Suggest the placement of the following devices with justification -
(a) Repeater (b) Switch / Hub
- (iv) The company is planning to link its head office situated in New Jersey in United States of America with its branch office in Mumbai. Name the type of Network formed.
- (v) Which of the following medium can be used to connect to the offices in New Jersey and Mumbai ?
(a) Infrared (b) Ethernet cable (c) Satellite link

End of the Question Paper