



INDIAN SCHOOL MUSCAT
FINAL EXAMINATION
INFORMATICS PRACTICES

CLASS: XII

Sub. Code: 065

Time Allotted: 3 Hrs.

24.01.2021

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 When plotting a histogram using hist() function, the number of data points that fall within a specific interval is given by _____ argument. 1
 - a. histtype
 - b. cumulative
 - c. bins
 - d. x
- 2 Which amongst the following is not an example of browser? 1
 - a. Edge
 - b. Firefox
 - c. Konqueror
 - d. Malwarebytes
- 3 Which of the following command will display the first and second rows of a Pandas Series Score? 1
 - a. print(Score.loc())
 - b. print(Score.Head())
 - c. print(Score.head())
 - d. print(Score.head(2))
- 4 LOWER() and _____ perform the same function in SQL. 1

- 5 Give the output of the following SQL command: 1
SELECT MID("BEST WISHES",3,5);
(a) STWI
(b) WIS
(c) ST WI
(d) T WIS
- 6 Which of the following is an example of single row function in SQL? 1
(a) SUM()
(b) MAX()
(c) ROUND()
(d) MIN()
- 7 Which Section of the IT Act gave authorities the power to 'intercept or monitor or 1
decrypt any information through any computer resource' ?
- 8 Given two Series A and B, Write the Python command to display the quotient obtained 1
when A is divided by B.
- 9 Which SQL Command is used to display the names of the tables in a database ? 1
- 10 In a DataFrame, _____ attribute gives the numpy representation of the contents. 1
- 11 _____ is defined as discarded computers, office electronic equipment, mobile 1
phones etc.
- 12 The result of an arithmetic operation between two pandas Series of different index will 1
result in _____
- 13 _____ is a device that connects dissimilar networks. 1
- 14 _____ are small bits of data stored as text files on a browser. 1
- 15 In the URL, <https://www.w3schools.com/python/default.asp>, which term describes 1
https ?
- 16 Which term describes the tools that are integrated into the web browser, to add a 1
particular functionality ?
- 17 Expand : i. SLIP ii. FTP 1
- 18 In which of the following topology, fault diagnosis is easy ? 1
a. Bus topology
b. Mesh topology
- 19 State True or False : 1
(i) Attack upon an individual or group through the use of electronic means is known
as Cyber bullying.
(ii) Not including the subject line in an email is considered as one of the netiquette.

20 _____ is known as "The Law of Internet".

21 Which of the following graph is appropriate using matplotlib pyplot interface in Python to describe distributions on a given set of data ?

- a. Bargraph
- b. Lineplot
- c. Histogram
- d. 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 Sales, which contains the sales in four quarters by the salesmen and answer any four questions from (i) to (v)

	Name	Q1	Q2	Q3	Q4
1	Kavin	1000	1200	1225	2000
2	Meera	960	1005	1150	1680
3	Vaishak	1050	1150	1230	1350
4	Nisha	1090	1160	1370	1600
5	Wilson	850	980	1280	1790

(i) Which of the following command(s) will display the total number of salesmen in the data frame ?

- a. `print(Sales.size)`
- b. `print(Sales.len())`
- c. `print(len(Sales))`
- d. `print(size(Sales))`

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

	Name	Q2	Q3
3	Vaishak	1150	1230
5	Wilson	980	1280

- a. `print(Sales.iloc[2::2, 2:4])`
- b. `print(Sales.iloc[3:5:2, 1:3])`
- c. `print(Sales.iloc[1::2, 1:3])`
- d. `print(Sales.iloc[2:5:2, 2:4])`

(iii) The Manager wants to remove the details of the third salesman Vaishak from the DataFrame. Help him to choose the command(s) to do so.

- a) `Sales.drop(2)`
- b) `Sales.drop(3)`
- c) `Sales.drop(2, inplace=True)`
- d) `Sales.drop(3, inplace=True)`
- e) Both (c) and (d) are correct

(iv) Which of the following statement(s) will display the details of salesman whose sales is below 1000 in Quarter 4 ?

- a) `print(Sales[Sales['Q4']<1000])`
- b) `print(Sales.loc[Sales[Q4]<'1000'])`
- c) `print(Sales[Sales.Q4<1000])`
- d) `print(Sales.loc[Sales.'Q4'<1000])`

(v) The Manager wants to get the total sales in first Quarter (Q1). Help him to get the correct command(s) from the given options.

- a) `print(sum(Sales))`
- b) `print(Sales['Q1'].sum)`
- c) `print(Sales['Q1'].sum())`
- d) `print(sum(Sales['Q1']))`

23 Consider the table FLIGHTS given below :

FNum	FCity	TCity	NumSeats	TravelDate	Cost
WY100	Delhi	Mumbai	5	12-Jan-2021	3500
AI214	Chennai	Delhi	6	10-May-2021	2800
AI326	Delhi	Chennai	8	04-Feb-2021	2760
WY222	Mumbai	Delhi	2	01-Jan-2021	3200
SL456	Chennai	Mumbai	10	15-Apr-2021	3000

FNum – Flight Number

FCity – From City

TCity – To City

NumSeats – Number of Seats

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

FNum	NumSeats
AI214	6
SL456	10

- i. `select FNum, NumSeats from FLIGHTS where NumSeats>5 and FCity="Chennai";`
- ii. `select FNum, NumSeats from FLIGHTS where NumSeats>5 or FCity="Chennai";`
- iii. `select FNum, NumSeats from FLIGHTS where NumSeats>5 and TCity in ("Delhi", "Mumbai");`
- iv. `select FNum, NumSeats from FLIGHTS where NumSeats>5 or TCity in ("Delhi", "Mumbai");`

Choose the correct option

- a) (i) and (iv)
- b) (i) and (iii)
- c) (ii) and (iii)
- d) (ii) and (iv)
- e) Only (i)

(ii) Kanchan has given the following command to get the average cost for each To city (TCity field), for the To city names with the letter 'a' in it.

Select City,Average(Cost) group by city having city = 'a';
But she did not get the desired result. Help her to get the correct command.

- Select TCity, Avg(Cost) from FLIGHTS where City like '%a%';
- Select TCity, Average(Cost) group by City from FLIGHTS having TCity like '%a%';
- Select TCity, Avg(Cost) from FLIGHTS where TCity like '%a%' group by TCity;
- Select TCity, Average(Cost) from FLIGHTS where TCity like '%a%' group by TCity;

(iii) Help Sakshi to choose the command that displays the number of seats (NumSeats) with Travel date after 1st May, 2021.

- Select NumSeats from FLIGHTS where Travel Date > '1st May 2021';
- Select NumSeats from FLIGHTS where Travel Date > 1/05/2021;
- Select NumSeats from FLIGHTS where TravelDate > '01-May-2021';
- Select NumSeats from FLIGHTS where TravelDate > 2021-05-01;

(iv) What is the output of the following command ?

Select FNum, NumSeats, Cost from FLIGHTS where FCity <> 'Delhi' order by Cost;

a)

FNum	NumSeats	Cost
AI214	6	2800
SL456	10	3000
WY222	2	3200

b)

FNum	NumSeats	Cost
WY222	2	3200
SL456	10	3000
AI214	6	2800

c)

FNum	NumSeats	Cost
WY100	5	3500
WY222	2	3200
SL456	10	3000

d)

FNum	NumSeats	Cost
SL456	10	3000
WY222	2	3200
WY100	5	3500

- (v) State the command(s) to get the originating city (FCity) and the least air fare (Cost) for every originating city which has at most 2 records / flights.
- Select FCity, min(Cost) from FLIGHTS group by FCity having count(*) <= 2;
 - Select FCity, min(Cost) from FLIGHTS group by FCity having count(*) >= 2;
 - Select FCity, max(Cost) from FLIGHTS group by FCity having max(cost) <= 2;;
 - Select FCity, min(Cost) from FLIGHTS group by FCity having min(cost) >= 2;;

Part -B
Section - I

- 24 Given the following Series Object Emp, with name (as index) and department of the employees

Shekhar	HR
Kiran	IT
Arnav	HR
Rakshit	Sales

- Write the Python code to display the employees who are not from Sales department.
- Write the Python code to display the last 3 rows.

- 25 Zaheer created a table SCHOOL with 12 records. He gave the following command (S1)
Select count(Rollno) from SCHOOL; # Command - S1
He got the output 10.
Then he gave the following command (S2)
Select count(Name) from SCHOOL; # Command - S2
He got the output 7.

Answer the following questions based on the above :

- What will be the output of the following command ?
Select count(*) from SCHOOL;
- What do you infer based on the output of the two commands S1 and S2 ?

- 26 Given a string in SQL "Encouragement"
Write SQL functions to display
- The position of the word "rage"
 - The word "courage"

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

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.

- 28 Write SQL commands to perform the following :
- To round the number 789.534 to the nearest integer
 - To get the remainder when 87 is divided by 4

OR

Given a number 234.567, Write SQL commands to get the following output :

- (a) 230
- (b) 234.6

29 Consider the following data frame GYM

2

	Name	Cost
S001	Treadmill	270
S120	Cycle	108
S234	Stepper	134

Write Python commands to do the following:

- (i) To add a Product with id S278, Name Twister, Cost 145.
- (ii) To change the cost of the Product with id S120 to 118.

30 Give any two differences between :

2

- (i) Email and Chat
- (ii) Add-ons and plug-ins

31 List any four benefits of recycling E-waste.

2

32 Write a Python Program to create the following Series Score

	Points
A1	35
B2	34
A3	76
C5	12

33 Lokesh is an avid internet user, frequently using social networking sites, visiting blogs etc. List any four netiquettes for him.

2

Section - II

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

3

OR

What do you understand by the following terms ?

- (a) Ego surfing
- (b) Blog streaking
- (c) You Tube-Narcissism

35 Consider two objects X and Y, where X is a Series and Y is a list. Both have values 24, 67, 35, 71.

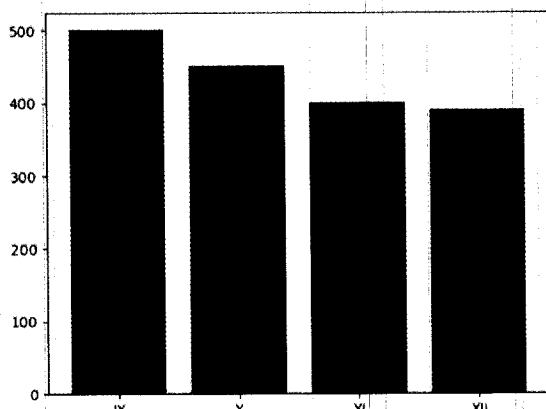
What will be the result of the following statements (a) and (b)

- (a) print(X+3)
- (b) print(Y+3)

Justify your answer.

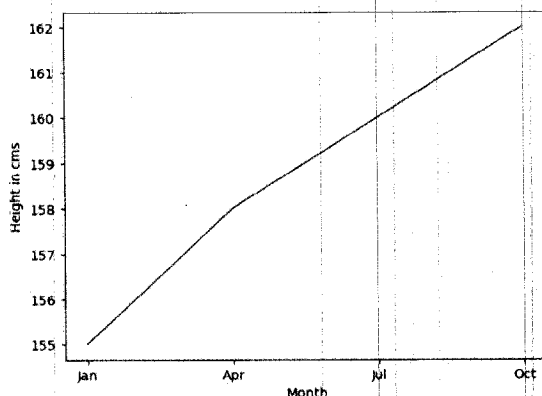
- 36 Write the Python code to display the following bar graph representing the number of students in various classes.

3



OR

Write the Python code to plot the following graph, which shows Sanjay's height in centimeters in each month.



- 37 Given the following table BOOKS in SQL

3

B_Code	Name	Qty	Price	Category
F287	Anxious People	5	100	Fiction
L216	Pride and Prejudice	12	285	Literature
H678	Deep Nutrition	10	167	Health

Write SQL commands to perform the following on the above table

- To increase the price of Literature category book by 50
- To display the Code and Name of Health category books whose name has the letter 'd' in ascending order of Quantity (Qty Field)
- To display the cheapest price in each category along with category for the categories in which total cost of books is above 200.

Section - III

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

5

	Eno	Name	Salary	Bonus
1	121	Trisha	5000	900
2	231	Rekha	4580	1200
3	342	Sharon	5100	800

Include code in the Program to perform the following operations :

- (i) Find the highest Bonus amount.
- (ii) Display the details of employees whose Bonus is 900.
- (iii) Display Eno and Salary of Rekha and Sharon.

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

- (i) To display the number of letters in your surname (SName)
- (ii) To display the current month
- (iii) To get 'Positive' from the text ' Positive '
- (iv) To find X^5
- (v) To display the last 3 letters from Address

OR

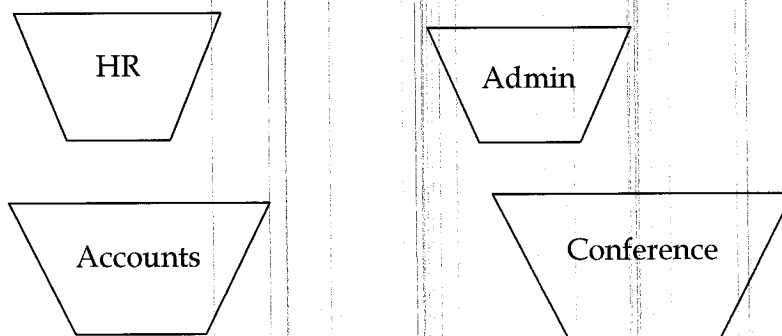
Consider a table PLAYERS with the following data :

PID	Name	Matches	Points	DOJ
A01	Shakthi Singh	18	210	19-10-2019
B04	Kevin Paul	30	340	12-02-2018
A11	Abdul Hasan	20	278	23-08-2019

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

- (a) Display the names of the players who have 'v' and 'n' as their 3rd and 5th letter in their names.
- (b) Display the Id and names in upper case for the players who have joined the team in the year 2018.
- (c) Display the first four letters of the Player names.
- (d) Display the name of the month of the date of join for the player who has played less than 12 matches.
- (e) Display the 3rd and 4th letters of the Player names who have got more than 300 points.

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



The distance between various buildings are :

HR to Admin	40 m
Conference to Accounts	105 m
Admin to Conference	25 m
Accounts to Admin	60 m
HR to Conference	90 m

Number of computers in each of the block :

HR	20
Admin	40
Accounts	35
Conference	75

The Company has decided to connect all the blocks.

As a network administrator, answer the following questions :

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

End of the Question Paper