XII – IP – PREBOARD 1 (QP) (70 MARKS)

General Instructions:

- The paper is divided into 5 sections –A,B,C,D and E
- Section A has 18 questions carrying 01 mark each.
- Section B has 07 Very Short Answer type questions carrying 02 marks each.
- Section C has 05 Short Answer type questions carrying 03 marks each.
- Section D has 03 Long Answer type questions carrying 05 marks each.
- Section E has 02 questions carrying 04 marks each.
- Internal Choice has given in questions 19,22,26,30,31,33,34(d),35(d).
- All programming questions are to be answered using Python Language only.

SECTION A

Q1. The command used to display the title for x-axis to a graph is……

a) plt.xtitle( ) b)plt.xaxis( ) c)plt.xlabel( ) d)plt.saxistitle( )

Q2. Which of the following are modules/libraries in Python?

a) NumPy b)Pandas c)Matplotlib d)All of the above

Q3. If column "Fees" contains the data set (5000,8000,7500,5000,8000), what will be the output after the execution of the given query?

SELECT SUM (DISTINCT Fees) FROM student;

a) 20500 b)10000 c) 20000 d) 33500

Q4. Given a Pandas series called sequences, the command which will display the first 4 rows is _

a) print(sequences.head(4)) b) print(sequences.Head(4))

c) print(sequences.heads(4)) d) print(sequences.Heads(4))

Q5. The number of rows in a relation in SQL is known as

a) cardinality b) degree c) tuple d) attribute

Q6. The command used to give a heading to a graph is

a) plt.show( ) b) plt.plot( ) c) plt.xlabel( ) d) plt.title( )

Q7. Write the output of the following SQL command select round (85.86);

a) 85.00 b)85.87 c) 85.0 d) 86

Q8. Exploring appropriate and ethical behaviors related to online environments and digital media.

a) Cyber ethics b) Cyber Security c) Cyber Safety d) Cyber Law

Q9. Which of these is not a communication channel?

a) Satellite b) Microwave c) Radio wave d) Wi-Fi

Q10. Which of the following is not 'open source' software?

a) Linux b) Ubuntu c) Open Office d)Windows 10

Q11. _____ is a type of software designed to help the user's computer detect viruses and avoid them.

a) Malware b) Adware c) Antivirus d) Both b and c

Q12. Which among the following is a DDL command in SQL?

a) SELECT b) INSERT c) ALTER d) UPDATE

Q13. Which keyword is used with ORDER BY clause to sort the data.

a) ASCEN b) DESC c) FIELD d) None of these

Q14. Which of the following thing can be data in Pandas?

a) a python dict b) an ndarray c) a scalar value d) all of the above

Q15. Bluetooth is an example of _____

a) Personal Area Network b) Local Area Network c)VPN d)Wide Area Network

Q16. Write the output of the following SQL command: SELECT ROUND(199.2936, 1);

a) 199 b)199.3 c) 190 d)199.294

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): The practice of taking someone else's work or ideas and passing them off as one's own
REASONING(R): Using graphs, charts, figures, or images without reference of source

Q18. Assertion (A): - The Internet is a collection of interconnected computer networks linked by transmission medium such as copper wires, fiber-optic cables, wireless connections etc
Reasoning (R):- World wide web is a collection of interconnected documents

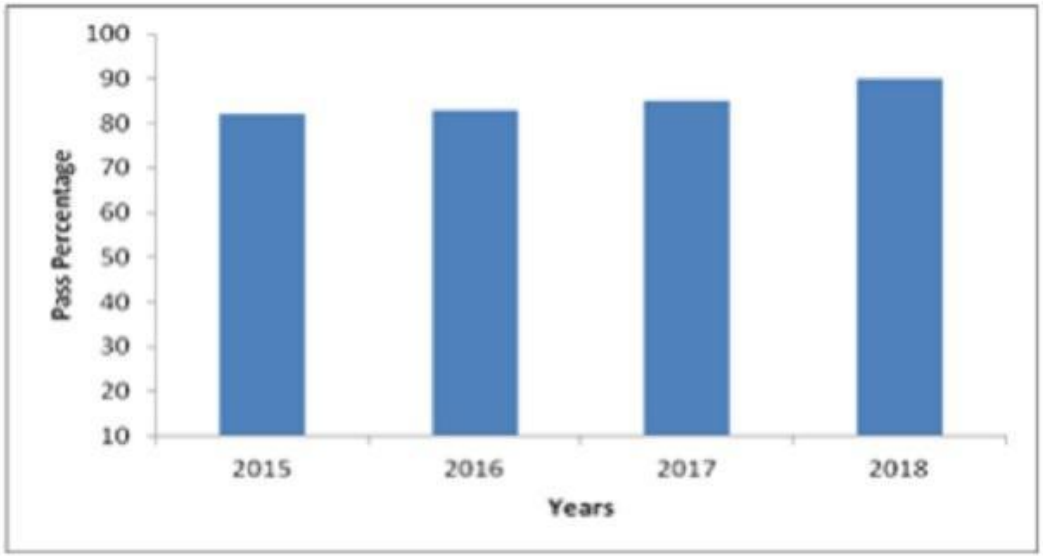
SECTION B

Q19. Expand the following terms related to Computer Networks:
a. HTTP b. POP3 c. FTP d.VoIP

OR

Differentiate between static and dynamic web pages.

Q20. Write a code to plot a bar chart to depict the pass percentage of students in CBSE exams for the years 2015 to 2018 as shown below.



Q21. What is series? Explain with the help of an example.

Q22. Write a python program to create a dataframe with appropriate headings from the list given below:
['S101', 'Amy', 70], ['S102', 'Bandhi', 69], ['S104', 'Cathy', 75], ['S105','Gundaho', 82]

OR

Write a small python program to create a dataframe with headings (a and b) from the list given below :
[[1,2],[3,4],[5,6],[7,8]]

Q23. Sutapa received an email from her bank stating that there is a problem with her account. The email provides instructions and a link, by clicking on which she can logon to her account and fix the problem. Help Sutapa by telling her the precautions she should take when she receives these type of emails.

Q24. What are some health concerns related to the excessive use of technology?

Q25. Ms Samtha has many electronics gadgets which are not usable due to outdated hardware and software. Help her to find any three best ways to dispose the used electronic gadgets.

SECTION C

Q26. Consider the data frame and answer the questions.

	TCS	Wipro	Infosys	IP
Qtr1	80	88	66	74
Qtr2	98	67	75	98
Qtr3	77	93	89	92
Qtr4	65	50	40	80

(i) Write python code to display the profit rate of all quarters of Infosys company.
(ii) Write python code to display the profit rate of Qtr3 of all companies
(iii) Write the output of the python code : print(DF1.iat[1,1])

OR

Consider the given DataFrame "stock"

	APPLIANCE_NAME	DISCOUNT	PRICE
0	REFRIGERATOR	15	19800
1	SMART PHONE	20	22300
2	TELEVISION	22	12900
3	AIR CONDITIONER	15	23500
4	WASHING MACHINE	18	18900
5	WASHING MACHINE	15	20110

Write the commands for the following:
(i) Add a new Electronics item named 'TELEVISION',12 having price 35600.
(ii) Add a column called Special_Quantity with the following data: [62,26,12,32,48,52,35].
(iii) Remove the column Special_Quantity.

Q27. Write a program to create a Series with percentiles of students, print all the elements that are above the 75th percentile.

Q28. On the basis of following table answer the given questions:

Table: **CUSTOMER_DETAILS**

CUST_ID	CUST_NAME	ACCT_TYPE	ACCUMLT_AMT	DOJ	GENDER
CNR_001	Manoj	Saving	101250	1992-02-19	M
CNR_002	Rahul	Current	132250	1998-01-11	M
CNR_004	Steve	Saving	18200	1998-02-21	M
CNR_005	Manpreet	Current	NULL	1994-02-19	M

(i) Write the sql query to delete the record of customer Manpreet.
(ii) What will be the output of the following query : Select max(DOJ) From Customer_Details;
(iii) Write the sql query to delete the row from the table where customer has no accumulated amount.

Q29. Consider the following table "Peripherals". Write Outputs for the given SQL queries.

SNo	Pname	cost
1	Processor	6000
2	Harddisk	4000
3	Monitor	5500
4	Keyboard	550
5	Mouse	350
6	Speakers	900

(i) SELECT Pname, LENGTH(Pname) FROM PERIPHERALS;
(ii) SELECT CONCAT(Cost,Pname) FROM PERIPHERALS WHERE COST BETWEEN 500 AND 4000;
(iii) SELECT MID(Pname,2,4) FROM PERIPHERALS WHERE SNO>3;

Q30. Pratyush garments has recorded the following data into their register for their income from cotton clothes and jeans. Plot them on the line chart.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Cotton	450	560	400	605	580
Jeans	490	600	425	610	625

Apply following customization to the line chart while writing the program:
(i) Write a title for the chart "The Weekly Garment Orders".
(ii) Write the appropriate titles of both the axes.
(iii) Write code to Display legends.
(iv) Display your choice of colours for both the lines cotton and jeans.
(v) Use the line style-dotted for cotton and dashdot for jeans
(vi) Display plus markers on cotton and x markers of jeans.

OR

Write a program to analyze subject wise performance of a class students using bar chart.
Where subjects are English,Hindi,Telugu,Maths,Science and Social.
Subjects percentages are 85,50,65,100,70 and 60.
Display appropriate names for x axis, y axis and chart title.

SECTION D

Q31. Write the SQL functions which will perform the following operations:
i) To display the name of the month of the current date .
ii) To remove spaces from the beginning and end of a string, " Panorama ".
iii) To display the name of the day eg, Friday or Sunday from your date of birth, dob.
iv) To display the starting position of your first name(fname) from your whole name (name).
v) To compute the remainder of division between two numbers, n1 and n2

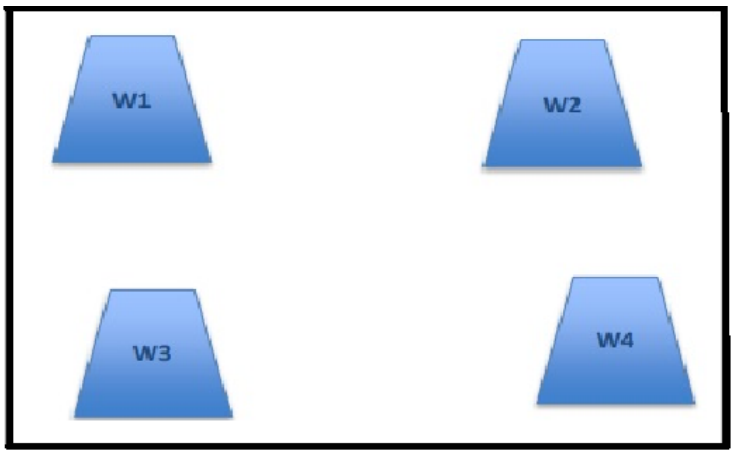
OR

Consider the following table STUDENT. Write SQL commands for the following statements.

Rollno	Name	Dob	Class	Gender	Hobby	Fees
1001	BHAVYA	2001-01-02	11	F	Painting	100
1002	AARDRA	2002-10-21	1	F	Drama	200
1003	AJITH	2004-12-11	8	M	Cooking	150
1004	ARJUN	2001-02-22	10	M	Cooking	250
1005	KAVYA	2005-10-12	8	F	Sports	100
1006	ANAND	2000-02-01	1	M	Drama	120
1007	ATHUL	2006-10-11	6	M	Sports	150
1008	NEERAJA	2003-11-21	9	F	Sports	100
1009	REHNA	2003-08-07	8	F	Painting	NULL
1010	VAISAKH	2001-12-11	10	M	Cooking	120

a. To display details of all the students in the descending order of their Name.
b. To print the average fee for each hobby
c. To increase the fees of Drama by 150 Rs
d. To store the fees of hobbies as 300 where fee is not available
e. To display the name of students who were born after '01-01-2005'

Q32. A company "Special Enterprises" in Mumbai has 4 wings of buildings as shown in the diagram :



Center to center distances between various Buildings:

W3 to W1 - 50m
W1 to W2 - 60m
W2 to W4 - 25m
W4 to W3 - 170m
W3 to W2 - 125m
W1 to W4 - 90m

Number of computers in each of the wing:

W1 - 150
W2 - 15
W3 - 15
W4 - 25

Computers in each wing are networked but wings are not networked. The company has now decided to connect the wings also.

i. Suggest a most suitable cable layout for the above connections.
ii. Suggest the most appropriate topology of the connection between the wings.
iii. The company wants internet accessibility in all the wings. Suggest a suitable technology.
iv. Suggest the placement of the following devices with justification

a)Repeater b)Hub / switch

v. The company is planning to link its head office situated in New Delhi with the offices in hilly areas. Suggest a way to connect it economically.

Q33. Write a program in Python Pandas to create the following DataFrame "batsman" from a Dictionary:

B NO	Name	Score1	Score2
1	Sunil Pillai	90	80
2	Gaurav Sharma	65	45
3	Piyush Goel	70	90
4	Kartik Thakur	80	76

Also Perform the following operations on the DataFrame (This code must be included within the program).

1) Add a column "Score3" with the values [87,65,82,93]
2) Delete the last row from the dataframe
3) Write a statement to display the DataFrame after all the given tasks completed.

Finally write the output of the program.

OR

Answer the following (a) and (b) questions based on CSV files.

(a) Naveen is working with CSV files. He is interested to create a DataFrame by importing a CSV file "employees.csv", which is located in address E:\MyCompany. While he is importing the file, he wanted to skip first 4 rows. Also write a statement to display the

dataframe. Write a program for this.

(b) Write a program to create the dataframe "Cust" with the following given data, and then to export the dataframe into csv file
(file name is : "customers.csv", location is : "D:\Business\2022.23")

Name	City
Prathap	Bhimavaram
Lokesh	Tenali
Lakshmi	Tenali
Sunitha	Bhimavaram

Here Name, City are column headings of the DataFrame.

SECTION E

Q34. Carefully observe the following table named 'stock':

Table : **Stock**

Pid	PName	Category	Qty	Price
1	Keyboard	IO	15	450
2	Mouse	IO	10	350
3	Wifi-router	NW	5	2600
4	Switch	NW	3	3000
5	Monitor	O	10	4500
6	Printer	O	4	17000

Write SQL queries for the following:
(a) To display the records in decreasing order of price.
(b) To display category and category wise total quantities of products.
(c) To display the category and its average price.
(d) To display the details of records whose PName starts with "Mo".

OR (this or option is only for **34.d** question only)

Differentiate between Where Clause and Having Clause.

Q35. Satyam, a database analyst has created the following table:

Table: **Student**

RegNo	SName	Stream	Optional	Marks
S1001	Akshat	Science	CS	99
S1002	Harshit	Commerce	IP	95
S1003	Devika	Humanities	IP	100
S1004	Manreen	Commerce	IP	98
S1005	Gaurav	Humanities	IP	82
S1006	Saurav	Science	CS	NULL
S1007	Bhaskar	Science	CS	95
S1007	Bhaskar	Science	CS	96

He has written following queries. Help him in predicting the output of the above given queries.
(a) select sum(MARKS) from student where OPTIONAL= 'IP' and STREAM= 'Commerce';
(b) select max(MARKS)+min(MARKS) from student where OPTIONAL= 'CS';
(c) select avg(MARKS) from student where OPTIONAL= 'IP';

(d) select length(SNAME) from student where MARKS is NULL;

OR (this or option is only for **35.d** question only)

Based on the above given table named 'Student', Satyam has executed following queries:

Select count(*) from student;

Select count(MARKS) from student;

Whether above both SQL statements generate the same output? If not, give proper reason.