

Please check that this question paper contains 35 Questions and has 07 Printed pages.

Roll No. \_\_\_\_\_

# D.A.V. PUBLIC SCHOOLS CG ZONE

## SAMPLE PAPER 9 -2023-24

### CLASS – XII

### SUBJECT: INFORMATICS PRACTICES

**Time Allowed: 3 Hours**
**Maximum Marks: 70**
**General Instructions:**

1. The question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 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.
8. All programming questions are to be answered using Python Language only.

### SECTION A

1.	_____ is a set of moral principles that governs the behaviour of a group or an individual and regulates the use of computers. a. Copyright b. Computer ethics c. Property rights d. Privacy law	1
2.	The term e-Waste can also be called as _____. a. WEEE b. WEST c. WET d. None of these	1
3.	Pandas is a _____. a. package b. language c. library d. software	1
4.	The term plagiarism is not related to _____. a. illegal software copy b. illegal use of patents c. stealing others E-mail passwords d. None of these	1
5.	Which of the following is not an aggregate function? a. AVG() b. ADD() c. MAX() d. COUNT()	1
6.	What type of error is returned by the following statement? <code>import pandas as pd</code> <code>d = pd.Series([1,2,3,4]), index = ['p', 'q', 'r'])</code> a. Value Error	1

	<p>b. Syntax Error  c. Name Error  d. Logical Error</p>	
7.	<p>Traditional symbols and signs can be protected as _____.</p> <p>a. patent  b. trademark  c. digital footprints  d. None of these</p>	1
8.	<p>To delete a DataFrame column using drop() method, the minimum number of parameters required is _____.</p> <p>a. 1  b. 2  c. 3  d. 4</p>	1
9.	<p>_____ are not uses of internet technology.</p> <p>a. Online shopping  b. Video conferencing  c. Online payment  d. Installation of software from a DVD</p>	1
10	<p>What is the significance of “ORDER BY” in the following SQL statement?</p> <pre> SELECT emp_id, fname, lname FROM person ORDER BY emp_id; </pre> <p>a. Data of emp_id will be sorted.  b. Data of emp_id will be sorted in descending order.  c. Data of emp_id will be sorted in ascending order.  d. All of the above</p>	1
11	<p>Robert is confused between the terms FOSS and OSS, the statement that clarifies it is</p> <p>a. FOSS is OSS that is free.  b. FOSS is not open source, but OSS is open source.  c. FOSS is to be bought, but OSS is not paid.  d. FOSS is limited period use, but OSS is free for unlimited period.</p>	1
12	<p>What is the significance of the statement “HAVING COUNT (emp_id)&gt;2” in the following MYSQL statement?</p> <pre> SELECT name, COUNT (emp_id), emp_no FROM department GROUP BY name HAVING COUNT (emp_id)&gt;2; </pre> <p>a. Filter out all rows whose total emp_id below 2.  b. Selecting those rows whose total emp_id&gt;2.  c. Both a and b.  d. None of the above.</p>	1
13	<p>Which of the following are health disorders caused by overuse of technology?</p> <p>a. DNA damage.  b. Lung cancer.  c. Damage of heart, liver and spleen.  d. All of these.</p>	1
14	<p>In files, there is a key associated with each record which is used to differentiate among different records. For every file, there is atleast one set of keys that is unique. Such key is called _____</p> <p>a. Unique key  b. Prime attribute  c. Index key  d. Primary key</p>	1
15	<p>The digital data trail we leave online intentionally is called _____</p>	1

.	a. Active digital footprints b. Passive digital footprints c. Current digital footprints d. None of these													
16	The default date format is _____ a. MM-DD-YYYY b. YYYY-MM-DD c. DD-MM-YYYY d. None of these	1												
17	<b>Assertion (A)</b> MAN might cover few buildings in a city and might either be private or public. <b>Reason (R)</b> MAN is a network which spans a physical area that is larger than WAN but smaller than LAN. a. Both A and R are true and R is the correct explanation of A. b. Both A and R are true and R is not the correct explanation of A. c. A is true but R is false. d. A is false and R is true.	1												
18	<b>Assertion (A)</b> DataFrame.count() function will display the sum of the values from the data frame. <b>Reason (R)</b> axis = 0, argument is to used to find sum column-wise. a. Both A and R are true and R is the correct explanation of A. b. Both A and R are true and R is not the correct explanation of A. c. A is true but R is false. d. A is false and R is true.	1												
<b>SECTION B</b>														
19	Expand the term related to computer networks a. HTTP b. NNTP c. ISP d. TCP/IP OR List some benefits of networking. Name any two components required for networking.	2												
20	Consider the given Series, a <table style="margin-left: auto; margin-right: auto;"><tr><td></td><td><b>Word</b></td></tr><tr><td>A1</td><td>Honesty</td></tr><tr><td>A2</td><td>Loyalty</td></tr><tr><td>A3</td><td>Charming</td></tr><tr><td>A4</td><td>Intelligent</td></tr><tr><td>A5</td><td>Wise</td></tr></table> Write a program in Python Pandas to create a Series.		<b>Word</b>	A1	Honesty	A2	Loyalty	A3	Charming	A4	Intelligent	A5	Wise	2
	<b>Word</b>													
A1	Honesty													
A2	Loyalty													
A3	Charming													
A4	Intelligent													
A5	Wise													
21	State differences between date functions NOW() and DAY() of MYSQL.	2												
22	Carefully observe the following code: <pre>import pandas as pd One = {'P':5000, 'Q':8000, 'R':12000, 'S':18000} Two = {'A':13000, 'B':14000, 'C':12000} totalSales = {1:One, 2:Two} df = pd.DataFrame(totalSales) print(df)</pre> Answer the following: a. List the index of DataFrame df. b. List the column names of DataFrame df.	2												
23	Give any two measures to avoid online scams.	2												
24	Complete the given Python code to get the required output as: 16 <pre>import _____ as np data = [1,4,9,16] series_data = np._____ (data)</pre>	2												

	<code>print(series_data[ _____ ])</code>																																											
25	<p>Given a code:</p> <pre>NumSeries = pd.Series ([12,14,16])</pre> <p>Write the Python command to:</p> <p>a. display the double of each element of Series. b. Display all odd values of Series.</p>	2																																										
<b>SECTION C</b>																																												
26	<p>Consider the given table Order:</p> <p>Table: Order</p> <table border="1"> <thead> <tr> <th>Orderno</th> <th>Orderdate</th> <th>CName</th> <th>Cloc</th> <th>Orders</th> <th>Payments</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>12/02/2008</td> <td>Avion</td> <td>Delhi</td> <td>100000</td> <td>90000</td> </tr> <tr> <td>2</td> <td>21/11/2008</td> <td>Parason</td> <td>Jaipur</td> <td>230000</td> <td>230000</td> </tr> <tr> <td>3</td> <td>15/10/2008</td> <td>Trident</td> <td>Raipur</td> <td>120000</td> <td>100000</td> </tr> <tr> <td>4</td> <td>13/01/2008</td> <td>Avion</td> <td>Jaipur</td> <td>240000</td> <td>240000</td> </tr> <tr> <td>5</td> <td>17/07/2008</td> <td>Trident</td> <td>Delhi</td> <td>340000</td> <td>310000</td> </tr> <tr> <td>6</td> <td>16/06/2008</td> <td>Nalco</td> <td>Chennai</td> <td>140000</td> <td>140000</td> </tr> </tbody> </table> <p>Write the SQL statements for the following based on above table Order.</p> <p>a. Display the maximum and minimum orders placed for each city. b. Find the average of Payments received by Cloc Jaipur. c. List all orders given between 01/01/2008 to 12/10/2008.</p>	Orderno	Orderdate	CName	Cloc	Orders	Payments	1	12/02/2008	Avion	Delhi	100000	90000	2	21/11/2008	Parason	Jaipur	230000	230000	3	15/10/2008	Trident	Raipur	120000	100000	4	13/01/2008	Avion	Jaipur	240000	240000	5	17/07/2008	Trident	Delhi	340000	310000	6	16/06/2008	Nalco	Chennai	140000	140000	3
Orderno	Orderdate	CName	Cloc	Orders	Payments																																							
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3	15/10/2008	Trident	Raipur	120000	100000																																							
4	13/01/2008	Avion	Jaipur	240000	240000																																							
5	17/07/2008	Trident	Delhi	340000	310000																																							
6	16/06/2008	Nalco	Chennai	140000	140000																																							
27	<p>Write a Python code to create a DataFrame with appropriate column headings from the list given below.</p> <p>[[P01, 'Sachin Tendulkar', 'India'], [P02, 'Brian Lara', 'West Indies'], [P03, 'Wasim Akram', 'Pakistan'], [P04, 'Adam Gilchrist', Australia]]</p>	3																																										
28	<p>Consider the following DataFrame df:</p> <table border="1"> <thead> <tr> <th></th> <th>Code</th> <th>Name</th> <th>Price</th> <th>Qty</th> <th>Discount</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>C1</td> <td>ABC</td> <td>5500</td> <td>10</td> <td>10</td> </tr> <tr> <td>1</td> <td>C2</td> <td>XYZ</td> <td>4500</td> <td>8</td> <td>5</td> </tr> <tr> <td>2</td> <td>C3</td> <td>PQR</td> <td>5200</td> <td>12</td> <td>8</td> </tr> <tr> <td>3</td> <td>C4</td> <td>MNO</td> <td>3000</td> <td>9</td> <td>15</td> </tr> <tr> <td>4</td> <td>C5</td> <td>LMN</td> <td>5500</td> <td>11</td> <td>12</td> </tr> </tbody> </table> <p>a. Write down the command that will give the following output.</p> <pre>Code      C1 Name      ABC Price     3000 Qty       8 Discount  5 dtype: object</pre> <p>b. Find the most repeat value of a given set of number of DataFrame. c. To sort the index label of DataFrame df in descending order.</p>		Code	Name	Price	Qty	Discount	0	C1	ABC	5500	10	10	1	C2	XYZ	4500	8	5	2	C3	PQR	5200	12	8	3	C4	MNO	3000	9	15	4	C5	LMN	5500	11	12	3						
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3	C4	MNO	3000	9	15																																							
4	C5	LMN	5500	11	12																																							
29	<p>Sneha found that her picture posted on a social networking site, has been merged with an unknown person and published.</p> <p>a. What should she do? b. Later she found that after posting some images in social media, some people were writing negative messages. This is an instance of _____ c. Using someone's Twitter handle to post something will be termed as _____</p> <p style="text-align: center;"><b>OR</b></p> <p>List e-Waste hazards on environment and on human health.</p>	3																																										

30 Consider the table PERSONS given below. Write the output for queries (a) to (c) 3

Table: PERSONS

PID	SurName	FirstName	Gender	City	PinCode	Salary
1	Sharma	Geet	F	Udhamwara	182141	50000
2	Singh	Surinder	M	Kupwara Nagar	193222	75000
3	Jacob	Peter	M	Bhawani	185155	45000
4	Alvis	Thomas	M	Ahmed Nagar	380025	50000
5	Mohan	Gaurav	M	Coolangatta	390026	33000
6	Azmi	Simi	F	New Delhi	110021	40000
7	Kaur	Manpreet	F	Udhamwara	182141	42000

- a. SELECT SurName FROM PERSONS WHERE Salary >= 50000;  
 b. SELECT SUM (Salary) FROM PERSONS WHERE Gender = 'F';  
 c. SELECT Gender, MIN (Salary) FROM PERSONS GROUP BY Gender;

**SECTION D**

31 Table: WORKER 4

WNO	NAME	DOJ	DOB	GENDER	DCODE
1001	George K	2013-09-02	1991-09-01	Male	D01
1002	Ryma Sen	2012-12-11	1990-12-15	Female	D03
1003	Mohitesh	2013-02-03	1987-09-04	Male	D05
1007	Anil Jha	2014-01-17	1984-10-19	Male	D04
1004	Manila Sahai	2012-12-09	1986-11-14	Female	D01
1005	R Sahay	2013-11-18	1987-03-31	Male	D02
1006	Jaya Priya	2014-06-09	1985-06-23	Female	D05

- Based on above table WORKER, write the SQL queries for (a) to (d)  
 a. To display WNO, NAME, GENDER from the table WORKER in descending order of WNO.  
 b. To display the NAME of all the FEMALE workers from the table WORKER.  
 c. To display the WNO and NAME of those workers from the table WORKER, who are born between '1987-01-01' and '1991-12-01'.  
 d. To count and display MALE workers who have joined after '1986-01-01'.

32 Naman has created the following DataFrame "Climate" to record the data about climatic conditions of four years: 4

Year	MaxTemp	MinTemp	Rainfall
2017	32	20	123
2018	33	22	140
2019	35	21	135
2020	34	23	160

- a. What will be the output of the following?  
 i. Climate.iloc[1:3,1:2]  
 ii. print(Climate.head(2))  
 b. Write the Python code to display the temperature difference between MaxTemp and MinTemp for all the rows in the DataFrame Climate.  
 c. List 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> rows.

**SECTION E**

33 Write the output of the following queries. 5

- a. SELECT POWER(9,3);  
 b. SELECT MID('SHUCHI GOYAL', 8,5);

- c. SELECT RIGHT('Dushyant', 5);
- d. SELECT INSTR('SQL FUNCTIONS', 'C');
- e. SELECT LEFT('Arihant', 2);

**OR**

Consider the following table CLUB.

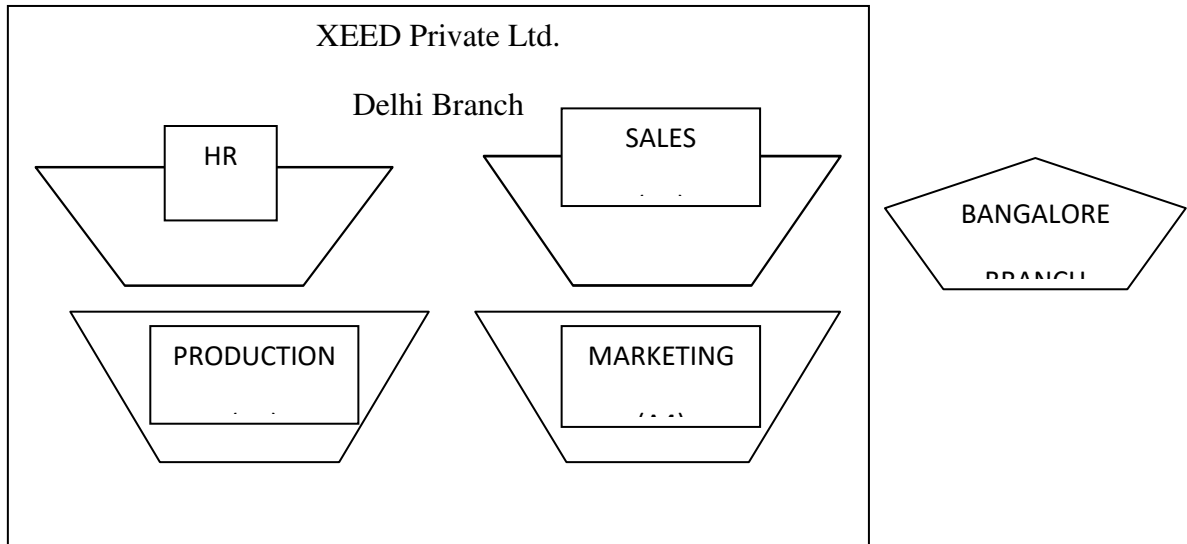
COACH_ID	COACHNAME	AGE	SPORTS	Date_of_Joining	PAY
1	Rajesh	30	Karate	1999-08-25	1000
2	Anuj	35	Swimming	2000-01-05	750
3	Shuchi	25	Basketball	2005-01-04	1200
4	Reetika	28	Badminton	2002-08-05	1400
5	Virendra	32	Cricket	1996-05-17	1500

Give the answer of 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?  
mysql> SELECT CONCAT (COACHNAME, AGE) FROM CLUB WHERE AGE > 30;
- c. Write a query to display the day for the Date\_of\_Joining column.
- d. What will be the output of the following query?  
mysql> SELECT PAY \* 0.25 + 1000  
FROM CLUB  
WHERE COACHNAME LIKE 'R%';
- e. Write a query to display 3 characters from left of coach name.

34 XEED Private Ltd., Delhi is a company that deals with educational toys. They have different divisions HR (A1), Sales (A2), Production (A3) and marketing (A4). The layout of the Delhi branch is

5



The company also has a branch in Bangalore. The management wants to connect all the divisions as well as all the computers of each division (A1, A2, A3, A4).

Distance between the wings are as follows

A3 to A1	25 m
A1 to A2	40 m
A2 to A4	25 m
A4 to A3	20 m

A3 to A2	30 m
A1 to A4	170 m
Delhi Head Office to Bangalore Office	2154 km

Number of computers in each of the wing

A1	50
A2	40
A3	110
A4	60

Based on the above specifications, answer the following questions

- Suggest the topology and draw the most suitable cable layout for connecting all the divisions of Delhi branch.
- Suggest the kind of network required for connecting Production (A3) with the Bangalore branch.
- Which device can be used to connect the network of Delhi Branch to the internet? This device should be able to receive data, analyse it and then transmit it to the network.
- Suggest the placement of switch/hub with justification.
- Many employees were finding it difficult to cope up with work pressure and hence were showing stress related symptoms. In order to improve the mental health of its employees, HR planned to conduct an online session with a mental health expert from Mumbai. Out of the options given below, suggest the protocol that will help to send the voice signals over Internet to conduct the session successfully.
  - FTP
  - SMTP
  - VoIP
  - POP

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

Week=[1,2,3,4]

Avg\_week\_temp=[40,42,38,44]

or

5

---

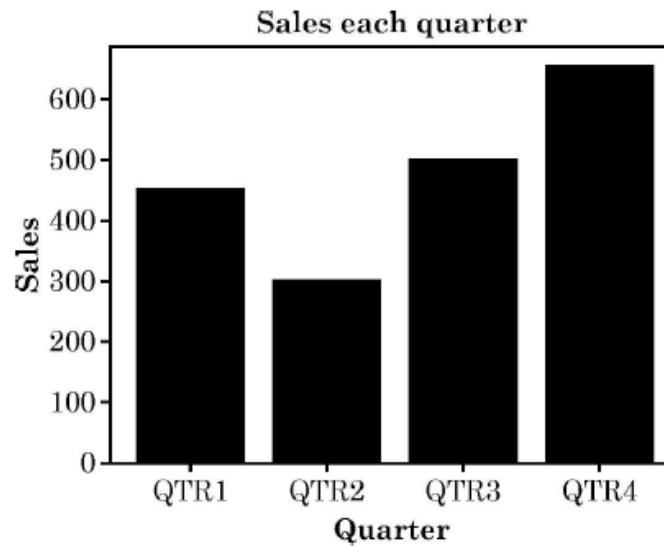
Write Python code to draw the following bar graph representing the total sales in each quarter. Add the Title, Label for X-axis and Y-axis.

Use the following data for plotting the graph :

5

```
sales=[450,300,500,650]
```

```
qtr=["QTR1", "QTR2", "QTR3", "QTR4"]
```



Activate Windows  
Go to Settings to activate Windows.