

KENDRIYA VIDYALAYA SANGATHAN AHMEDABAD REGION

APPLIED MATHS WORKSHEET [ 2024-25]

STD. XII [B]

CHAPTER : APPLICATION OF DERIVATIVES

1. The volume of a closed hemisphere increases at the rate of  $4 \text{ cm}^3 / \text{sec}$ . Find the rate of increase of its surface area, when the radius is 4 cm.
2. Prove that  $f(x) = x^3 + 3x^2 + 5x$  is strictly increasing on R.
3. Find the equation of the normal to  $x^2 = 4y$  passing through (1,2).
4. Find the slope of the tangent to  $y = x^3 + 5x + 2$  at (2, 20).
5. Find the equation of the tangent to  $y^2 = 16x$ , which is parallel to the line  $4x - y = 1$ .

CHAPTER : INTEGRALS

1. Evaluate :  $\int_0^2 |x^2 + 2x - 3| dx$ .
2. Integrate :  $\int (x - 3) \sqrt{x^2 + 3x - 18} dx$
3. Find :  $\int \frac{x}{(x+1)(x+2)} dx$
4.  $\int \frac{xdx}{(x-1)(x-2)}$
5. Find :  $\int x e^x dx$

CHAPTER : DETERMINANTS & MATRICES

1. Solve :  $\begin{vmatrix} 2 & 3 \\ 1 & 4x \end{vmatrix} = \begin{vmatrix} 2x & -1 \\ 5 & x \end{vmatrix}$
2. Using properties of determinant prove that :  $\begin{vmatrix} 1 & 1 & 1 \\ x & y & z \\ yz & zx & xy \end{vmatrix} = (x-y)(y-z)(z-x)$
3. If  $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ , then find  $A^2 - 5A$ .
4. If  $A = \begin{bmatrix} 1 & 3 \\ 3 & 4 \end{bmatrix}$  and  $A^2 - Ka - 5I = 0$ , then find k.
5. If  $A = \begin{bmatrix} ab & b^2 \\ -a^2 & -ab \end{bmatrix}$ , then obtain  $A^2$ .

# KENDRIYA VIDYALAYA SILVASSA

## **AUTUMN BREAK HOLIDAY HOMEWORK**

- **CLASS XII**
- **ACCOUNTANCY & BUSINESS STUDIES**
- Solving recent monthly test paper in your notebooks.
- Solving Competency based questions in your notebooks provided by RO (provided on CBSE websites) as per your understanding.
- Be prepared for coming exams, revise all the topics of business studies and practice minimum 10 questions from each chapter of accountancy (PARTNERSHIP vol I, COMPANY ACCOUNTS vol II)

**Kendriya vidyalaya silvassa**  
**Autumn Break Holiday home work**  
**Class -12B,C**  
**Subject -Economics**

**National Income and related aggregates**

**Q1.**How non-monetary exchange and externalities are a limitation in taking GDP as an index of welfare?

2.write steps and precautions of National Income by 3 method.

3.what is GDP deflator, Differentiate between nominal GDP and Real GDP

4."Circular flow of income in a two sector economy is based on the axiom that one's expenditure is other's income." Do you agree with the given statement? Support your answer with valid reasons.

5.What is the difference between planned and unplanned inventory accumulation? Write down the relation between change in inventories and value added of a firm.

**Money and Banking**

Q.1 "Money is a liquid store of value" comment

2 .Why do all the Compensation in the form of money more convenient than toys to an employee working in toy manufacturing company

3. money is a common denomination, in which values of all goods and services are expressed". Explain the function of money which is most involved in the statement.

4. Money separates the act of sales and purchase of goods and services". Explain the functions of money which is most involved in the statement.

5.how broad money is different from narrow money in India.

6.. How can 'Jan-DhanYojana' be used as an instrument to increase supply of money by the commercial banks?

7.Define the terms LRR, CRR, SLR, Repo & Reverse Repo rate, Credit Multiplier.

**Determination of Income and Employment**

1.Explain the determination of Income/Output/Employment by AD and AS approach. Including the situation of  $AD > AS$  and  $AS > AD$

2.Explain the determination of Income/Output/Employment by S and I approach. Including the situation of  $S > I$  and  $S < I$ .

3.Assuming that increase in investment is Rs. 900 crore and MPC is 0.6, explain the working of multiplier.

4.. Discuss the working of adjustment mechanism in the following situations.

(a) Aggregate demand is greater than aggregate supply

(b) Ex-ant investment are lesser than Ex-ant savings

5.) "With an objective to reduce inflation, Reserve Bank of India may promote the commercial banks to park their surplus funds with it." Discuss the rationale behind the step taken by the Reserve Bank of India.

6. Describe the economic scenario when ex-post Aggregate Demand surpasses ex-post Aggregate Supply and its potential consequences on price levels, production and employment.

7. Demonstrate your understanding of how the Reserve Bank of India can apply monetary policy tools to tackle a scenario of Deficient Demand in the economy? Identify and discuss four specific measures that the Reserve Bank of India can employ to effectively correct the situations.

### **Government Budget and Economy**

1. Outline a hypothetical scenario where a government is considering implementing a new tax policy. In this scenario, explain how the introduction of a Progressive Tax would affect individuals with low, middle and high incomes.
2. Explain the Government's Budget and its various sources of revenue. Present three actual instances of non-tax revenue earnings that a government could accumulate during its fiscal year.
3. Highlight three main objectives that guide the government to frame their policies and decisions. Explain these three objectives
4. Explain fiscal, revenue and primary deficit and its implications.
5. The Government, under Ujjwala Yojana, is providing free LPG kitchen gas connections to the families 'below the poverty line'. What objective the government is trying to fulfill through the government budget and how?
6. Suppose you are a member of the "Advisory Committee to the Finance Minister of India". The finance Minister is concerned about the rising Revenue Deficit in the budget. Suggest any one measure to control the rising Revenue deficit of the government.

**KENDRIYA VIDYALAYA SILVASSA**  
**AUTUMN BREAK HOLIDAY HOMEWORK (2024-25)**  
**ENGLISH- XII**

**1. Art Integrated Project individually any 2 out of the following topics:**

**INCLUDE: INDEX & PICTURES, SHOULD BE HAND WRITTEN**

- (a) Famous artists-Research about famous artists from Chhattisgarh in various fields
- (b) Food, dress, and language-Research about the food, dress, and language of Chhattisgarh.
- (c) Jewelry-Research about Chhattisgarh a jewelry
- (d) folk classical and traditional art and dance forms of Chhattisgarh.
- (e) Historical Monuments- Research about the historical monuments of Chhattisgarh
- (f) Drawing and Painting - Research about the drawing and paintings of Chhattisgarh.

**2. Do the revision from the KVS & CBSE Study material shared with you in the wtsapp Class group.**

**3. CBSE sample question paper will be Shared in class group which is to be solved in your notebooks.**

**4. Listen to the following \*famous speeches: \***

- a. I Have A Dream by Martin Luther King Junior.
- b. Tryst With Destiny by J L Nehru.

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केन्द्रीय विद्यालय सिलवासा  
शरदकालीन अवकाश गृह कार्य

कक्षा-12

हिन्दी

1 अभिव्यक्ति और माध्यम से संबंधित निम्न विषयों पर वस्तुनिष्ठ प्रश्नों व बहुवैकल्पिक प्रश्नों का लेखन करें।

- जनसंचार
- समाचार पत्र
- पत्रकारिता के विविध आयाम
- पत्रकारिता के प्रकार
- विभिन्न माध्यमों के लिए लेखन
- रेडियो, टी .वी,
- इंटरनेट
- पत्रकारिता लेखन के विभिन्न रूप व लेखन
- आलेख, रिपोर्ट, फीचर

2 कहानी, नाटक, कविता की रचना प्रक्रिया पर प्रश्न लिखें।

3 अप्रत्याशित लेखन पर आधारित प्रश्न लिखें।

4 CBSE द्वारा जारी सैंपल बोर्ड पेपर व गत वर्ष के पेपर के प्रश्नों को हल करना है। (प्रश्न पत्र गुप में प्रेषित किया गया है)

सुमित्रा देवी मीणा  
पी. जी. टी. (हिन्दी)

# HOLIDAY HOMEWORK

## WORKSHEET – Data Handling Using Pandas

1	<b>What will be the output of following code-</b> <pre>import pandas as pd s1=pd.Series([1,2,2,7,'Sachin',77.5]) print(s1.head()) print(s1.head(3))</pre>												
2	Write a program in python to find maximum value over index in Data frame.												
3	<b>What are the purpose of following statements-</b> 1. df.columns 2. df.iloc[ : , :-5] 3. df[2:8] 4. df[ : ] 5. df.iloc[ : -4 , : ]												
4	<b>Write a python program to sort the following data according to ascending order of Age.</b> <table border="1"><thead><tr><th>Name</th><th>Age</th><th>Designation</th></tr></thead><tbody><tr><td>Sanjeev</td><td>37</td><td>Manager</td></tr><tr><td>Keshav</td><td>42</td><td>Clerk</td></tr><tr><td>Rahul</td><td>38</td><td>Accountant</td></tr></tbody></table>	Name	Age	Designation	Sanjeev	37	Manager	Keshav	42	Clerk	Rahul	38	Accountant
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Rahul	38	Accountant											
6	<b>Which of the following thing can be data in Pandas?</b> 1. A python dictionary 2. An nd array 3. A scalar value 4. All of above												
7	<b>All pandas data structure are _____ mutable but not always _____ mutable.</b> 1. Size, value 2. Semantic , size 3. Value, size 4. None of the above												
8	<b>Data and index in an nd array must be of same length-</b> 1. True 2. False												
9	<b>What is the output of the following program?</b> <pre>import pandas as pd df=pd.DataFrame(index=[0,1,2,3,4,5],columns=['one','two']) print df['one'].sum()</pre>												
10	<b>What will be the output of following code:</b> <pre>Users.groupby('occupation').age.mean()</pre> 1. Get mean age of occupation												

	<ol style="list-style-type: none"> <li>2. Groups users by mean age</li> <li>3. Groups user by age and occupation</li> <li>4. None</li> </ol>																																			
11	<p><b>Which object do you get after reading a CSV file using pandas.read_csv()?</b></p> <ol style="list-style-type: none"> <li>1. Dataframe</li> <li>2. Nd array</li> <li>3. Char Vector</li> <li>4. None</li> </ol>																																			
12	What will be the output of df.iloc[3:7,3:6]?																																			
13	<p><b>How to select the rows where where age is missing?</b></p> <ol style="list-style-type: none"> <li>1. df[df['age'].isnull]</li> <li>2. df[df['age']==NaN]</li> <li><b>3. df[df['age']==0]</b></li> <li>4. None</li> </ol>																																			
14	<p><b>Consider the following record in dataframe IPL</b></p> <table border="1"> <thead> <tr> <th>Player</th> <th>Team</th> <th>Category</th> <th>BidPrice</th> <th>Runs</th> </tr> </thead> <tbody> <tr> <td>Hardik Pandya</td> <td>Mumbai Indians</td> <td>Batsman</td> <td>13</td> <td>1000</td> </tr> <tr> <td>KL Rahul</td> <td>Kings Eleven</td> <td>Batsman</td> <td>12</td> <td>2400</td> </tr> <tr> <td>Andre Russel</td> <td>Kolkata Knight riders</td> <td>Batsman</td> <td>7</td> <td>900</td> </tr> <tr> <td>Jasprit Bumrah</td> <td>Mumbai Indians</td> <td>Bowler</td> <td>10</td> <td>200</td> </tr> <tr> <td>Virat Kohli</td> <td>RCB</td> <td>Batsman</td> <td>17</td> <td>3600</td> </tr> <tr> <td>Rohit Sharma</td> <td>Mumbai Indians</td> <td>Batsman</td> <td>15</td> <td>3700</td> </tr> </tbody> </table> <p><b>Retrieve first 2 and last 3 rows using python program.</b></p>	Player	Team	Category	BidPrice	Runs	Hardik Pandya	Mumbai Indians	Batsman	13	1000	KL Rahul	Kings Eleven	Batsman	12	2400	Andre Russel	Kolkata Knight riders	Batsman	7	900	Jasprit Bumrah	Mumbai Indians	Bowler	10	200	Virat Kohli	RCB	Batsman	17	3600	Rohit Sharma	Mumbai Indians	Batsman	15	3700
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15	Write a command to Find most expensive Player.																																			
16	Write a command to Print total players per team.																																			
17	Write a command to Find player who had highest BidPrice from each team.																																			
18	Write a command to Find average runs of each team.																																			
19	Write a command to Sort all players according to BidPrice.																																			
20	<p><b>We need to define an index in pandas-</b></p> <ol style="list-style-type: none"> <li>1. True</li> <li>2. false</li> </ol>																																			



# MySQL

**Section - A**  
Each question carries 1 marks

Q.No.	Questions
1.	Which of the following SQL functions does not belong to the Math functions category? i. POWER() ii. ROUND() iii. MOD() iv. RIGHT()
2.	Predict the output of the following query: SELECT MOD (sqrt(16),0); i. 4 ii. NULL iii. NaN iv. 16
3.	Grisha, a Database Administrator, needs to display the average pay of workers from those departments which have more than five employees. He is experiencing a problem while running the following query: SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) > 5 GROUP BY DEPT; Which of the following is a correct query to perform the given task? i. SELECT DEPT, AVG(SAL) FROM EMP WHERE COUNT(*) > 5 GROUP BY DEPT; ii. SELECT DEPT, AVG(SAL) FROM EMP HAVING COUNT(*) > 5 GROUP BY DEPT; iii. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT WHERE COUNT(*) > 5; iv. SELECT DEPT, AVG(SAL) FROM EMP GROUP BY DEPT HAVING COUNT(*) > 5;
4.	Predict the output of the following query: SELECT LCASE (MONTHNAME ('2023-11-11')); i. May ii. March iii. may iv. march
5.	With reference to SQL, identify the invalid data type. I. Date ii. Integer iii. Year iv. Month
6.	In SQL, the equivalent of UCASE() is: i. UPPERCASE () ii. CAPITALCASE() iii. UPPER() iv. TITLE ()
7.	Write the output of the following SQL query: SELECT LCASE(SUBSTR("Informatics Practices",9,5)); i. pract ii. Infor iii. ics p iv. ICS P

8.	<p>Write the output of the following SQL command :</p> <pre>select pow(Sqrt(16),2*2);</pre> <p>i. 264 ii. 256 iii. 200 iv. 100</p>
9.	<p><b>Assertion (A):</b> Primary is a set of one or more attributes which uniquely identify the tuple in a table.</p> <p><b>Reasoning (R):</b> There may be more than one primary key possible in a relation.</p> <p>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</p>
10.	<p><b>Assertion (A):</b> Aggregate functions are the same as Mathematical functions.</p> <p><b>Reasoning (R):</b> Aggregate functions apply on the multiple rows.</p> <p>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</p>

**Section -B Each question carries 2 marks**

11.	<p>Arpit wants to find the total commission earned by those departments where the number of employees in the department is more than 2 and writes the following query :</p> <pre>Select department, count(commission) from TECHNO having count(*)&gt;2 group by department;</pre> <p>But he got an error. Identify the error(s) and rewrite the query by underlining the correction(s) done.</p>
12.	<p>Ananya, a database executive, needs to display a System Current Date and time. Suggest to her a suitable SQL function name. Also write the query for the same.</p>
13.	<p>Write the SQL queries which will perform the following operations :</p> <p>(i) To display the day part from your date of admission, which is '2023-12-13'.</p> <p>(ii) To convert your father's email id 'xyz@abc.com' to uppercase.</p>

14. Consider the table Customer given below and write SQL commands :

**TABLE : Customer**

CustID	Name	Country	Emailid	Orderdate
C1001	Rajat	India	rajat@gmail.com	2022-12-22
C1002	Michael	Denmark	mic@yahoo.com	2023-11-15
C1003	Riyo	Thailand	Ri@gmail.com	2022-05-06
C1004	Jennifer	S. Korea	Jen@gmail.com	2022-08-07
C1005	Sudha	India	Sud@abc.com	2023-01-01
C1006	Vivek	Nepal	viv@xyz.com	2023-04-14

- (i) Display the details of all customers who have placed the order in the year 2023.
- (ii) Count the total number of customers from India.

**Section -C**

**Each question carries 3 marks**

15. Write MySQL statements for the following:

- i. To create a database named FOOD.
- ii. To create a table named Nutrients based on the following specification:

Column Name	Data Type	Constraints
Food_Item	Varchar(20)	Primary Key
Calorie	Integer	

16. Find the output of the following SQL queries :

- (i) **SELECT MID ("Exam" , 1 , 2) ;**
- (ii) **SELECT MONTHNAME ("2023-05-30") ;**
- (iii) **SELECT MONTH ("2023-03-05") ;**

17. Based on the SQL table CAR\_SALES, write suitable queries for the following:

NUMBER	SEGMENT	FUEL	QT1	QT2
1	Compact HatchBack	Petrol	56000	70000
2	Compact HatchBack	Diesel	34000	40000
3	MUV	Petrol	33000	35000
4	MUV	Diesel	14000	15000
5	SUV	Petrol	27000	54000
6	SUV	Diesel	18000	30000
7	Sedan	Petrol	8000	10000
8	Sedan	Diesel	1000	5000

- Display fuel wise average sales in the first quarter.
- Display segment wise highest sales in the second quarter.
- Display the records in the descending order of sales in the second quarter.

OR

Predict the output of the following queries based on the table CAR\_SALES given above:

- SELECT LEFT (SEGMENT, 2) FROM CAR\_SALES WHERE FUEL="PETROL";
- SELECT (QT2-QT1)/2 "AVG SALE" FROM CAR\_SALES WHERE SEGMENT="SUV";
- SELECT SUM(QT1) "TOT SALE" FROM CAR\_SALES WHERE FUEL="DIESEL";

18. Preeti manages database in a blockchain start-up. For business purposes, she created a table named BLOCKCHAIN. Assist her by writing the following queries:

TABLE: BLOCKCHAIN

id	user	value	hash	transaction_date
1	Steve	900	ERTYU	2020-09-19
2	Meesha	145	@345r	2021-03-23
3	Nimisha	567	#wert5	2020-05-06
4	Pihu	678	%rtyu	2022-07-13
5	Kopal	768	rrt4%	2021-05-15
7	Palakshi	534	wer@3	2022-11-29

- Write a query to display the year of oldest transaction.
- Write a query to display the month of most recent transaction.
- Write a query to display all the transactions done in the month of May.

**Section - D**

Each question carries 5 marks

19. Write suitable SQL queries for the following:

- To calculate the exponent for 3 raised to the power of 4.
- To display current date and time.
- To round off the value -34.4567 to 2 decimal place.
- To remove all the probable leading and trailing spaces from the column userid of the table named user.
- To display the length of the string 'FIFA World Cup'.

20.

Kabir has created following table named exam:

RegNo	Name	Subject	Marks
1	Sanya	Computer Science	98
2	Sanchay	IP	100
3	Vinesh	CS	90
4	Sneha	IP	99
5	Akshita	IP	100

Help him in writing SQL queries to the perform the following task:

- i. Insert a new record in the table having following values:  
[6,'Khushi','CS',85]
- ii. To change the value "IP" to "Informatics Practices" in subject column.
- iii. To remove the records of those students whose marks are less than 30 .
- iv. To add a new column **Grade** of suitable datatype.
- v. To display records of "Informatics Practices" subject.

**OR**

Explain the following SQL functions using suitable examples :

- (i) LTRIM( )
- (ii) RTRIM( )
- (iii) INSTR( )
- (iv) MOD( )
- (v) TRIM( )



