



ACADEMIC WORLD SCHOOL™ BEMETARA

SESSION: 2022-23 SUMMER VACATION ASSIGNMENT CLASS: XII

General Instructions:

1. Write in a clear and legible handwriting.
2. Complete all the homework in a separate subject Summer Vacation Homework Notebook.
3. **DO NOT COPY AND PASTE FROM THE INTERNET.** (Assignment will be rejected)
4. In case of reference from the internet, you may:
 - A. Read the content from the internet, if you wish and paraphrase (Rewrite in your own words)
 - B. Mention the source of your information by providing the link from the internet for the verification by the teachers.
5. Marks awarded will be counted in the final scores at the end of the session.
6. The Summer Vacation HW will be submitted immediately upon arrival to school after Summer Vacation.
7. For any assignment related query do post your question on E-Mail Id of respective subject teacher. List of Subject Teacher's E-Mail ID attached.

Note for the Parents:

Parents are requested to guide his/her wards to complete their assignments honestly and submit by the due date.

APPLIED MATHEMATICS

General Instructions

1. Attached assignments are based upon the lectures taken by the teachers before summer holiday.
2. This assignment is part of internal assessment of Periodic Test 01.
3. Solve all these questions in separate note book.
4. As soon as School reopens, you will submit this assignment to your respective subject teacher.

1. If $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$, find A^2

2. If $\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & -2 \\ 7 & 3 \end{vmatrix}$, then find the value of x .

3. Write the value of determinant $\begin{vmatrix} p & p+1 \\ p-1 & p \end{vmatrix}$

4. Let A be square matrix of order 3×3 . Write the value of $|2A|$, where $|A| = 4$.

5. Find the minor of the element of second row and third column in the determinant $\begin{bmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{bmatrix}$

6. Find the value of $x + y$ from the following equation $2 \begin{bmatrix} 1 & 3 \\ 0 & x \end{bmatrix} + \begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 8 \end{bmatrix}$

7. If A is a skew symmetric matrix of order 3, then prove that $\det A = 0$

8. For any square matrix A of order 2, $A \cdot (\text{Adj } A) = \begin{bmatrix} 8 & 0 \\ 0 & 8 \end{bmatrix}$, then write the value of $|A|$.

9. For what value of k the system of linear equations
 $x + y + z = 2, 2x + y - z = 3, 3x + 2y + kz = 4$

10. Find the value of a, b, c and d from the equation $\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$

11. Find the value of k so that the points (1,-5), (-4,5) and (k,7) are collinear.

12. Find the Adjoint of the matrix $A = \begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$

13. Find matrix A such that $\begin{bmatrix} 2 & -1 \\ 1 & 0 \\ -3 & 4 \end{bmatrix} A = \begin{bmatrix} -1 & -8 \\ 1 & -2 \\ 9 & 22 \end{bmatrix}$

14. Using properties of determinants, prove that $\begin{vmatrix} a^2 & bc & ac+c^2 \\ a^2+ab & b^2 & ac \\ ab & b^2+bc & c^2 \end{vmatrix} = 4a^2b^2c^2$

15. If $a + b + c \neq 0$, $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix} = 0$ then prove that $a=b=c$.

16. Find the inverse of matrix by elementary row transformation $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 5 & 7 \\ -2 & -4 & -5 \end{bmatrix}$

17. If $A = \begin{bmatrix} 2 & -1 \\ -1 & 2 \end{bmatrix}$ and I be the identity matrix of order 2, then show that $A^2 = 4A - 3I$. Hence find A^{-1}

18. Express the matrix $A = \begin{bmatrix} 2 & 4 & -6 \\ 7 & 3 & 5 \\ 1 & -2 & 4 \end{bmatrix}$ as the sum of a symmetric and skew-symmetric matrix

19. Find the inverse of the matrix by elementary row transformation $\begin{bmatrix} 2 & 1 & 3 \\ 4 & -1 & 0 \\ -7 & 2 & 1 \end{bmatrix}$

20. Find the value of using properties of determinant $\begin{vmatrix} 2 & 7 & 65 \\ 3 & 8 & 75 \\ 5 & 9 & 86 \end{vmatrix}$

21. Find the inverse by elementary row transformation of the matrix $\begin{bmatrix} 2 & -2 \\ 4 & 3 \end{bmatrix}$

22. Find $|\text{Adj } A|$, if $A = \begin{bmatrix} 5 & 2 \\ 7 & 3 \end{bmatrix}$

23. Using properties of determinants, prove that $\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix} = (a-b)(b-c)(c-a)$

24. Find the value of a,b,c and d from the equation $\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$

25. Find the Adjoint of the matrix $A = \begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$

26. Using properties of determinants, prove that $\begin{vmatrix} 1 & a^3 & a^2 \\ 1 & b^3 & b^2 \\ 1 & c^3 & c^2 \end{vmatrix} = -(a-b)(b-c)(c-a)(ab+bc+ca)$

27. If possible, using elementary row transformation find the inverse of matrix $A = \begin{bmatrix} 2 & -1 & 3 \\ -5 & 3 & 1 \\ -3 & 2 & 3 \end{bmatrix}$

PSYCHOLOGY

Pick any personality theory of your choice from chapter “Self and Personality”. Study the theory thoroughly, and categories which trait or type does your family member belong to in that specific theory. Justify your observation using situations. Use your creativity and write this on an A4 size paper. You may use colours to make your assignment interesting.

Guidelines:

- Write a brief introduction about the selected theory.
- Draw flowcharts about the personality traits.
- Categories your family members into different traits.
- Explain why he/she belongs to that specific trait.
- Write situations which made you think so.
- For further clarifications/assistance contact: vaishnavi.sajeev@academicworld.co.in

SUBJECT: ENTREPRENEURSHIP

1. Aditi started her boutique business near an industrial area and she was not getting clients as she had expected. What are the factors which have been ignored before starting the boutique? Suggest the various factors that she has to look into before venturing into business.
2. Mr. Raghav had always wanted to manufacture an innovative, energy efficient fan. He was looking into various options and has finally narrowed it down to one option. He understands that the entire idea would have to follow a process. Identify and explain the process.
3. Vinay was a young entrepreneur who wanted to start a new business with an initial investment of 25 lakhs. He was not sure of what business he has to undertake. His friend suggested seeking the help of professionals who would spot the latest trends in the market and give him an idea, but Vinay decided to do it by himself. Suggest the various ways by which he can do it.
4. Sudha started her small-scale business of making Pickles along with few of her neighbors using their free time at home. They named their venture 'Home Sweet Home'. They were able to supply the entire district. One of the members suggested that they should expand and start selling to other states. When she discussed the same to her husband, he suggested that they have to properly look into the environment analyzing the competitors. He suggested Sudha to
 - A) Formulate policies
 - B) Tap useful resources
 - C) Environment scanning
 - D) Image building
5. State any two factors while assessing the market OR Enlist any two uses of problem identification.

INFORMATICS PRACTICES

A) Consider the following table MySQL table 'Student' and write the SQL queries for the questions given below. Student can use **MySQL 5** or **MySQL 8** to write SQL the queries.

St_ID	St_Name	Section	Address	Stream	Marks
S001	Raman	A	Mumbai	Science	95
S002	Karan	B	Chennai	Commerce	85
S003	Sachin	C	Chennai	Humanities	75
S004	Tarun	A	Mumbai	Science	66
S005	Rajat	B	Delhi	Science	73
S006	Robin	D	Delhi	Commerce	50
S007	Ajay	D	Kolkata	Commerce	45
S008	Rohit	A	Mumbai	Arts	96
S009	Deepa	A	Mumbai	Arts	72
S010	Ishita	B	Chennai	Science	68

1. Write a query to create the above table with appropriate data type.
2. Display student details, whosoever has scored highest in Science Stream.
3. Display student details, whosoever has scored lowest in Commerce Stream.
4. Write a query to display the number of students belongs to each stream.
5. Write a query to display the student's name starting from letter 'S' and belongs to 'Chennai' city.
6. Display student ids and name who are belong to section A.
7. Display student details whosoever is belonging to 'Commerce' stream.
8. Display all the records in ascending order by student name.
9. Display all the records of students belong to either 'Delhi' or 'Chennai' and their marks must be greater than 50.
10. Display all the records of the students whose name ends with letter 'n'.
11. Display all the records of the students whose address length is 6.
12. Write a query to add new column 'Phone' in the table after address column.
13. Write a query to make student id column as Primary key.
14. Write a query to update value from 'Arts' to 'Graphics' whose student id is 'S009'.
15. Write a query to change the column name from 'St_name' to 'Name'.

Note: Solve the above-mentioned questions and take the snap-shot of SQL queries with their output and paste on A4 sheet along with the mentioned table.

B) Write the Python Pandas code to create Series object with the following specification:

1. Using Sequence
2. Using ndarray
3. Using dictionary
4. Using Scalar value

Note: Write one line description for the above-mentioned points with output.

C) Write about the following attributes of Series object with output.

1. index
2. index.name
3. values
4. shape
5. dtype
6. nbytes
7. empty

Note: Write one line description for the above-mentioned points with output.

COMPUTER SCIENCE

Note: Solve all the questions in Practical File.

1. Write appropriate statements to do the following:

(a) To open a file named “RESULT.DAT” for output.

(b) To go to the end of the file at any time.

2. Write a program to add two more employees’ details to the file “emp.txt” already stored in disk.

3. How are the following codes different from one another?

(a) `fp = open("file.txt", 'r')`

`fp.read()`

(b) `fp=open("file.txt", 'r')`

4. What is the output of the following code fragment? Explain.

```
fout = file("output.txt", 'w')
```

```
fout.write("Hello, world!\n")
```

```
fout.write("How are you?")
```

```
fout.close()
```

```
file("output.txt").read()
```

5. Write the output of the following code with justification if the contents of the file ABC.txt are:

Welcome to Python Programming!

```
f1 = file("ABC.txt", "r")
```

```
size = len(f1.read())
```

```
print(size)
```

```
data = f1.read(5)
```

```
print(data)
```

6. Anant has been asked to display all the students who have scored less than 40 for Remedial Classes.
7. Write a user-defined function to display all those students who have scored less than 40 from the binary file "Student.dat".
8. Give the output of the following snippet:

```
import pickle
```

```
list1, list2 = [2, 3, 4, 5, 6, 7, 8, 9, 10], []
```

```
for i in list1:
```

```
    if (i%2==0 and i%4==0):
```

```
        list2.append(i)
```

```
f = open("bin.dat", "wb")
```

```
pickle.dump(list2, f)
```

```
f.close()
```

```
f = open("bin.dat", "rb")
```

```
data = pickle.load(f)
```

```
f.close()
```

```
for i in data:
```

```
    print(i)
```

9. Following is the structure of each record in a data file named "PRODUCT.DAT".

```
{"prod_code": value, "prod_desc": value, "stock": value}
```

The values for prod_code and prod_desc are strings and the value for stock is an integer. Write a function in Python to update the file with a new value of stock. The stock and the product_code, whose stock is to be updated, are to be inputted during the execution of the function.

10. Given a binary file "STUDENT.DAT", containing records of the following type:

```
[S_Admno, S_Name, Percentage]
```

Where these three values are:

S_Admno – Admission Number of student (string)

S_Name – Name of student (string)

Percentage – Marks percentage of student (float)

Write a function in Python that would read contents of the file “STUDENT.DAT” and display the details of those students whose percentage is above 75.

11. Write a statement to open a binary file C:\Myfiles\Text1.txt in read and write mode by specifying for file path in two different formats.

12. What are the advantages of saving data in : (i) binary form (ii) text form?

13. When do you think text files should be preferred over binary files?

14. Write a statement in Python to perform the following operations: [CBSE D 2016]

(a) To open a text file “BOOK.TXT” in read mode

(b) To open a text file “BOOK.TXT” in write mode

15. What is the following code doing?

```
File = open("contacts.csv", "a")
```

```
Name = input("Please enter name: ")
```

```
Phno = input("Please enter phone number: ")
```

```
File.write(name + ", " + phno + "\n")
```

16. Write code to open the file in the previous question and print it in the following form:

Name : <name> Phone: <phone number>

17. Consider the file “contacts.csv” created in the question above and figure out what the following code is trying to do?

```
name = input("Enter name:")
```

```
file = open("contacts.csv", "r")
```

```
for line in file:
```

```
    if name in line:
```

```
        print(line)
```

18. Create a CSV file “Groceries” to store information of different items existing in a shop. The information is to be stored w.r.t. each item code, name, price, qty. Write a program to accept the data from user and store it permanently in CSV file.

PHYSICAL EDUCATION

General Instructions

1. All questions are compulsory.
2. All questions belong to second and first unit i.e. (Sports and Nutrition, Planning in Sports Respectively).
3. Word Limit – should not exceed 100- 150 words.

Assignment Questions

1. Explain BMI in detail. Calculate the BMI of any two of your family members.
2. Explain macro nutrients in detail with examples.
3. Explain micro nutrients (vitamins and minerals) in detail with examples.
4. Draw a knockout fixture of 18 teams and 23 teams.

विषय-हिंदी

सामान्य निर्देश :

1. समस्त कार्य आंतरिक मूल्यांकन के अंतर्गत आकलन किया जाएगा।
2. समस्त कार्य आकर्षक सृजनात्मक और प्रस्तुति योग्य होना चाहिए।
3. समस्त कार्य का अंक परीक्षा में जोड़े जाएंगे।

प्रश्न 1. ग्रीष्मकाल में अपने पारिवारिक दायित्व, सामाजिक कर्तव्य एवं स्वयं की सुरक्षा आप किस प्रकार करेंगे ?

इस विषय पर आप अपने विचार प्रस्तुत कीजिये।

प्रश्न 2. "भक्तिन" पाठ से प्रेरित होकर समाज में 'आधुनिक नारी और संघर्ष' विषयों पर लगभग 150 शब्दों का अनुच्छेद लिखिए।

प्रश्न 3. 'विद्यार्थियों पर ऑनलाइन तथा ऑफलाइन शिक्षा का प्रभाव, विषयों पर लगभग 150 शब्दों का अनुच्छेद लिखिए।

प्रश्न 4. प्लास्टिक थैलों पर प्रतिबंध के बावजूद इनके बढ़ते प्रयोग पर अधिकारियों का ध्यान आकर्षित करते हुए अपने क्षेत्र

के प्रमुख समाचार पत्र के संपादक के नाम एक पत्र लिखिए।

P.T.O

प्रश्न 5. सच्ची घटना एवं नैतिक मूल्यों पर आधारित लगभग 200 शब्दों की एक कहानी लिखिए ।

प्रश्न 6. कोई भी एक आप-बीती घटना जो आपके जीवन को रोमांचित करती है, लगभग 200 शब्दों में लिखिए ।

प्रश्न 7. स्वास्थ्य सेवा निदेशक को पत्र लिखकर अपने क्षेत्र के अस्पतालों की गिरती हुई दशा के प्रति उनका ध्यान आकृष्ट करते हुये पत्र लिखिए ।

प्रश्न 8 . अपने घर अथवा पड़ोस के किसी वरिष्ठ व्यक्ति के समय की शिक्षा प्रणाली पर चर्चा करते हुए अपनी आधुनिक शिक्षा प्रणाली के साथ तुलना कीजिए ।

प्रश्न-9 अपनी एक स्वरचित कविता लिखिए ।

प्रश्न 10. ग्रीष्मकाल में जगह-जगह पानी की समस्या देखने को मिलती है । आपके क्षेत्र की समस्या का वर्णन कीजिए ।

HINDUSTANI MUSIC

General Instructions:

1. All questions are compulsory.
2. All questions belong to Unit-1 *Comparative studies of Talas.*
3. Word Limit – should not exceed 150- 200 words.

Assignment Questions

1. Explain playing techniques of Tabla Varna's (Alphabets).
2. Explain similarities and dissimilarities of following mentioned Talas:-
(a) Chautal-Ektala (b) Jhaptala-Sultala (c) Teentala-Tilwada

PAINTING

General Instructions

1. Portfolio Assessment is compulsory.
2. You can use any art material.
3. Any A4/A3 size paper can be used.

Portfolio Assessment:

Nature and Object Study (more than 3 works)

1. Use two or three objects.
2. Two Draperies (in different colors) for background and foreground.
3. Exercises should be in pencil with light and shade and in full color from a fixed point of view.

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