D.A.V. PUBLIC SCHOOL, ACC JAMUL
VACATION HOME WORK- 20226-27
CLASS- XII A
SUBJECT- ENGLISH

1. Make a Project on any two of the following topics.

a) About John Keats

b) About Robert Frost

c) Fear and overcoming Adversity: (on Deep water)

d) Escapism in Modern Life. (on The Third Level)

e) Importance of Social Media on Youth.

f) Freedom Fighters: Biography- of an influential leader.

2. NOTICE

a.You are Rishabh/Ritika, the Cultural Secretary of your school. Draft a notice in not more than 50 words informing students about an inter-house solo dance competition Mention date, venue, time, and registration details.

b. The Trips and Treks Club of Ravindra High School is organizing a trip for grade 11 students to take them all to Paninagar. As Ravi/Reena, the Club Senior School Prefect, draft a notice for your school notice board informing the students to be seated at 5 pm in the auditorium to listen to the instructions for the event. Invent necessary details.

c. You are Pradeep/Pratibha Choube, Secretary of Arihant Housing Society, Dhol Nagar. Draft a notice for the society notice board informing the residents to send their children for swimming from 9 am to 1 pm in the society swimming pool, as the swimming coach and life guard will be present during these hours. Invent necessary details.

d. Your school is planning to conduct an interclass seminar on the topic-The Importance of Mental Health-to create awareness in adolescents. As the head of the organising committee, write a notice to inform all students about the seminar and invite registrations from classes XI-XII. Include other necessary details. Put your notice in a box.

Subject Teacher: _____

SUBJECT- MATHS

1. Write all Trigonometry formula of class XI NCERT IN PROJECT FILE

Subject Teacher: _____

SUBJECT- PHYSICS

Conceptual Questions

1) A negatively charged object X is repelled by another charged object Y. However an object Z is attracted to object Y. Which of the following is the most possibility for the object Z?
(a) Positively charged only.
(b) Negatively charged only.
(c) Neutral or positively charged.
(d) Neutral or negatively charged.

2) In an experiment three microscopic latex spheres are sprayed into a chamber and became charged with charges +3e, +5e and −3e respectively. All the three spheres came in contact simultaneously for a moment and got separated. Which one of the following are possible values for the final charge on the spheres?
(a) +5e, −4e, +5e
(b) +6e, +6e, −7e
(c) −4e, +3.5e, +5.5e
(d) +5e, −8e, +7e

3) An object has charge of 1 C and gains 5.0×10^{18} electrons. The net charge on the object becomes:
(a) −0.80 C
(b) +0.80 C
(c) +1.80 C
(d) +0.20 C

4) Two identical conducting balls A and B have charges −Q and +3Q respectively. They are brought in contact with each other and then separated by a distance d apart. Find the nature of the Coulomb force between them.

5) Two equal balls having equal positive charge 'q' coulombs are suspended by two insulating strings of equal length. What would be the effect on the force when a plastic sheet is inserted between the two?

6) Two identical point charges, q each, are kept 2 m apart in air. A third point charge Q of unknown magnitude and sign is placed on the line joining the charges such that the system remains in equilibrium. Find the position and nature of Q.

Vector Addition Numericals

1) Two vectors $A = 3i + 4j$ and $B = 5i - 2j$. Find $A + B$ and its magnitude.

2) Three vectors $A = 2i + j$, $B = -i + 3j$ and $C = 4i - 2j$ are added. Find resultant vector.

3) A vector of magnitude 10 makes angle 30° with x-axis. Another vector of magnitude 20 makes 120°. Find resultant.

4) A displacement of 5 m east, then 12 m north. Find resultant displacement.

5) Two forces 10 N and 15 N act at 60°. Find magnitude of resultant.

Equilibrium of Forces Numericals

1) Three forces 5 N, 12 N and F act on a point. Find F for equilibrium if other two are perpendicular.

2) A 10 kg mass is suspended by two strings making 30° and 60° with ceiling. Find tension in each string.

3) A body is acted by forces 10 N east, 6 N west and F north. Find F for equilibrium.

4) Three concurrent forces 4 N, 5 N, and 6 N keep system in equilibrium. Find angle between 4 N and 5 N.

5) A particle is in equilibrium under three forces. Two forces are 8 N and 15 N at 90°. Find third force.

Scalar Product Problems

1) Find dot product of $A = 2i + 3j$ and $B = 4i - j$.

2) Find angle between vectors $A = i + j + k$ and $B = i - j + k$.

3) Work done by force $F = (3i + 2j)$ N moving object by displacement $(4i + j)$ m.

4) Find projection of $A = 5i + 12j$ on $B = 3i + 4j$.

Vector Product Problems

1) Find cross product of $A = i + 2j + 3k$ and $B = 2i - j + k$.

2) Find area of parallelogram with sides $A = 3i + 4j$ and $B = 2i - j$.

3) Torque produced by force $F = (2i + 3j)$ at position $r = (i + j)$.

4) Find unit vector perpendicular to $A = i + j$ and $B = j + k$.

5) Find area of triangle with vertices given by vectors A and B using cross product.

Subject Teacher: _____

SUBJECT- CHEMISTRY

1. Art Integrated activity- Power point presentation on following topics (minimum 15 slides)

a) Osmosis, osmotic pressure and its application and biological significance of osmosis

b) Reaction intermediates. (Carbocations, carbanions& Free radicals)

(Roll no: 1.4,7,10,13,16,19,22

Electron displacement effects (Inductive effect, Electromeric effect, Resonance effect, Hyperconjugation)

(Roll no: 2,5,8,11,14,17,20

c) Carbohydrates, proteins, Nuleic acid (D.N.A,R.N.A). (Roll no: 3,6,9,12,15,18,21)

2. Investigatory Project

(a) Study of adulterants in food stuffs

(Roll no: 1,5,9,13,17,21)

(b) Study of the quantity of casein present in different samples of milk.

(Roll no: 2,6,10,14,18,22)

(c) Detection of caffeine in different samples of tea leaves. (3,7,11,15,19)

(d) Determination of contents of cold drinks (Roll no: 4,8,12,16,20)

Subject Teacher: _____

SUBJECT- BIOLOGY

1. Prepare a temporary mount to observe pollen germination.
2. Prepare a temporary mount of onion root tip to study mitosis.
3. Isolate DNA from available plant material such as spinach, green pea seeds, papaya, banana etc.
4. Flowers adapted to pollination by different agencies (wind, insects, birds).
5. Pollen germination on stigma through a permanent slide or scanning electron micrograph.
6. Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from grasshopper/mice).
7. Meiosis in onion bud cell or grasshopper testis through permanent slides.
8. T.S. of blastula through permanent slides (Mammalian).

Subject Teacher: _____

SUBJECT- INFORMATION PRACTICES

I. Data Handling

1. Create a panda's series from a dictionary of values and ndarray.

3. Create a Data Frame quarterly sales where each row contains the item category, item name, and expenditure. Group the rows by the category and print the total expenditure per category.

2. Given a Series, print all the elements that are above the 75th percentile.

4. Create a data frame for examination result and display row labels, column labels data types of each column and the dimensions

5. Filter out rows based on different criteria such as duplicate rows.

6. Importing and exporting data between pandas and CSV file

II. Visualization

1. Given the school result data, analyses the performance of the students on different parameters, e.g. subject wise or class wise

2. For the Data frames created above, analyze, and plot appropriate charts with title and legend

3. Take data of your interest from an open source (e.g. data.gov.in), aggregate and summarize it. Then plot it using different plotting functions of the Matplotlib library.

III. Data Management

1. Create a student table with the student id, name, and marks as attributes where the studentid is the

primary key.

2. Insert the details of a new student in the above table.

3. Delete the details of a student in the above table.

4. Use the select command to get the details of the students with marks more than 80.

5. Find the min, max, sum, and average of the marks in a student marks table.

6. Find the total number of customers from each country in the table (customer ID, customer Name, country) using group by.

7. Write a SQL. query to order the (student ID, marks) table in descending order of the marks.

Subject Teacher: _____

SUBJECT- PHYSICAL EDUCATION

Project work

Physical fitness

1. 50m race

2. 600m run/walk

3. Partial curl up

4. Sit and reach test

5. Push-ups (boys)

6. Modified push-ups (girls)

Yoga Asana for life style diseases:

1. Hypertension

2. Diabetes

3. Obesity

4. Back pain

5. Asthma

Two asanas for each lifestyle disease

Any one game of your own choice (Kho Kho, volleyball, Handball)

1. History

2. Five rules

3. Skills

4. Terminology

5. Ground marking

SUBJECT- ARTIFICAL INTELLIGENCE

Capstone Project:

Capstone Project Guidelines:

- In a group, minimum 3 and maximum 5 students are allowed.
- Their projects should be aligned with any of the SDGs.
- Students will complete their Capstone Project in Class XII and complete the project
- documentation.
- Video of the Capstone Project should be exactly of 3 minutes duration.
- The video will have the following components:

a. Problem statement

b. To which SDG the project is aligned to

c. Al concept/domains/algorithms

d. Working of the project

e. Conclusion

f. Acknowledgement to the teacher

Topics:-

ROLL NO. 1, 4, 7, 10 - Industry, innovation and infrastructure

ROLL NO. 13, 16, 19 - Affordable and Clean Energy

ROLL NO. 2, 5, 8, 11, 14-Sustainable cities and communities

ROLL NO. 15, 17, 20, - Decent work and economic growth

ROLL NO. 3, 6, 9, -Good health and well-being, Quality of Education

ROLL NO. 12, 18, 21, 22-Responsible Consumption and production

Subject Teacher: _____

Class Teacher **Academic I/C** **Principal**