

NORTH-EX PUBLIC SCHOOL
(Senior Secondary, Affiliated To CBSE)
School Block, Jain Nagar, Sector-38, Rohini, Delhi – 81
Summer holiday homework, 2021-22
CLASS – XII -A

PHYSICS

1. Answer the following
 - (a) Define electric flux. Write its SI unit
 - (b) A uniform electric field $\mathbf{E} = E_x \mathbf{i}$ N/C for $X > 0$ and $\mathbf{E} = -E_x \mathbf{i}$ N/C for $X < 0$ are given. A right circular cylinder of length 'l' cm and radius 'r' cm has its centre at the origin and its axis along the x-axis. Find out the net outward flux. Using gauss's law write the expression for the net charge within the cylinder.
2. State gauss's theorem in electrostatics. Using this theorem, derive an expression for the electric field intensity due to an infinitely long, straight wire of linear charge density ' λ ' Cm⁻¹.
3. The force between two charges placed in vacuum is 'F'. What happens to the force if the two charges are dipped in kerosene oil of dielectric constant, $k = 2$?
4. The electrostatic force on a small sphere of charge 0.4 μC due to another small sphere of charge -0.8 μC in air is 0.2 N.
 - (i) What is the distance between two spheres?
 - (ii) What is the force on the second sphere due to the first?
5.
 - (a) Define the term 'electric dipole moment'. Is it a scalar or a vector?
 - (b) Deduce an expression for the electric field at a point on the equatorial plane of an electric dipole of length 2a.
6. A point charge is placed at the centre of a spherical Gaussian surface. How will electric flux change if
 - (a) The sphere is replaced by a cube of same or different volume.
 - (b) A second charge is placed near, and outside the original sphere.
 - (c) A second charge is placed inside the sphere
 - (d) The original charge is replaced by an electric dipole
 - (e) The magnitude of charge is doubled
7. An electric dipole of length 2 cm is placed with its axis making an angle of 60° to a uniform electric field of 10⁵ N/C. If it experiences a torque of 8 Nm. Calculate
 - (a) Magnitude of the charge on the dipole, and
 - (b) Potential energy of the dipole.
8. Prepare an investigatory project.

BIOLOGY

1. Draw a diagram of a matured microspore of an angiosperm. Label its cellular Components.

2. Give an example of plant which came into India as a contaminant and is cause of Pollen allergy.
3. The microscopic pollen grains of the past are obtained as fossils. Mention the characteristics of the pollen grains that makes it happen.
4. State the function of filiform apparatus found in mature embryo sac of an angiosperm.
5. In maximum angiosperms grains are shed at the two-celled stage. Name the 2 cells.
6. Why do pollen grains of some flowers trigger **sneezing** in some people?
7. Differentiate between microsporogenesis and megasporogenesis. which type of cell division occurs during these events? Name the structure formed at the end of these two events.
8. With a neat, labeled diagram, describe the parts of atypical angiosperm ovule.
9. What is meant by monosporic development of a female gametophyte?
10. With a neat diagram and explain the 7-celled, 8-nucleate nature of the female gametophyte.
11. What are chasmogamous flowers? Can cross-pollination occur in cleistogamous flowers? Give reason for your answer.
12. What is self-incompatibility? Why does self pollination not lead to seed formation in self-Compatibility species?
13. What is triple fusion? Where and how does it take place? Name the nuclei involved in triple Fusion.
14. Why do you think the zygote is dormant for sometime in a fertilized ovule?
15. Differentiate between:
 - (a) Hypocotyls and epicotyls
 - (b) Coleoptiles and coleorhizae
 - (c) Perisperm and pericarp
16. **Prepare an investigatory project.**

COMPUTER SCIENCE

- Q1 what is the difference between variable and constant?
- Q2 State the basic rules to declare variables in Python.
- Q3 How can we declare variables in Python?
- Q4 What is a keyword, Write the name of keywords?
- Q5 Differentiate between break and continue statements.
- Q6 Rewrite the following code in python after removing all syntax error(s).

Underline each correction done in the code.

```
fee=250
```

```
0 = i
```

```
while
```

```
fee=<
```

```
2000:
```

```
if
```

```

fee<=
750:
print
(fee)
fee
=+
250
else:
    print(
"fee"*i)
i=i+1
fee=Fee+250

```

Q7 what is relational operators? Give example.

Q8 Explain Arithmetic and assignment operators

Q9. Write the code to create the list of::

1. Five vegetables
2. Vowels
3. First 10 natural numbers
4. Square of first 5 natural numbers.
5. Any five names of your friends
6. All the alphabets of word "Taj Mahal"

7. First five multiples of 6.

a=["Lady Finger", "Carrot", "Radish", "Cauli Flower", "Beetroot"] (# You can write any other vegetable also)

b = ['a','e','o','i','u']

c = [1,2,3,4,5,6,7,8,9,10] d = [1,4,9,16,25]

e = ['amit','anuj','ashu','suman','mridul'] (# You can write any other names also) f = ['T','a','j','M','a','h','a','l']

Q 10. Rewrite the following code in python after removing all syntax error(s).

Underline each correction done in the code.

```

a = input("Enter any
number") if
a%2=0:
print("Even number)
Else
print("Odd number")

```

MATHEMATICS

Note :

** Complete your following questions in the test register*

** Have to make a practical file for practical work*

** Work should be completed in a proper way*

(A)

- 1)** A trust fund has Rs 30,000 that must be invested in two different types of bonds. The first bond pays 5% interest per year, and the second bond pays 7% interest per year. Using matrix multiplication, determine how to divide Rs 30,000 among the two types of bonds. If the trust fund must obtain an annual total interest of: (a) Rs 1800 (b) Rs 2000
- 2)** The bookshop of a particular school has 10 dozen chemistry books, 8 dozen physics books, 10 dozen economics books. Their selling prices are Rs 80, Rs 60 and Rs 40 each respectively. Find the total amount the bookshop will receive from selling all the books using matrix algebra.
- 3)** Prove that any square matrix can be expressed as the sum of a symmetric and a skew symmetric matrix.
- 4)** If A and B are symmetric matrices of the same order, then show that AB is symmetric if and only if A and B commute, that is $AB = BA$.
- 5)** . If A and B are symmetric matrices, prove that $AB - BA$ is a skew symmetric matrix
- 6)** Show that the matrix $B'AB$ is symmetric or skew symmetric according as A is symmetric or skew symmetric.
- 7)** A manufacturer produces three products x, y, z which he sells in two markets. Annual sales are indicated below: Market Products I 10,000 2,000 18,000 II 6,000 20,000 8,000 (a) If unit sale prices of x, y and z are Rs 2.50, Rs 1.50 and Rs 1.00, respectively, find the total revenue in each market with the help of matrix algebra. (b) If the unit costs of the above three commodities are Rs 2.00, Rs 1.00 and 50 paise respectively. Find the gross profit
- 8)** If the matrix A is both symmetric and skew symmetric, then (A) A is a diagonal matrix (B) A is a zero matrix (C) A is a square matrix (D) None of these
- 9)** Write all the Properties of multiplication of matrices.
- 10)** Show the Operations on Matrices by taking examples

(B) Complete your practical file of mathematics



PHYSICAL EDUCATION

- Ch-1 planning in sports
- All questions read , learn and write
- Ch-2 sports and nutrition read and learn

ENGLISH CORE

(NOTE MAKING AND SUMMARY)..... (Do in fair register of English)

Q-1: Choose any 3 comprehension passage from E-practice book and do notes making and summary.(Follow and stick to the format and the rules taught in class)

Q-2: Read the newspaper daily and cut samples of the following in the fair register of English underlying it with the holiday homework:

- a. 3 Reports
- b. 3 Articles (On Coronavirus)
- c. 3 Poster (On Coronavirus)
- d. 5 Classified Advertisements.

Q-3: Write a letter to the editor of a national daily highlighting the neglect of our national monuments and how these are being damaged in the present day world.

Q-4: Write an article on the topic 'How Google controls the life of an average person'. (150-200 words)

Q-5: Learn and revise all the syllabus of Period Test-1.

CHEMISTRY

(1) Solve CBSE Question Papers 2008-2020 (Delhi Set -1 only) in Separate Sheets along with

Questions.(Chapter-1)

(2) Complete your Chemistry note book.(Chapter-1)

(3) Complete the synopsis on Working Project.

(4) Write all Reactions Five Times from Organic Chemistry(Chapter-10 to chapter -13) and p- Block

(Group 15 to Group18)in separate sheets.

(5) Write complete chapters of Biomolecules, Polymers and Chemistry in Every Day Life in a file