GEETA DEVI D A V PUBLIC SCHOOL
BHANDARKOLA, SATAR ROAD, DEOGHAR

SUMMER VACATION ASSIGNMENT- (2024-25)

Class: XII (SCIENCE)

NAME _____ **SECTION-**_____

SUBJECT- ENGLISH

Summer Vacation Home Assignment & Project work.

Write a bio sketch of twenty British writers/ poets/dramatists/ essayists in a beautiful stick file. The bio sketch es will include -

1. Birth and death year
2. Early life
3. Important works of art with introduction of at least any five
4. Masterpiece and its description

Project Work

Collect or download the photographs of all the writers and paste on the introductory page of the assignment.

SUBJECT:- MATHEMATICS

Assignment :

Workout all problems of different exercises for the topics :-
Relation and Function
Matrices
in a separate copy from your text book (NCERT Book).

Project \ Activities

Write Activities Number 1, 2 & 3 in your Activity copy properly.
*Note:- Details of the above activities will be shared in class WhatsApp group.

Subject:- BIOLOGY

Assignment - Write Exercise Question/Answer of Chapter-2
Project - Draw important labelled diagram of Chapter-2

SUBJECT- PHYSICS

1 Mark Questions

1) Draw the pattern of electric field lines, when a point charge Q is kept near an uncharged conducting plate. Delhi 2019
2) Draw a pattern of electric field lines due to two positive charges placed a distance d apart. All India 2019
3) Draw the pattern of electric field lines due to an electric dipole. All India 2019
4) Why do the electrostatic field lines not form closed loop? All India 2014, Delhi 2012
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? All India 2014
6) Why do the electric field lines never cross each other? All India 2014
7) Why must electrostatic field at the surface of a charged conductor be perpendicular to every point on it? Foreign 2014, Delhi 2012

25) Plot a graph showing the variation of Coulomb force (F) versus 1 / (r^2) where r is the distance between the two charges of each pair of charges (1mu×C, 2mu×C) and (mu×C, - 3 μC). Interpret the graphs obtained. All India 2011C

26) Two identical metallic spherical shells A and B having charges + 4Q and - 10Q are kept a certain distance apart. A third identical uncharged sphere C is first placed in contact with sphere A and then with sphere B, then spheres A and B are brought in contact and then separated. Find the charge on the spheres A and B. All India 2011C

27)A dipole with a dipole moment of magnitude pis in stable equilibrium in an electrostatic field of magnitude E. Find the work done in rotating this dipole to its position of unstable equilibrium. All India 20100

28) A dipole is present in an electrostatic field of magnitude 10^6 × N×C^{-1} . If the work done in rotating it from its position of stable equilibrium to its position of unstable equilibrium is 2×10^{-23} * epsilon , then find the magnitude of the dipole moment of this dipole. All India 20100

29) Deduce the expression for the electric field E due to a system of two charges q_{1} and q_{2} with position vectors r_{1} and r_{2} at a point r with respect to common origin. Delhi 2010C

17) Define electric flux and write its 81 unit The electric field components in the figure shown are E, αχ. E, O.E, -0, where 100N Cm Calculate the charge within the cube, assuming a = 0.1 m.

18)Two infinitely large plane thin parallel sheets having surface charge densities σε and σ(ση > are shown in the figure. Write the A magnitudes and directions of the net fields in the regions marked II and III. Foreign 2014

19) A hollow cylindrical box of length 1 m and area of cross -section 25 cm² is placed in a 1m 2 three-dimensional coordinate system as shown in the figure. The electric field in the region is given by E= 50 xl, where E is in NC and x is in metre. Find the following

(i) net flux through the cylinder.
(ii) charge enclosed by the cylinder.

24)Calculate the amount of work done to dissociate a system of three charges, two of luc and one of-40C placed on the vertices of an equilateral triangle of side 10 cm.

All India 2013

25) A test charge q is moved without acceleration from A to Calong the path from A to B and then from B to Cin electric field E as shown in the figure.

(i) Calculate the potential difference, between A and C.

(ii)At which point (of the two), the electric potential is more and why?

a)4 cm b)3 cm c)5 cm d)52 cm

29) In the following arrangement of capacitors, the energy stored in the 6μF capacitor is E.Find the value of the following over line nu×mu×F3 μF

(i) energy stored in 12mu*F capacitor
(ii) energy stored in 3uF capacitor
(iii) total energy drawn from the battery Foreign 2016

30)Find the ratio of the potential differences that must be applied across the parallel and series combination of two capacitors C and C_{2} with their capacitances in the ratio 1 : overline 2 so that the energy stored in these two cases becomes the same. All India 2016

31)Two capacitors of unknown capacitances C_{1} and C_{2} are connected first in series and then in parallel across a battery of 100 V. If the energy stored in the two combinations is 0.045 J and 0.25 J respectively, then determine the value of C_{1} and C_{9} Also, calculate the charge on each capacitor in parallel combination. All India 2015

32)Calculate the potential difference and the energy stored in the capacitor C_{2} in the circuit shown in the figure. Given potential at A is 90 V, C_{1} = 20mu*F C_{2} = 30mu*F and C_{3} = 15mu*F A- C_{1} tilde C_{2} Cy Delhi C_{3} 2015

33) (i) Obtain the expression for the energy stored per unit volume in a charged parallel plate capacitor.
(ii) The electric field inside a parallel plate capacitor is E. Find the amount of work done in moving a charge q over a closed rectangular loop. Delhi 2014

34)(i) Derive the expression for the capacitance nce of a parallel plate capacitor having plate area A and plate separation d.

SOLVE NCERT CHAPTER
SOLVE NCERT CHAPTER 1 AND CHAPTER 2

SUBJECT-CHEMISTRY

1) Calculate the mass percentage of benzene (C_6H_6) and carbon tetrachloride (CCl_4) if 22 g of benzene is dissolved in 122 g of carbon tetrachloride.

2) Calculate the molarity of each of the following solutions
   (a) 30 g of $Co(NO_3)26H_2O$ in 4·3 L of solution
   (b) 30 mL of 0-5 M H_2SO_4 diluted to 500 mL.

3) Calculate the mass of urea (NH_2CONH_2) required in making 2.5 kg of 0.25 molal aqueous solution.

4) Calculate
   (a) molality
   (b) molarity and
   (c) mole fraction of KI if the density of 20% (mass/mass) aqueous KI solution is 1·202 g mL-1.

5) The vapour pressures of pure liquids A and B are 450 mm and 700 mm of Hg respectively at 350 K. Calculate the composition of the liquid mixture if total vapour pressure is 600 mm of Hg. Also find the composition in the vapour phase.

6) 6.Calculate the mass of ascorbic acid (vitamin C, $C_6H_8O_6$) to be dissolved in 75 g of acetic acid to lower its melting point by 1·5°C. (Kf for CH_3COOH) = 3·9 K kg mol-1)

7) Define the following terms:

(i)Mole fraction

(ii) Molality

(iii) Molarity

(iv) Mass percentage

8) Calculate the percentage composition in terms of mass of a solution obtained by mixing 300 g of a 25% and 400 g of a 40% solution by mass.

9) What role does the molecular interaction play in solution of alcohol in water?

10) State Henry's law and mention some of its important applications.

11) According to Raoult's law, what is meant by positive and negative deviaitions and how is the sign of ΔsolH related to positive and negative deviations from Raoult's law?

12) The vapour pressure of water is 12.3 kPa at 300 K. Calculate vapour pressure of 1 molal solution of a non-volatile solute in it.

13) 13.Can you store copper sulphate solutions in a zinc pot?

14) 14.state function of salt bridge.

15) 15. Draw a Daniel cell and label Electrode and electrolytes and salt bridge used.

Project : write titration of mohrs salt and oxalic acid in practical lab manual.

SUBJECT- COMPUTER SCIENCE

Answer the following questions

1) What is the difference between a keyword and an identifier?
2) Write a Program to obtain temperature in Celsius and convert it into Fahrenheit using formula –
3) C X 9/5 + 32 = F
4) WAP to print the volume of a cylinder when radius and height of the cylinder is given by user.
5) WAP to find area of a triangle.
6) WAP to read a number in n and prints n^2, n^3, n^4
7) What are mutable and immutable types in Python? List both of them.
8) WAP to check the given year is leap year or not.

WAP to take the temperatures of all 7 days of the week and displays the average temperature of that week.

9) WAP that searches for prime numbers from 15 through 25.

10) WAP to calculate the roots of a given quadratic equation.

12) WAP to print the following pattern

(a)
```
*
* *
* * *
* * * *
* * * * *
```

(b)
```
    *
   * *
  * * *
 * * * *
* * * * *
```

(c)
```
A
A B
A B C
A B C D
A B C D E
```

(d)
```
0
2 2
4 4 4
8 8 8 8
```

13)Start with the list[8,9,10]. Do the following using list functions

i. Set the second entry (index 1) to 17

ii. Add 4, 5 and 6 to the end of the list.

iii. Remove the first entry from the list.

iv. Sort the list.

v. Double the list.Insert 25 at index 3

14) WAP to find minimum element from a list of elements along with its index in the list.