GREENWAYS SCHOOL

MORINDA-CHAMKAUR SAHIB ROAD,RURKI HEERAN

Holidays Home-Work

Session 2023-24

Class - XII (Science)

English

1.Make a PowerPoint assignment on following Topic.
(i) The Tiger King [Even roll no.]
(ii) The last lesson [Odd roll no.]
*Need to bring along hard copy of above assignment.
2.Make a colourful poster on a A4 sheet on following topics.
(i) Gender equality
(ii) safe driving
3. Write an article of at least 100 words on "Brain Drain".
4. Revise the whole syllabus properly.

Math

Write down the Applications of the following in the assignment sheets:
1.Applications of matrices in different fields.
2.Applications of Determinants in different fields.
3.Applications of relation and functions in different fields.
Write at least 10 points for each of them.
Revise the chapters : Matrices, Determinants and Relation and Function

Physics

Do revision of following units:-
1. Electrostatics.
2. Current electricity.
3. Electromagnetisms.

Also make proper notes.
Do the assignments:-
Assignment 1.
1. Two charges each of + Q units are placed along a line. A third charge – q is placed
between them. At what position and for what value of q, will the system be in equilibrium?

2. What kind of charges are produced on each, when (i) a glass rod is rubbed with silk and
(ii) an ebonite rod is rubbed with wool?
3. Can a body have charge of 19 0.8 10 C? Comment to justify your answer?
4. Name the experiment, which established quantum nature of electric charge.
5. How the mass of a body is affected on charging?
6. Force between two-point electric charges kept at a distance d apart in air is F. If these charges are kept at the same distance in water, how does the force between them change?
7. If the distance between two equal point charges is doubled and their individual charges are also doubled, what would happen to the force between them?
8. Ordinary rubber is an insulator. But the special rubber tires of aircrafts are made slightly conducting. Why is this necessary?
9. Vehicles carrying inflammable materials usually have metallic ropes touching the ground during motion. Why?
10. Can a charged body attract another uncharged body? Explain.
Or
Why does a charged glass rod attract a piece of paper?
11. A charge q is placed at the center of line joining two equal charges Q. Show that the system of three charges will be in equilibrium, if $q = -Q/4$.
12. The force acting between two-point charges q1 and q2 kept at some distance apart in air attractive or repulsive when (i) $q1\ q2 > 0$
(ii) $q1\ q2 < 0$.
13. Sketch the electric lines of force for two- point charges q1 and q2 ($q1 > q2$) separated by a distance d.
14. Express dielectric constant in terms of capacitance.
15. What is the effect of introducing a dielectric slab between the plates of a parallel plate
capacitor?

16. An electric dipole of dipole moment 20 10-6 C is enclosed by closed surface. What is the net electric flux coming out of this surface?

17. Sketch graph to show how charge Q given to a capacitor of capacitance C varies with the potential difference.

18. A charged air capacitor has stored energy Uo. What will be the energy stored when air is replaced by a dielectric of dielectric constant K, charge Q remaining the same.

19. In a parallel plate capacitor, the capacitance increases from 4F to 80 F on introducing the dielectric medium between the plates. What is the dielectric constant of the medium?

20. What orientation of an electric dipole in a uniform electric field corresponds to its stable equilibrium?

21. The force between two point charges kept at a distance r apart in air is F. If the same charges are kept in water at same distance, how does the force between them change?

22. Two point electric charges of unknown magnitude and sign are placed at a distance 'd' apart. The electric intensity is zero at a point, not between the charges but on the line joining them. Write two essential conditions for this to happen.

23. What should be the work done if a point charge + q is taken from a point A to the point B on the circumference drawn with another point + q at the center?

24. A and B are two conducting spheres of the same radius, A being solid and B hollow. Both are charged to the same potential. What will be the relation between the charges on the two spheres?

25. How much work is done in moving a 500 C charge between two points on an equi-potential surface.

Maintain practical files.

1.Write 4 experiments from each sections.

2. Write 3 activities from each sections.

3. Solve Kirchhoff's applications (twenty)

Physical Education

Practical file:

1.Physical fitness test

2.Athletics

3.Basketball

4.Football

5.Kabaddi

6.Kho-Kho

7.Vollyball

8.Handball

9.Hockey

10.Cricket

11.Yoga

Chemistry

Q.1.Answer the following questions:

1. Calculate the mass percentage of benzene (C6H6) and carbon tetrachloride (CCl4) if 22 g of benzene is dissolved in 122 g of carbon tetrachloride.

2. Calculate the mole fraction of benzene in solution containing 30% by mass in carbon tetrachloride.

3. 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.
4. Calculate the mass of urea (NH_2CONH_2) required in making 2.5 kg of 0.25 molal aqueous solution.
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. Boiling point of water at 750 mm Hg is 99.63°C. How much sucrose is to be added to 500 g of water such that it boils at 100°C.
7. 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)
8. Concentrated nitric acid used in the laboratory work is 68% nitric acid by mass in aqueous solution. What should be the molarity of such a sample of acid if the density of the solution is 1·504 g mL-1 ?
9. Calculate the potential of hydrogen electrode in contact with a solution whose pH is 10.
10. Calculate the emf of the cell in which the following reaction takes place:
$Ni(s)+2Ag^+$ (0.002 M) -> Ni^{2+} (0.160 M)+2Ag(s) Given that E(-)(cell) = 1.05 V
11. The molar conductivity of 0.025 mol L-1 methanoic acid is 46.1 S cm^2 mol-1. Calculate its degree of dissociation and dissociation constant Given $\lambda°(H^+)$=349.6 S cm^2 mol-1 and$\lambda°(HCOO^-)$ = 54.6 S cm^2 mol-1
12. Arrange the following metals in the order in which they displace each other from their salts.
Al, Cu, Fe, Mg and Zn
13. The conductivity of 0.20 M solution of KCl at 298 K is 0.0248 S cm^{-1}. Calculate its molar conductivity.

14. The resistance of a conductivity cell containing 0.001 M KCI solution at 298 K is 1500 Ω What is the cell constant if conductivity of 0.001 M KCI solution at 298 K is 0.146 x 10-3 S cm-1?
15. Why is the highest oxidation state of a metal exhibited by its fluoride and oxide only?
16. Which is a stronger reducing agent Cr^{2+} or Fe^{2+} and why?
17. Calculate the 'spin only' magnetic moment of $M^{2+}(aq)$ ion (Z = 27).
18. Explain why Cu^{+} ion is not stable in aqueous solutions?
19. Write down the electronic configuration of (i) Cr^{3+} (ii) Pm^{3+} (iii) Cu^{+} (iv) Ce^{4+}(v) Co^{2+} (vi) Lu^{2+}(vii) Mn^{2+} (viii) Th^{4+}.
20. What is lanthanoid contraction? What are the consequences of lanthanoid contraction?
21. What are the characteristics of the transition . elements and why are they called transition elements? Which of the d-block elements may not be regarded as the transition elements?

PRACTICAL FILE:
1. Enthalpy of neutralization of strong acid (HCI) and strong base (NaOH).
2.Determination of enthaply change during interaction (Hydrogen bond formation) between Acetone and Chloroform.
3. Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.
4. Preparation of one lyophilic and one lyophobic sol
Lyophilic sol - starch, egg albumin and gum
Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide.

5. Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of Rf values.
6. Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum. Preparation of Potassium Ferric Oxalate.

PROJECT:(Do any one)

- Study of the presence of oxalate ions in guava fruit at different stages of ripening.
- Study of quantity of casein present in different samples of milk.
- Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
- Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)
- Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
- Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
- Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).
- Study of common food adulterants in fat, oil, butter, sugar, turmeric power, chilli powder and pepper.

Biology

1)Do revision of the following chapters.
1)Sexual reproduction in flowering plants.
2)Ecosystem
3)Evolution
Also make proper notes:
2)Do the assignments.
1)A mature embryo sac in a flowering plant may posses 7 -cell but 8 nuclei .explain with the help of a diagram only.
2) why are angiosperm anther called dithecous? describe the structure of its microsporangium.
3) Explain the role of tapetum in the formation of pollen grain wall.

4)What is meant by emasculation ?when and why does a plant breeder employ this technique?
5) what chasmogamousflowers? can cross pollination occur in cleistogamous flowers? give reasons for your answer.
6) what is self incompatibility ?why does self pollination not lead to sead formation in self incompatible species?
7) what is triple ? where and how does it take place ?Name the nuclei involved in triple fusion.
8) differentiate between perisperm and pericarp.
9)What is primary productivity? Give brief description of factors that affect primary productivity.
10) give an account of energy flow in an ecosystem.
11) Define decomposition and describe the processes and products of decomposition.
12) explain antibiotic resistance observed in bacteria in light of Darwinian selection theory.
13) can we call human evolution as adaptive radiation.
14) list 10 modern day animals and using the internet resources link it to corresponding ancient Fossil .Name both.
15) Define ecological pyramids and describe with example, pyramid of number and biomass.
3) Maintain practical files.