

KENDRIYA VIDYALAYA No.4 ONGC VADODARA

HOLIDAY HOMEWORK (2023-24)

CLASS – XII

(हिंदी)

1. डॉ अब्दुल कलाम द्वारा रचित “अग्नि की उड़ान” पुस्तक को पढ़कर उसकी समीक्षा लिखें ।
2. पांच देशभक्ति की ओजस्वी कवितायें अथवा पांच वीर रस की कवितायें लिखें और उन्हें कंठस्थ याद करें ।
3. किसी हिंदी समाचार पत्र को प्रतिदिन पढ़ें और पत्रकारिता के विभिन्न प्रकारों जैसे - सम्पादकीय, फीचर, लेख, स्तम्भ, विशेष लेखन इत्यादि की पहचान कर समाचार पत्र से काटकर फाइल में प्रतिदिन दिनांक सहित चस्पा करें । समाचार के विभिन्न प्रकारों को भी पहचानें ।
4. किसी भी विषय पर आधारित कोई एक वैचारिक लेख / निबंध अपने शब्दों में लिखें और सम्बंधित चित्र भी बनायें ।
5. निम्नलिखित में से किसी एक कवि का व्यक्तित्व एवं उनकी रचनाओं के बारे में चित्र सहित लिखें -
(अ) महादेवी वर्मा (ब) तुलसीदास (स) जयशंकर प्रसाद (द) सूर्यकांत त्रिपाठी निराला

(MATHEMATICS)

1. Chapter 1st relation and function solve extra examples.
2. Chapter 3rd matrices solve extra examples.
3. Solve every Sunday one sudoku and paste in notebook for mind sharpness.

(COMPUTER SCIENCE)

Chapter 1 – Revision of Python Basic

Note down the notes in your notebook.

Find out questions of this chapter from previous years board exam papers and solve it.

Learn definitions of the chapter.

Learn Differentiation between –

- a) List & tuple
- b) Mutable & Immutable types
- c) Break and continue

Learn Questions based on String slicing.

Practice Practical Question of string, tuple, list and dictionary and control statements.(if-else, loops)

Note down the notes in your notebook of chapter FUNCTIONS.

(BIOLOGY)

(Syllabus Content)

TO BE DONE IN REGULAR CW/HW COPY

- Q1 Prepare the Notes of Chapter: 4 REPRODUCTIVE HEALTH
- Q2. Do the reading work of CHAPTER-9: HEREDITY & EVOLUTION from Class-X (NCERT Book) and write down the important scientific terms which we must discuss during the detailed study of the chapters related to Genetics & Evolution, in the month of June-2023.
- Q3. Draw the labelled figure of the following:
- (A) Anther (T.S)
 - (B) Anatropous Ovule
 - (C) Polygonum Type of Embryo Sac
 - (D) Monocot & Dicot Seed
 - (E) Testis (T.S) showing Seminiferous Tubules
 - (F) Spermatozoa
 - (G) Human Ovum
 - (H) Human Ovary (T.S)
- Q4. **Jumbling:** Rearrange the following terms related to REPRODUCTION:
- (Eg. TPCIEUONRDOR = REPRODUCTION)**
- (A) TONYODECL
 - (B) MOYTLOLNYHEP
 - (C) ALATCPNE
 - (D) OLTSOMURC
 - (E) ATMORZEOPAS
- Q5. Make at least five such jumbled words from chapter 1 and 2. You can prepare more from other chapters of the syllabus too.

(Explorative Content)

Q6. INVESTIGATORY PROJECT & ART INTEGRATION

As the students are supposed to make an investigatory project for SEE (Practical) to be evaluated by External as well as Internal Examiner on the day of Practical Examination, following points are to be kept in mind:

1. Project work MUST be hand written only.
2. Proof of investigation & Experimentation must be submitted as data and Photographs (students face must be seen and he/she must wear school uniform only)
3. **Decoration work Must include some art forms of Jammu & Kashmir. (Art Integration)**
4. Format of project file/report has already been provided to all, hence it must be strictly followed.
5. Before starting any project, student must get the topic approved by the subject teacher so that it may NOT be repeated/ Non-Biology Topic/ Absurd or Hypothetical topic/ Non-Investigatory project.
6. Project will be evaluated based on Original Work, Creative Presentation, Technical Points and Viva based on it.
7. Last date of Project Submission is **30th September 2023.**

(Details have already been discussed in the class)

Q7. News-paper Reading & Creative Writing:

Students are required to read the science related articles from the newspaper and write their views on any **five** science related articles.

Format:

Article – 1

Name of the newspaper:

Date/Day:

Page Number of the article:

Heading of the Article

Your views on Article (in 50-100 words) about what you learnt from this, what are your views on the topic/problem, suggestions for betterment, questions raised in your mind and how you found answers, any question remained unanswered etc..

(CHEMISTRY)

SAMPLE QUESTION PAPER (2022-23)

CHEMISTRY THEORY (043)

ELECTROCHEMISTRY

M.M:70

Time:3 Hours

General instructions:

Read the following instructions carefully.

- A) There are 35 questions in this question paper with internal choice.
- B) SECTION A consists of 18 multiple choice questions carrying 1 mark each.
- C) SECTION B consists of 7 very short answer questions carrying 2 marks each.
- D) SECTION C consists of 5 short answer questions carrying 3 marks each.
- E) SECTION D consists of 2 case – based questions carrying 4 marks each.
- F) SECTION E consists of 3 long answer questions carrying 5 marks each.
- G) All questions are compulsory.
- H) Use of log tables and calculators is not allowed.

SECTION A

The following questions are multiple choice questions with one correct answer. Each question carry 1 mark. There is no internal choice in this section.

1. The function of the salt bridge is to
 - (a) Allow ions to move from anode to cathode
 - (b) Allow solutions from one half cell to the other half cell
 - (c) Allow the current to flow through the cell and keep the solutions electrically neutral
 - (d) Keep the level of solution same.
2. Zinc is used to protect iron from corrosion because
 - (a) E_{oxi} of zinc is less than E_{oxi} of iron
 - (b) E_{red} of zinc is less than E_{red} of iron
 - (c) Zinc is cheaper than iron
 - (d) Zinc is abundantly available
3. The charge required for reduction of 1 mol of $\text{Cr}_2\text{O}_7^{2-}$ ions to Cr^{3+} is-
 - (a) 96500 C
 - (b) 2×96500 C
 - (c) 6×96500 C
 - (d) 4×96500 C
4. Other things being equal , the life of a Daniel cell may be increased by
 - (a) Keeping low temperature
 - (b) Using large copper electrodes
 - (c) Decreasing concentration of copper ions
 - (d) Using large zinc electrodes
5. The ionic conductivity of the cations and anion of the univalent salt is 140 and 80 respectively. The molar conductivity of the salt is
 - (a) $160 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$

- (b) $280 \Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$
(c) 60 moles
(d) $220 \Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$
6. Faraday's laws of electrolysis are related to
(a) Atomic number of the cation
(b) Atomic number of the anion
(c) Equivalent mass of the electrolytes
(d) Speed of the cation
7. The molar conductivity of an electrolyte increases as
(a) Dilution increases
(b) Temperature decreases
(c) Dilution decreases
(d) None of the above
8. When aqueous solution of NaCl is electrolyzed the product obtained at the cathode is
(a) Hydrogen
(b) Sodium metal
(c) Oxygen
(d) Chlorine
9. A dilute aqueous solution of Na_2SO_4 is electrolyzed using Pt electrodes. The products at the anode and cathode are
(a) O_2, H_2
(b) $\text{S}_2\text{O}_8^{2-}, \text{Na}$
(c) O_2, Na_6
(d) $\text{S}_2\text{O}_8^{2-}, \text{H}_2$
10. The ionic conductance of Ba^{2+} and Cl^- ions are respectively 127 and $76 \Omega^{-1} \text{ cm}^2$ at infinite dilution. The equivalent conductance of BaCl_2 at infinite dilution is
(a) $203 \Omega^{-1} \text{ cm}^2$
(b) $279 \Omega^{-1} \text{ cm}^2$
(c) $101.5 \Omega^{-1} \text{ cm}^2$
(d) $139.5 \Omega^{-1} \text{ cm}^2$
11. The best way to prevent rusting of iron is by
(a) Putting it in to saline water
(b) Cathodic protection
(c) Coating tin on it
(d) Putting it in tap water
12. A lead storage battery is recharged
(a) Lead dioxide dissolves
(b) Sulphuric acid is regenerated
(c) Lead electrodes become coated with lead sulphide
(d) The concentration of sulphuric acid decreases
13. Saturated solution of KNO_3 is used to make salt bridge because
(a) Velocity of K^+ ion is greater than that of NO_3^-
(b) Velocity of K^+ ion is lesser than that of NO_3^-
(c) Velocity of K^+ and NO_3^- ions are equal
(d) KNO_3 is highly soluble in water

14. For the redox reaction $\text{Zn} + \text{Cu}^{2+}(0.1\text{M}) \rightarrow \text{Zn}^{2+}(1\text{M}) + \text{Cu}$ taking place in a cell $E^\circ_{\text{cell}} = 1.10 \text{ V}$. E_{cell} for the galvanic cell will be
- 2.14 V
 - 1.80 V
 - 1.07 V
 - 0.82 V
15. Given below are two statements labelled as Assertion (A) and Reason (R)
- Assertion (A)** – The reduction potential of the electrode can be increased by increasing the concentration of metal cations.
- Reason (R)** – E is directly proportional to $[\text{M}^{n+}]$
- Select the most appropriate answer from the options given below:
- Both A and R are true and R is the correct explanation of A
 - Both A and R are true but R is not the correct explanation of A.
 - A is true but R is false.
 - A is false but R is true
16. Given below are two statements labelled as Assertion (A) and Reason (R)
- Assertion (A)** – Zinc protect the iron better than tin even after cracks.
- Reason (R)** – Oxidation potential of $\text{Zn} > \text{Fe}$ but oxidation potential of $\text{Sn} < \text{Fe}$
- Select the most appropriate answer from the options given below:
- Both A and R are true and R is the correct explanation of A
 - Both A and R are true but R is not the correct explanation of A.
 - A is true but R is false.
 - A is false but R is true
17. Given below are two statements labelled as Assertion (A) and Reason (R)
- Assertion (A)** – Identification of anode and cathode is done by use of thermometer.
- Reason (R)** – Higher the value of reduction potential greater would be its oxidizing power.
- Select the most appropriate answer from the options given below:
- Both A and R are true and R is the correct explanation of A
 - Both A and R are true but R is not the correct explanation of A.
 - A is true but R is false.
 - A is false but R is true
18. Given below are two statements labelled as Assertion (A) and Reason (R)
- Assertion (A)** – E° is an intensive property.
- Reason (R)** – E° is constant for a particular electrode at a given temperature
- Select the most appropriate answer from the options given below:
- Both A and R are true and R is the correct explanation of A
 - Both A and R are true but R is not the correct explanation of A.
 - A is true but R is false.
 - A is false but R is true

SECTION B

This section contains 7 questions with internal choice in two questions. The following questions are very short answer type and carry 2 marks of each.

- The conductivity of 0.20 M solution of KCl at 298 K is 0.0248 S cm^{-1} . Calculate its molar conductivity.
- How much charge is required for the following reduction of

- (i) 1 mol of Al^{3+} to Al
- (ii) 1 mol of MnO_4^- to Mn^{2+}

OR

How much electricity in terms of Faraday is required to produce?

- (i) 20.0 g of Ca from molten CaCl_2
- (ii) 40.0 g of Al from molten Al_2O_3

21. What are Fuel cells? Write cell reaction.

OR

What advantages do fuel cell have over conventional methods of generating electrical energy?

- 22. State Kohlrausch's law and mention its applications.
- 23. What is corrosion? Give the mechanism of rusting on the basis of electrochemical theory.
- 24. Calculate the potential of hydrogen electrode in contact with a solution whose pH is 10.
- 25. Give chemical reaction taking place during discharging of lead storage battery.

SECTION C

This section contains 5 questions with internal choice in two questions. The following questions are short answer type and carry 3 marks.

- 26. Calculate the maximum work done that can be obtained from the Daniell cell $\text{Zn}/\text{Zn}^{2+}//\text{Cu}^{2+}/\text{Cu}$. Given that $E^\circ_{\text{Zn}^{2+}/\text{Zn}}$ and $E^\circ_{\text{Cu}^{2+}/\text{Cu}}$ are -0.76 and +0.34 V respectively.
- 27. Define molar conductivity. How conductivity and molar conductivity does varies with dilution for both weak and strong electrolyte?
- 28. Given the following cell $\text{Al}/\text{Al}^{3+}(0.01\text{M})//\text{Fe}^{2+}(0.02\text{M})/\text{Fe}$. Calculate the value of E_{cell} at 298K. Given $E^\circ_{\text{Al}^{3+}/\text{Al}}$ and $E^\circ_{\text{Fe}^{2+}/\text{Fe}}$ are -1.66 V and -0.44 V respectively. [$\log 2=0.3010$]
- 29. A current of 1.50A was passed through an electrolytic cell containing AgNO_3 solution with inert electrodes .The weight of silver deposited was 1.50 g. How long did the current flow ?
($\text{Ag}=108 \text{ u}$, $F=96500 \text{ C/mol}$)

OR

The conductivity of a 0.01M solution of acetic acid at 298K is $1.65 \times 10^{-4} \text{ Scm}^{-1}$. Calculate its molar conductivity.

- 30. Represent the cell in which the following reaction takes place. The value of E° for the cell is 1.260V. What is the value of E_{cell} ? $2\text{Al} + 3\text{Cd}^{2+}(0.1\text{M}) \rightarrow 3\text{Cd} + 2\text{Al}^{3+}(0.01\text{M})$

OR

Calculate the emf of the following cell at 25°C. $\text{Al}/\text{Al}^{3+}(0.001\text{M})//\text{Ni}^{2+}(0.1\text{M})/\text{Ni}$

Given $E^\circ_{\text{Al}^{3+}/\text{Al}}$ and $E^\circ_{\text{Ni}^{2+}/\text{Ni}}$ are -1.66 V and -0.25 V respectively. [$\log 2=0.3010, \log 3=0.4771$]

SECTION D

The following questions are case-based questions. Each question has an internal choice and carries 4 (1+1+2) marks each. Read the passage carefully and answer the questions that follow.

- 31. Molar conductivity for weak electrolytes can be obtained from molar conductivities of strong electrolytes at infinite dilution by doing algebraic addition. For example ,molar conductivity of weak electrolyte like CH_3COOH can be obtained from molar conductivities at infinite dilution of strong electrolytes like CH_3COONa , HCl and NaCl according to Kohlrausch's law

$$\Lambda^\circ_{\text{m}} \text{CH}_3\text{COOH} = [\Lambda^\circ_{\text{m}}\text{CH}_3\text{COO}^- + \Lambda^\circ_{\text{m}}\text{Na}^+] + [\Lambda^\circ_{\text{m}}\text{H}^+ + \Lambda^\circ_{\text{m}}\text{Cl}^-] - [\Lambda^\circ_{\text{m}} \text{Na}^+ + \Lambda^\circ_{\text{m}}\text{Cl}^-]$$

- (i) What is the expression of Λ°_{m} for an electrolyte A_mB_n ?
- (ii) Define limiting molar conductivity.

- (iii) Calculate $\Lambda^{\circ}m$ for AgCl if $\Lambda^{\circ}m(\text{AgNO}_3) = 133.4$, $\Lambda^{\circ}m(\text{KCl})=149.9$, $\Lambda^{\circ}m(\text{KNO}_3)=144.9$ $\text{Scm}^2\text{mol}^{-1}$

OR

Calculate $\Lambda^{\circ}m$ for HAc if $\Lambda^{\circ}m(\text{HCl}) = 425.9$, $\Lambda^{\circ}m(\text{NaCl})=126.4$, $\Lambda^{\circ}m(\text{NaAc})=91.0$ $\text{Scm}^2\text{mol}^{-1}$

32. The standard electrode potentials are very important and we can extract a lot of useful information from them. If the standard electrode potential of an electrode is greater than Zero then it's reduced form is more stable compared to hydrogen gas. Similarly, if the standard electrode potential is negative than hydrogen gas is more stable than the reduced form of the species. It can be seen that the standard electrode potential for Fluorine is the highest indicating that F_2 gas has the maximum tendency to get reduced to Fluoride ion F^- and therefore Fluorine gas is the strongest oxidizing agent and Fluoride ion is the weakest reducing agent.

- (i) Which element can act as the strongest reducing agent?
- (ii) How cell potential can be measured?
- (iii) Which electrode can work as anode in galvanic cell?
- (iv) Find out E°_{cell} for $\text{Zn}/\text{Zn}^{2+}(0.1\text{M})//\text{Cu}^{2+}(0.10\text{M})/\text{Cu}$
[given $E^{\circ}\text{Zn}^{2+}/\text{Zn}$ and $E^{\circ}\text{Cu}^{2+}/\text{Cu}$ are -0.76 V and $+0.34$ V respectively]

OR

Write cell reaction for the above galvanic cell and mention cathode and anode.

SECTION E

The following questions are long answer type and carry 5 marks each. Two questions have an internal choice.

33. a. Why does the cell voltage of a mercury cell remain constant during its life time ?

b. Write the reaction occurring at anode and cathode and the products of electrolysis of aq KCl.

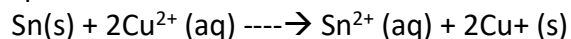
c. What is the pH of HCl solution when the hydrogen gas electrode shows a potential of -0.59 V at standard temperature and pressure?

OR

a. Molar conductivity of substance "A" is 5.9×10^3 S/m and "B" is 1×10^{-16} S/m. Which of the two is most likely to be copper metal and why?

b. What is the quantity of electricity in Coulombs required to produce 4.8 g of Mg from molten MgCl_2 ? How much Ca will be produced if the same amount of electricity was passed through molten CaCl_2 ? (Atomic mass of Mg = 24 u, atomic mass of Ca = 40 u).

c. What is the standard free energy change for the following reaction at room temperature? Is the reaction spontaneous?



Given $E^{\circ}\text{Sn}^{2+}/\text{Sn}$ and $E^{\circ}\text{Cu}^{2+}/\text{Cu}$ are -0.14 V and $+0.34$ V respectively

34. (i) State Faraday's Laws of electrolysis?

(ii) Three electrolytic cells A, B, C containing solutions of ZnSO_4 , AgNO_3 and CuSO_4 respectively are connected in series. A steady current of 1.5 amperes was passed through them until 1.45 g of silver deposited at the cathode of cell B. How long did the current flow? What mass of copper and zinc were deposited?

35. The molar conductivity of 0.025 mol L^{-1} methanoic acid is 46.1 $\text{S cm}^2\text{mol}^{-1}$. Calculate its degree of dissociation and dissociation constant. Given $\lambda^{\circ}\text{H}^+ = 349.6$ $\text{S cm}^2\text{mol}^{-1}$

and $\lambda^\circ(\text{HCOO}^-) = 54.6 \text{ S cm}^2 \text{ mol}^{-1}$

OR

(a) Depict the galvanic cell in which the reaction takes place.



(i) Which of the electrode is negatively charged? Further show:

(ii) The carriers of the current in the cell.

(iii) Individual reaction at each electrode.

(b) A solution of $\text{Ni}(\text{NO}_3)_2$ is electrolysed between platinum electrodes using a current of 5 amperes for 20 minutes. What mass of Ni is deposited at the cathode?

SAMPLE PAPER CHEMISTRY THEORY CLASS XII (Lesson: - Solution) MM:70 Time: 3 hours

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- b) SECTION A consists of 18 multiple-choice questions carrying 1 mark each.
- c) SECTION B consists of 7 very short answer questions carrying 2 marks each.
- d) SECTION C consists of 5 short answer questions carrying 3 marks each.
- e) SECTION D consists of 2 case- based questions carrying 4 marks each.
- f) SECTION E consists of 3 long answer questions carrying 5 marks each.
- g) All questions are compulsory.
- h) Use of log tables and calculators is not allowed

SECTION A

The following questions are multiple-choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.

MULTIPLE CHOICE QUESTIOS

- 1 The value of Henry's constant K_H is:
 - (a) greater for gases with higher solubility
 - (b) greater for gases with lower solubility.
 - (c) constant for all gases.
 - (d) not related to the solubility of gases.
- 2 Increasing the temperature of an aqueous solution will cause:
 - (a) decrease in molality
 - (b) decrease in molarity
 - (c) decrease in mole fraction
 - (d) decrease in % (w/w)
- 3 Colligative properties depend on:
 - (a) the nature of the solute
 - (b) the number of solute particles in solution
 - (c) the physical properties of solute
 - (d) the nature of the solvent
- 4 The unit of ebullioscopic constant is:
 - (a) $K \text{ kg mol}^{-1}$
 - (b) $K^{-1} \text{ kg mol}$
 - (c) $K \text{ kg}^{-1} \text{ mol}^{-1}$
 - (d) $K \text{ kg}^{-1} \text{ mol}$
- 5 The most suitable colligative property to determine molecular weight of biomolecules is:
 - (a) Lowering of vapour pressure
 - (b) Osmotic pressure
 - (c) Elevation of boiling point
 - (d) Depression of freezing point
- 6 The number of moles of NaCl in 3 litres of 3M solution is:
 - (a) 1
 - (b) 3
 - (c) 9
 - (d) 7
- 7 Which has highest freezing point:
 - (a) 1 M Glucose
 - (b) 1 M NaCl
 - (c) 1 M CaCl_2
 - (d) 1 M AlF_3

- 8 Which of the following condition is not satisfied by an ideal solution?
(a) $\Delta H_{\text{mixing}} = 0$
(b) $\Delta V_{\text{mixing}} = 0$
(c) Raoult's Law is obeyed
(d) Formation of an azeotropic mixture
- 9 Considering the formation, breaking and strength of hydrogen bond, predict which of the following mixtures will show a negative deviation from Raoult's law?
(a) Methanol and acetone.
(b) Chloroform and acetone.
(c) Phenol and aniline.
(d) Cyclohexane and ethanol
- 10 The boiling point of an azeotropic mixture of water and ethanol is less than that of water and ethanol. The mixture shows:
(a) no deviation from Raoult's Law.
(b) positive deviation from Raoult's Law.
(c) negative deviation from Raoult's Law.
(d) that the solution is unsaturated.
- 11 If 2 gm of NaOH is present in 200 ml of its solution, its molarity will be
(a) 0.25
(b) 0.5
(c) 5
(d) 10
- 12 The atmospheric pollution is generally measured in the units of
(a) mass percentage
(b) volume percentage
(c) volume fraction
(d) ppm
- 13 A 5% solution of cane-sugar (molecular weight = 342) is isotonic with 1% solution of substance A. The molecular weight of X is
(a) 342
(b) 171.2
(c) 68.4
(d) 136.8
- 14 234.2 gm of sugar syrup contains 34.2 gm of sugar. What is the molal concentration of the solution.
(a) 0.1
(b) 0.5
(c) 5.5
(d) 55
- 15 Given below are two statements labelled as Assertion (A) and Reason (R)
Assertion (A): When NaCl is added to water a depression in freezing point is observed.
Reason (R): The lowering of vapour pressure of a solution causes depression in the freezing point.
Select the most appropriate answer from the options given below:
(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is not the correct explanation of A
(c) A is true but R is false
(d) A is false but R is true
- 16 Given below are two statements labelled as Assertion (A) and Reason (R)

Assertion (A): Azeotropic mixtures are formed only by non-ideal solutions and they may have boiling points either greater than both the components or less than both the components.

Reason (R): The composition of the vapour phase is same as that of the liquid phase of an azeotropic mixture.

Select the most appropriate answer from the options given below:

- (a) Both A and R are true and R is the correct explanation of A
 - (b) Both A and R are true but R is not the correct explanation of A
 - (c) A is true but R is false
 - (d) A is false but R is true
- 17 Given below are two statements labelled as Assertion (A) and Reason (R)
Assertion (A): Molarity of a solution in liquid state changes with temperature.
Reason (R): The volume of a solution changes with change in temperature.
Select the most appropriate answer from the options given below:
- (a) Both A and R are true and R is the correct explanation of A
 - (b) Both A and R are true but R is not the correct explanation of A
 - (c) A is true but R is false
 - (d) A is false but R is true
- 18 Given below are two statements labelled as Assertion (A) and Reason (R)
Assertion (A): Molecular mass of benzoic acid when determined by colligative properties is found high.
Reason (R): Dimerization of benzoic acid.
Select the most appropriate answer from the options given below:
- (a) Both A and R are true and R is the correct explanation of A
 - (b) Both A and R are true but R is not the correct explanation of A
 - (c) A is true but R is false
 - (d) A is false but R is true

SECTION B

This section contains 7 questions with internal choice in two questions. The following questions are very short answer type and carry 2 marks each.

- 19 Equimolar solutions of NaCl and BaCl₂ are prepared in water. Freezing point of NaCl is found to be -2°C , What freezing point do you expect for BaCl₂ solution?
- 20 Write down four important points of differences between an ideal and a non-ideal solution.

OR

Calculate the mole fraction of benzene in a solution containing 30% by mass of it in CCl₄.

- 21 What do you mean by Raoult's law? What are the limitations of Raoult's law?

OR

How many types of azeotropes are there? Define them along with one example of each.

- 22 Plot a graph between vapour pressure and mole fraction of a solution obeying Raoult's Law at constant temperature?
- 23 A mixture of chlorobenzene and bromobenzene is a nearly an ideal solution but a mixture of chloroform and acetone is not Explain?
- 24 What is the molality of 1.0 M solution of sodium nitrate (NaNO₃) if its density is 1.25 g cm^{-3} ?
- 25 The vapour pressure of water is 12.3 kPa at 300K; calculate the vapour pressure of 1 molar solution of a solute in it.

SECTION C

This section contains 5 questions with internal choice in two questions. The following questions are short answer type and carry 3 marks each.

- 26 Miscible liquid pairs often show positive and negative deviation from Raoult's law. Explain the reason for such deviation? Give one example of each of liquid pairs.
- 27 A solution containing 18 g of non-volatile solute in 200g of water freezes at 272.07 K. calculate the molecular mass of solute (given $K_f = 1.86 \text{ K/m}$)

OR

Calculate the osmotic pressure at 27°C of a solution formed by mixing equal volumes of two solutions, one containing 0.05 mole of glucose in 250 ml of solution and the other containing 3.42 g of $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ in 250 ml of solution. [$R = 0.082 \text{ L atm mol}^{-1}\text{K}^{-1}$]

- 28 An aqueous solution freezes at 272.4 K while pure water freezes at 273 K. Determine (i) Molality of solution. (ii) Boiling point of solution (iii) Lowering of vapour pressure of water at 298 K.
- 29 The element A and B formed purely covalent compounds having molecular formula AB_2 and AB_4 . When dissolved in 20 gram of benzene 1 gram of AB_2 lowers the freezing point by 2.3 K and of AB_4 by 1.3 K. Calculate atomic mass of A and B. The molar depression constant for freezing is $5.1 \text{ K Kg mol}^{-1}$
- 30 An aqueous solution of 2% non-volatile solute exerts a pressure of 1.004 bar at the normal boiling point of the solvent. What is the molar mass of the solute? (Vapour pressure of pure water at the boiling point (P^0) = 1 atm = 1.013 bar)

OR

Explain the following colligative properties in brief under the following head: (Definition, Graphical representation and related mathematical expression)

SECTION D

The following questions are case-based questions. Each question has an internal choice and carries 4 (1+1+2) marks each. Read the passage carefully and answer the questions that follow.

31. Osmotic pressure results from a reduction in the chemical potential of a solvent in the presence of a solute. The tendency of a system to have equal chemical potentials over its entire volume and to reach a state of lowest free energy gives rise to the osmotic diffusion of matter. In ideal and dilute solutions, the osmotic pressure is independent of the nature of the solvent and solutes. At constant temperature it is determined only by the number of kinetically active particles—ions, molecules, associated species, and colloidal particles in a unit volume of the solution.

For very dilute solutions of nondissociating compounds, osmotic pressure is described with sufficient accuracy by the equation $\pi V = nRT$, where n is the number of moles of solute, V is the volume of the solution, R is the universal gas constant, and T is the absolute temperature.

The following questions are multiple choice questions. Choose the most appropriate answer

- (i) Name and define the process/method which is used for purification of water?
- (ii) Which colligative property is most suitable to measure molecular mass of proteins and why?
- (iii) 200 cm^3 of an aqueous solution of a protein contains 1.26 g of the protein. The osmotic pressure of such a solution at 300 K is found to be $2.57 \times 10^{-3} \text{ bar}$. Calculate the molar mass of the protein.

OR

A solution contains 0.8960g of K_2SO_4 in 500ml solution. Its osmotic pressure is found to be 0.690atm at 27°C . Calculate the value of Van't Hoff factor. ($K=39.0$, $S=32$, $O=16$, $R=0.082\text{atm mol}^{-1}\text{K}^{-1}$)

32. Read the passage carefully and answer the questions that follow.

A solution which obeys Raoult's law strictly is called an ideal solution, while a solution which shows deviations from Raoult's law is called a non-ideal solution or real solution. Suppose the molecules of the solvent and solute are represented by A and B respectively, and let g_{AB} , g_{AA} and g_{BB} are the attractive forces between $A-B$, $A-A$ and $B-B$ respectively. An ideal solution of the components A and B is defined as the solution in which the intermolecular interactions between the components $A-B$ are of the same magnitude as the intermolecular interactions found in the pure components $A-A$ and $B-B$. Similarly, a non-ideal solution of the components A and B is defined as the solution in which the intermolecular interactions between the components $A-B$ are of the different magnitude as the intermolecular interactions found in the pure components $A-A$ and $B-B$.

(i) What type of liquids form the ideal solution?

(ii) Give one example of an ideal solution.

(iii) (a) Write two characteristics of a non-ideal solution.

(b) Which type of deviation will be shown by the solution if $\gamma_{AB} < \gamma_{AA}$.

OR

Plot a graph between vapour pressure and mole fraction of a non-ideal solution showing positive and negative deviations from an ideal solution.

SECTION E

The following questions are long answer type and carry 5 marks each. Two questions have an internal choice.

33. (i) Two liquids A and B on mixing form an ideal solution. At 30°C vapour pressure of solution containing 3 mol of A and 1 mol of B is 550 mmHg. But when 4 mol of A and 1 mol of B are mixed. The vapour pressure of solution thus formed is 560 mm Hg. What would be the V.P of pure A and B ?

(ii) Explain the fact that Raoult's Law is a special case of Henry's Law.

(iii) According to Raoult's law, the vapour pressure of a volatile component in a given solution is given by $p_i = x_i p_i^0$.

OR

(a) 0.6 mL of acetic acid (CH_3COOH), having density 1.06 g mL^{-1} , is dissolved in 1 litre of water. The depression in freezing point observed for this strength of acid was 0.0205°C . Calculate the van't Hoff factor and the dissociation constant of acid.

(b) Define Van't Hoff factor. Give the value of Van't Hoff factor in case of the following: Association, Dissociation and neither association nor dissociation of solute when dissolved in a solvent.

34. (a) What is meant by abnormal molar mass of solute? Discuss the factors which bring abnormality in the experimentally determined molecular masses of solutes using colligative properties.

(b) If N_2 gas is bubbled through water at 293 K, how many millimoles of N_2 gas would dissolve in 1 litre of water. Assume that N_2 exerts a partial pressure of 0.987 bar. Given that Henry's law constant for N_2 at 293 K is 76.48 kbar.

1 Molar Mass/ van't Hoff factor = $120/4 = 30 \text{ g/mol}$

35. (a) Why is glycol and water mixture used in car radiators in cold countries?

(b) Give reason When 30 ml of ethyl alcohol and 30ml of water are mixed, the volume of resulting solution is more than 60ml.

(c) Define cryoscopic constant?

(d) State (i) Azeotropes and (ii) Henry's Law constant.

KENDRIYA VIDYALAYA NO. 4 ONGC VADODARA

CLASS: XII

WORKSHEET No: 01

CHAPTER: ELECTROCHEMISTRY

TIME: 35 MINUTES

Q.1 The difference between the electrode potentials of two electrodes when no current is drawn through the cell is called _____

- (a) Cell potential (b) Cell emf (c) Potential difference (d) Cell voltage

Q.2 An electrochemical cell can behave like an electrolytic cell when _____

- (a) $E_{\text{cell}} = 0$ (b) $E_{\text{cell}} > E_{\text{ext}}$ (c) $E_{\text{ext}} > E_{\text{cell}}$ (d) $E_{\text{cell}} = E_{\text{ext}}$

Q.3 The positive value of the standard electrode potential of Cu^{2+}/Cu indicates that _____

- (I) This redox couple is a stronger reducing agent than the H^+/H_2 couple.
(II) this redox couple is a stronger oxidising agent than H^+/H_2 .
(III) Cu can displace H_2 from acid.
(IV) Cu cannot displace H_2 from acid.

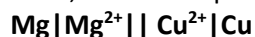
Identify the correct statement/s:

- (a) Statement I & III (b) Statement I & IV
(c) Statement II & III (d) Statement II & IV

Q.4 Which of the following statement is wrong about a galvanic cell?

- (a) cathode is positive charged (b) anode is negatively charged
(c) reduction takes place at the anode (c) reduction takes place at the cathode

Q.5 For the given cell, Incorrect option is:



- (a) Mg is Anode (b) The cell reaction is $\text{Mg}^{2+} + \text{Cu} \rightarrow \text{Mg} + \text{Cu}^{2+}$
(c) Cu is cathode (d) Cu is the oxidising agent

Given below are two statements labelled as Assertion (A) and Reason (R) Select the most appropriate answer from the options given below:

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is not the correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

Q.5 **Assertion** : Assertion: Copper sulphate can be stored in zinc vessel.

Reason: Zinc is more reactive than copper.

Q.6 **Assertion**: E_{cell} should have a positive value for the cell to function.

Reason: for a possible/feasible cell reaction the reduction potential should be in order $E_{\text{cathode}} < E_{\text{anode}}$.

Answer the questions in short

Q.1 Given that the standard electrode potentials (E°) of metals are

$\text{K}^+/\text{K} = -2.93 \text{ V}$, $\text{Ag}^+/\text{Ag} = +0.80 \text{ V}$, $\text{Cu}^{2+}/\text{Cu} = +0.34 \text{ V}$, $\text{Mg}^{2+}/\text{Mg} = -2.97 \text{ V}$, $\text{Cr}^{3+}/\text{Cr} = -0.74 \text{ V}$, $\text{Fe}^{2+}/\text{Fe} = -0.44 \text{ V}$.

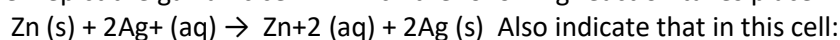
Arrange these metals in an increasing order of their reducing power.

Ans: _____

Q.2 Fluoride does not exhibit any positive oxidation state. Why?

Ans: _____

Q.3 Depict the galvanic cell in which the following reaction takes place:



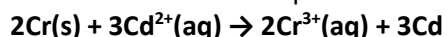
- (i) Which electrode is negatively charged?
(ii) What is the carrier of the current in the cell?
(iii) What is the individual reaction at each electrode?

Ans:(i) _____

(ii) _____

(iii) _____

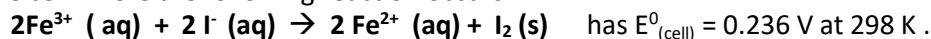
Q.04 Calculate the standard cell potentials of galvanic cell in which the following reaction take place:



Calculate the $\Delta_r G^0$ value for the reaction. Given $E^0_{(\text{Cr}^{3+}/\text{Cr})} = -0.74 \text{ V}$; $E^0_{(\text{Cd}^{2+}/\text{Cd})} = -0.40 \text{ V}$, $F = 96500 \text{ C mol}^{-1}$

Ans: _____

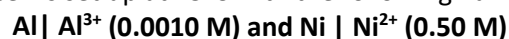
Q.05 The cell where the following reaction occurs



Calculate the standard Gibbs energy of the cell reaction. (Given: $1 \text{ F} = 96500 \text{ C mol}^{-1}$)

Ans: _____

Q.06 A voltaic cell is set up at 25°C with the following half cells:



(i) Write the equation for the cell reaction that occurs when the cell generates an electric current.

(ii) Determine the cell potential. (Given $E^0_{(\text{Ni}^{2+}/\text{Ni})} = -0.25 \text{ V}$, $E^0_{(\text{Al}^{3+}/\text{Al})} = -1.66 \text{ V}$)

(iii) Write the direction of flow of current when an external opposite potential applied is

(a) less than 1.41 V and (b) greater than 1.41 V

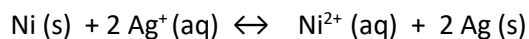
Ans:(i) _____

Ans:(ii) _____

Ans:(iii) (a) _____

Ans:(iii) (b) _____

Q.7 Calculate the log Kc for the given reaction at 298K :



Given: $E^0_{\text{Ni}^{2+}/\text{Ni}} = -0.25 \text{ V}$, $E^0_{\text{Ag}^{+}/\text{Ag}} = +0.80 \text{ V}$, $1\text{F} = 96500 \text{ C mol}^{-1}$

Ans: _____

KENDRIYA VIDYALAYA NO. 4 ONGC VADODARA

CLASS: XII

WORKSHEET No: 02

CHAPTER: ELECTROCHEMISTRY

TIME: 35 MINUTES

Q.1 Which of the statements about solutions of electrolytes is not correct?

- (a) Conductivity of solution depends upon size of ions.
- (b) Conductivity depends upon viscosity of solution.
- (c) Conductivity does not depend upon solvation of ions present in solution.
- (d) Conductivity of solution increases with temperature.

Q.2 The quantity of charge required to obtain one mole of aluminium from Al_2O_3 is _____.

- (a) 1F
- (b) 6F
- (c) 3F
- (d) 2F

Q.3 The cell constant of a conductivity cell _____.

- (a) changes with change of electrolyte.
- (b) changes with change of concentration of electrolyte.
- (c) changes with temperature of electrolyte.
- (d) remains constant for a cell.

Q.4 Saturated solution of KNO_3 is used to make 'salt bridge' because

- (a) velocity of K^+ is greater than that of NO_3^-
- (b) velocity of NO_3^- is greater than that of K^+
- (c) velocity of both K^+ and NO_3^- are nearly the same
- (d) KNO_3 is highly soluble in water

Q.5 The electrolyte used in Leclanche cell is

- (a) paste of KOH and ZnO
- (b) 38% solution of H_2SO_4
- (c) moist paste of NH_4Cl and ZnCl_2
- (d) moist sodium hydroxide

Given below are two statements labelled as Assertion (A) and Reason (R) Select the most appropriate answer from the options given below:

- (a) Both A and R are true and R is the correct explanation of A
- (b) Both A and R are true but R is not the correct explanation of A
- (c) A is true but R is false
- (d) A is false but R is true

Q.6 **Assertion:** For measuring resistance of an ionic solution an AC source is used.

Reason: Concentration of ionic solution will change if DC source is used.

Q.7 **Assertion:** Conductivity of all electrolytes decreases on dilution.

Reason: On dilution number of ions per unit volume decreases.

Answer the questions in short

Q.1 Name the type of cell which was used in Apollo space programme for providing electrical power

Ans: _____

Q.2 Write two advantages of fuel cell.

Ans (1) _____

(2) _____

Q.3 (a) What type of cell is a lead storage battery?

(b) Write the anode and cathode reactions and the overall cell reaction occurring in the use of a lead storage battery?

Ans: (a) _____

(b) _____

Q.04 Calculate the time to deposit 1.17 g of Ni at cathode when a current of 5 A was passed through the

solution of $\text{Ni}(\text{NO}_3)_2$. (Molar mass of $\text{Ni}=58.5 \text{ g mol}^{-1}$, $1\text{F} = 96500 \text{ C mol}^{-1}$)

Ans: _____

Q.05 (a) What is the role of ZnCl_2 in a dry cell?

(b) Account for the following: -

(i) Alkaline medium inhibits the rusting.

(ii) Iron does not rust even if zinc coating is broken down at any point in a galvanized pipe.

Ans:

(a) _____

(b)(i) _____

(ii) _____

Q.06 During the construction of some public building, the contractor intends to fix iron frames for windows and railings to reduce the cost of construction. After due considerations, it is finally recommended to use aluminium frames for windows and steel railings instead of iron.

Answer the following questions:

(i) As a chemist, do you agree with the new recommendations?

(ii) Give reasons for your choice.

Ans:

(i) _____

(ii) _____

Q.7 The conductivity of 0.001 mol L^{-1} solution of CH_3COOH is $3.905 \times 10^{-5} \text{ S cm}^{-1}$. Calculate its molar conductivity and degree of dissociation(α).

Given $\lambda^0(\text{H}^+) = 349.6 \text{ S cm}^2 \text{ mol}^{-1}$ and $\lambda^0(\text{CH}_3\text{COO}^-) = 40.9 \text{ S cm}^2 \text{ mol}^{-1}$.

Ans: _____

Q.8 Out of the following pairs, predict with reason which pair will allow greater conduction of electricity:

(i) Silver wire at 30°C or silver wire at 60°C .

(ii) $0.1 \text{ M CH}_3\text{COOH}$ solution or $1 \text{ M CH}_3\text{COOH}$ solution.

(iii) KCl solution at 20°C or KCl solution at 50°C .

Ans:(i) _____

Ans:(ii) _____

Ans:(iii) _____

Q.9 Predict the products of electrolysis in each of the following:

(i) Molten NaCl . (ii) An aqueous solution of NaCl .

Ans: (i) _____

(ii) _____

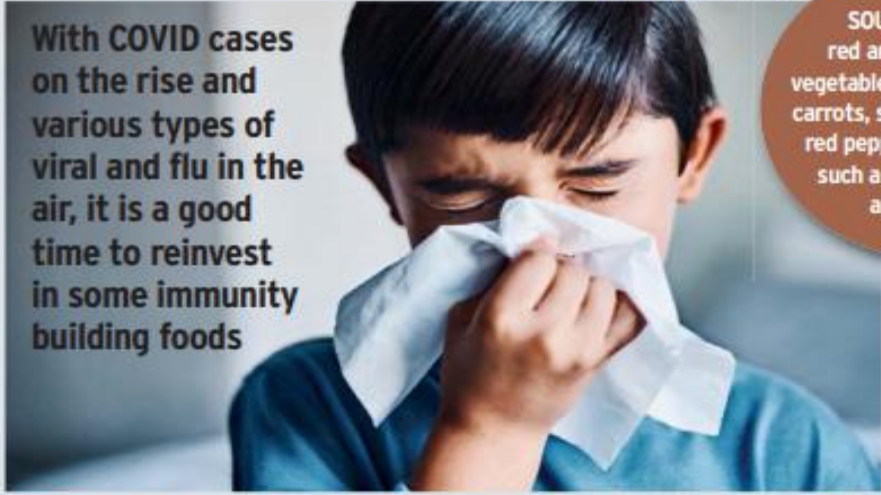
1. Reading time

Read the newspaper article and frame the following types of question based on your reading also answer the questions

HEALTH

FOOD
SOURCES: Yellow, red and green (leafy) vegetables, such as spinach, carrots, sweet potatoes and red peppers. Yellow fruits such as mango, papaya and apricots

With COVID cases on the rise and various types of viral and flu in the air, it is a good time to reinvest in some immunity building foods



VITAMIN C
Vitamin C contributes to immune defence by supporting various cellular functions of both the innate and adaptive immune system. Supplementation with vitamin C appears to be able to both prevent and treat respiratory and systemic infections. Vitamin C also functions as a powerful antioxidant, protecting against damage induced by oxidative stress.

FOOD SOURCES: Citrus fruits, such as oranges and sweet lime, peppers, strawberries, broccoli, brussels sprouts, potatoes

FUNCTIONAL NUTRITION FOR FLU

Making healthy lifestyle choices by consuming nutritious foods and getting enough sleep and exercise are the most important ways to bolster your immune system. In addition, research has shown that supplementing with certain vitamins, minerals, herbs, and other substances can help improve immune response and potentially protect against illness. Whether eaten as a whole food or in the form of a pill, the following supplements may help keep you healthy and your immune system in top shape to combat COVID:

ZINC
Zinc deficiency is common, especially in those populations most at risk for severe COVID infections. According to research, 16% of all deep respiratory infections worldwide have been found to be due to zinc deficiency. Supplementation with zinc is shown to prevent viral infections and reduce their severity and duration. Moreover, it can reduce the risk of lower respiratory infection.

ELDERBERRY
Elderberry (*Sambucus nigra*) is seen in many medicinal preparations and has widespread historical use as an anti-viral herb. Full of antiviral and anti-inflammatory properties, elderberry syrup is used as a remedy for colds, flus, and bacterial sinus infections. Based on animal research, elderberry is likely most effective in the prevention of and early infection with respiratory viruses.

VITAMIN D
Indoor confinement has made sure that most people are deficient in this important vitamin, which may negatively affect immune function. In fact, low vitamin D levels are associated with an increased risk of upper respiratory tract infections, including influenza and allergic asthma. Evidence suggests vitamin D supplementation may prevent upper respiratory infections.

VITAMIN A
Vitamin A is known as an anti-inflammatory vitamin because of its critical role in enhancing immune function. Vitamin A has demonstrated a therapeutic effect in the treatment of various infectious diseases.

GARLIC
Garlic has powerful anti-inflammatory and antiviral properties. It has been shown to enhance immune health by stimulating protective white blood cells.

CURCUMIN
Curcumin is the main active compound in turmeric. Curcumin is used in Ayurvedic and Chinese medicine for its analgesic, anti-inflammatory, and antiseptic activity. Curcumin can help fight inflammation and aid the body's immune response.

MUSHROOMS
Mushrooms are high in selenium and B vitamins like riboflavin and niacin, which are needed to keep the immune system running optimally.

LICORICE ROOT
Licorice root, when used as a gargle, may be used to soothe the pain of a sore throat, a common symptom of coronavirus, according to a 2009 study in the journal "Anesthesia & Analgesia". Additionally, licorice root can loosen congestion and reduce inflammation. You can also chew a piece of licorice root or drink it as a tea.

FOOD SOURCES: Cooked elderberries are used as a flavouring in foods and wine. Elderberries are also in foods like jams and pies. Do NOT consume them raw

FOOD SOURCES: Oily fish - such as salmon, sardines, herring and mackerel, red meat, egg yolks and fortified foods - such as some fat spreads and breakfast cereals

- 1) Frame Four MCQ type questions
- 2) Frame four WH questions
- 3) Frame three vocabulary based questions (words attack, synonyms, antonyms, noun forms , adjectival forms etc
- 4) Frame one cause effect type question

2. Read the Chapter Deep Water and find out what is a phobia ? What are the different kinds of phobia ? Make a mind map of the chapter.

3. ARTICLE WRITING.....

Deep water is the example of indomitable spirit. The narrator has conquered the fear of water by virtue of continuous efforts. It sets an example that perseverance is the key to success. Write an article on it in 150-200 words by following the format and value points given.

4. DEBATE

You might have observed that the role of narrator's mother and father at different occasion was quite negative and indifferent. Do you think that sometimes parents inadvertently sow the seeds of fear to contain the hyper activity and curious mind of the child? Write a debate on "parents sow the seeds of fear in the impressionable mind of children in their early age." Present your argument for the motion/ against the motion by following the format and expressions in 150-200words.

5. Convert the Poem Keeping Quiet into an art integrated project by explaining it with the help of pictures or PPT or Video

6. Design an Invitation card for The Annual Day of your school to be celebrated in the month of July 2023

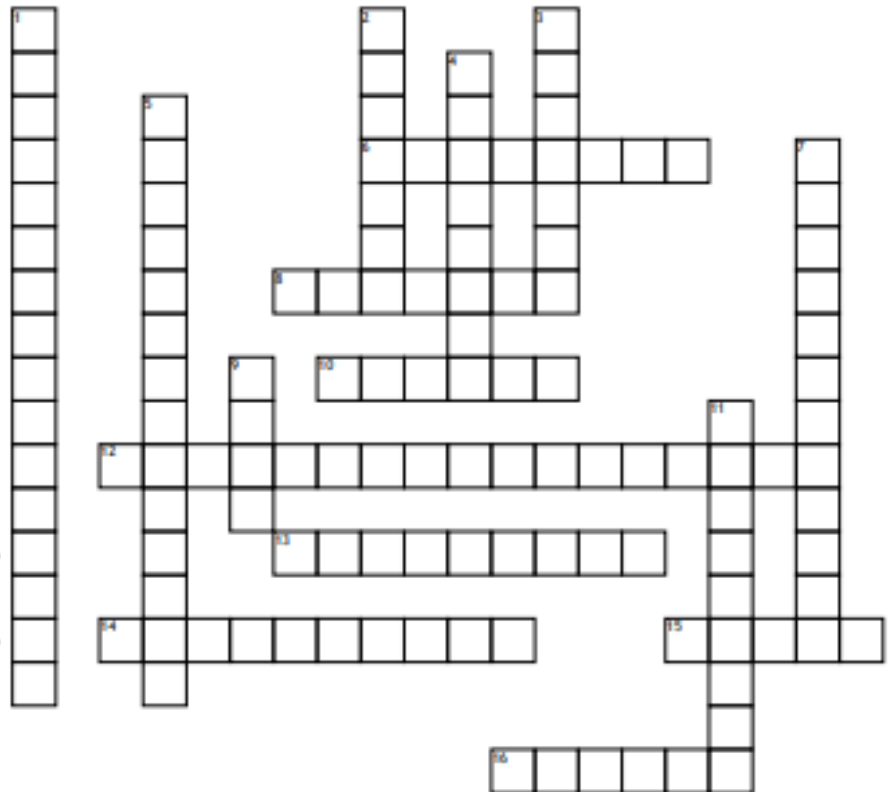
7. Design a poster on International Yoga Day .

8. Follow IPL closely through newspaper and write a report on it after finals

9. Complete the crossword puzzle :

Name: _____ Date: _____

GENRES



Across

- 6. An exaggerated story that is usually based on a real person or event
- 8. A story that has elements that are impossible
- 10. A fictional story based on facts written about a person or event from history; may teach a lesson
- 12. A story with fictional characters that is set in real time in history
- 13. A fictional story that involves magic, magical creatures, or magic lands

- 14. Informational text dealing with an actual real-life subject
- 15. A fictional story that teaches a lesson called a moral
- 16. Verse and rhythmic writing that creates an emotional response

Down

- 1. A story with fictional characters that is set in the modern world
- 2. A story that has been made up and has made up characters
- 3. A suspenseful story about a puzzling event

- 4. Stories or myths passed on through oral storytelling
- 5. A fictional story that mixes futuristic technology with scientific fact
- 7. A format (NOT A GENRE) of writing that uses art to tell a story; read like a book
- 9. A fictional story that explains something that happens in nature
- 11. The story of a real person's life written by another person

10. Read any two books of your choice and write a book review

_____ 's Book Review

This is how my favorite character looks...

Book

Author: _____

Illustrator: _____

This book was about...

My favorite character in this book was _____ because ...

I liked / didn't like this book because...

You should / should not read this book because...

I give this book 

11. Watch any two of the following movies and write which movie did you like the most also write the Movie review

Sully :Miracle on the Hudson	Into the Storm
Imitation Game	Deep Impact
A Beautiful mind	The Finest Hours
San Andreas	The core
Geostorm	Everest
The Day After Tomorrow	Independence Day
The Wave	In pursuit of happiness



MOVIE TITLE

Language
Genre
Director
Duration
Cast



Plot/Theme/Summary

Setting & Cinematography

Characterization & Acting

Special attraction

Personal opinion

	<i>Excellent</i>	<i>Good</i>	<i>Bad</i>
● Editing & Effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Sound & Music	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Script	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Dialogue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(PHYSICS)

(Syllabus Content)

TO BE DONE IN REGULAR CW/HW COPY

- Q1. Do the reading work of CHAPTER-ELECTRICITY AND MAGNETIC EFFECT OF CURRENT from Class-X (NCERT Book) and write down the important scientific terms which we must discuss during the detailed study of the chapters related to CURRENT ELECTRICITY, in the month of June-2023.
- Q2. Draw the CONCEPT MAP/MIND MAP OF ANY ONE CHAPTER OF PHYSICS BOOK-ART INTEGRATION PROJECT
- Q3. Identify 5 scientific research institute of medical and engineer sciences in J & K and write it's important features.
- Q4. **INVESTIGATORY PROJECT**

As the students are supposed to make an investigatory project for SEE (Practical) to be evaluated by External as well as Internal Examiner on the day of Practical Examination, following points are to be kept in mind:

1. Project work MUST be hand written only.
2. Proof of investigation & Experimentation must be submitted as data and Photographs (students face must be seen and he/she must wear school uniform only)
3. Format of project file/report has already been provided to all, hence it must be strictly followed.
4. Before starting any project, student must get the topic approved by the subject teacher Project will be evaluated based on Original Work, Creative Presentation, Technical Points and Viva based on it.
5. Last date of Project Submission is **30th September 2023.**

(Details have already been discussed in the class)