



DELHI PUBLIC SCHOOL VISAKHAPATNAM ASSIGNMENT

April - May 2024

Class: XII



Subject: ENGLISH

1. Write the definition for each of the following poetic devices/figures of speech in your assignment notebook along with a suitable example from the poems given in Flamingo.

i. Onomatopoeia, ii. Alliteration, iii. Oxymoron, iv. Transferred epithets, v. Synecdoche
vi. Personification, vii. Enjambment, viii. Irony, ix. Metaphor, x. Simile, xi. Anaphora
xii. Symbol, xiii. Inversion, xiv. Hyperbole, xv. Imagery xvi. Repetition, xvii. Antithesis

2. Answer the following Long Answer type questions. [120-150 words]

Q1. The poem by Kamala Das beautifully captures the intricate relationships between a mother and a daughter. Truly the bond that mothers share with their children remains unparalleled and special. Write an article on the topic- 'The Role of a Mother'. You are Arjun/Anuja.

Q2. With the advancement of technology, and the advent of social media, do you think that the task of keeping quiet, as envisaged by Neruda, has become easier or more complicated? Justify your stance.

Q3. You are a blogger who loves to record travel stories. You recently visited a picturesque location and were enamoured by its beauty. Pen down the post for your blog giving vivid descriptions of the natural beauty of the place. Supplement your writing with Keats' ideas about beauty.

3. Create a short video- a documentary (1-2 minutes) with your voice over on any one of the topics: Shoot using mobile phone/ download images compile with voice over.

1. Incredible India, 2. Different Animals (10) and what they represent [E.g. Tiger-power, Peacock-grace] 3. Tiger Conservation, 4. Wildlife in Antarctica, 5. Futility of War, 6. Interactive video- challenges adolescents face, 7. Interview the elderly- their views on shortage of resources like water and solutions, 8. Any four film industries operating in our country, 9. Any service provider of the society- to create awareness on the life they lead and the respect they deserve.

4. Plan your Project for the final internals. Choose a topic, get it approved and work on it.

5. Read at least one novel, newspaper regularly, see English movies, Start writing Diary from 1st May onwards and try to continue for life. It would prove to be a trust worthy companion and would pave the path to be clear with your ideas and goals.

6. As part of listening skills practice listen to prime-time news from different channels, TED talks and talk shows – for example- Jimmy Kimmel Live; Oprah, Graham Norton Show. These would expose you to different accents, style, choice of words and also help you know about personalities from different fields and issues of interest and general awareness.

Subject: MATHEMATICS

1. Determine whether the relation R defined on set of Real numbers

as $R = \{(a, b) : a, b \in \mathbb{R} \text{ and } a - b + \sqrt{3} \text{ is an irrational number}\}$ is reflexive, Symmetric and Transitive.

2. Find the principal value of $\operatorname{cosec}^{-1}(2)$.

3. Find the principal value of $\sin^{-1}(\cos \frac{3\pi}{4})$.
4. Find the value of $\tan(2\sin^{-1}(\frac{1}{3}))$.
5. Solve $\tan^{-1}x - \cot^{-1}x = \tan^{-1}(\frac{1}{\sqrt{3}})$
6. If the matrix $A = \begin{bmatrix} 4 & x+2 \\ 2x-3 & x+1 \end{bmatrix}$ is symmetric then find x .
7. Find the area of the triangle formed by the vertices $(-1,2), (4,0), (3,9)$.
8. Prove that the relation R on set $A = \{5,6,7,8,9\}$ given by $R = \{(a, b) : |a-b| \text{ is divisible by } 2\}$ is equivalence relation
9. If the matrix $A = \begin{bmatrix} 4 & x+2 \\ 2x-3 & x+1 \end{bmatrix}$ is symmetric then find the value of x .
10. Find the value of $2x + y$ if $3 \begin{bmatrix} 2 & 3 \\ 1 & x \end{bmatrix} - \begin{bmatrix} y & 0 \\ -1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 9 \\ 4 & 10 \end{bmatrix}$.
11. Find the principal value of $\tan^{-1}(\sqrt{3}) - \sec^{-1}(-2)$.
12. If $A = \begin{bmatrix} 2 & 3 \\ 5 & -2 \end{bmatrix}$, write A^{-1} in terms of A .
13. Find the principal value of $\cos^{-1}(\cos \frac{2\pi}{3}) + \sin^{-1} \sin(\frac{2\pi}{3})$
14. Find the matrix 'X' such that $\begin{bmatrix} 5 & 4 \\ 1 & 1 \end{bmatrix} X = \begin{bmatrix} 1 & -2 \\ 1 & 3 \end{bmatrix}$.
15. If $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$, find A^{-1} . Using A^{-1} solve the following system of equations.
 $2x - 3y + 5z = 16, 3x + 2y - 4z = -4, x + y - 2z = -3$.

Subject: PHYSICS

1. Derive an expression for electric field at a point at distance r from a point charge.
2. What is an electric dipole? Derive an expression for the torque acting on an electric dipole, when held in uniform field. Hence define the dipole moment.
3. a) Define electric line of force and give it's two important properties.
 b) Draw the pattern of the field lines around a system of two equal positive charges separated by a small distance.
4. a). Obtain the expression for the torque experienced by an electric dipole of dipole moment P in a uniform electric field E .
 b). What will happen if the field were not uniform?
 c). What would happen if the external field E is increasing (i) parallel to P and (ii). anti-parallel to P ?
5. a). Use Gauss's theorem to find the electric field due to a uniformly charged infinitely large plane thin sheet with surface charge density.
 b). An infinitely large thin plane sheet has a uniform surface charge density $+q/A$. Obtain the expression for the amount of work done in bringing a point charge q from infinity to a point, distant r , in front of the charged plane sheet.
6. Define electric potential. Derive an expression for the electric potential at a point at a distance r from a charge q .
7. Define equipotential surface. Draw equipotential surfaces: (a). In the case of a single point charge, and (b) in a constant electric field in Z - direction. Why the equipotential surfaces about a single charge are not equidistant? (c). Can electric field exist tangential to an equipotential surface? Give reason.
8. Derive an expression for the potential energy of an electric dipole placed in a uniform electric field. Hence discuss the conditions of its stable and unstable equilibrium.
9. Obtain the expression for the resultant capacitance when the three capacitors C_1, C_2 , and C_3 are connected in (i). Series and then (ii). In parallel.

10. (a) Derive the expression for the energy stored in a parallel plate capacitor. Hence obtain the expression for the energy density of the electric field. (b). A fully charged parallel plate capacitor is connected across an uncharged identical capacitor. Show that the energy stored in the combination is less than that stored initially in the single capacitor.

Subject: CHEMISTRY

I (To be answered in Assignment notebook)

1. The ratio of chemical reaction doubles for an increase of 10K from 298K. Calculate E_a .
2. The rate constant of a first order reaction is $60s^{-1}$. How much time will it take to reduce the concentration of the reactant to $1/10$ th of its initial value?
3. State Faraday's laws of electrolysis. How much charge in terms of Faraday is required for the reduction of 1mol of Cu^{2+} to Cu?
4. Depict the cell if Mg electrode is cathode and copper is the anode. Given concentration of Mg ion is 0.1M and Cu ions is 0.01M, $E_{cel}^0 = 2.71V$ Also calculate the emf of this cell at 298 K.
5. State Kohlrausch's law of independent migration of ions. Write an expression for molar conductivity of acetic acid at infinite dilution according to Kohlrausch's law. Explain with graph.
6. Write anode, cathode and overall reactions occurring in lead storage battery.
7. Calculate the molality of sulphuric acid solution in which mole fraction of water is 0.8
8. Calculate molality and molefraction of solute in a sugar syrup of mass 214.2 g containing 34.2g of sucrose.
9. 30g of urea($m=60g$) is dissolved in 846g of water. Calculate the vapour pressure of water for this solution if vapour pressure of pure water at 298K is 23.8mm Hg.
10. Phenol associates in benzene to certain extent to form a dimer. A solution containing 20g of phenol in 1 kg of benzene has its freezing point lowered by 0.69K. Calculate the fraction of phenol that has dimerised.
11. A solution prepared by dissolving 8.95mg of a gene fragment in 35ml of water has an osmotic pressure of 0.335torr at $25^\circ C$. assuming the gene fragment is non electrolyte determine its molecular mass.
12. For the hydrolysis of methyl acetate, its concentrations are 0.6,0.3 and 0.15 mol/lit at 0,30 and 60 s respectively. Show that it follows pseudo first order reaction as concentration of water is in excess. Also calculate the average rate of reaction between the time interval 30 to 60s. $\log 2=0.3010$, $\log 4= 0.6021$.

HOLIDAY HOMEWORK

II.(To be written in Lab Manual):

Volumetric analysis and content based experiments:

- Experiment number 1- pg 124(10.1)
- Experiment number 2-pg 125(10.2)
- Experiment number 3-pg126 (10.3)
- Experiment number 4- to be explained in the class
- Experiment number 5-pg 71(5.1)
- Experiment number 6-pg 80(6.2)
- Experiment number 7-pg20(1.1)
- Experiment number 8-pg24(1.7)
- Experiment number 9- pg 94-98

In addition to the above, 5-6 Salt Analysis experiments are to be written. The details of these will be sent in whatsapp.

III. Project work – Any one project to be chosen from Lab Manual and to be done by referring other sources. Only soft copy to be prepared initially. After approval it can be printed and filed. The soft copy can be sent to me during the holidays itself.

IV. Thorough revision and practice of the two Organic chemistry lessons of class XI

(chapters 8 and 9) is required, as these lessons are fundamental and essential for class XII organic chemistry. Please Note that a screening test will be conducted on the reopening day in these two lessons. After clearing this test only, XII organic syllabus will be started in June.

Subject: PHYSICAL EDUCATION

1. What are the functions of sports management ?
2. Explain the formation of committees and its responsibilities in pre, during and post competitions or sports events?
3. What is a tournament? list out various types of tournaments.
4. What are combination type of tournaments?
5. What are the advantages and disadvantages of a knockout tournament?
6. what are the merits and demerits of League tournaments?
7. Draw a knockout fixture for 25 teams and mention all the calculations
8. what is seeding? explain by giving suitable example, the method of giving special seeding?
9. What is fixture? make a knockout cum League fixtures of 23 teams.
10. what is a league tournament? Draw a fixture for 9 teams using cyclic method. Explain the British method to declare a winner.
11. What is bye? What is the method of fixing byes?
12. Highlight the importance of intramural and extramural competitions.
13. List down various communities sports programs and explain any two in detail.
14. Write about the deformities of spinal curvature.
15. Write in brief about exercises guidelines of W.H.O for different age group.

Subject: ARTIFICIAL INTELLIGENCE

1. What are the capitalization rules in the English language? What do you know about "MINTS"?
2. What do you mean by supporting parts of speech?
3. How many types of objects are there in the English Language?
4. What are various elements of a communication cycle?
5. What are the different factors that affect active listening?