DELHI PUBLIC SCHOOL VISAKHAPATNAM
ASSIGNMENT
April – May 2026

Class: XII Science **Date of Submission: on or before 15.06.2026**

Subject: ENGLISH

1. Formal Invitation (Card Format)

Purpose: Sent to a large group for events like weddings, annual days, or inaugurations.

Key Rule: Written in the third person. No signatures. Put it in a box.

Format

- Name of the Host(s)
- Standard phrase (e.g., "request the pleasure of your company")
- Purpose/Occasion of the invitation
- Date, Time, and Venue
- RSVP (Bottom left: contact details)

Example

The Principal, Staff, and Students
of
Sunshine Public School, Delhi
cordially invite you to
the **ANNUAL SPORTS DAY**
on Saturday, 25th October 2026
at 10:00 AM in the school playground.
Shri Kiren Rijiju, Minister of Sports,
has kindly consented to be the Chief Guest.
RSVP Principal 011-2345XXXX

Practice Question: Draft a formal invitation card for the inauguration of your new boutique, 'Style & Smile', at GK-II, New Delhi.

Invitation (Letter Format)

Purpose: Sent to an individual (e.g., a VIP or Chief Guest). Key Rule: Follows the standard Formal Letter format.

Format

- Sender's Address
- Date
- Receiver's Designation & Address
- Subject
- Salutation (Sir/Madam)
- Body (Occasion, Date, Time, Venue, and the specific request)
- Complimentary Close & Name

Example

Subject: Invitation as Chief Guest for Inter-School Debate.

Dear Sir,

Our school is organizing an Inter-School Debate Competition on 15th Nov 2026 at 11:00 AM. We would be honored if you could preside over the function as the Chief Guest and inspire our students.

Practice Question: Write a letter to a famous athlete inviting them to conduct a workshop at your sports academy.

3. Formal Acceptance

Key Rule: Use the third person. Acknowledge the invitation and confirm attendance. Put it in a box.
Example
Address
Mr. and Mrs. Khanna thank the Principal and Staff of Sunshine Public School for their kind invitation to the Annual Sports Day on 25th Oct 2026 and are delighted to accept the same. They will be attending the function.
Practice Question: You are Dr. Amit Gupta. Write a formal acceptance to an invitation to speak at a medical seminar.
4. Formal Refusal/Rejection
Key Rule: State a specific reason for inability to attend (e.g., prior engagement).
Example
Address
Mr. and Mrs. Khanna thank the Principal and Staff of Sunshine Public School for their kind invitation to the Annual Sports Day on 25th Oct 2026 but regret their inability to attend due to a prior engagement. They convey their best wishes for the success of the event.
Practice Question: You have been invited to judge a talent show at a local club. Write a formal refusal citing your busy schedule.

5. Long Writing Tasks
A. Report Writing

- Format: Headline, By-line (Name & Designation), Date & Place (for newspapers).
- Style: Past tense, passive voice, factual.

Practice Question: You are Rohan/Rita, a reporter for 'The Times'. Write a report on the 'Cleanliness Drive' organized in your colony.
B. Article Writing

- Format: Heading (Catchy), By-line.
- Style: 3-4 Paragraphs (Introduction, Analysis/Causes, Solutions/Conclusion).

Practice Question: Write an article in 120-150 words on 'The Impact of Social Media on Teenagers' Mental Health'.
C. Letter to the Editor

- Format: Standard Formal Letter format.
- Crucial Phrase: "Through the columns of your esteemed newspaper, I wish to draw the attention of the concerned authorities towards..."

Practice Question: Write a letter to the Editor of 'The Daily Mirror' highlighting the problem of frequent power cuts in your locality during board exams.

Literature
1.Complete reading and learning the required vocabulary from the VISTAS textbook and write brief notes on all the characters. (develop these oneliners – give examples to illustrate the character traits being discussed 80-100 words))
1. The Third Level (Jack Finney)

- Charley: The 31-year-old protagonist who claims to have found a third level at Grand Central Station.
- Louisa: Charley’s wife, who is worried about his mental health.
- Sam Weiner: Charley’s psychiatrist friend who eventually disappears into the "third level" himself.

2. The Tiger King (Kalki)

- The Maharaja of Pratibandapuram (Jilani Jung Jung Bahadur): The eccentric protagonist obsessed with killing a hundred tigers to defy a prophecy.
- The Crown Prince: The Maharaja as a child.
- The Chief Astrologer: The man who predicted the King's death by a tiger.
- The Dewan: The King’s chief administrative officer who helps him find tigers (and a wife).
- The British Officer: A high-ranking official whose desire to hunt tigers nearly costs the King his kingdom.

- The British Officer's Wife (Duraisani): Greedy and fond of diamond rings, she accepts 50 rings from the King as a bribe.

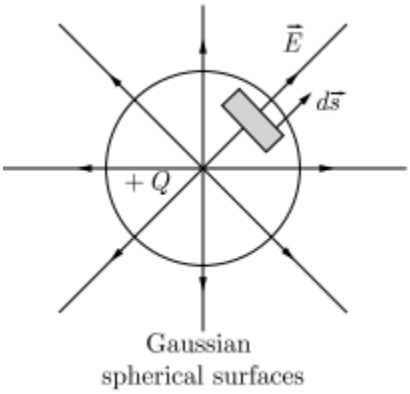
3. Journey to the End of the Earth (Tishani Doshi)
   - Tishani Doshi: The narrator and author.
   - Geoff Green: The founder of the "Students on Ice" programme.
4. The Enemy (Pearl S. Buck)
   - Dr. Sadao Hoki: A skilled Japanese surgeon torn between national loyalty and his Hippocratic Oath.
   - Hana: Sadao's supportive and graceful wife.
   - Tom: The wounded American Prisoner of War (POW) saved by Sadao.
   - The General (Takima): A high-ranking, selfish Japanese official who needs Sadao for his own medical care.
   - The Servants (Yumi, the Gardener, and the Cook): They represent the traditional, nationalist view and disapprove of sheltering the enemy.
5. On the Face of It (Susan Hill)
   - Derry (Derek): A 14-year-old boy with a face scarred by acid, leading to deep insecurity and isolation.
   - Mr. Lamb: An elderly man with a tin leg who tries to teach Derry to look at the world with optimism.
   - Derry's Mother: A protective but somewhat overbearing figure.
6. Memories of Childhood (Zitkala-Sa & Bama)

I. The Cutting of My Long Hair
   - Zitkala-Sa: The narrator, a Native American girl struggling against the forced assimilation of her culture.
   - Judewin: A friend who warns Zitkala-Sa about the hair-cutting.
   - The Pale-Faced Woman: A teacher/authority figure at the school.

II. We Too Are Human Beings
   - Bama: The narrator, a young Tamil Dalit girl who discovers the reality of untouchability.
   - Annand (Annan): Bama's elder brother who encourages her to study hard to gain respect.
   - The Elder: A man from Bama's community who has to carry food in a specific way to avoid "polluting" the upper-caste landlord.
   - The Landlord: An upper-caste man who observes the "untouchables" from a distance.

Subject: PHYSICS

1. An electric dipole consists of a positive and negative charge of 4 μ C each placed at a distance of 5mm. The dipole moment is (a) 2 x 10^{-8} C m (b) 4 x 10^{-8} C m (c) 6 x 10^{-8} C m (d) 8x 10^{-8} C m.
2. 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?
3. Gauss's law and Coulomb's law, although expressed in different forms, are equivalent ways of describing the relation between charge and electric field in static conditions. Gauss's law is ε φ0 = qencl , when qencl is the net charge inside an imaginary closed surface called Gaussian surface. φ = E d v : Av # gives the electric flux through the Gaussian surface. The two equations



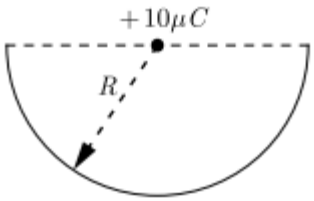
hold only when the net charge is in vacuum or air

(i) If there is only one type of charge in the universe, then (E- Electric field, ds- Area vector)

(a) E ds on any surface (b) E ds could not be defined
(c) E d s if charge is inside (d) E ds if charge is outside, 0 E ds if charge is inside

(ii) What is the nature of Gaussian surface involved in Gauss law of electrostatic ?
(a) Magnetic (b) Scalar (c) Vector (d) Electrical

(iii) A charge 10 μC is placed at the centre of a hemisphere of radius R = 10 cm as shown. The electric flux through the hemisphere (in MKS units) is



(a) 20×10^5 (b) 10×10^5 (c) 6×10^5 (d) 2×10^5

iv) The electric flux through a closed surface area S enclosing charge Q is φ . If the surface area is doubled, then the flux is

(a) 2φ (b) φ /2 (c) φ /4 (d) φ

(v) A Gaussian surface encloses a dipole. The electric flux through this surface is

(a) q/ε_o (b) $2q/\varepsilon_0$ (c) $q/2\varepsilon_0$ (d) zero

4. The electric field at a distance 2 cm from the centre of a hollow spherical conducting shell of radius 4 cm having a charge of $2x\ 10^{-3}$ C on its surface, is
(a) zero (b) $1.1x\ 10^{10}$ V/ m (c) $4.5x\ 10^{-10}$ V/ m 10 (d) $4.5x\ 10^{10}$ V/ m
5. 1.Define electric intensity. 2. Derive an expression for electric intensity at a point situated on the axis of electric dipole.
6. A regular hexagon of side 10 cm has charge 5 μ C at each of its vertices. What is the resultant potential at the centre of the hexagon?
7. Derive the expression for electric field intensity at a point due to a point charge.
8. 1.Define electric intensity. 2. Derive an expression for electric intensity at a point situated on the axis of electric dipole.
9. A regular hexagon of side 10 cm has charge 5 μ C at each of its vertices. What is the resultant potential at the centre of the hexagon?
10. Derive the expression for electric field intensity at a point due to a point charge.

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 1/10nth 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^0_{cel} =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 mole fraction 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 25^0 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/lt 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 3- pg 124(10.1)
Experiment number 4-pg 125(10.2)
Experiment number 1-pg126 (10.3)
Experiment number 2-as 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: BIOLOGY

1. If double fertilization did not occur, what would be the consequence for seed development?
2. A farmer grows two types of crops: one with brightly colored flowers that attract bees, and another with small, inconspicuous flowers that produce large amounts of pollen.

i) Identify the likely pollination agents for each crop.
ii) Explain how the structural features of these flowers support their respective pollination methods.
iii) Which crop is more likely to face reduced genetic diversity if grown in isolation? Why?

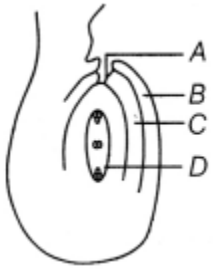
3. Draw a labelled diagram of the sectional view of a mature pollen grain in angiosperms. Explain the functions of its different parts.
4. Draw a labelled diagram of embryonic stage that gets implanted in the human uterus. State the functions of the two parts labelled.
5. Describe the stages of spermatogenesis in human males.
6. i) A mother of one year old daughter wanted to space her second child. Her doctor suggested CuT. Explain its contraceptive actions.

ii) Bring out one main difference between CuT and LNG-20.

7. Mention one advantage and one disadvantage of amniocentesis.
8. Which one of the following pairs include sexually transmitted diseases caused by bacteria only?

a) Syphilis, Gonorrhoea b) AIDS, Chlamydiasis
c) Scabies, Pediculosis d) Gonorrhoea, Scabies

9. Assertion: Male contraceptive 'nirodh' works on the principle of avoiding the chances of ovum and sperm meeting.
   Reason: It is made of thin rubber or latex sheath,and is used to cover the penis before coitus.
10. Identify and label the parts in the given anatropous ovule.



Subject: MATHEMATICS

1-Let A = R - {2} and B = R - {1}. If f : A→ B is a mapping defined by $f(x) = \frac{x-1}{x-2}$, Show that f is bijective.

2-Prove that the relation R on Z, defined by R {(x, y) : (x - y) is divisible by 5} is an equivalence relation.

3-Is the set of ordered pairs given at the end a function? If so, examine whether the mapping is injective or surjective. A= {(x, y): x is a person, y is the mother of x}.

4-Evaluate $\cos\left[\cos^{-1}\left(\frac{-\sqrt{3}}{2}\right)+\frac{\pi}{6}\right]$

5-Evaluate: $\sec^2\left(\tan^{-1}\frac{1}{2}\right)+\text{cosec}^2\left(\cot^{-1}\frac{1}{3}\right)$

6-$\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$

7-If A = [a_{ij}] is a 2 × 2 matrix such that a $_{ij}$ = i + 2j, write A.

8-Let A = $\begin{bmatrix}1 & -1 & 0\\ 2 & 1 & 3\\ 1 & 2 & 1\end{bmatrix}$ and B = $\begin{bmatrix}1 & 2 & 3\\ 2 & 1 & 3\\ 0 & 1 & 1\end{bmatrix}$. Find A ^{T} , B ^{T} and verify that (A + B) ^{T} = A ^{T} + B ^{T}

9-Let A = $\begin{bmatrix}1 & -1 & 0\\ 2 & 1 & 3\\ 1 & 2 & 1\end{bmatrix}$ and B = $\begin{bmatrix}1 & 2 & 3\\ 2 & 1 & 3\\ 0 & 1 & 1\end{bmatrix}$. Find A ^{T} , B ^{T} and verify that (AB) ^{T} = B ^{T} A ^{T}

10-Find $\frac{dy}{dx}$ for $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$

11-Find $\frac{dy}{dx}$, when x = a cos ^{2} θ , y = b sin ^{2} θ .

12-Find $\frac{dy}{dx}$, when: y sec x + tan x + x ^{2} y = 0.

Subject: Artificial Intelligence

1. How does active listening contribute to effective communication?
2. Write one sentence of each type-statement, question and exclamatory.
3. What are the primary data structures in Pandas for handling structured data?
4. How can you import data from a CSV file into a Pandas DataFrame?
5. Discuss the differences between a Pandas Series and a DataFrame. Provide examples for the use these data structures and explain how they are related.

Subject: Physical Education

1.Enlist the committees for organising sports events and explain any eight committees in detail.
2.What are Community Sports Programmes? Explain Health Run and Run for Unity in detail.
3.What is league tournament? Draw a fixture of 9teams on the basis of league tournament using cyclic method. Explain British method to declare winner.
4.Mention all calculations and steps involved to draw a knockout fixture of 19 teams, where 4teams are to be seeded