



DELHI PUBLIC SCHOOL VISAKHAPATNAM ASSIGNMENT

June – July 2026



Class: XI Science

Date of Submission: on or before 7.08.2026

Subject: ENGLISH

1. Your grandparents have decided to donate their old but well-maintained collection of books, magazines, and journals to young readers. Draft a Classified Advertisement (50 words) inviting schools, libraries, or NGOs to contact them.
2. You have observed that today's generation spends more time on gadgets than with family members. Prepare a speech on "Strengthening Family Bonds in the Digital Age."
3. After reading *The Portrait of a Lady*, your school plans to celebrate "Grandparents' Appreciation Week." Design a poster encouraging students to spend quality time with their grandparents.
4. "Its silence silences."
(A PHOTOGRAPH)
 - a) What does 'its' refer to?
 - b) Why does the poet say, "Its silence silences"?
 - c) What emotion does this line convey?
5. "Then sleek as a lizard, and alert, and abrupt, (THE LABURNUM TOP)
She enters the thickness, and a machine starts up."
 - a) Who is 'she' in these lines?
 - b) Which poetic device is used in "sleek as a lizard"?
 - c) What does "a machine starts up" suggest?
6. Short Answer Questions (40-50 WORDS)
 - a) Why did the grandmother stop going to school with the author in *The Portrait of a Lady*?
 - b) How did the family members support one another during the storm in *We're Not Afraid to Die...?*
 - c) Why did Mourad consider the stolen horse different from other stolen things?
 - d) Why did Mrs Dorling fail to recognise the narrator at first in *The Address*?
 - e) Why did Aram agree to ride the horse even though he knew it had been stolen?
7. Fill in the blanks with the correct form of the verbs given in brackets.
 1. My father _____ tea every morning. (*drink*)
 2. Look! The baby _____ happily. (*sleep*)
 3. We _____ the Taj Mahal last winter. (*visit*)
 4. She _____ her homework before going out every day. (*finish*)
 5. They _____ a movie tonight. (*watch*)
 6. By the time we reached the station, the train _____. (*leave*)
 7. I _____ this novel twice already. (*read*)
 8. While the teacher _____ the lesson, the students listened attentively. (*explain*)
 9. He _____ in Delhi since 2021. (*live*)
 10. If you study regularly, you _____ the examination. (*pass*)
 11. By next December, she _____ her Ph.D. (*complete*)
 12. I _____ him for five years before he moved abroad. (*know*)
 13. When I entered the room, my sister _____ a letter. (*write*)
 14. This is the first time I _____ such a beautiful painting. (*see*)
 15. By the time the guests arrived, Mother _____ dinner and _____ the table. (*cook, set*)

Subject: MATHEMATICS

- 1-If $A = \{1, 2, 3, 4, 5\}$ and $B = \{2, 4, 6\}$, then find the sets $A - B$ and $B - A$.
- 2-Is set of odd natural numbers divisible by 2 null set?
- 3-Let $A = \{1, 2, 3, 4\}$, $B = \{1, 2, 3\}$ and $C = \{2, 4\}$. Find all sets X satisfying the conditions: $X \subset B$, $X \neq B$ and $X \not\subset C$.
- 4-A and B are two sets given in such a way that $(A \times B)$ contains 6 elements. If three elements of $(A \times B)$ are $(1, 3)$, $(2, 5)$ and $(3, 3)$, find its remaining elements.
- 5-Let f and g be real functions defined by $f(x) = \sqrt{x-1}$ and $g(x) = \sqrt{x+1}$. Find: $(fg)(x)$
- 6-Find the domain of the function, $f(x) = \sqrt{3-x} + \frac{1}{\sqrt{x^2-1}}$

7-Prove that: $3 \sin \frac{\pi}{6} \sec \frac{\pi}{3} - 4 \sin \frac{5\pi}{6} \cot \frac{\pi}{4} = 1$.

8-If $\frac{\pi}{4} < x < \frac{\pi}{2}$, then write the value of $\sqrt{1 - \sin 2x}$.

9-How many numbers between 3000 and 4000 can be formed from the digits 3, 4, 5, 6, 7 and 8, no digit being repeated in any number?

10-Find the values of the following: 1. 5P_3 2. $P(15, 3)$

Subject: PHYSICS

1. The v-t graphs of two objects make angles of 30° and 60° with the time axis. Find the ratio of their accelerations.
2. A body projected up reaches a point P of its path at the end of 4 seconds and the highest point at the end of 12 seconds. After how many seconds from the start will it reach P again.
3. Two trains A and B of length 400 m each are moving on parallel tracks with a uniform speed of 72kmph in the same direction, with A ahead of B. The driver of B decides to overtake A and accelerates by 1 m/s^2 . If after 50 s, the guard of B just brushes past the driver of A, what was the original distance between them.
4. A car is moving along a straight highway with speed of 126kmph is brought to a stop within a distance of 200 m. What is the retardation of the car(assumed uniform), and how long does it take for the car to stop?
5. Distinguish between position vector and displacement vectors. Define (i) unit vector (ii) null vector (iii) Negative vector
6. A bullet fired at an angle of 30° with the horizontal hits the ground 3 km away. By adjusting the angle of projection, can one hope to hit a target 5km away ? Assume the muzzle speed to be fixed and neglect air resistance?

Subject: CHEMISTRY

Ch-2 Structure of the atom

1. Which quantum number determines i) energy of an electron ii) orientation of orbital?
2. How many subshells are associated with $n=3$?
3. Write electronic configuration of Cu(29) and Cr(24). Why is it different from the expected configuration?
4. Define i) Aufbau's principle ii) Pauli's exclusion principle iii) Hund's rule
5. How many Radial and angular nodes are present in 2p orbital?
6. What are the frequency and wavelength of a photon emitted during a transition from $n=5$ to $n=2$ state in the hydrogen atom?
7. What is the main difference between electromagnetic theory and Planck's quantum theory?
8. An electron has a velocity of 50m/s accurate upto 99.99%. Calculate the uncertainty in locating its position.
9. What is meant by dual nature of electrons? Calculate the energy and wavelength of photon emitted by hydrogen atom when electron makes a transition from $n=2$ to $n=1$. Given ionization potential is 13.6eV (1 eV = $1.6 \times 10^{-19} \text{ J}$)
10. Calculate the KE of an electron in second orbit of hydrogen atom. (a_0 is Bohr radius)
11. Give quantum numbers for electron with highest energy in sodium atom.
12. What is the significance of Heisenberg's principle? State the principle and give its mathematical relation.
13. Differentiate i) orbit and orbital ii) emission and absorption spectrum iii) magnetic and spin quantum numbers iv) photon and quantum
14. In photoelectric effect experiment, irradiation of a metal with light of frequency $5 \times 10^{20} \text{ s}^{-1}$ yields electrons with maximum KE = $6.63 \times 10^{-14} \text{ J}$. Calculate threshold frequency for the metal.
15. Calculate the energy of one mole of photons of radiation whose frequency is $5 \times 10^{14} \text{ Hz}$.

Ch-3 Periodic Classification of elements

1. Atomic number of an element is i) 108 ii) 116. Write its e.c, group, period and block to which it belongs.
2. Give similarities and differences between boron and aluminium or What do you mean by diagonal relationship? Explain with example.
3. Give the general electronic configuration, group numbers and characteristics of the blocks s,p,d,f.

4. How was the problem of position of isotopes resolved in the periodic table?
5. Why are lanthanoids and actinoids placed separately at the bottom of the periodic table?
6. What are isoelectronic species? Give examples. How does their radius vary?
7. Consider the elements N, P, S and O. arrange them in increasing order of i) first ionization enthalpy ii) negative electron gain enthalpy iii) non-metallic character
8. How does basic character of oxides and hydroxides of alkali metals vary down the group? Why?
9. Give reason:
 - i) Electron gain enthalpy of fluorine is less negative than that of chlorine.
 - ii) Anionic radius is always more than that of neutral atom while cationic radius is less.
 - iii) Ionization enthalpy of phosphorus is more than that of sulphur.
 - iv) Second ionization enthalpy of magnesium is more than its first IE.
 - v) Elements in the same group have similar physical and chemical properties.
 - vi) Noble gases have high values of electron gain enthalpies.

Subject: BIOLOGY

1. Name the plants with
 - a) Haplontic life cycle
 - b) Diplontic life cycle
 - c) Haplo-diplontic life cycle
2. Mycorrhiza and coralloid roots are found in which plants? What do these terms mean?
3. Provide a technical term for the following:
 - a) Blood filled cavity in arthropods
 - b) A stinging organ of jelly fish
 - c) Free-floating form of Cnidaria
 - d) Lateral appendages in aquatic annelids
4. What do you understand by metagenesis? Give an example.
5. Distinguish between poikilothermic and homeothermic organisms
6. Which two roots develop from different parts of the angiosperm plant other than the radicle?
7. What is phyllotaxy? Explain its types.
8. Draw the diagrams of different types of placentation in plants.
9. Compare the classes pisces, amphibia, reptilia, aves and mammalia on the basis of their skin, heart, homeostasis, organ of breathing, organ of locomotion and reproduction.

Subject: ARTIFICIAL INTELLIGENCE

A. Short answer questions.

1. How do you understand whether a machine/application is AI based or not?
2. Write any two applications of data science.
3. Differentiate between structured and unstructured data.
4. Define supervised learning.
5. Give one example each of NLP and Computer Vision.
6. What is the main concern related to job displacement by AI?
7. What is the significance of hidden layers in neural networks?
8. What is narrow AI?

B. Long answer questions.

1. Explain the three layers of artificial neural network.
2. Discuss the benefits of using AI.
3. Explain cognitive computing.
4. Describe the limitations of AI.
5. Describe the historical development of AI, including key milestones.
6. Describe different types of machine learning.

Subject: PHYSICAL EDUCATION

1. What are the various carrier options in Physical education and explain.
2. Write a note on ancient Olympics.
3. Define the term yoga? Explain the elements of Yoga.