



# DELHI PUBLIC SCHOOL VISAKHAPATNAM ASSIGNMENT

**April – May 2025-26**



**Class: XII**

**Date of Submission: on or before 13.6.2025**

## **Subject: ENGLISH**

### Character Sketch Questions

1. The Tiger King – Character Sketch of the Maharaja of Pratibandapuram  
How does the Maharaja's character evolve through the story?  
Discuss the elements of irony in his character and actions.  
In what ways is he a critique of the pomp and power of rulers?
2. Deep Water – Character Sketch of William Douglas  
How did William Douglas's fear of water originate and how did he overcome it?  
What qualities of determination and courage do you observe in him?  
Why can he be considered an inspiration for today's youth?
3. Lost Spring – Character Sketch of Saheb and Mukesh  
Compare and contrast the dreams of Saheb and Mukesh.  
How do their living conditions influence their life choices?  
What do these characters symbolise in the broader context of child labour and poverty?

### Long Answer Questions

4. The Third Level  
“In an age of rising stress and anxiety, the third level offers a much-needed escape.”  
Discuss the significance of the third level in the context of present-day urban life.  
How does the concept of escapism apply to the modern reader?
5. Indigo  
How did Gandhi help the peasants of Champaran to overcome their fear and assert their rights?  
Discuss Gandhi's non-violent and empathetic approach to leadership in the context of the Indigo movement.  
What were the key turning points that led to the success of the Champaran episode?

Prepare a podcast (90–120 seconds) highlighting your personal take on one of the chapters.

Podcast- Reflections in Literature (title)

Include:

- A brief overview of the story.
- Your perspective or emotional response.
- Why the story matters to you or to society today.
- A reflective conclusion.
- A few ideas for titles- may create one on your own
- “Fear Conquered: Deep Water and Me”
- “Saheb and Mukesh – Two Boys, One Broken Spring”
- “Tiger King: A Royal Satire on Ego and Fate”
- “Escaping into the Third Level: A Train to Peace”
- “The Indigo Awakening: Gandhi and the Power of Truth”

### IV. English Project Guidelines (for Internal Marking & Viva)

To-Do Steps:

1. Choose a Topic: Finalise and get it approved by your teacher.

Suggested topics: Representation of Women in Literature, Changing Portrayal of Heroes, Power of Spoken Word Poetry, Media and Language Influence, English in the Digital Era, etc. Check CBSE website for more topics / ideas.

2. Prepare the Soft Copy with these Sections:

\*Title Page

\*Certificate (uniform format will be shared by teacher)

\*Overview of Topic

\*Description / Analysis

Include examples, anecdotes, factual info

\*Learning Outcomes and \*Relevance to You

\*References / Resources Used

\*Pictures / Graphs / Visuals (if required)

3. Presentation Tips:

Keep the content original and concise.

Use headings, bullet points, and neat formatting.

Make the visuals colourful, yet not too cluttered.

4. Viva in November.

### Subject: BIOLOGY

1. Match the following and choose the correct options:

Column I

Column II

A. Trophoblast

i. Embedding of blastocyst in the endometrium

B. Cleavage

ii. Group of cells that would differentiate as embryo

C. Inner cell mass

iii. Outer layer of blastocyst attached to the endometrium

D. Implantation

iv. Mitotic division of zygote

Options:

a. A-ii, B-i, C-iii, D-iv

b. A-iii, B-iv, C-ii, D-i

c. A-iii, B-i, C-ii, D-iv

d. A-ii, B-iv, C-iii, D-i

2. Which of the following hormones is not secreted by human placenta?

a. hCG

b. Estrogens

c. Progesterone

d. LH

3. Embryo sac is to ovule as is to an anther.

(a) Stamen (b) Filament (c) Pollen grain (d) Androecium

4. Choose the correct statement from the following:

(a) Cleistogamous flowers always exhibit autogamy

(b) Chasmogamous flowers always exhibit geitonogamy

(c) Cleistogamous flowers exhibit both autogamy and geitonogamy

(d) Chasmogamous flowers never exhibit autogamy

5. In an embryo sac, the cells that degenerate after fertilisation are

(a) Synergids and primary endosperm cell

(c) Antipodals and primary endosperm cell

(b) Synergids and antipodals

(d) Egg and antipodals

6. From the sexually transmitted diseases mentioned below, identify the one which does not specifically affect the sex organs.

(a) Syphilis (b) AIDS (c) Gonorrhea (d) Genital warts

7. Write the location and the functions of the following cells in human males:

a) Leydig cells

b) Sertoli cells

c) Primary spermatocyte.

8. State the role of oxytocin in parturition. What triggers its release from the pituitary?

9. Given below is a flow chart showing ovarian changes during menstrual cycle. Fill in the spaces giving the name of the hormones responsible for the events shown.

10. Give reasons why:

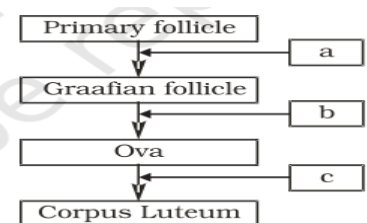
a) most zygotes in angiosperms divide only after certain amount of endosperm is formed.

b) apple and cashew are not called true fruits.

11. Draw a labelled diagram of an anther lobe at microspore mother cell stage. Mention the role of different wall layers of anther.

12. Write the full form of GIFT and ICSI. How can childless couples be helped by the mentioned ART?

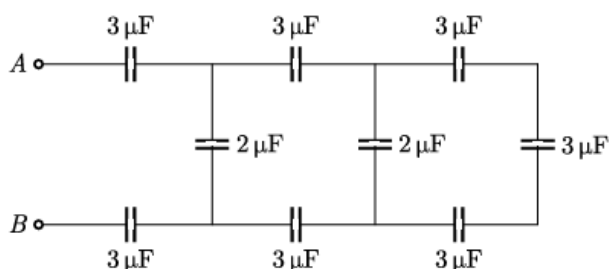
13. Why is Saheli considered to be an improved form of oral contraceptive for human female?



### Subject: PHYSICS

1. Define electric intensity. 2. Derive an expression for electric intensity at a point situated on the axis of electric dipole.
2. A regular hexagon of side 10 cm has charge  $5 \mu\text{C}$  at each of its vertices. What is the resultant potential at the centre of the hexagon?
3. Derive the expression for electric field intensity at a point due to a point charge.
4. Two copper spheres of radii  $r_1$  and  $r_2$  having charges  $q_1$  and  $q_2$  are connected by means of a wire. What is the electric conditions that no charge flows between them?
5. 1. State and explain Superposition Principle. 2. Find an expression for the total force acting on a given charge due to a number of other charges, when the source charges are point charges.
6. A thin metallic spherical shell of radius  $R$  carries a charge  $Q$  on its surface. A point charge  $Q/2$  is placed at the centre  $C$  and other charge  $+2Q$  is placed outside the shell at  $A$  at a distance  $X$  from the centre as shown in the figure
7. (i) Can two equipotential surfaces intersect each other? Give reasons.  
(ii) Two charges  $-q$  and  $+q$  are located at points  $A(0,0,-a)$  and  $B(0,0,+a)$  respectively. How much work is done in moving a test charge from point  $P(7,0,0)$  to  $Q(-3,0,0)$ ?

Find equivalent capacity between  $A$  and  $B$ .



### 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  $60\text{s}^{-1}$ . 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  $1\text{mol}$  of  $\text{Cu}^{2+}$  to  $\text{Cu}$ ?
4. Depict the cell if Mg electrode is cathode and copper is the anode. Given concentration of Mg ion is  $0.1\text{M}$  and Cu ions is  $0.01\text{M}$ ,  $E^\circ_{\text{cel}} = 2.71\text{V}$ . 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 ( $m=60\text{g}$ ) 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  $25^\circ\text{C}$ . 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/l 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: ARTIFICIAL INTELLIGENCE**

1. What is a DataFrame in Pandas? How do you create a Pandas Series from a dictionary?
2. Name two strategies to handle missing values in a DataFrame.
3. Describe the steps to import and export data using Pandas.
4. Explain the concept of handling missing values in a DataFrame with examples.
5. What is Linear Regression, and how is it implemented in Python?

Case study based questions:

6. A dataset of student marks contains missing values for some subjects. Write Python code to handle these missing values by replacing them with the mean of the respective columns.
7. Write Python code to load the file into a Pandas DataFrame, calculate the total sales for each product, and save the results into a new CSV file. Click in the link below to access sales.csv dataset.  
[https://drive.google.com/drive/folders/1tLbVXWkKzcp60\\_-FAvn9usEWuUOF3{Tp3?usp=sharing](https://drive.google.com/drive/folders/1tLbVXWkKzcp60_-FAvn9usEWuUOF3{Tp3?usp=sharing)
8. In a marketing dataset, analyze the performance of campaigns using Pandas. Describe steps to group data by campaign type and calculate average sales and engagement metrics.
9. A company has collected data on employee performance. Some values are missing, and certain columns are irrelevant. Explain how to clean and preprocess this data for analysis using Pandas.

### **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.