



**H M SENIOR SECONDARY SCHOOL
SHEETLA COLONY, GURUGRAM
CLASS - X
SESSION - 2026-27**

SUMMER HOLIDAY HOMEWORK

**Success doesn't come from
what you do occasionally, it
comes from what you do
consistently.**

**The holiday homework has been thoughtfully designed
by our mentors to be engaging and enjoyable. It
serves as a meaningful step toward helping you fulfill
the spirit of our motto.**

PREPARE PRACTICE PROGRESS

**The activity based assignments will foster curiosity,
develop creativity, enhance knowledge and instill the
joy of learning among you all.**



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NOTE:
Revise the work done in all the subjects till now.

ENGLISH

1. Literature Exploration

Choose any 2 chapters (one from First Flight and one from Footprints without Feet) and do the following:

- Write a summary in 100–150 words
- Character sketch of any two characters with evidence from the text
- 5 new vocabulary words – meaning + sentence
- Theme/Moral of the chapter in 1 paragraph

2. Creative Writing Tasks

- Story Writing: "I opened the old chest in my attic and discovered something unimaginable..."
- Diary Entry: Write as the character from a story you read this year, narrating a turning point.
- Article Writing: "Social Media – A Blessing or a Curse for Teenagers?"
- Poem Writing: Compose a poem (8–12 lines) on "My India of Dreams" or "The Power of Words"

3. Speaking & Listening Practice

- Record a 2-minute speech on:
 - "Books are Our Best Friends" or
 - "Climate Change is Real"
- Watch one English movie (Wonder, Life of Pi, or Hidden Figures) and write:
 - A 100-word review
 - Your favourite scene and why

4. Comprehension Practice

Pick any English newspaper/magazine article and:

- Write the main idea
- Extract 5 new words – meaning + sentence
- Answer 5 questions of your own creation

5. Visual & Artistic Tasks

Choose any two of the following:

a. Collage Making:

- Topic: Freedom Fighters in Indian Literature OR My Favourite Author
- Include images, short bios, quotes, and creative design.

b. Poster Making:

- Topics: Save Environment, Read to Lead, Digital India

- Use slogans, drawings, and a brief message.

c. Travel Brochure Creation:

- Design a 2-page brochure promoting a dream destination (real or fictional).

- Include places to visit, activities, local language phrases, and travel tips.

6. Vocabulary Builder & Idioms Wall

- Create a mini-dictionary with 20 new words (alphabetical order)

- Definitions and usage in sentences

- Make a Word Wall:

- Choose 10 idioms/phrases (e.g., raining cats and dogs, break the ice)

- Illustrate and explain each in 1 sentence

7. Book Review (Compulsory)

Choose any one book:

- The Diary of a Young Girl – Anne Frank

- The Boy in the Striped Pajamas – John Boyne

- Malala – My Story of Standing Up for Girls' Rights

Write:

- Title & Author

- Summary in 150–200 words

- Characters

- Message/Moral

- What you liked/disliked

8. Which is your favourite chapter from your English Book and why? (Answer in

about 100 words)

TASK 9 (to be done in English Notebook)

a. Write a detailed character analysis of Lencho.

b. What is the main idea that Robert Frost depicts through the poems— 'Dust of Snow' and 'Fire and Ice'?

c. How did Mandela's idea of freedom change over the course of time?


d. How is the idea of 'freedom' depicted in 'A Long Walk to Freedom' and 'A Tiger in Zoo'?

e. If Tricky could talk, what do you think he would say about his experience at Mrs. Pumphrey's house and then at the vet's clinic?

MATHS

Class 10 Maths – Holiday Homework

Chapters: 1 to 5

 Instructions:

1. Solve all questions neatly in notebook.
2. Show all necessary steps and formulas.
3. Activity is compulsory and will be evaluated.

Questions

1. Determine whether the decimal expansion of $\frac{77}{480}$ is terminating or non-terminating recurring.
2. Find the HCF and LCM of 867 and 255 and then verify the relation between them.
3. A positive number is 5 times another number. If the difference between them is 48, find the numbers using linear equations.
4. Find the nature of the roots of $3x^2 - 14x - 5 = 0$.
5. Find the sum of all multiples of 8 between 100 and 300.
6. In the following questions, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Mark the correct choice as:
 - (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.

Question 1

- **Assertion (A):** The pair of linear equations $2x + 3y = 5$ and $4x + 6y = 15$ has no solution.
- **Reason (R):** If a pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ satisfies $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ then the lines are parallel and have no solution.

Question 2

- **Assertion (A):** The 11th term of the AP: $-3, -\frac{1}{2}, 2, \dots$ is 22.
- **Reason (R):** The n th term of an Arithmetic Progression is given by the formula $a_n = a + (n-1)d$, where a is the first term and d is the common difference.

7. Find the zeroes of the polynomial $x^2 - 4x + 3$ and verify the relationship between the zeroes and coefficients.

8. Find the value(s) of k for which the quadratic equation $(k + 1)x^2 - 2(k - 1)x + 1 = 0$ has real and equal roots.

9. The 5th term of an AP is 17 and the 13th term is 49. Find the AP.

10. Find the value of k if one zero of the polynomial $3x^2 - 8x + k$ is twice the other.

11. The sum of the first n terms of an AP is $3n^2 + 5n$. Find the AP and its 15th term.

12. Solve the quadratic equation: $x^2 - (2\sqrt{5})x + 5 = 0$

13. If the zeroes of the polynomial $x^2 + (k + 2)x + 2(k - 1)$ are equal, find k .

14. Find a quadratic polynomial whose zeroes are: $\sqrt{3} + \sqrt{2}$ and $\sqrt{3} - \sqrt{2}$

15. CASE STUDY-1

A local school organized a field trip to a National Book Fair for Class 10 students. To manage the crowd, the organizers offered two types of entry schemes:

- Scheme A: A fixed entry fee plus a charge for every book purchased.
- Scheme B: No fixed entry fee, but a higher flat rate for every book purchased.

Two friends, Aarav and Bina, opted for Scheme A.

- Aarav paid ₹105 for purchasing 10 books.
- Bina paid ₹155 for purchasing 15 books.

Questions

1. Formulate the algebraic representation: If the fixed entry fee is ₹ x and the charge for each book is ₹ y , write the pair of linear equations representing Aarav and Bina's situations.
2. Find the costs: Find the fixed entry fee (x) and the charge for each book (y).
3. Calculate total cost: If another classmate, Rahul, chooses Scheme A and wants to buy 22 books, how much total money will he have to pay?
4. Graphical Nature: What kind of lines (intersecting, parallel, or coincident) will the two equations representing Aarav and Bina form on a graph? Justify your answer.

16. CASE STUDY-2

To promote green energy, a housing society decides to install solar panels on the roofs of its buildings. A green energy company handles the installation. Because of logistics and setting up the heavy machinery, the company charges a higher amount for the first few panels and then decreases the incremental cost, creating a structured payment plan.

The total installation cost for 3 solar panels is ₹21,000, and the total installation cost for 7 solar panels is ₹45,000. The cost structure follows an Arithmetic Progression (AP), where the cost of installing n panels represents the sum of the first n terms (S_n).

Questions

1. Find the AP parameters: Find the first term (a) and the common difference (d) for this AP.
2. Individual Cost: What is the specific cost of installing just the 5th solar panel?
3. Total Budgeting: If the society decides to scale up and install a total of 12 solar panels, what will the total installation cost be?
17. Solve the quadratic equation: $2x^2 - 7x + 3 = 0$ using quadratic formula.
18. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less. Find the original speed.
19. A fraction becomes $\frac{1}{3}$ when 1 is added to both numerator and denominator. It becomes $\frac{1}{2}$ when 2 is subtracted from both. Find the fraction.
20. The sum of the squares of two consecutive odd numbers is 394. Find the numbers.
21. Find the 15th term of the AP: 7, 10, 13, ...
22. The 8th term of an AP is three times its 2nd term, and the 12th term exceeds the 6th term by 24. Find the AP.
23. The sum of first 20 terms of an AP is 740. If the first term is 7, find the common difference.
24. Solve graphically and verify algebraically $3x - y = 8$; $x + y = 4$
25. A two-digit number is obtained by either multiplying the sum of digits by 8 or multiplying their difference by 18. Find the number.

Activity – AP in Real Life

Observe any 5 real-life situations where numbers increase or decrease regularly.

Examples:

- Staircase steps
- Rows of seats in an auditorium

For each example:

1. Write the sequence formed.
2. Identify: a) First term b) Common difference
3. Find: 10th term and Sum of first 10 terms
4. Draw or paste a picture/sketch related to the pattern.

ARTIFICIAL INTELLIGENCE

1. 8/6/26

“One Day One Questions”

1. What do you understand by mathematical and logical reasoning?
2. What do you understand by Interpersonal Intelligence?
3. Enlist the applications of artificial intelligence around us.

2. 9/6/26

Differentiate between Machine Learning & Deep Learning.

	Machine Learning	Deep Learning
Data	Performs well on small to medium datasets	Performs well on large datasets
Hardware	Able to function on CPU	Requires significant computing power e.g., GPU
Features	Features need to be manually identified	Learns features automatically
Training time	Quick to train	Computationally intensive

Compare Artificial Intelligence, Machine Learning & Deep Learning.

Artificial Intelligence	Machine Learning	Deep Learning
AI stands for Artificial Intelligence, and is basically the study/process which enables machines to mimic human behaviour through particular algorithm.	ML stands for Machine Learning, and is the study that uses statistical methods enabling machines to improve with experience.	DL stands for Deep Learning, and is the study that makes use of Neural Networks (similar to neurons present in human brain) to imitate functionality just like a human brain.
AI is the broader family consisting of ML and DL as it's components.	ML is the subset of AI.	DL is the subset of ML.
AI is a computer algorithm which exhibits intelligence through decision making.	ML is an AI algorithm which allows system to learn from data.	DL is a ML algorithm that uses deep (more than one layer) neural networks to analyze data and provide output accordingly.

Examples of AI applications include: Google's AI-Powered Predictions, Ridesharing Apps Like Uber and Lyft, Commercial Flights Use an AI Autopilot, etc.

Examples of ML applications include: Virtual Personal Assistants: Siri, Alexa, Google, etc., Email Spam and Malware Filtering.

Examples of DL applications include: Sentiment based news aggregation, Image analysis and caption generation, etc.

3. 10/6/26

- Q. Differentiate between rule-based and learning-based AI modelling approaches.
- Q. Differentiate between classification and clustering algorithms with the help of suitable examples.
- Q. Explain Data Exploration stage
- Q. Define Dimensionality Reduction.
- Q. Define any five data visualization techniques (charts).
- Q. Write any 4 reliable sources of data.

Sources of Data

There exist various sources of data from where we can collect any type of data required and the data collection process can be categorised in two ways: Offline and Online.

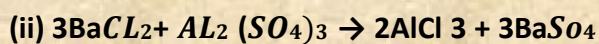
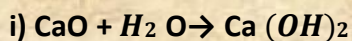
Offline Data Collection	Online Data Collection
Sensors	Open-sourced Government Portals
Surveys	Reliable Websites (Kaggle)
Interviews	World Organisations' open-sourced statistical websites
Observations	

4. 11/6/26 Do all the following programs of Python.
1. Print natural numbers upto N
 2. Print sum of natural numbers upto N
 3. Printing even no.s upto a limit
 4. To find the reverse of a number
 5. Find the Sum and Average of even and odd numbers from a set of N numbers
 6. Print the pattern

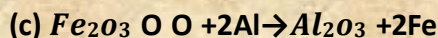
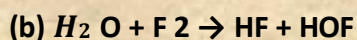
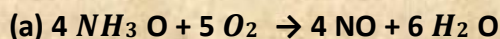

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5. 12/6/26		NumPy Arrays	Lists
		<ol style="list-style-type: none"> 1. Homogenous collection of Data. 2. Can contain only one type of data, hence not flexible with datatypes. 3. Cannot be directly initialized. Can be operated with Numpy package only. 4. Direct numerical operations can be done. For example, dividing the whole array by 3 divides every element by 3. 5. Widely used for arithmetic operations. 6. Arrays take less memory space. 7. Functions like concatenation, appending, reshaping, etc are not trivially possible with arrays. 8. Example: To create a numpy array 'A': <pre>import numpy A=numpy.array([1,2,3,4,5,6,7,8,9,0])</pre> 	<ol style="list-style-type: none"> 1. Heterogenous collection of Data. 2. Can contain multiple types of data, hence flexible with datatypes. 3. Can be directly initialized as it is a part of Python syntax. 4. Direct numerical operations are not possible. For example, dividing the whole list by 3 cannot divide every element by 3. 5. Widely used for data management. 6. Lists acquire more memory space. 7. Functions like concatenation, appending, reshaping, etc are trivially possible with lists. 8. Example: To create a list: <pre>A = [1,2,3,4,5,6,7,8,9,0]</pre>

6.	15/6/26	<p>Activity -1: Let us experience this domain with the help of the following game: * Emoji Scavenger <u>Hunt</u> : https://emojiscavengerhunt.withgoogle.com/ Go to the link and try to play the game of Emoji Scavenger Hunt. The challenge here is to find 8 items within the time limit to pass.</p> <ol style="list-style-type: none"> 1. Did you manage to win? 2. What was the strategy that you applied to win this game? 3. Was the computer able to identify all the items you brought in front of it? 4. Did the lighting of the room affect the identifying of items by the machine?
7.	17/6/26	<p>Activity 2: Let us experience! Go to this online link https://www.w3schools.com/colors/colors_rgb.asp. On the basis of this online tool, try and answer all the below mentioned questions.</p> <ol style="list-style-type: none"> 1) What is the output colour when you put R=G=B=<u>255</u> ? 2) What is the output colour when you put R=G=B=<u>0</u> ? 3) How does the colour vary when you put either of the three as 0 and then keep on varying the other two? 4) How does the output colour change when all the three <u>colours</u> are varied in same proportion ? 5) What is the RGB value of your <u>favourite</u> colour from the colour palette? <p>Were you able to answer all the questions? If yes, then you would have understood how every colour we see around is made. Now the question arises, how do computers store RGB images?</p>
8.	19/6/26	<p>Activity :3: Go to the following link www.piskelapp.com and create your own pixel art. Try and make a GIF using the online app for your own pixel art.</p>
9.	21/6/26	<p>Activity 4:</p>
		<p>let us experience it with the help of this AI Game: Identify the mystery animal: http://bit.ly/iai4yma Go to this link on Google Chrome, launch the experiment and try to identify the Mystery Animal by asking the machine 20 Yes or No questions.</p> <ol style="list-style-type: none"> 1. Were you able to guess the animal? 2. If yes, in how many questions were you able to guess it? 3. If no, how many times did you try playing this game? 4. What according to you was the task of the machine. 5. Were there any challenges that you faced while playing this game? If yes, list them down. 6. What approach must one follow to win this game?
10.	23/6/26	<ol style="list-style-type: none"> 1. A python package which stands for '<u>Numerical</u> Python' is named and used as ____ in Python programs. 2. ____ is another name for <u>Numpy</u> arrays. 3. Series is a data structure belonging to python's ____ library.
11.	25/6/26	<p>Q1. What is S.M.A.R.T goal setting? Explain each letter meaning in S.M.A.R.T. Q2. Discuss the four steps of effective time management. Q3. What is self-motivation? What are types of self-motivation? How can one stay self-motivated?</p>
12.	26/6/26	<p>Q.1. Ways to overcome the barriers in effective communication. Q.2. Write down the types of feedback and its importance. Q.3. Write any two techniques to manage your time. Q.4. Advantage and disadvantages of working independently.</p>



Q5. Identify the reducing and oxidizing agent in the following reactions:



Q6.(i) Why is respiration considered as an exothermic reaction?

(ii) Write chemical name and the formula of the brown gas produced during thermal decomposition of lead nitrate.

Q7. Zinc liberates hydrogen gas when reacted with dilute hydrochloric acid, whereas copper does not. Explain why?

Q8. Why does the colour of copper sulphate solution change when an iron nail is dipped in it? Write two observations.

Q9. A solution of potassium chloride, when mixed with silver nitrate solution, an insoluble white substance is formed. Write the chemical reaction involved and also mention the type of the chemical reaction?

Q10. On what basis is a chemical equation balanced? Choose the correct option:

(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.

Q12. Assertion (A): A chemical equation must always be balanced.

Reason (R): Atoms are neither created nor destroyed in a chemical reaction.

Q13. Assertion (A): The decomposition of vegetable matter into compost is an endothermic reaction.

Reason (R): Decomposition reactions require energy to proceed.

Q14. CASE STUDY QUESTION 1.

Rohan was studying the reactivity of metals in his science laboratory. He took four different test tubes containing aqueous solutions of ZnSO_4 , FeSO_4 , CuSO_4 and $\text{Al}_2(\text{SO}_4)_3$. He placed a clean iron nail in each test tube and left them undisturbed for one hour. After an hour, he observed that the iron nail turned brownish in the third test tube, and the blue color of the solution faded. However, no color change was observed in the other three test tubes.

1. Which type of chemical reaction took place when the iron nail was dipped in the copper sulphate solution?

2. Write the balanced chemical equation for the reaction observed in the third test tube

3. Why did no reaction occur in the test tube containing Zinc sulphate (ZnSO_4) and the iron nail?

4. Based on Rohan's observations, arrange the metals (Iron, Copper, and Zinc) in increasing order of their reactivity.

Q15.CASE STUDY QUESTION 2:

A chemical reaction is a representation of chemical change in terms of symbols and formulae of reactants and products. There are various types of chemical reactions like combination, decomposition, displacement, double displacement, oxidation and reduction reactions. Reactions in which heat is released along with the formation of products are called exothermic chemical reactions. All combustion reactions are exothermic reactions.

(i) The massive force that pushes the rocket forward through space is generated due to the

- (a) combination reaction (b) decomposition reaction
- (c) displacement reaction (d) double displacement reaction

(ii) A white salt on heating decomposes to give brown fumes and yellow residue is left behind. The yellow residue left is of

- (a) lead nitrate (b) nitrogen oxide (c) lead oxide (d) oxygen gas

(iii) Which of the following reactions represents a combination reaction?

- (a) $\text{CaO (s)} + \text{H}_2\text{O (l)} \rightarrow \text{Ca(OH)}_2 \text{ (aq)}$ (b) $\text{CaCO}_3 \text{ (s)} \rightarrow \text{CaO (s)} + \text{CO}_2 \text{ (g)}$
- (c) $\text{Zn(s)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{ZnSO}_4 \text{ (aq)} + \text{Cu(s)}$ (d) $2\text{FeSO}_4 \text{ (s)} \rightarrow \text{Fe}_2\text{O}_3 \text{ (s)} + \text{SO}_2 \text{ (g)} + \text{SO}_3 \text{ (g)}$

(iv) Complete the following statements by choosing correct type of reaction for X and Y.

Statement 1: The heating of lead nitrate is an example of 'X' reaction.

Statement 2: The burning of magnesium is an example of 'Y' reaction.

- (a) X-Combination, Y-Decomposition (b) X-Decomposition, Y-Combination
- (c) X-Combination, Y-Displacement (d) X- Displacement, Y-Decomposition

LAB MANUAL WORK

1. A. Finding the pH of the following samples by using pH paper/universal indicator:

- (i) Dilute hydrochloric acid
- (ii) Dilute NaOH solution
- (iii) Dilute ethanoic acid solution
- (iv) Lemon juice
- (v) Water
- (vi) Dilute hydrogen carbonate solution

B. Studying the properties of acids and bases (HCl & NaOH) on the basis of their reaction with:

- a) Litmus solution (Blue/red)
- b) Zinc metal
- c) Solid sodium carbonate

2. Performing and observing the following reactions and classify them into:

A. Combination reaction

B. Decomposition reaction

C. Displacement reaction

D. Double displacement reaction

(i) Action of water on quicklime

(ii) Action of heat on ferrous sulphate crystals

(iii) Iron nails kept in copper sulphate solution

(iv) Reaction between sodium sulphate and barium chloride solutions

3. Observing the action of Zn, Fe, Cu and Al metals on the following salt solutions:

i) ZnSO_4 (aq)

ii) FeSO_4 (aq)

iii) CuSO_4 (aq)

iv) $\text{Al}_2(\text{SO}_4)_3$ (aq)

Arranging Zn, Fe, Cu and Al (metals) in decreasing order of reactivity based on the above result.



Chapter: Light (Reflection & Refraction)

Section A — Conceptual Questions

1. State the laws of reflection of light.
2. Why does a convex lens converge light rays while a concave lens diverges them?
3. Define refractive index. Write its mathematical expression.
4. Why is a concave mirror used by dentists?
5. Differentiate between real image and virtual image (any two points).

Section B — Case Based Questions

A student places an object in front of a concave mirror at a distance greater than the centre of curvature.

6. Where will the image be formed?
7. State the nature and size of the image.

Light travels from air into water.

8. What happens to the speed of light?

9. Why does refraction occur at the boundary of two media?

Section C — Numerical Questions

10. An object is placed 30 cm in front of a concave mirror having focal length 15 cm.

Find the image distance.

11. A convex lens of focal length 20 cm forms an image when an object is placed at 40 cm.

Find magnification.

12. Calculate refractive index of a medium if speed of light in it is (1.5×10^8) m/s.

Section D — Assertion–Reason Questions

Choose the correct option:

(A) Both A and R true and R correct explanation

(B) Both true but R not correct explanation

(C) A true, R false

(D) A false, R true

13. Assertion: Convex mirrors are used as rear-view mirrors.

Reason: They provide a wider field of view.

14. Assertion: A concave lens always forms virtual image.

Reason: It diverges light rays.

15. Assertion: Refraction occurs when light enters another medium.

Reason: Speed of light changes in different media.

Activities / Lab-Based Work

-Activity — Mirror Hunt (Home Observation)

Task:

Find mirrors used at different places in your home or surroundings.

Do the following:

Identify 3 mirrors (bathroom mirror, car mirror, shop mirror etc.)

Write:

o Type of mirror

o Image formed

o Practical use

☒☒ Paste or draw pictures. Manual

Work

1. To determine the focal length of concave mirror and convex lens.

2. To find image distance for varying object distance of a convex lens with ray diagrams.

3. Tracing path of a ray of light passing through a glass slab.



CASE STUDY BASED QUESTIONS:

CASE STUDY -1, HUMAN HEART:

A doctor observed that a patient had blockage in coronary arteries.

- 1. What is the function of coronary arteries?**
- 2. Which organ is affected due to blockage?**
- 3. Why is double circulation important in humans?**
- 4. Name one disease related to heart**

CASE STUDY -2, RESPIRATION:

During vigorous exercise, muscle cells may not get enough oxygen.

- 1. Which type of respiration occurs in muscles?**
- 2. Name the end product formed.**

3. Why do muscle cramps occur?

4. Is less or more energy produced in this process?

CASE STUDY -3, PHOTOSYNTHESIS:

A student kept two potted plants in sunlight. One plant had its leaves covered with black paper while the other was uncovered. After a

few hours, iodine test was performed.

1. Why was iodine solution used?

2. Which leaf showed presence of starch? Why?

3. What is the role of sunlight in photosynthesis?

4. Name the food produced during photosynthesis.

ASSERTION AND REASON BASED QUESTIONS:

1. Assertion: Arteries have thick elastic walls.

Reason: Blood flows through arteries under high pressure.

2. Assertion: Xylem transports water in plants.

Reason: Phloem transports minerals and water.

3. Assertion: ATP is called energy currency of the cell.

Reason: ATP stores and transfers energy.

4. Assertion: Anaerobic respiration produces less energy.

Reason: Glucose is incompletely broken down.

CREATIVE TASKS:

- 1. Prepare a "Journey of Food" flow chart from mouth to anus.**
- 2. Make flash cards for life processes and organs involved.**
- 3. Create a 3D model of respiratory or digestive system.**
- 4. Write 10 interesting facts about human heart.**

Class 10 Biology – Chapter 1: Life Processes

Conceptual Based Questions

- 1. Why are life processes necessary for living organisms?**
- 2. Why are humans called heterotrophs?**
- 3. Why do green plants need sunlight for photosynthesis?**
- 4. Why is chlorophyll essential for photosynthesis?**
- 5. Why is carbon dioxide necessary for photosynthesis?**
- 6. Why is respiration called an energy releasing process?**
- 7. Why is haemoglobin necessary in red blood cells?**
- 8. Why is excretion necessary in human beings?**
- 9. Why are kidneys called natural filters?**
- 10. Why is urine formation important?**
- 11. Why do humans sweat?**

Higher Order Conceptual Questions (HOTS)

1. What would happen if there were no chlorophyll on Earth?
2. What would happen if the heart stopped pumping for a few minutes?
3. Why can unicellular organisms survive without a transport system?
4. How would life be affected if photosynthesis stopped suddenly?
5. Why are kidneys considered vital organs?
6. Why do aquatic organisms breathe faster than terrestrial organisms?
7. What would happen if stomata remained permanently closed?
8. Why can humans not survive without oxygen for long?
9. Why is blood considered a connective tissue?
10. How are respiration and photosynthesis interdependent?

LAB MANUAL WORK;

Ex-1; Preparing a temporary mount of a leaf peel to show stomata.

Ex-2; Experimentally show that carbon dioxide is given out during respiration.

Ex-3; Studying (a) binary fission in amoeba and (b) budding in Yeast and Hydra with the help of prepared slides.

SOCIAL SCIENCE

Instructions for Students:

1. Answer in 60-80 words each unless specified.

2. For case studies, write your opinion with logic.
3. Map work: Paste India political map for Q15.
4. Support answers with examples from textbook + current affairs.

Case Study:

In 1848, Frédéric Sorrieu created a print showing peoples of Europe and America offering homage to the statue of Liberty. In the foreground lie shattered remains of absolutist symbols.

Q1) Identify 2 symbols of liberal nationalism in the print. How does this artwork reflect the idea of “nation-state” emerging in Europe?

Q2) Today, the European Union uses a common currency – the Euro – and allows free movement across borders.

Compare this with the process of unification of Germany in the 19th century. Give 2 similarities and 1 key difference in the role of “economic nationalism”.

Q3 “Giuseppe Mazzini believed “God had intended nations to be the natural units of mankind”. Metternich called him “the most dangerous enemy of our social order”.

Why would a conservative leader like Metternich fear Mazzini’s ideas? Explain with 2 reasons related to political systems of 1815.

Data-Based Reasoning:

State.	Infant Mortality Rate	Literacy Rate.	Net Attendance Ratio
Kerala	7	94%.	83
Bihar	32	62%	43

Q4. Based on this data, which state is more developed and why? Apart from income, suggest 1 more criterion UNDP uses to measure development.

Q5. Real Life Scenario: Ramesh works in a village and earns ₹8000/month. He has no job security or paid leave. Sita works in an IT company and earns ₹40,000/month with PF and medical benefits.

Which job indicates better development for a person? Give 3 reasons beyond income to support your answer.

Q6. Case Study: The groundwater level in Punjab has fallen drastically due to overuse for rice cultivation.

Is this “sustainable development”? Explain using the concept of “conflicting development goals”. Suggest 1 policy solution.

Q7. Case Study: Belgium amended its constitution 4 times between 1970-1993 to accommodate Dutch and French speaking people. Sri Lanka adopted a majoritarian policy favoring Sinhala speakers.

Compare the outcomes in both countries. Which approach reflects “prudential” and which reflects “moral” reasons for power sharing?

Q8. Real Life Application: Your school has students from different states. During annual day, one language group dominates all cultural events.

As a student council head, suggest 2 power-sharing arrangements inspired by Belgium’s model to make it fair for all groups.

Q9. Reasoning: “Power sharing is the very spirit of democracy”.

Do you agree? Give 2 arguments using the example of local governments in India after 1992.

Q10. Case Study: In 2020, during COVID-19, both Centre and States issued lockdown guidelines. Some states had stricter rules than central guidelines.

Which feature of federalism does this show? Name the list under which “health” falls in the 7th Schedule. Was this a conflict or cooperation? Justify.

Q11. Analytical Thinking: India is called a “Holding Together Federation” while USA is a “Coming Together Federation”.

Give 1 real consequence of this difference in Centre-State relations in India. Use the example of creation of Telangana in 2014.

Q12. Real Life Scenario: Your state government wants to build a dam, but the neighbouring state objects due to water sharing.

Which constitutional mechanism will resolve this? What role does the Judiciary play in Indian federalism?

Q13. Data-Based Analysis: Land under different categories in India – Forest 23%, Net Sown Area 43%, Barren Land 6%.

Is 43% net sown area enough for food security? Suggest 2 ways to increase agricultural production without expanding net sown area. Relate to “resource planning”.

Q14. In Ladakh, melting glaciers are reducing water for irrigation, but tourism is increasing.

Identify 2 conflicting uses of resources here. What type of resource is glacier water – renewable or non-renewable? Suggest 1 sustainable solution.

Instructions: In the following questions, two statements are given – one labelled *Assertion (A)* and the other labelled *Reason (R)*. Choose the correct option:

- 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

Q15.Assertion (A)*: The 1830s were years of great economic hardship in Europe.

Q16.Reason (R)*: There was enormous increase in population, and unemployment became common.

Q17.Assertion (A)*: Culture played an important role in creating the idea of the nation in Europe.

Q18.Reason (R)*: Folk songs, dances and poetry were used by revolutionaries to carry the message of nationalism to people who were mostly illiterate.

Q19.Assertion (A)*: Per capita income is not a sufficient indicator of development.

Reason (R): Money cannot buy all the goods and services that one needs to live well.

Q20.Assertion (A): India has a federal system with a strong central government.

Reason (R): The Constitution of India provides for a three-fold distribution of legislative powers between the Union and State Governments.

Q21 Assertion (A): The sharing of power between Union and State Governments is basic to the structure of the Constitution.

Reason (R): It is not easy to make changes to the power sharing arrangement, as Parliament alone cannot change it.

Q22. Real Life + Map Skill*:

- Jharkhand: has huge coal reserves but remains a poor state.
- On the same map, mark the following:
- A. A major area of Alluvial Soil in North India
- B. A region prone to land degradation due to over-irrigation
- The state with the highest percentage of forest cover
- A state where Black Soil is predominantly found
- A state where Arid Soil is found

Use an outline map of Europe_

- On the given outline map of Europe, locate and label the following:
- The place where the Congress of Vienna was held in 1815
- The nation that was unified under the leadership of Otto von Bismarck by 1871
- Identify and mark the Kingdom of Sardinia-Piedmont – the state that led Italian Unification.

Hint: Northwestern part of present-day Italy

HINDI

प्र० 1 पाठ्यपुस्तक से संबंधित प्रश्नों के उत्तर लिखिए और याद कीजिए-

क) िक्ष्मण ने कुम्हड़बततया का दृष्ांत क्यों ददया है ? इसके द्वारा वे मुतन और सभा को क्या संदेश देना चाहते हैं

ि) " माता का आँचि " पाठ का कौनसा प्रसंग आपके ददि को छू गया । त्कूपूक उत्तर दीजिए ।

ग) योग सािना के उपदेश कैसे िोगों के लिए है? गोपपयाँ उद्वि के उपदेश को क्यों नहीं सुनना

चाहतीं? घ) बाि गोबबन भगत में अनेक अच्छे गुणों का समावेश था । आपको उनका कौनसा

गुण सबसे अच्छा

िगा और क्यों ? संक्षेप में समझाइए ।

ड) बच्चों द्वारा मूततक पर सरकंडे का चश्मा िगाना क्या प्रदलशकत करता है ?

च) 'सूरदासकेपद 'केआार पर लिखिए कक उद्वि गोपपयों की मनोदशा क्यों नहीं समझ सके ?

छ) 'माता का अँचि' पाठ में ग्रामीण पररवेश का धचत्रण ककया गया है । आप ग्रामीण िीवन और शहरी िीवन में क्या अंतर पाते हैं ?

प्र० - 2 नीचे ददए गए तनदेश अनुसार व्याकरण से संबंधित प्रश्नों के उत्तर लिखिए -

i) कठोर होकर भी सहृदय बनो । संयुक्त वाक्य में बदलिए

ii) यद्यपि वह सेनानी नहीं था पर िोग उसे कैप्न कहते थे । सरि वाक्य में बदलिए ।

iii) बच्चे वैसा करते हैं िैसे उन्हें लसियाया िाता है । रेिांककत उपवाक्य का भेद लिखिए ।

iv) सभी िोगों ने वह सुंदर दृश्य देिा । रचना के आार पर वाक्य भेद

लिखिए । प्र० - 3 अग्रलिखित िेिन से संबंधित प्रश्नों के उत्तर लिखिए -

क) 'युवा वक्का पवदेशों के प्रतत बढ़ता मोह ' पवषय पर अनुच्छेद लिखिए । -

ि) आप मोहन / मोदहनी है । आपकी कक्षा में एक नए अध्यापक पढ़ाने आए हैं िो कक बहुत अच्छा पढ़ाते हैं । उनके पवषय में पररचयात्मक सूचना देते हुए अपने लमत्र को िगभग 80 से 100 शब्दों में एक पत्र लिखिए ।

ग) आप अपना पुराना स्माकफोन बाेचना चाहते हैं उसे संबंधित एक आकषकक पवज्ञापन िगभग 40 शब्दों में लिखिए ।

प्र० - 4 अपनी कल्पना शजक्त का प्रयोग करते हुए कियाकिाप के माध्यम से रचनात्मक कक्क कीजिए -

क) " पररवार ददवस " पर अपने पररवार के लिए एक सुंदर सा कक्क बनाइए और उनके लिए चार-पाँच वाक्य लिखिए ।

ि) आप ककसी ककसान से लमलिए और िेेती कैसे होती है इससे संबंधित प्रश्न पूछकर उसे लिखिए और िो बात आपके मन को छू गई हो उसका धचत्र भी बनाइए ।

ग) आपको दहंदी सादहत्य की कौन सी पवि अच्छी िगी और क्यों धचत्र सदहत समझाइए । घ

) अपने आस- पास की ककही पाँच वस्तुओं के नामों का कक्क - पवच्छेद कीजिए ।

* पररयोिनात्मक कक्क -

क) कक्षा में ददए गए तनदेश अनुसार प्कफोलियो तैयार कीजिए ।

* स्मरण रिने हेतु तनदेश -

क) अप्रैि व मई माह में करवाया गया कक्क ध्यानपूर्वकक याद करें ।

DRAWING

Make a Handmade File Folder or Organizer.

Make a Traditional Folk Art Craft (Warli, Madhubani, or Mandala).

MUSIC

Section A – Practical Activities

1. Practice and sing one patriotic song with proper expression and rhythm.
2. Learn and present one folk song from any Indian state.
3. Record yourself singing a devotional or classical song.
4. Prepare a chart showing different musical instruments and classify them as:
 - String instruments
 - Wind instruments
 - Percussion instruments
5. Watch one classical performance and write your observations in 8–10 lines.
6. Involve your family musical activity and write your experience.

Section B – Creative Assignment

- Make a scrapbook on famous Indian musicians.
 - Make one musical instrument using waste material found at home, must be a medium size and not small size. It should be able to produce music
 - On a chart paper draw one famous temple/religious place
- Also, we will share one classical dance choreography once a week, must try and practise it