

PM SHRI KENDRIYA VIDYALAYA NO.1 JHANSI CANTT

SUMMER VACATION HOME-WORK (2025-26)

CLASS 10TH

SUBJECT-MATHS

Instructions for Submission:

- Use Homework note for solving and don't write solutions from the google/internet.
- Graphs must be drawn on proper graph paper (if required).
- Submission Date: First day after summer vacation.
- All work must be handwritten.
- Marks will be awarded for neatness, completeness, and creativity.
- If any question is not clear students can leave that question or ask to me on WhatsApp.

1. Prove that:

- a) $\sqrt{2}$ is an irrational number.
- b) $\sqrt{3}$ is an irrational number.

2. Write 5 examples each of:

- Linear polynomial
- Quadratic polynomial
- Cubic polynomial

3. Find the HCF and LCM of 56 and 72 using prime factorization.

4. For the quadratic polynomial $x^2 - 5x + 6$, find its zeros and verify the relationship between the zeros and the coefficients.

5. Verify that:

- $\text{HCF} \times \text{LCM} = \text{Product of the two numbers for } (48, 84).$

6. Find the prime factorisation of 360 and express it as a product of primes.

7. Prove that $3 + 2\sqrt{5}$ is irrational.

8. Prove that $7\sqrt{2}$ is irrational.

9. Write the degree and number of terms in the following polynomials:

- $4x^3 - 3x^2 + 2x - 7$
- $x^2 + 2x$
- 7

10. Find the zero(s) of the following polynomials:

- $x^2 - 7x + 10$
- $x^2 + 2x - 15$
- $x^2 - 9$

11. If α and β are the zeros of the polynomial $x^2 - 3x + 2$, find:

- $\alpha + \beta$
- $\alpha\beta$
- Verify the relationship with coefficients.

12. Form a quadratic polynomial whose sum and product of zeroes are:

- (a) 4, 1
- (b) -3, 2

13. If one zero of the polynomial $x^2 + kx + 6$ is 2, find the value of k and the other zero.

14. Form a pair of linear equations in two variables using the following information and solve it graphically: Five years ago, Sheela was twice as old as Tina. Ten years later Sheela's age will be ten years more than Tina's age. Find their present ages. What was the age of Sheela when Tina was born?

15. Madhu went to a bank to withdraw 10000. He asked the cashier to give her 100 and 200 notes only. Madhu got 60 notes in all. Find how many notes of 100 and 200 she received.

LAB ACTIVITIES:-

COMPLETE THE GIVEN ACTIVITIES IN LAB MANUAL ([CLICK HERE](#))

PRACTICE WORKSHEETS:-

Do these worksheets attached with this link

1. Practice sheet 1 REAL NUMBERS ([link of chapter 1](#))
2. Practice sheet 2 POLYNOMIALS ([click here](#))
3. Practice sheet 3 LINEAR EQUATIONS IN TWO VARIABLES ([click here](#))

ENGLISH

ALL THESE QUESTIONS WILL BE WRITTEN IN ENGLISH NOTEBOOK

Q.1. Write an email to your school authority requesting him/ her for change in section.

Q.2. Write an email to your school authority requesting them for a change in bus timings because of change in weather.

Q.3. Give a detailed factual description of a national figure/ personality who appeals you the most.

Q.4. Write two articles based on verbal cues, thematically aligned with MCB topics.

Q.5. Write all 4 formal letters thematically aligned with KVS Study material

Q.6. Solve 5 sample papers- only READING and GRAMMAR portions.

Q.7. Write the poetic and Literary devices.

Q.8 Write the summaries of poetries-

i) Ozymandias

ii) The Rime of the Ancient Mariner

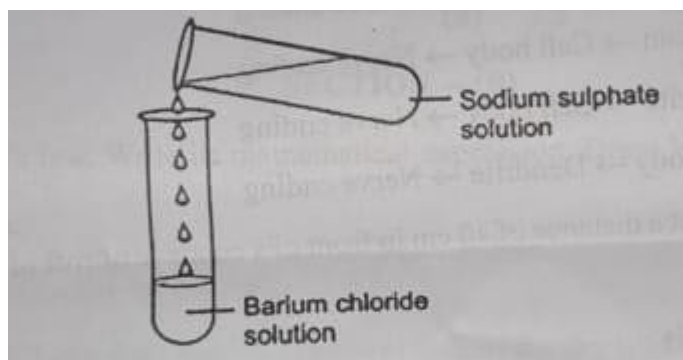
(SCIENCE)

1. Prepare a project based on Ch - Management of natural resources.

2. Complete all the practicals as per the list in science practical file.

SECTION -A

1. Identify the product which represents the solid state in the above reaction.



- a. Barium chloride
- b. Barium sulphate.
- c. Sodium chloride
- d. Sodium sulphate

2 The colour of the solution observed after 30 minutes of placing zinc metal to copper sulphate solution is

- (a) Blue.
- (b) Colourless.
- (c) Dirty green.
- (d) Reddish Brown

3. Generally food is broken and absorbed within the body of organisms. In which of the following organisms is it done outside the body?

- (a) Amoeba.
- (b) Mushroom.
- (c) Paramoecium.
- (d) Lice

4. 12. A sportsman, after a long break of his routine exercise, suffered muscular cramps during a heavy exercise session. This happened due to

- a. lack of carbon dioxide and formation of pyruvate
- b. presence of oxygen and formation of ethanol,
- c. lack of oxygen and formation of lactic acid.
- d. lack of oxygen and formation of carbon dioxide

5. Which of the following is an example of a decomposition reaction.

- (a) Burning of paper.
- (b) Rusting of iron
- (c) Formation of water from hydrogen and oxygen
- (d) Decomposition of hydrogen peroxide into water and oxygen

6. Which of the following is NOT a function of the liver?

- (a) Detoxification of harmful substances
- (b) Production of bile for digestion

(c) Regulation of blood sugar level

(d) Production of red blood cells

7. The correct path of urine flow in our body as follows:

(a) Kidney -----→Ureter -----→Urethra -----→Urinary bladder

(b) Kidney-----→ Urinary bladder-----→ Urethra -----→Ureter

(C) Kidney -----→Ureter -----→Urinary bladder -----→ Urethra

(d) Urinary bladder -----→Kidney -----→Ureter -----→Urethra

8. During deficiency of oxygen in tissues of human beings pyruvic acid is converted into lactic acid in:

a. Mitochondria

b.Cytoplasm

c.Chloroplast

d. Golgi body

9. A person experiences stomach discomfort after consuming a meal high in fat content. Which of the following explanations could best account for this discomfort?

a. The salivary glands did not secrete enough saliva to initiate the digestion of fats.

b. The stomach did not produce sufficient gastric acid to break down the fats.

c. The pancreas did not release enough digestive enzymes to digest the fats.

d. The small intestine did not absorb the digested fats properly

Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

(a) Both A and R are true, and R is the correct explanation of A

(b) Both A and R are true, and R is not the correct explanation of A

(c) A is true but R is false.

(d) A is false but R is true.

1. Assertion: Rusting of Iron is endothermic in nature.

Reason: As the reaction is slow, the release of heat is barely evident.

2. Assertion : Brown fumes are produced when lead nitrate is heated.

Reason : Nitrogen dioxide gas is produced as a by-product due to the decomposition of lead nitrate.

3. Assertion: Photosynthesis is considered as an exothermic reaction.

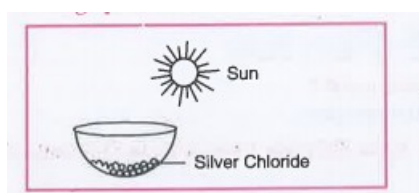
Reason: Photosynthesis is an endothermic reaction because sunlight energy is absorbed by green plants.

SECTION -B

1. What is the purpose of making urine in the human body? Name the organs that stores and releases the urine.
2. How do the guard cells regulate the opening and closing of stomatal pores ?
3. Identify the type of chemical reaction in the following statements and define each of them.
 - (i) Digestion of food in the body.
 - (ii) Rusting of iron.
4. Why do arteries have thick and elastic walls whereas veins have valves?

SECTION-C

5. The following diagram displays a chemical reaction. Observe carefully and answer the following question



- (i) Identify the type of chemical reaction that will take place and define it. How will the colour of the salt change?
- (ii) Write the chemical equation of the reaction that takes place.
- (iii) Mention one commercial use of this salt.

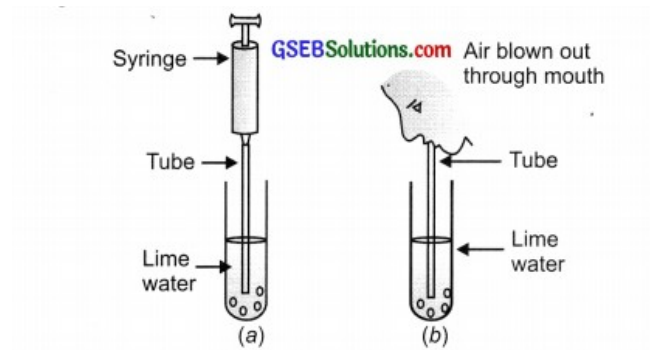
SECTION-D

1. Define a chemical reaction. State four observations which help us to determine that a chemical reaction has occurred. Write one example of each of the observations with a balanced chemical equation.

SECTION -E

1.

. The food material taken in during the process of nutrition is used in cells to provide energy for various life processes. Diverse organisms do this in different ways some use oxygen to break down glucose completely into carbon dioxide and water, some use other pathways that do not involve oxygen. In all cases, the first step is the break-down of glucose, a six carbon molecule, into a three-carbon molecule called



(a) Air being passed into lime water with a pichkari/syringe,
(b) Air being exhaled into lime water

pyruvate. This process takes place in the cytoplasm. Further, the pyruvate may be converted into ethanol and carbon dioxide. This process takes place in yeast during fermentation. Since this process occurs in the absence of air (oxygen), it is called anaerobic respiration. Break down of pyruvate using oxygen takes place in the mitochondria. This process breaks up the three-carbon pyruvate molecule to give three molecules of carbon dioxide. The other product is water. Since this process takes place in the presence of air (oxygen), it is called aerobic respiration. The following process is carried out:

1. Take some freshly prepared lime water in a test tube.
2. Blow air through this lime water.
3. How long it takes for the lime water to turn milky.
4. Use a syringe or pichkari to pass air through some fresh lime water taken in another test tube
5. Note how long it takes for this lime water to turn milky.
6. It is observed that the syringe takes more time to turn lime water milky

(A) Explain why lime water turn milky instantaneously?

(B) Why syringe takes more time to turn lime water milky?

(C) Name the process through which carbon dioxide is released?

(D) Name the process in which carbon dioxide is absorbed?

Hindi

1. सूरदास के प्रथम दो पदों की अपने शब्दों में व्याख्या कीजिए।
2. संज्ञा, सर्वनाम, विशेषण, कारक, क्रिया, कर्म, लिंग, वचन का अध्ययन कर वर्णन कीजिए।
3. आपका मित्र दादाजी का देहांत होने के कारण शोक संतुप्त है, उसे सांत्वना देते हुए पत्र लिखिए।

4. आप सरस्वती विद्या मंदिर के विद्यार्थी राधा/मोहन हैं। आगामी बोर्ड परीक्षाओं की तैयारी हेतु अपने प्राचार्य महोदय को हिंदी विषय की अतिरिक्त कक्षाएं लगवाने हेतु प्रार्थना पत्र लिखिए।

5. ग्रीष्म अवकाश के दौरान आपके द्वारा सहपरिवार की गई किसी यात्रा का वृत्तांत लिखिए।

6 रचना के आधार पर वाक्य भेद कितने प्रकार के

होते हैं उदाहरण सहित लिखिए.

7 क्षितिज पुस्तक के प्रथम तीन पाठ का अध्ययन करें।

Not. यह गृहकार्य A4 साइज पेपर पर कीजिए।

Social Science

Subject Enrichment Activity/Project work (Interdisciplinary) on Consumer Awareness OR Social Issues OR Sustainable Development (5 marks)

Every student must undertake one project on Consumer Awareness OR Social Issues OR Sustainable Development.

Objectives: The main objectives of giving project work on Consumer Awareness OR Social Issues OR Sustainable Development to the students are to:

- Help students gain an insight and pragmatic understanding of the theme and see all the Social Science disciplines from an interdisciplinary perspective.
- It should also help in enhancing the Life Skills of the students.
- Students are expected to apply the Social Science concepts that they have learnt over the years to prepare the project report
- If required, students may go out for collecting data and use different primary and secondary resources to prepare the project.
- If possible, various forms of art may be integrated in the project work.

The distribution of marks over different rubrics relating to Project Work is as follows:

SN	Aspects	Marks
1.	Content accuracy and originality	2
2.	Competencies exhibited and Presentation	2
3.	Viva-Voce	1

Guidelines to prepare the Project:

1. You may take support from various NGOs and Consumer right activists.
2. Projects and models prepared should be made from eco-friendly products without incurring too much expenditure.
3. The Project Report can be handwritten or digital.

4. The Project work can culminate in the form of Power Point Presentation/ Exhibition/ Skit/ albums/ files/ song and dance or culture show /story telling/debate/panel discussion, paper presentation etc.

Artificial Intelligence

1. Define Artificial Intelligence.
2. What are the types of Artificial Intelligence?
3. What is Machine Learning?
4. Explain the concept of Natural Language Processing (NLP).
5. What are the main components of an AI system?
6. What is the Turing Test?
7. How is AI used in healthcare?
8. What is the difference between supervised learning and unsupervised learning in AI?
9. Discuss the ethical concerns of AI.
10. What are neural networks in AI?

