

PM SHRI KENDRIYA VIDYALAYA TIKAMGARH

CLASS – 10 (2026-27)

Autumn Break Homework

Subject – Science - Physics

1	Write the following Experiments in your separate Physics practical copy 1. Studying the dependence of potential difference (V) across a resistor on the current (I) passing through it and determine its resistance. Also plotting a graph between V and I. 2. Determination of the equivalent resistance of two resistors when connected in series and parallel. 3. Determination of the focal length of: i) Concave mirror and ii) Convex lens by obtaining the image of a distant object. 4. Tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Measure the angle of incidence, angle of refraction, angle of emergence and interpret the result. 5. Tracing the path of the rays of light through a glass prism.
2	Write solution of all the solved and unsolved in-text questions given in NCERT science book of following chapters in separate Homework copy Ensure to complete your CW copy with proper notes and all questions from exercise of following chapter. -Light : Reflection and Refraction -Human eye and the colourful world. -Electricity -Magnetic effect of electric current
3	Solve the following CBSE SQP (Sample Question Paper) in separate copy.
	SQP1 (2025 – 26) Que Paper Link- https://cbseacademic.nic.in/web_material/SQP/ClassX_2025_26/Science-SQP.pdf Ans Key Link- https://cbseacademic.nic.in/web_material/SQP/ClassX_2025_26/Science-MS.pdf
	SQP1 (2025 – 26) Que Paper Link - https://cbseacademic.nic.in/web_material/SQP/ClassX_2026_27/Science-SQP.pdf Ans Key Link - https://cbseacademic.nic.in/web_material/SQP/ClassX_2026_27/Science-MS.pdf
4	Describe the following topics on a chart paper with proper diagram. Roll no- 1 to 10 – Images formed by spherical mirrors Roll no- 11 to 20 – Images formed by spherical lenses; Roll no- 21 to 25 – Ohm's law , graphical representation Roll no- 26 to 32 – Myopic and Hypermetropia defect of vision and its corrections

पीएम श्री केंद्रीय विद्यालय टीकमगढ़

शरदकालीन अवकाश गृहकार्यम्

कक्षा — 10

विषय: — संस्कृतम्

1. चित्रं दृष्ट्वा संस्कृतेन वर्णनम् (चित्र-वर्णन)

किसी प्राकृतिक दृश्य, विद्यालय, उद्यान, बाजार अथवा खेल के मैदान का सुंदर चित्र बनाइए या चिपकाइए। चित्र को देखकर संस्कृत में कम-से-कम 10 वाक्य लिखिए।

ध्यान देने योग्य बातें—

- * चित्र में उपस्थित व्यक्तियों एवं वस्तुओं के नाम लिखिए।
- * कर्ता और क्रिया का उचित प्रयोग कीजिए।
- * वाक्यों में विशेषणों का प्रयोग कीजिए।
- * संस्कृत भाषा में सरल एवं शुद्ध वाक्य लिखिए।

2. पत्रलेखनम् (पत्र-लेखन का अभ्यास)

निम्नलिखित विषयों में से किन्हीं दो विषयों पर संस्कृत में पत्र लिखिए।

1. स्वमित्रं प्रति जन्मदिवसस्य निमन्त्रणपत्रम्।
2. प्रधानाचार्यं प्रति अवकाशार्थं प्रार्थनापत्रम्।
3. पितरं प्रति परीक्षायां स्वसफलताविषये पत्रम्।
4. मित्रं प्रति ग्रीष्मावकाशस्य वर्णनं कुर्वन् पत्रम्।

निर्देश: — पत्र में प्रेषक का पता, दिनांक, सम्बोधन, विषयानुसार मुख्य भाग तथा समापन का उचित प्रयोग कीजिए।

3. सन्धि-संग्रहः (सन्धि के उदाहरण खोजिए)

अपनी संस्कृत की पाठ्यपुस्तक मणिका भाग-2 के सभी पाठों को ध्यानपूर्वक पढ़िए। पाठ्यक्रम में निर्धारित सन्धियों से संबंधित शब्दों को पाठों में खोजकर लिखिए।

एक तालिका बनाइए—

क्र.सं.	सन्धियुक्त शब्द	सन्धि-विच्छेद	सन्धि का नाम
1.	विद्यालयः	विद्या + आलयः	दीर्घ स्वर सन्धि

कार्य — पाठ्यपुस्तक से कम-से-कम 20 सन्धियुक्त शब्द खोजिए। प्रत्येक शब्द का सन्धि-विच्छेद करके सन्धि का नाम लिखिए।

विशेष निर्देशः केवल पाठ्यक्रम में निर्धारित सन्धियों का ही प्रयोग कीजिए।

4. समास-संग्रहः (समास के उदाहरण खोजिए)

पाठ्यपुस्तक के सभी पाठों को पढ़कर समस्तपदों को खोजिए। उनका समास-विग्रह करके समास का नाम लिखिए।

कार्य — पाठ्यपुस्तक से कम-से-कम 20 सन्धियुक्त शब्द खोजिए। प्रत्येक शब्द का सन्धि-विच्छेद करके सन्धि का नाम लिखिए।

विशेष निर्देशः केवल पाठ्यक्रम में निर्धारित सन्धियों का ही प्रयोग कीजिए।

उदाहरणार्थ

क्र.सं.	समस्तपदम्	समास-विग्रहः	समास का नाम
1.	राजपुत्रः	राज्ञः पुत्रः	षष्ठी तत्पुरुष समास

कार्य — पाठ्यपुस्तक से कम-से-कम 20 समस्तपद खोजिए। प्रत्येक का समास-विग्रह करके समास का नाम लिखिए।

विशेष निर्देश: समास के उदाहरण पाठ्यपुस्तक से ही खोजिए तथा निर्धारित पाठ्यक्रम के अनुसार समास का नाम लिखिए।

5. संस्कृतशब्दकोशस्य निर्माणम् (संस्कृत शब्दकोश बनाइए)

अपनी रचनात्मकता का प्रयोग करते हुए एक सुंदर एवं आकर्षक संस्कृत-हिन्दी शब्दकोश तैयार कीजिए।

शब्दकोश में कम-से-कम 50 संस्कृत शब्द सम्मिलित कीजिए।

शब्दों को निम्नलिखित विषयों के अनुसार अलग-अलग वर्गों में बाँटिए—

1. प्रकृतिसम्बद्धाः शब्दाः — प्रकृति से संबंधित शब्द।
2. पशु-पक्षिसम्बद्धाः शब्दाः — पशु-पक्षियों के नाम।
3. शरीराङ्गानां नामानि — शरीर के अंगों के नाम।
4. फल-पुष्पाणां नामानि — फलों एवं फूलों के नाम।
5. विद्यालयसम्बद्धाः शब्दाः — विद्यालय से संबंधित शब्द।
6. क्रियापदानि — संस्कृत की क्रियाएँ।

शब्दकोश का प्रारूप—

क्र.सं.	संस्कृत शब्दः	हिन्दी अर्थः	चित्रम्
1.	सूर्यः	सूरज	सूर्य का चित्र
2.	वृक्षः	पेड़	पेड़ का चित्र
3.	पुस्तकम्	किताब	किताब का चित्र

विशेष निर्देशः

- * शब्दों को वर्णक्रमानुसार लिखने का प्रयास कीजिए।
- * प्रत्येक शब्द का हिन्दी अर्थ लिखिए।
- * जहाँ संभव हो, वहाँ संबंधित चित्र बनाइए या चिपकाइए।

* शब्दकोश को आकर्षक शीर्षक, रंगीन अक्षरों एवं सुंदर सजावट से तैयार कीजिए।

6. पाठ्यपुस्तक-आधारित अभ्यास: (सभी पाठों का पुनरावर्तन)

संस्कृत की पाठ्यपुस्तक मणिका भाग-2 के सभी पाठों का पुनरावर्तन कीजिए।

प्रत्येक पाठ से निम्नलिखित कार्य कीजिए—

1. पाँच कठिन शब्दों के हिन्दी अर्थ लिखिए।
2. दो महत्वपूर्ण वाक्यों का हिन्दी में अनुवाद कीजिए।
3. पाठ में आए पाँच शब्दों के प्रकृति-प्रत्यय अथवा अन्य निर्धारित व्याकरणिक रूपों की पहचान कीजिए, जहाँ लागू हो।
4. पाठ में आए सन्धि एवं समास के उदाहरणों को चिह्नित कीजिए।
5. पाठ के मुख्य भाव को 4-5 वाक्यों में लिखिए।

सामान्य निर्देशाः

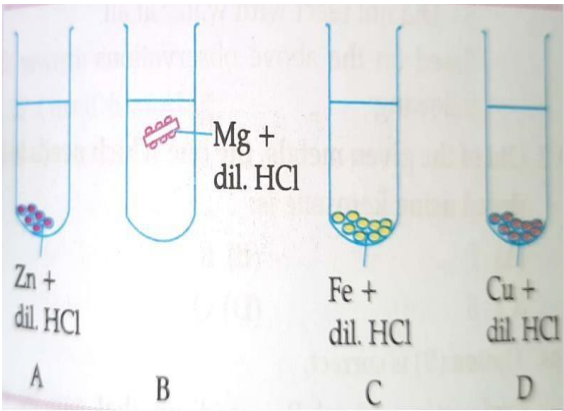
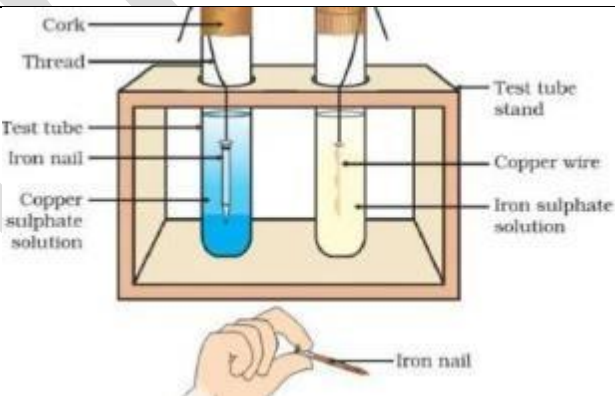
1. समस्त गृहकार्य अपनी संस्कृत की कॉपी अथवा अलग गृहकार्य-पुस्तिका में सुव्यवस्थित रूप से कीजिए।
2. प्रत्येक कार्य के लिए उचित शीर्षक लिखिए।
3. लेखन में संस्कृत की शुद्ध वर्तनी एवं व्याकरण का ध्यान रखिए।
4. चित्र-वर्णन एवं शब्दकोश में रचनात्मकता को प्राथमिकता दीजिए।
5. गृहकार्य स्वयं पूर्ण कीजिए तथा विद्यालय खुलने पर प्रस्तुत कीजिए।

PM SHRI KV TIKAMGARH HOLIDAY'S HOMEWORK	
X SCIENCE CH_3_Metals and Non-metals	
Q. NO	QUESTION
MCQ s 1 MARK EACH	
1.	An element react with oxygen to give a compound with a high melting point. This compound is also soluble in water. Name this element (a) Calcium (b) Carbon (c) Silicon (d) Iron
2.	Assertion:- Aluminium oxide is an amphoteric oxide. Reason:- Amphoteric oxides are those which reacts both acid as well as base. (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 ,R is false. (d) A is false , R is true.
3.	A:- Chromium oxide is generally reduced to chromium by heating with aluminium powder. R- The reduction of chromium oxide by aluminium is highly exothermic. 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 ,R is false. (d) A is false , R is true
4.	Rakesh immersed a zinc plate in aqueous solution of copper sulphate. She noticed a thick layer of copper on the surface of the zinc plate after an hour. What is the formula of the colourless solution after the reaction? (a) Zn (b) Cu (c) ZnSO ₄ (d) CuSO ₄
5.	What should Rakesh have done to make reaction faster:- (a) Use Zn plate (b) Use piece of Zn flakes (c) Use a copper vessel (d) Use CuSO ₄ solution in higher concentration.
6.	A metal X doesn't liberate Hydrogen from acid but react with oxygen to give black coloured product. Identify X. (a) Na (b) Cu (c) Mg (d) Fe
7.	Which pair of metal and non-metal is found in liquid state in room temperature:- (a) Na and C (b) Hg and F (c) Na and Br

	(d) Hg and Br
8.	Although metal form basic oxide, which of the following metal form an amphoteric oxide? (a) Na (b) Ca (c) Al (d) Mg
9.	An amalgam contains one of the metal as:- (a) Aluminium (b) Zinc (c) Mercury (d) Tin
10.	A:- Hydrogen gas is not evolved when metal react with nitric acid. R:- Nitric acid is a strong oxidizing agent. 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 ,R is false. (d) A is false , R is true
11.	Which of the following are not ionic compounds ? (i)KCl (ii)HCl (iii)CCl ₄ (iv)NaCl (a) (i) and (ii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (i) and (iii)
12.	Silver articles become black on prolonged exposure to air. This is due to the formation of (a)Ag ₃ N (b) Ag ₂ O (c) Ag ₂ S (d) Ag ₂ S and Ag ₃ N
13.	Galvanisation is a method of protecting iron from rusting by coating with a thin layer of (a)Galium (b) Aluminium (c) Zinc (d) Silver
14.	An element A is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. Identify the element from the following (a)Mg (b)Na (c)P (d)Ca
15.	Alloys are homogeneous mixtures of a metal with a metal or non-metal. Which among the following alloys contain non-metal as one of its constituents ? (a)Brass (b) Bronze (c) Amalgam (d) Steel
16.	Which among the following alloys contain mercury as one of its constituents ? (a)Stainless steel (b) alnico (c) Solder (d) Zinc amalgam
17.	Reaction between X and Y forms compound Z. X loses electron and Y gains electron. Which of the following properties is not shown by Z ? (a)Has high melting point (b) Has low melting point (c) Conducts electricity in molten state (d) Occurs as solid
18.	The electronic configurations of three elements X, Y and Z are X – 2, 8; Y – 2, 8, 7 and Z – 2, 8, 2. Which of the following is correct ?

	(a) X is a metal (c) Z is a non-metal (d) Y is a non-metal and Z is a metal	(b) Y is a metal
19.	Although metals form basic oxides, which of the following metals form an amphoteric oxide ? (a) Na (b) Ca (c) Al (d) Cu	
20.	Which of the following non-metals is a liquid ? (a) Carbon (b) Bromine (c) Phosphorus (d) Sulphur	
21.	Which property of solder makes it suitable for welding electrical wires? A. Conducting B. low melting point C. ductility D. high melting point	
22.	Steel is an alloy of iron and carbon with improved strength and fracture resistance compared to other forms of iron. Many other elements may be present or added. Stainless steels, which are resistant to corrosion and oxidation, typically need an additional 11% chromium. Because of its high tensile strength and low cost, steel is used in buildings, infrastructure, tools, ships, trains, cars, bicycles, machines, electrical appliances, furniture, and weapons. Generally, alloys are a homogeneous mixture of a metal with a metal or nonmetal. Which among the following alloys contain non-metal? A. Amalgam B. Bronze C. Steel D. Brass	
23.	Given below are images of gold ore and iron ore. Explain why gold ore is looking very similar to pure gold but iron ores do not.  	
24.	Roasting of zinc ore is correctly represented by which of the following reaction equations? A. $2 \text{ZnS} + \text{O}_2 \rightarrow 2 \text{ZnO} + 2 \text{SO}_2$ B. $2 \text{ZnS} + 3 \text{O}_2 \rightarrow 2 \text{ZnO} + 2 \text{SO}_2$ C. $\text{ZnS} + 3 \text{O}_2 \rightarrow 2 \text{ZnO} + 2 \text{SO}_2$ D. $2 \text{ZnS} + 3 \text{O}_2 \rightarrow 2 \text{ZnO} + \text{SO}_2$	
25.	The electronic configuration of sodium ion is (A) 2,8,8 (B) 2,8,2. (C) 2,6 (D) 2,8.	
26.	An element is a pure substance made up of same kind of atoms. At present, nearly 118 elements are known but all of them do not occur free in nature, some of them have been synthesized by artificial methods. Based on their properties, they are mainly classified as metals and non-metals. Metals are those elements which lose electrons and form positive ions i.e., they are electropositive in nature. They are generally hard, good conductors of heat and electricity, malleable, ductile and have striking lustre. They have a significant role to play in our daily life. Metals which are of vital importance to the national defense, energy and industry sector are called strategic metals. Which of the following is a strategic metal? (A) Titanium	

	(B) Zirconium (C) Manganese (D) All of these															
27.	An element is a pure substance made up of same kind of atoms. At present, nearly 118 elements are known but all of them do not occur free in nature, some of them have been synthesized by artificial methods. Based on their properties, they are mainly classified as metals and non-metals. Metals are those elements which lose electrons and form positive ions i.e., they are electropositive in nature. They are generally hard, good conductors of heat and electricity, malleable, ductile and have striking lustre. They have a significant role to play in our daily life. Metals which are of vital importance to the national defence, energy and industry sector are called strategic metals. Identify the correct statement(s). (I) The wires that carry current in our homes have a coating of PVC or a rubber like material. (II) School bells are made of metals. (III) Metals do not conduct electricity. (IV) Metals which produce a sound on striking a hard surface are said to be non-sonorous. (A) (I) and (III) (B) (I) and (II) (C) (III) and (IV) (D) Only (II)															
28.	Which one of the following figures describes electrolytic refining: (a) (b) (c) (d)															
29.	The method of zone refining of metals is based upon the principle of A. greater solubility of the impurity in molten state than in solid B. greater mobility of pure metal than impurity C. higher melting point of impurity than that of pure metal. D. greater noble character of solid metal than that of the impurity															
30.	Element X reacts with element Y to form a compound Z. During the formation of compound Z, atoms of X lose one electron each whereas atoms of Y gain one electron each. Which of the following properties is not shown by compound Z? A. High melting point B. Low melting point C. Occurrence as solid D. Conduction of electricity in molten state															
31.	A cable manufacturing unit tested few elements on the basis of their physical properties <table><tr><th>Properties</th><th>W</th><th>X</th><th>Y</th><th>Z</th></tr><tr><td>Malleable</td><td>Yes</td><td>No</td><td>No</td><td>No</td></tr><tr><td>Ductile</td><td>Yes</td><td>NO</td><td>No</td><td>Yes</td></tr></table>	Properties	W	X	Y	Z	Malleable	Yes	No	No	No	Ductile	Yes	NO	No	Yes
Properties	W	X	Y	Z												
Malleable	Yes	No	No	No												
Ductile	Yes	NO	No	Yes												

	Electrical conductivity	Yes	Yes	Yes	No
	Melting Point	High	Low	Low	High
	Among the above elements, the company would discard the elements for making cables A) W, X, Y B) X, Y, Z C) W, X, Z D) W, Y, Z				
32.	The diagram shows the reaction between metal and dilute acid  What is the reason for different behaviour of Mg in test tube B a) Mg is lighter element than dil. HCl b) Mg reacts with dil. HCl to produce N₂ gas, which helps in floating c) Mg reacts with dil. HCl to produce H₂ gas, which helps in floating d) Mg reacts with dil. HCl to produce CO₂ gas, which helps in floating				
33.	A student adds some metallic ash in water taken in a test tube. The ash gets completely dissolved in water and the solution changes colour. What should the student do to test the chemical properties of the product formed? a) Test the acidity using blue litmus paper b) Evaporate the solution to get crystals. c) Measure the temperature change using a thermometer. d) Test the basicity by using red litmus paper.				
34.	 Observe the above activity and mention correct reason for the deposition of brown substance over iron nail. a) Iron is less reactive than copper and doesn't displace copper from its salt solution b) Iron is more reactive than copper and displaces copper from its salt solution c) Both iron and copper displace each other from salt solutions d) None of these are correct				
35.	The list of metals in the metal reactivity series is given below. In this series along with metal hydrogen is also placed which is a non metal. The correct reason for placing hydrogen in the series is				

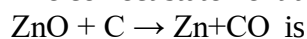
K	Potassium	Most reactive
Na	Sodium	
Ca	Calcium	
Mg	Magnesium	
Al	Aluminium	
Zn	Zinc	Reactivity decreases
Fe	Iron	
Pb	Lead	
[H]	[Hydrogen]	
Cu	Copper	
Hg	Mercury	
Ag	Silver	
Au	Gold	Least reactive

- a) It is a lighter gas
b) It shows the behaviour of electropositive elements to form H^+ ion
c) It is a non reactive element
d) It is very reactive element

36. The correct combination of stainless steel is

- a) $Fe + C$
b) $Fe + C + Cr$
c) $Fe + C + Cr + Ni$
d) $Fe + C + Mn + Ni$

37. The correct statement about the reaction



- a) ZnO is being oxidized
b) CO is being oxidized
c) ZnO is being reduced
d) Zn is being oxidised

38. Roasting and calcination both the processes are used to obtain oxides of the metal, roasting is done for the sulphide ore and calcination is done for carbonate ore, these processes are done for the metals _____

- a) middle in the activity series
b) high in the activity series
c) low in the activity series
d) For all category of metals

39. During the formation of an ionic compound Mg_3N_2 , the cation and anion ion formed are:

- a) Mg^{3+} , N^{2-}
b) Mg^+ , N^{3-}
c) Mg^{2+} , N^{2-}
d) Mg^{2+} , N^{3-}

40. Metals can be given shapes according to our needs, choose the correct option due to which property/properties they can be given different shapes

- a) they are malleable and ductile
b) they are sonorous
c) they are generally hard
d) they have shining surface

41. Roasting of zinc ore is correctly represented by which of the following reaction equation

- E. $2 ZnS + O_2 \rightarrow 2 ZnO + 2 SO_2$
F. $2 ZnS + 3 O_2 \rightarrow 2 ZnO + 2 SO_2$
G. $ZnS + 3 O_2 \rightarrow 2 ZnO + 2 SO_2$
H. $2 ZnS + 3 O_2 \rightarrow 2 ZnO + SO_2$

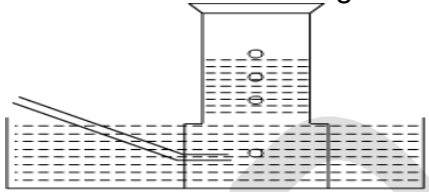
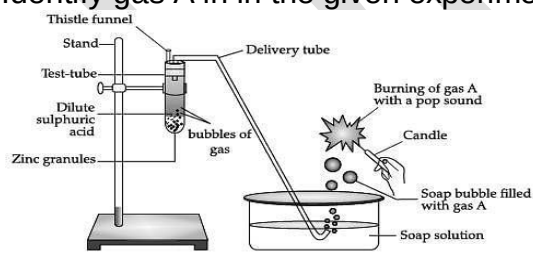
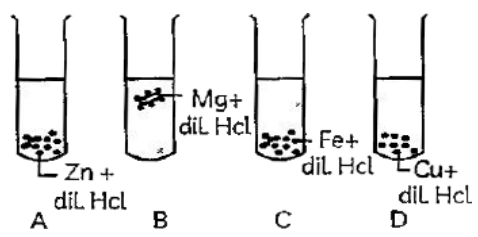
42. Give an Example of a metal which is a liquid at room temperature

- (i) iron (ii) Copper (iii) Mercury (iv) Manganese

43. Which is the best Conductor of heat

- (i) Silver (ii) Bronze (iii) Aluminum (iv) Copper

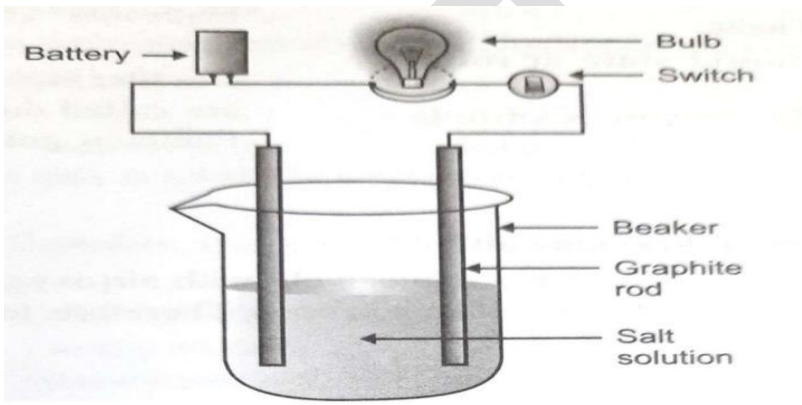
44. Which property of solder makes it suitable for welding electrical wires?

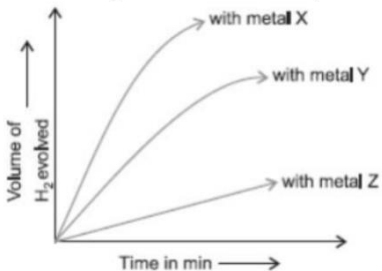
	A. Conducting B. low melting point C. ductility D. high melting point
45.	A student adds some metallic ash in water taken in a test tube. The ash gets completely dissolved in water and the solution changes colour. What should the student do to test the chemical properties of the product formed? a) Test the acidity using blue litmus paper b) Evaporate the solution to get crystals. c) Measure the temperature change using a thermometer. d) Test the basicity by using red litmus paper.
46.	Which one of the following is a good conductor of electricity? (i) Silver (ii) Wood (iii) Glass (iv) Plastic
47.	Which metal burnt easily (i) Iron (ii) Coal (iii) Alkali (iv) Silver
48.	Metals can be given shapes according to our needs , choose the correct option due to which property/properties they can be given different shapes a) they are malleable and ductile b) they are sonorous c) they are generally hard d) they have shining surface
49.	When metal (M) is treated with diluted H_2SO_4, a gas is evolved and is collected over the water as shown in the figure  The correct conclusion is a) The gas evolved is Hydrogen. b) The evolved gas is lighter than air. c) The evolved gas is SO_2. d) Both (a) and (b).
50.	Identify gas A in the given experiment  a) Nitrogen b) Hydrogen c) Oxygen d) Carbon dioxide
51.	The diagram shows the reaction between metal and dil. acid  Reason for different behavior of Mg in test tube B a) Mg is lighter element than dil. HCl b) Mg reacts with dil. HCl to produce H_2 gas which helps in floating.

	c) Mg reacts with dil. HCl to produce N_2 gas which helps in floating. d) Mg reacts with dil. HCl to produce CO_2 gas which helps in floating.
52.	The metal which does not react with cold or hot water is a) Sodium b) Calcium c) Magnesium d) Gold
53.	Which of the following metals are stored in kerosene? a) sodium and potassium b) sodium and copper c) potassium and mercury d) sodium and mercury
54.	Given below are two statements labelled as Assertion (A) and Reason (R) Assertion: Gold, Silver, Platinum are found in free state. Reason: The metals at the bottom of the activity series are least reactive. Select the most appropriate answer from the options given below: (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.
55.	Given below are two statements labelled as Assertion (A) and Reason (R) Assertion: Food cans are coated with tin and not with zinc. Reason: Zinc is more reactive than tin. Select the most appropriate answer from the options given below: (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.
56.	Given below are two statements labelled as Assertion (A) and Reason (R) Assertion: Different metals have different reactivities with water and dilute acids. Reason: Reactivity of a metal depends on its position in the reactivity series. Select the most appropriate answer from the options given below: (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.
57.	Given below are two statements labelled as Assertion (A) and Reason (R) Assertion: A mineral is called ore, when metal can be profitably extracted from it. Reason: All ores are minerals but all minerals are not ores. Select the most appropriate answer from the options given below: (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.
58.	Given below are two statements labelled as Assertion (A) and Reason (R) Assertion: Iron is found in free state in nature. Reason: Iron is a highly reactive metal. Select the most appropriate answer from the options given below: (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.
59.	Galvanization means a. Coating with tin b. Coating with zinc c. Alloys making d. None of these
60.	Write Some characteristics of chemical reaction a. Change in colour b. Change in temperature c. Evolution of gas & formation of ppt d. All of these
61.	$C_6H_{12}O_6 + 6O_2 \longrightarrow 6CO_2 + 6H_2O$ The above reaction is a /an a. Displacement reaction b. Endothermic reaction c. Exothermic reaction d. Neutralization reaction
62.	Metals have _____ melting and boiling points. a. High b. Low c. Both d. All of these
63.	The ability of metals to be drawn into thin wires is known as a. ductility b. malleability c. Sonority d. Conductivity
64.	Due to its semiconductor properties the Non-metal used in T.V. is a. carbon b. Silicon c. Bromine d. Fluorine
65.	Generally Non-metals are not conductors of electricity. Which of the following is a good conductor of electricity? a. diamond b. Graphite c. Sulphur d. Fullerene
66.	Iodine is a a. non-metal b. metal c. metalloid d. none
67.	The ability of metals to be drawn into thin wire is known as a. Ductility

	b. Malleability c. Sonorous d. Conductivity
68.	Which among the following metals has the lowest melting point? a. Lithium b. Sodium c. Magnesium d. Mercury
69.	
70.	
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81.	
VSA 2 MARKS EACH	
1.	Give Two examples of metals that are good conductor and poor conductor of heat and electricity
2.	Compound X and Aluminium are used to join the railway tracks. Identify the X and name this reaction.
3.	These group of metals are refined by electrolytic refining? (a) Au & Cu (b) Na & K (c) Na & Au (d) Cu & Na
4.	Compound X and aluminium are used to join railway tracks. (a) Identify the compound X (b) Name the reaction (c) Write down its reaction.
5.	A non-metal A is an important constituent of our food and forms two oxides B and C. Oxide B is toxic whereas C causes global warming (a) Identify A, B and C (b) To which group of periodic table does A belong ?
6.	An element A reacts with water to form a compound B which is used in white washing. The compound B on heating forms an oxide C which on treatment with water gives back B. Identify A, B and C and give the reactions involved.
7.	Anodising is an electrolytic process for usually on aluminium and its alloys. The in thickness and is used to give improved corrosion, or as a decorative layer. If H_2SO_4 answer the following. I. The aluminium is placed at which electrode A. Cathode B. Anode C. It can be placed at both electrodes  producing thick oxide coatings, oxide layer is typically 5 to 30 μm surface resistance to wear and solution is used as electrolyte then during electrolysis.

	D. Not as electrode II. Why gold and silvers are not coloured or anodized? A. Expensive to colour or anodize B. These are very brittle so can brake during the process C. The keep the beauty of the metal surface D. Are least reactive metals
8.	We kept a solution of CuSO_4 in an iron pot. After a few days, the iron pot was found to have several holes in it. Explain the reason in terms of reactivity. Write the equation of the reaction involved.
9.	Suggest the possible reason behind formation of sodium hydroxide and only aluminium oxide when both sodium and aluminium react with water.
10.	Waheeda dissolved some common salts in the given experimental set up and found that the bulb is glowing while she performed same experiment by taking the solid common salts, she marked that the bulb is not glowing.  Analyse both the experiments and mention the reason for difference in results.
11.	A student has been collecting silver coins and copper coins. One day she observed a black coating on silver coin and green coating on copper. Mention the reason for such change. Name the substances formed in both cases.
12.	Riya a student of class 10 was given sample of Mg, Zn, Fe, and Cu and dilute HCl and Dilute HNO_3. She put each sample of metals in the test tube containing dilute HCl and Dilute HNO_3 separately. Basing on her observation she had drawn the following observation. 1- Bubbles are formed when Mg is put in the test tube containing dilute HNO_3 2- Bubble are seen when Zn is put in the test tube containing dilute HCl. 3- Bubbles are released from the test tube when Cu metal is put in the test tube containing dilute HCl. 4- Bubbles are formed when Fe is put in the test tube containing dilute HNO_3 Analyse the inferences drawn by Riya and identify the incorrect statements.
13.	A student has been collecting silver coins and copper coins. One day she observed a black coating on silver coin and green coating on copper. Mention the reason for such change. Name the substances formed in both cases.
14.	We kept a solution of CuSO_4 in an iron pot. After a few days, the iron pot was found to have several holes in it. Explain the reason in terms of reactivity. Write the equation of the reaction involved.
15.	Why ionic compounds have high melting point?
16.	An element reacts with air (oxygen) to form its oxide. When dissolved in water, the solution turns red litmus blue. Is it a metal or a non metal? Justify your answer.
17.	Iqbal treated a lustrous, divalent element M with sodium hydroxide. He observed the formation of bubbles in the reaction mixture. He made the same observations when this element was treated with hydrochloric acid. Suggest the way he can identify the produced gas.

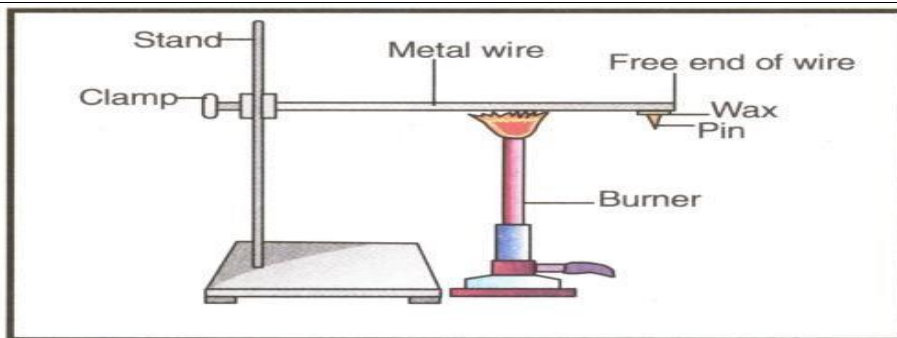
18.	A yellow coloured powder 'X' is soluble in carbon disulfide. It burns with a blue flame forming suffocating smelling gas which turns moist blue litmus red. Identify 'X' and give chemical reaction.
19.	24 Carat gold is not suitable for making jewellery. Why?
20.	Write Some alloys.(any four)
21.	What happens when nitric acid is added to an egg-shell?Justify your answer.
22.	
23.	
SA 3 MARKS EACH	
1.	An element A react with water to form a compound B used in whitewashing. The B on heating Forms an oxide C which gives back B on treating with water. Identify A,B and C.
2.	Arun uses a copper vessel at his home. After some time he found it is coated with green colour. (a) What is the chemical composition of this green coating? (b) Why do copper vessel forms such a green coating? (c) Name the Phenomenon, responsible for green coating?
3.	The graph below show the rate of reaction of three different metals X, Y and Z with dilute sulphuric acid.  Study the above graph and answer the following:- (i) Which of the following is represented by Y. (a) Al (b) Mg (c) Zn (d) Cant be predicted (ii) What will be observed if Mg ribbon is placed in CuSO₄ solution? (a) Solution turns blue. (b) Solution turns colourless from blue. (c) Solution Turns green. (d) Solution turns Red. (iii) Which one will be represented by X (a) Na (b) Mg (c) Al (d) Zn
4.	A student has been collecting silver coins and copper coins. One day, she observed a black coating on silver coins and a green coating on copper coins. Which chemical phenomenon is responsible for these coatings ? Write the chemical name of black and green coatings.
5.	A metal 'M' has the electronic configuration 2, 8, 3 and occurs in nature as M₂O₃. It is more reactive than Zinc. Answer the following questions : (a) Name the metal 'M'

	(b) Name the ore from which this metal is extracted. (c) How is the metal oxide converted to metal ?																
6.	Give reasons for the following observations: (i) Copper vessels get a green coat when left exposed to air in the rainy season. (ii) Metal sulphides occur mainly in rocks but metal halides occur mostly in sea and lake waters.																
7.	An element A burns with golden flame in the air. It reacts with another element B, atomic number 17, to give a product C. An aqueous solution of product C on electrolysis gives a compound D and liberates hydrogen. Identify A, B, C and D. Also, write down the equations for the reactions involved.																
8.	When a metal X is treated with cold water, it gives a basic salt Y with the molecular formula XOH (Molecular mass = 40) and liberates a gas Z which easily catches fire. Identify X, Y and Z and also write the reaction involved.																
9.	Ionic compound is a chemical compound in which ions are held together by ionic bonds. An ionic bond is the type of chemical bond in which two oppositely charged ions are held through electrostatic forces. We know that, metal atoms have loosely bound valence electrons in their valence shell and non-metal atoms need electrons in their valence shell to attain noble gas configuration. The metal atom loses the valence electrons while non-metal atom accepts these electrons. By losing electrons, metal atoms change to cations and by accepting electrons, non-metals form anions. Ionic compounds are generally solid and exist in the form of crystal. They have high melting and boiling points. Why we cannot melt salt by heating over gas flame but make syrup easily by melting sugar. Write the chemical name and draw the electron dot structure of common salt.																
10.	The reaction of metallic oxides of zinc, magnesium and copper with the following metals are given below <table><tr><td>Metal</td><td>Zinc</td><td>Magnesium</td><td>Copper</td></tr><tr><td>Zinc oxide</td><td></td><td></td><td></td></tr><tr><td>Magnesium oxide</td><td></td><td></td><td></td></tr><tr><td>Copper oxide</td><td></td><td></td><td></td></tr></table> Complete the above table by writing YES in the cases the displacement reactions taking place	Metal	Zinc	Magnesium	Copper	Zinc oxide				Magnesium oxide				Copper oxide			
Metal	Zinc	Magnesium	Copper														
Zinc oxide																	
Magnesium oxide																	
Copper oxide																	
11.	The electronic configuration of two elements X and Y are given below X:2,7 Y: 2,8,1 a) Show the formation of bond between X and Y by electron transfer. b) Mention the type of bond formed between X and Y. c) This compound is having high melting and boiling point. Suggest one reason for this.																
12.	A teacher asks students to identify a metal, M. She gives them the following clues to help them. I) Its oxide reacts with both HCl and NaOH. II) It does not react with hot or cold water but reacts with steam. III) It can be extracted by electrolysis of its ore. Basing on the clues a) Identify the metal M. b) List the chemical equations of the reaction of the oxide of the metal M with HCl and NaOH. c) Mention the type of oxide into which the oxide of metal M can be categorized.																
13.	When a metal X is treated with cold water, it gives a basic salt Y with the molecular formula XOH (Molecular mass = 40) and liberates a gas Z which easily catches fire. Identify X, Y and Z and also write the reaction involved.																
14.	Two ores A and B were taken. On heating, ore A gives CO, whereas ore B gives SO₂. What steps will you take to convert them into metals? Two ores A and B were taken. On heating, ore A gives CO, whereas ore B gives SO₂. What steps will you take to convert them into metals?																
15.	What is cinnabar? How is metal extracted from cinnabar? Explain briefly?																
16.	Ashish was given Mg, Zn, Fe and Cu metals. He puts each of them in dil. HCl contained in different test tubes. Identify which of them																

	i) will not displace H_2 from dil. HCl ii) forms a pale green substance iii) will be displaced from its salt solution by all other metals.
17.	Shilpa took a metal X which generally turns black when kept in open for several days. The metal when rubbed with toothpaste again starts shining. a) Identify the metal X. b) Why do the metal X turns black. Name the phenomenon involved. c) Name the black substance formed and write its formula.
18.	i) Identify the gases evolved at the anode and cathode in the above experimental set up. ii) Name the process that occurs. Why is it called so ? iii) Illustrate the reaction of the process with the help of a chemical reaction.
	State some conditions for the rusting of iron.
19	Give scientific reason Platinum , Gold & silver are used for making jewellery.
20	A metal is treated with dil. H_2SO_4. The gas evolved is collected by the method . Answer the following 1. write the method of collection of the gas. 2. Name the gas. 3. Is the gas soluble or insoluble in water?
	CASE BASED QUESTIONS 4 MARKS
1.	The chemical reactivity of an element depends upon its electronic configuration. During chemical reaction , atoms of all elements tend to achieve a complete filled valance shell. Metals tend to lose one or more electron while non-metal tend to gain one or more electron. The compound form by transfer of electron from one element to other is called ionic compound. The electronic configuration of three elements are:- X- 2,8,1 Y- 2,8,7 Z- 2,8,2 Answer the following:- (a) Which of the following is correct regarding these element:-(i) X is non metal (ii) Y is metal (iii) both i)and ii) (iv) Y is non metal and Z is metal. (b) If X react With Y then which type of bond is formed between them:- (i) Hydrogen bond (ii) Covalent bond (iii) Ionic bond (iv) None of the above. (c) Among these elements which is/are electropositive in nature:- (i) X (ii) Y (iii) Z (iv) both X and Z

	(d) The compound formed by the combination of X and Y is :- (i) Good conductor of electricity in solid state. (ii) Good conductor of electricity in molten state. (iii) Good conductor of electricity in any state. (iv) Bad conductor of electricity in any state.
2.	Metals have been arranged according to their reactivity series. Most reactive metals are found in combined state in nature whereas less reactive metals are found in free state. The general method of extraction of metal is specific for different type of metals. (a) Copper pyrites contains (i) Cu_2O (ii) Cu_2S (iii) CuFeS_2 (d) CuCO_3 (b) Roasting is the process in which (i) Air is necessary (ii) Air is not necessary (iii) Air May not be necessary. (iv) None of the above. (c) The reduction of Fe_2O_3 is carried out by :- (i) C (ii) Al (iii) Either of these (iv) none (d) After electrolytic refining the pure metal deposited on:- (i) Anode (ii) Cathode (c) May be cathode or anode (d) At the bottom of electrolytic tank.
3.	Give reasons for the following: (i) Why Hydrogen gas is not evolved when most of the metals react with nitric acid (ii) Tarnished copper vessels are cleaned with tamarind juice. (iii) Aluminium is more reactive than iron yet there is less corrosion of aluminium as compared to iron when both are exposed to air. (iv)) Aluminium is a reactive metal but is still used for packing food articles. Give reasons.
4.	(a) You are provided with coal, wood and iron. Which item should be selected for making school bell and why? (b) Why electric wires are made up of copper? c). By the transfer of electrons, illustrate the formation of bond in magnesium chloride and identify the ions present in this compound. (d) Name two metals which do not react with water.
5.	A non-metal A, the largest constituent of air, when heated with H_2 in a 1:3 ratio in the presence of a catalyst (Fe), gives a gas B. On heating with O_2, it gives an oxide C. If this oxide is passed into the water in the presence of air, it gives an acid D which acts as a strong oxidising agent. (a) Identify A, B, C, and D (b) To which group of periodic tables does this non-metal belong?

6.	Silver articles become black after some time when exposed to air. This is because it reacts with sulphur in the air to form a coating of silver sulphide. Copper reacts with moist carbon dioxide in the air and slowly loses its shiny brown surface and gains a green substance called copper carbonate. Iron reacts with moist air for a long time acquires a coating of a brown flaky substance called rust. Let us find out the conditions under which iron rusts. exposed to air. form a coating of silver sulphide in the air. gains a green substance called copper carbonate when exposed to moist air. gains a brown flaky substance called rust. i) Write a chemical reaction occur during the rusting of iron. ii) Give three methods to prevent the corrosion of metals. iii) What do you meant by the alloy? Give one example. iv) can you name the process where zinc is deposited over reactive metals?
7.	Refining is the process of purification of metals. One of the important method of refining is electrolysis. In electrolysis, electrical energy is used to bring about non-spontaneous redox reaction. This is done by the passing of electric current through liquid containing ions, known as electrolyte. In contrast to metals, the current in electrolytes is carried by the movement of ions rather than movement of electrons. The solid conductors inserted into liquid are called electrodes, the one with positive charge is called anode and the one with negative charge is called cathode. 1-Mention the name of two metals whose refining is done by using the process of electrolysis. 2-Distinguish between electrolytic reduction and electrolytic refining 3-What is meant by anode mud? Name the electrode where the pure metal gets deposited during electrolytic refining.
8.	Reena immersed a zinc plate in an aqueous solution of copper sulphate. She noticed a thick layer of copper on the surface of the zinc plate after an hour. 1- State the reason of the formation of the colourless solution. Also mention the chemical formula of the colourless solution. 2- What should Reena have done to make the reaction faster? 3- No reaction takes place when a copper plate immersed in an aqueous solution of zinc sulphate. Explain the reason behind this.
9.	Harshita performed an experiment to study about thermal conductivity in metals. She took a stand and fix an aluminium or copper rod with the help of clamp. Fix a pin to the free end of rod with the help of wax. On heating the rod near the place it is clamped, the wax melts and pin falls down but metal does not melt.



i) What do you come to know about metals in this experiment?

ii) What do you mean by thermal conductivity? Give some examples of thermal conductors.

iii) Aluminium metal does not melt in the given experiment. Give reason and give two uses of aluminium.

10. A metal 'X' combines with a non-metal 'Y' by the transfer of electrons to form a compound 'Z'.

i) State the type of bond in compound 'Z'.

ii) What can you say about the melting and boiling point of compound Z.

iii) Will this compound dissolve in kerosene or petrol?

iv) Will this compound be a good conductor of electricity?

11. Write scientific reason for the following

1. Gold jewellery retain their lustre even after several years of use.

2. Iron grills are frequently painted.

12. Write physical properties of metals and Non-metals. (any four)

13.

14.

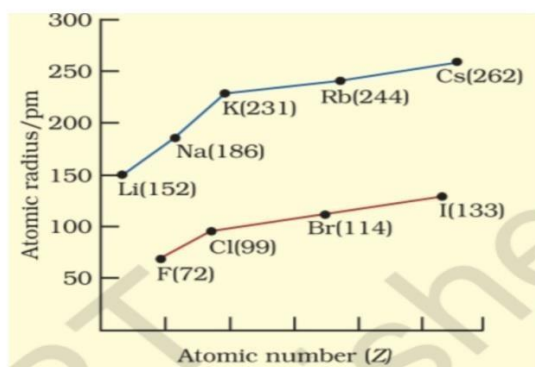
15.

16.

LA (5 MARKS)

1

The ability of an atom to donate electrons and form positive ion (cation) is known as electro-negativity or metallic character. Down the group, metallic character increases due to increase in atomic size and across the period, from left to right electro-positivity decreases due to decrease in atomic size. Non-Metallic Character The ability of an atom to accept electrons to form a negative ion (anion) is called non-metallic character or electronegativity. The elements having high electro-negativity have a higher tendency to gain electrons and form anion. Down the group, electronegativity decreases due to increase in atomic size and across the period, from left to right electronegativity increases due to decrease in atomic size.



1. Which of the following correctly represents the decreasing order of metallic character of Alkali metals plotted in the graph?

PM SHRI KENDRIYA VIDYALAYA TIKAMGARH

AUTUMN BREAK HOMEWORK (2026-27)

CLASS 10 – ARTIFICIAL INTELLIGENCE

Task 1: AI Project Cycle & Evaluation Metrics

- **Instructions:** Copy the following problem statement into your notebook and solve it:
 - *Scenario:* An AI model is trained to detect whether a medical scan shows a fracture (Positive) or no fracture (Negative).
 - *Data:* Out of 100 total test cases:
 - 45** cases were actual fractures, and the AI correctly predicted them as fractures.
 - 5** cases were actual fractures, but the AI predicted them as NO fracture.
 - 40** cases had no fracture, and the AI correctly predicted them as NO fracture.
 - 10** cases had no fracture, but the AI predicted them as a fracture.
 - **Your Task:**
 1. Draw the **2x2 Confusion Matrix** displaying True Positives (TP), True Negatives (TN), False Positives (FP), and False Negatives (FN).
 2. Calculate the **Precision, Recall, and F1 Score** using their respective mathematical formulas.

Task 2: Advanced Data Sciences & Computer Vision (Project Work)

Objective: Differentiate between complex features of advanced AI domains.

- **Instructions:** Design a comparative chart on an A4 sheet tracking the processes behind two major domains:
 1. **Computer Vision (CV):** Explain the difference between *Image Classification*, *Object Detection*, and *Instance Segmentation*. Use simple diagrams or cutouts to show how an autonomous car "sees" a pedestrian versus a traffic light.
 2. **Natural Language Processing (NLP):** Create a visual flowchart showing the step-by-step pipeline of **Text Normalization**: *Sentence Segmentation* → *Tokenization* → *Removing Stop Words* → *Stemming/Lemmatization*

Task 3: The 4Ws Problem Scoping Canvas (Written Portfolio Work)

Objective: Master the foundational phase of the **AI Project Cycle** by structuring a problem.

- **Instructions:** Copy the template below into your homework notebook and fill it out based on this scenario: *Designing an AI-driven school bus tracking system that predicts arrival delays based on real-time traffic to reduce waiting times for parents.*

=====

THE 4Ws PROBLEM SCOPING CANVAS

=====

1. WHO is facing the problem?

- [Define the stakeholders who are affected by this issue]

2. WHAT is the problem?

- [Describe the core issue, pain points, and current evidence]

3. WHERE does the problem occur?

- [Specify the context, location, or situation where it happens]

4. WHY is it worth solving?

- [Explain the value, benefits, and long-term utility of the fix]

AUTUMN BREAK HOLIDAY HOMEWORK

Mathematics | Class 10

Kendriya Vidyalaya - Session 2026-27

Autumn Break: 15 October 2026 to 24 October 2026 (10 days)

Revision of chapters completed before the break (as per the Split-Up Syllabus)

Chapters Covered (for revision)

- Ch 1 - Real Numbers
- Ch 2 - Polynomials
- Ch 3 - Pair of Linear Equations in Two Variables
- Ch 4 - Quadratic Equations
- Ch 5 - Arithmetic Progressions
- Ch 6 - Triangles
- Ch 7 - Coordinate Geometry
- Ch 8 - Introduction to Trigonometry
- Ch 9 - Applications of Trigonometry
- Ch 10 - Circles
- Ch 11 - Areas Related to Circles
- Ch 12 - Surface Areas and Volumes

Instructions for Students

1. Attempt one worksheet each day. Do all the work neatly in your Maths notebook.
2. Write the question number and then the complete solution, showing each step.
3. Draw diagrams and graphs with a pencil and ruler wherever needed.
4. Revise the chapter from the textbook before starting that day's worksheet.
5. This is revision work only, based on what has already been taught in class.

Day 1: Real Numbers and Polynomials

1. Find the HCF and the LCM of 26 and 91, and verify that $\text{HCF} \times \text{LCM} = \text{product of the numbers}$.
2. Prove that the square root of 5 is irrational.
3. Find the zeroes of $x^2 - 5x + 6$.
4. Find a quadratic polynomial whose zeroes are 3 and -2.
5. If the product of the zeroes of $x^2 - 7x + k$ is 12, find k.
6. Without dividing, state whether $13/125$ has a terminating or a non-terminating decimal expansion.
7. Find the HCF of 96 and 404 by prime factorisation.
8. Find the zeroes of $x^2 - 4$.

Day 2: Pair of Linear Equations in Two Variables

1. Solve: $x + y = 10$ and $x - y = 2$.
2. Solve by substitution: $2x + 3y = 12$, given $x = 3$.
3. For what value of k do $2x + 3y = 7$ and $4x + 6y = k$ have infinitely many solutions?
4. Solve: $3x + 2y = 12$ and $5x - 2y = 4$.
5. Check the consistency of: $x + 2y = 5$ and $3x + 6y = 15$.

6. The sum of two numbers is 35 and their difference is 13. Find the numbers.
7. Solve: $7x + 6y = 3800$ and $3x + 5y = 1750$.
8. Five years ago a father was three times as old as his son. Write a linear equation for this situation.

Day 3: Quadratic Equations

1. Solve by factorisation: $x^2 - 7x + 12 = 0$.
2. Solve using the quadratic formula: $x^2 - 5x + 6 = 0$.
3. Find the nature of the roots of $2x^2 - 4x + 3 = 0$.
4. Find k if $x^2 + kx + 9 = 0$ has equal roots.
5. Solve: $x^2 - 9 = 0$.
6. The product of two consecutive positive integers is 306. Find the integers.
7. Solve: $2x^2 + x - 6 = 0$.
8. Find the roots of $x^2 + 4x + 4 = 0$.

Day 4: Arithmetic Progressions

1. Find the 10th term of the AP 2, 7, 12, ...
2. Find the sum of the first 20 terms of the AP 3, 7, 11, ...
3. Which term of the AP 5, 8, 11, ... is 50?
4. Find the common difference of the AP $\frac{1}{2}, 1, \frac{3}{2}, \dots$
5. Find the sum of the first 15 multiples of 8.
6. The 5th term of an AP is 19 and the 10th term is 39. Find the AP.
7. How many two-digit numbers are divisible by 3?
8. Find the 21st term of the AP -4, -1, 2, ...

Day 5: Triangles

1. State the Basic Proportionality Theorem (Thales theorem).
2. In triangle ABC, DE is parallel to BC, AD = 3 cm, DB = 5 cm and AE = 4.5 cm. Find EC.
3. Two triangles are similar and their corresponding sides are in the ratio 2 : 3. Find the ratio of their areas.
4. Check whether triangles with sides 3, 4, 5 and 6, 8, 10 are similar.
5. In two triangles ABC and DEF, angle A = angle D and angle B = angle E. Name the similarity criterion.
6. The areas of two similar triangles are 81 cm^2 and 49 cm^2 . Find the ratio of their corresponding sides.
7. State the Pythagoras theorem.
8. A vertical pole 6 m high casts a shadow 4 m long. Find the height of a tree that casts a shadow 10 m long at the same time.

Day 6: Coordinate Geometry

1. Find the distance between the points (2, 3) and (5, 7).
2. Find the midpoint of the line segment joining (4, -2) and (-2, 6).
3. Find the distance of the point (-3, 4) from the origin.
4. Find the coordinates of the midpoint of the segment joining (2, 3) and (6, 7).

5. Using the section formula, find the point dividing the segment joining (4, -3) and (8, 5) in the ratio 3 : 1.
6. Find the side lengths to show that (1, 7), (4, 2), (-1, -1) and (-4, 4) form a square.
7. Find the distance between (a, 0) and (0, b).
8. Find the point on the x-axis that is equidistant from (2, -5) and (-2, 9).

Day 7: Trigonometry and Its Applications

1. If $\sin(\theta) = 3/5$, find $\cos(\theta)$ and $\tan(\theta)$.
2. Evaluate: $\sin 30^\circ + \cos 60^\circ$.
3. Evaluate: $2 \tan^2(45^\circ) + \cos^2(30^\circ) - \sin^2(60^\circ)$.
4. If $\tan A = 1$, find A.
5. Prove: $\sin^2 A + \cos^2 A = 1$.
6. A tower casts a shadow 30 m long when the sun's elevation is 45 degrees. Find the height of the tower.
7. The angle of elevation of the top of a building from a point 20 m away is 60 degrees. Find the height of the building.
8. Evaluate: $\sin 45^\circ / \cos 45^\circ$.

Day 8: Circles and Areas Related to Circles

1. Complete: the tangent at any point of a circle is perpendicular to the ____.
2. The two tangents drawn from an external point to a circle are ____ in length.
3. Find the length of the tangent from a point 10 cm from the centre of a circle of radius 6 cm.
4. Find the area of a sector of angle 90 degrees in a circle of radius 14 cm.
5. Find the length of an arc of a circle of radius 21 cm subtending an angle of 60 degrees at the centre.
6. Find the area of a circle of radius 7 cm.
7. The circumference of a circle is 44 cm. Find its radius.
8. Find the area of a quadrant of a circle of radius 14 cm.

Day 9: Surface Areas and Volumes

1. Find the volume of a sphere of radius 7 cm.
2. Find the total surface area of a cube of side 5 cm.
3. A cylinder has radius 7 cm and height 10 cm. Find its volume.
4. Find the curved surface area of a cone of radius 7 cm and slant height 10 cm.
5. Find the volume of a hemisphere of radius 3.5 cm.
6. Find the volume of a cuboid of dimensions 10 cm x 5 cm x 4 cm.
7. The surface area of a sphere is 154 cm^2 . Find its radius.
8. A cone and a cylinder have the same radius and height. Find the ratio of their volumes.

Day 10: Mixed Revision

1. Find the HCF and the LCM of 12, 15 and 21.
2. Find the zeroes of $x^2 + 7x + 10$.
3. Solve: $2x + y = 8$ and $x - y = 1$.
4. Find the 15th term of the AP 7, 11, 15, ...

5. Find the distance between $(-5, 7)$ and $(-1, 3)$.
6. Evaluate: $\sin 60 \cos 30 + \cos 60 \sin 30$.
7. Find the area of a circle of diameter 28 cm.
8. Find the volume of a cube of edge 6 cm.

PM SHRI KENDRIYA VIDYALAYA, TIKAMGARH HOLIDAY

HOMEWORK (AUTUMN BREAK)

2026-27

Class: X

Subject: English

REVISION

Q1. Answer the following questions in 45-50 words each:

- a) Dr Harriot not only understood Tricki but also Mrs. Pumphrey and dealt with them accordingly. Justify
- b) The 'balcony' becomes a central character in the story 'The Midnight Visitor'. Do you agree? Give reason to support your answer.
- c) Being invisible brought a big disadvantage for Griffin. Elaborate the given statement with reference to the story 'Footprints without Feet'?
- d) Justify the title of the story 'A Question of Trust'.
- e) Do you think Bholi could have travelled the distance from being Bholi to Sulekha without her teacher? Give reason to support your answer.

Q2. You are Sahil Sagar studying in class XI. The school management has observed that the students commute to school by two wheelers. As all the students of the school are below eighteen years of age, they are not permitted by law to do so. You feel the need to sensitise the students about the same. Write a letter to the editor of a local daily expressing your concern. (150 word)

Q3. Prepare a mind map of any ONE of the lessons in each textbook.

Q4. Report the following sentences:

- a) The teacher said, "The Earth revolves around the Sun."
- b) Ramesh said, "I am preparing for the board examination."
- c) She said to me, "Do you like reading novels?"
- d) The doctor said to the patient, "You should take this medicine twice a day."
- e) The mother said to her son, "Clean your room immediately."
- f) He said, "I have finished my homework."
- g) The stranger said to me, "Can you tell me the way to the railway station?"
- h) The principal said to the students, "Do not waste your time."
- i) She said, "We will visit Jaipur next month."
- j) Mohan said to Sita, "Please help me with this sum."

PM SHRI Kendriya Vidyalaya Tikamgarh

Holiday Homework – Class X

Subject: Social Science (2026–27)

Project Work-

Prepare a project on “Consumer Rights”. Include the following:

Meaning and importance of consumer rights

Six consumer rights

Consumer responsibilities

Role of consumer courts

One real-life example of consumer exploitation

Pictures, slogans and conclusion

Submission: Complete the written work and project neatly and submit them after the holidays.