

# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 01 (2017-18)

SUBJECT: SCIENCE (086)

### BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
Chemical Substances - Nature and Behaviour	Chemical Reactions and Equations	--	--	3(1)	--	--	3(1)	25(8)
	Acids, Bases and Salts	--	--	3(1)*	--	2(1)	5(2)	
	Metals and Non-metals	--	--	--	5(1)	--	5(1)	
	Carbon and its compounds	--	--	--	5(1)*	2(1)	7(2)	
	Periodic Classification of Elements	--	2(1)	3(1)	--	--	5(2)	
World of Living	Life Process	1(1)	--	3(1)*	--	2(1)	6(3)	23(9)
	Control and Coordination	--	--	--	5(1)	--	5(1)	
	How do organisms reproduce?	1(1)	--	3(1)	--	2(1)	6(3)	
	Heredity and Evolution	--	--	6(2)	--	--	6(2)	
Natural Phenomena	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
	The Human Eye and the colourful world	--	--	--	5(1)	--	5(1)	
Effects of Current	Electricity	--	--	3(1)	--	2(1)*	5(2)	13(4)
	Magnetic Effects of Electric Current	--	--	3(1)*	5(1)	--	8(2)	
Natural Resources	Sources of energy	--	2(1)	--	--	--	2(1)	7(2)
	Our Environment	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	Management of Natural Resources	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

Note: \* - Internal Choice Questions of same chapter.

# - Internal Choice Questions of two chapters

**KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION**  
**SAMPLE PAPER 01 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. There is an internal choice in three questions of three marks each, two question of five marks and one question of Practical Based Question.
5. Question number **1 to 2** in **Section-A** are **one mark** question. These are to be answered in **one word** or in **one sentence**.
6. Question numbers **3 to 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
7. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
8. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
9. Question numbers **22 to 27** in **Section-B** are questions based on practical skills and are **two marks** questions.

**SECTION – A**

1. Mention two structural features of small intestine which add to the absorptive capacity.
2. When a cell reproduces, what happens to its DNA?
3. An object is placed at a distance of 30 cm from a concave lens of focal length 15 cm. List four characteristics (nature, position, etc.) of the image formed by the lens.
4. Describe how hydro-energy can be converted into electrical energy. Write any two limitations of hydro energy.
5. The atomic radii of three elements A, B and C of a periodic table are 186 pm, 104 pm and 143 pm respectively. Giving a reason, arrange these elements in the increasing order of atomic number in the period.
6. Describe the structure and functioning of nephrons.

**OR**

Draw a diagram of human respiratory system and label on it: (a) Diaphragm (b) Larynx

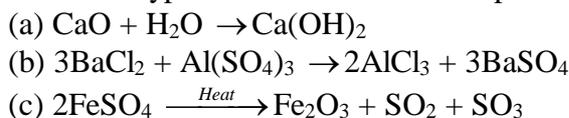
7. A newspaper has recently published a survey result which says that number of AIDS patients in the country is increasing everyday. The report also says that awareness among people about AIDS is still very poor. You discussed the newspaper report with your friend and both of you decided to help people to fight against this deadly disease. (a) What problem do you anticipate if both of you try to educate the people of your village? (b) How will you overcome that problem?
8. (a) Name the unit of inheritance. What is its function?  
(b) How are inherited traits different from acquired traits? Give examples.
9. (a) Define genetics  
(b) Who is regarded as the “Father of genetics”? Name the plant on which he performed his experiments.  
(c) Why did he select that specific plant for his experimental studies?

10. The resistance of a wire of length 250 m is 1 ohm. If the resistivity of the material of wire is  $1.6 \times 10^{-8}$  ohm meter, find the area of cross-section of the wire. How much does the resistance change if the diameter is doubled?
11. Two circular coils A and B of insulated wires are kept close to each other. Coil A is connected to a galvanometer while coil B is connected to a battery through a key. What will you observe in coil A, if (a) current is passed through coil B by plugging the key, (b) the current is stopped by removing the plug from the key? (c) both the coils are moved in the same direction with the same speed? Explain your answer mentioning the name of the phenomena involved.

**OR**

- (a) One of the major cause of fire in office building is short circuiting. List three factors which may lead to the short circuit.
- (b) What is overloading? State the causes of overloading.
12. An atom has electronic configuration 2, 8, 2.
- (a) What is the atomic number of this element?
- (b) What is its valency?
- (c) To which of the following elements would it be chemically similar and why? Be (4), O(8), justify your answer. (Atomic number are given in brackets)
13. (a) Define absolute refractive index of a medium.
- (b) The radius of curvature of concave mirror is 50cm. Where should an object be placed from the mirror so as form its image at infinity? Justify your answer.

14. Name the type of chemical reaction represented by the following equation:



15. (a) Write the name given to bases that are highly soluble in water. Give an example.
- (b) How is tooth decay related to pH ? How can it be prevented?
- (c) Why does bee sting cause pain and irritation ? Rubbing of baking soda on the sting area gives relief. How?

**OR**

- (a) Name the compound which is obtained from baking soda and is used to remove permanent hardness of water.
- (b) Write its chemical formula.
- (c) What happens when it is recrystallised from its aqueous solution?
16. (a) Write the name of the functional group in  $\text{CH}_3\text{COCH}_3$ .
- (b) An organic compound burns with a sooty flame. Is it saturated or unsaturated hydrocarbon?
- (c) Giving balanced equation state how you will convert methane to carbon dioxide.
- (d) Why does micelle formation take place when soap is added to water? Will a micelle be formed in all type of solvents? Justify your answer.

**OR**

- (a) Differentiate between soap and detergent.
- (b) Explain why, soap form scum with hard water whereas detergents do not.
17. (a) Define activity series of metals. Arrange the metals gold, copper, iron and magnesium in order of their increase in reactivity.
- (b) What will you observe when:
- (i) Some zinc pieces are put in copper sulphate solution.
- (ii) Some silver pieces are put into green coloured ferrous sulphate solution.

18. An old person finds it difficult to see nearby objects comfortably and distinctly without corrective eye glasses.
- What defect of vision is he suffering from? What is it?
  - List two causes for the development of this defect.
  - What kind of lens will be required to see clearly the nearby as well as distant objects? Give reasons.
  - How is the eye defect of old person differing from near-sightedness and far-sightedness?
19. What is a reflex arc? Draw a neat labelled diagram of the components in a reflex arc. Why do impulses flow only in one direction in a reflex arc?
20. A non-biodegradable toxic chemical has entered into the food chain. Which type of food habit will you suggest to a man, vegetarian or non-vegetarian? Explain with the help of a food chain. The food chain which you would suggest, is advantageous in an another aspect. How?

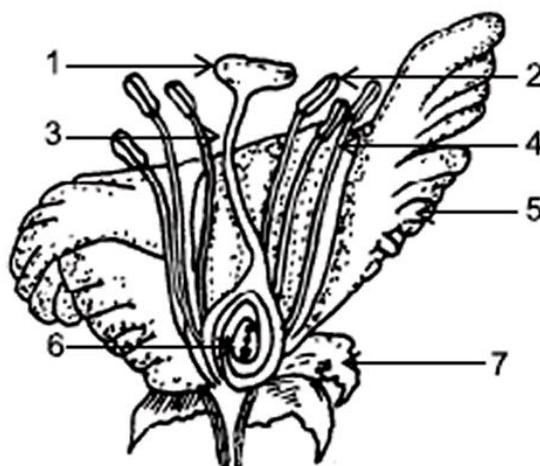
**OR**

Explain the traditional water harvesting system with a suitable diagram. Write about the techniques of water harvesting.

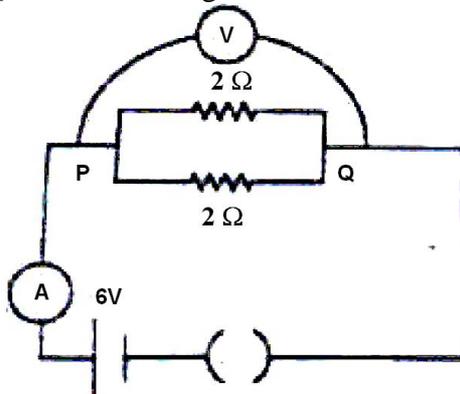
21. Draw the pattern of magnetic field lines through and around a current carrying loop of wire. Mark the direction of (i) electric current in the loop (ii) magnetic field lines. How would the strength of magnetic field due to current, carrying loop be affected if-
- radius of the loop is reduced to half its original value?
  - strength of current through the loop is doubled?

### SECTION – B

22. Draw a ray diagram to show the path of the refracted ray in each of the following cases: A ray of light incident on a concave lens is (i) passing through its optical centre. (ii) parallel to its principal axis.
23. Name the passage in sequence through which urine passes from kidneys to the outside in humans. How is urine prevented from flowing back into the ureters?
24. Carbon, Group (14) element in the Periodic Table, is known to form compounds with many elements.  
Write an example of a compound formed with (a) chlorine (Group 17 of Periodic Table)  
(b) oxygen (Group 16 of Periodic Table)
25. Label any four parts.



26. What happens when chlorine is passed over slaked lime at 313K ? Write chemical equation of the reaction involved and state two uses of the product obtained.
27. While performing the experiment to find equivalent resistance of a combination of resistance by making a circuit as shown below, Aditi measure reading of Voltmeter 'V' which gives potential differences between P and Q. Find its reading



**OR**

An electric circuit consisting of a 1m long metallic wire AB, an ammeter, a voltmeter, 3 cells of 2V each and plug key was set up. Draw a diagram of this electric circuit in the ON position.

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# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 02 (2017-18)

SUBJECT: SCIENCE (086)

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	Metals and Non-metals	--	--	--	5(1)	--	5(1)	
	Carbon and its compounds	--	--	--	5(1)*	2(1)	7(2)	
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	Control and Coordination	--	--	--	5(1)	--	5(1)	
	How do organisms reproduce?	1(1)	--	3(1)	--	2(1)	6(3)	
	Heredity and Evolution	--	--	6(2)	--	--	6(2)	
Natural Phenomena	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
	The Human Eye and the colourful world	--	--	--	5(1)	--	5(1)	
Effects of Current	Electricity	--	--	3(1)	--	2(1)*	5(2)	13(4)
	Magnetic Effects of Electric Current	--	--	3(1)*	5(1)	--	8(2)	
Natural Resources	Sources of energy	--	2(1)	--	--	--	2(1)	7(2)
	Our Environment	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	Management of Natural Resources	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

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# - Internal Choice Questions of two chapters

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**SAMPLE PAPER 02 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

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**SECTION – A**

1. Which organs secretes the following enzymes: (i) Trysin (ii) Pepsin
2. List two functions performed by the testis in human beings.
3. List four characteristics of the images formed by plane mirrors.
4. Why we say energy flow in the biosphere is unidirectional ?
5. An element 'M' has atomic number 11.  
(a) Write its electronic configuration.      (b) State the group to which 'M' belongs.  
(c) Is 'M' a metal or a non-metal?      (d) Write the formula of its chloride.
6. Write the balanced equations for the following reactions and identify the type of reaction in each case:  
(a) Silver Nitrate (aq) + Potassium iodide (aq) → Silver iodide (s) + Potassium Nitrate (aq)  
(b) Potassium Chlorate (s)  $\xrightarrow{\Delta}$  Potassium chloride (s) + Oxygen (g)
7. How many groups and periods are there in the modern periodic table? How do the atomic size and metallic character of elements vary as we move : (a) down a group and (b) from left to right in a period
8. Name any three glands associated with digestion in humans. Write the names of enzymes secreted by them.

**OR**

Write three points of difference anaerobic respiration and aerobic respiration.

9. Explain budding in hydra with the help of labelled diagrams only.
10. How are fossils formed? Describe, in brief two methods of determining the age of fossils.

11. To construct a ray diagram we use two rays of light which are so chosen that it is easy to determine their directions after reflection from the mirror. Choose these two rays and state the path of these rays after reflection from a concave mirror. Use these two rays to find the nature and position of the image of an object placed at a distance of 15 cm from a concave mirror of focal length 10 cm.

12. Which three chemical substances are obtained when electricity is passed through an aqueous solution of brine? Write one industrial use of each.

OR

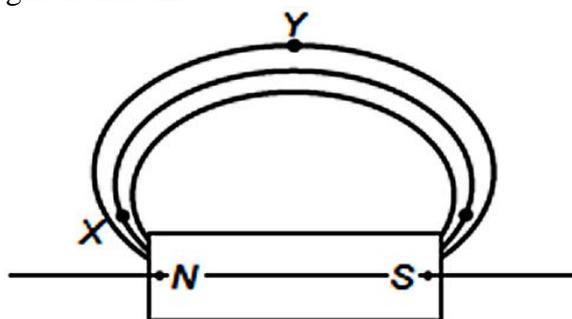
(a) Name the compound which is obtained from baking soda and is used to remove permanent hardness of water.

(b) Write its chemical formula.

(c) What happens when it is recrystallised from its aqueous solution?

13. (a) Explain with a reason whether the field will be stronger at the centre of current carrying loop or near the circumference of the loop.

(b) Magnetic field lines are shown in the given diagram. A student makes a statement that magnetic field at X is stronger than at Y. Justify this statement. Also redraw the diagram and mark the direction of magnetic field lines.



OR

(a) Explain, why fuse wire is made of a tin-lead alloy and not copper?

(b) A domestic circuit has 5A fuse. How many bulbs of rating 100W, 220V can be safely used in this circuit? Justify your answer.

14. (a) Define electric power. State its unit. Also derive formula of power  $P = V \times I$

(b) Which will have higher resistance: a 50 W lamp bulb or a 25 W lamp bulb and by how many times?

15. (i) Planaria, insects, octopus and vertebrates all have eyes. Can we group eyes of these animals together to establish a common evolutionary origin? Justify your answer.

(ii) "Birds have evolved from reptiles" State evidence to prove the statement.

16. How is the method of extraction of metals high up in the reactivity series different from that for metals in the middle? Why the same process cannot be applied for them? Explain giving equations, the extraction of sodium.

17. Describe the activity with labelled diagram to show that a magnetic field is generated around a current carrying conductor. On the basis of above mentioned activity, list the factors on which magnitude of magnetic field produced at a point depends and also explain the nature of this dependence.

18. Two children went to the park with their grandfather. On reaching the park, the children joined others to play, while their grandfather after taking 3 rounds of the park, sat on the chair, took out newspaper from his bag and began to read with the help of his spectacle. After sometime, he realised that was too long to see the children, he looked around, but though he has worn spectacle, he couldn't see anything. He then realised that he had forgotten his other spectacle, which he used to see the faraway places, were left at home. He began calling them by their names, but due to the large distance, his voice was not reaching the children. Another man sitting beside him realised the problem and helped him to reach the children.

- Name the eye defect with which the grandfather was suffering from?
- Which type of spectacles should he wear, so as to avoid calling the other?
- Explain the cause of disease.
- What are the values shown by man, sitting next to the grandfather?
- Explain with the diagram.

19. (a) Draw neat diagram of human brain and label on it the following parts: (i) Midbrain (ii) Pituitary gland  
(b) How is brain protected from injury and shock?

20. A carbon compound X turns blue litmus to red and has a molecular formula  $C_2H_4O_2$ . Identify X and draw its structure. Write chemical equation for the reaction and name of the product formed in each case when X reacts with

- ethanol in the presence of conc.  $H_2SO_4$
- sodium carbonate.

**OR**

- What are hydrocarbons? Give examples.
- Give the structural differences between saturated hydrocarbons and unsaturated hydrocarbons with two examples each.
- What is a functional group? Give examples of two different functional groups.

21. (a) What is meant by food chain? "The number of trophic levels in a food chain is limited." Give reason to justify this statement.

(b) "Energy flow in food chains is always unidirectional." Justify this statement. Explain how the pesticides enter a food chain and subsequently get into our body.

**OR**

- What is water harvesting? Mention any two water harvesting structures.
- What is a dam? Write two main advantages and two ill-effects of constructing a big dam.

## SECTION – B

22. Aditi observed the temporary mount of a leaf peel under a compound microscope and found one part as an elliptical pore and the other kidney shaped. Name these parts.

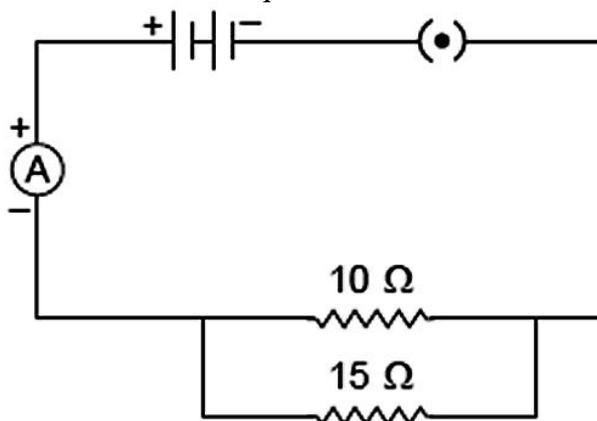
23. To find the image-distance for varying object-distances in case of a convex lens, a student obtains on a screen a sharp image of a bright object placed very far from the lens. After that he gradually moves the object towards the lens and each time focuses its image of the screen.

- In which direction – towards or away from the lens, does he move the screen to focus the object?
- What happens to the size of image – does it increase or decrease?
- What happen when he moves the object very close to the lens?

24. Name the type of asexual reproduction in which two individuals are formed from a single parent and the parental identity is lost. Draw the initial and the final stages of this type of reproduction. State the event with which this reproduction starts.
25. List two observations which you make when you add a pinch of sodium hydrogen carbonate to acetic acid in a test tube. Write chemical equation for the reaction that occurs.
26. Write the name and molecular formula of an organic compound having its name suffixed with '-ol' and having two carbon atoms in the molecule. With the help of a balanced chemical equation indicate what happens when it is heated with excess of conc.  $\text{H}_2\text{SO}_4$ .
27. State four factors that affect resistance.

**OR**

Study the following circuit and answer the questions that follow :



- (a) State the type of combination of the two resistors in the circuit.
- (b) What will be the potential difference across the above combination if applied potential is 6V?

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Natural Phenomena <sup>a</sup>	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
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	Our Environment	--	--	--	5(1) <sup>#</sup>	--	5(1)	
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**SAMPLE PAPER 03 (2017-18)**

**SUBJECT: SCIENCE**

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**CLASS : X**

**DURATION : 3 HRS**

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**SECTION – A**

1. Why are lungs divided into very small sac-like structures called alveoli?
2. What are those organisms called which bear both the sex organs in the same individual. Give one example of such organism.
3. Write the steps involved in generating electricity in a nuclear reactor.
4. (a) How are power and focal length of a lens related?  
(b) You are provided with two lenses of focal length 20 cm and 40 cm respectively. What lens will you use to obtain more convergent light?
5. An element X (atomic number 17) reacts with an element Y (atomic number 20) to form a divalent halide.  
(a) What is the position of element X and Y in the periodic table?  
(b) What will be the nature of oxide of element Y? Identify the nature of bonding in the compound formed.
6. (a) What happens when an aqueous solution of sodium sulphate reacts with an aqueous solution of barium chloride? State the physical conditions of reactants in which the reaction between them will not take place. Write the balanced chemical equation for the reaction and also mention the type of reaction.  
(b) What changes in the colour of iron nails and copper sulphate solution do you observe after keeping the iron nails in copper sulphate for about half an hour.
7. You are provided with three test tubes A, B and C which contain distilled water, acidic solution and basic solution respectively. If you are given blue litmus paper only, how will you identify the contents of each test tube?

**OR**

Explain the action of dilute hydrochloric acid on the following with chemical equations:

- (a) Magnesium ribbon (b) Sodium hydroxide (c) Crushed egg shells

8. Draw a flowchart to show the breakdown of glucose by various pathways.
9. "As the blood sugar level in our body falls insulin secretion is reduced." Justify this statement in the reference of feedback mechanism that regulates the timing and amount of hormone released.

**OR**

Name two hormones secreted by pancreas. Write one function of each.

10. Write the name of those parts of a flower which serve the same function as the following do in the animals: (i) Testis (ii) Sperm (iii) Ovary (iv) Egg
11. List any four factors which could lead to the formation of new species.
12. Differentiate between inherited and acquired trait. Give one example for each.
13. (a) What is meant by heating effect of electric current? Give two applications of heating effect of current.  
(b) Explain why, tungsten is used for making the filaments of electric bulbs.  
(c) 50 J of heat is produced each second in a  $2\ \Omega$  resistor. Find the potential difference across the resistor.

14. Draw a labelled diagram of an electric motor. Explain its principle and working.

**OR**

- (a) When does an electric short circuit occur?  
(b) What is the function of an earth wire? Why is it necessary to earth metallic appliances?

15. Harish and his friends were excited about the news of tomorrow's solar eclipse. Harish convinced his friends to witness the eclipse. Harish told them that looking at the sun directly or even into a mirror reflecting sunlight, may damage their eyes. So, Harish narrated the method to witness to natural phenomenon in the following ways:

- (i) Hold a concave mirror in hands and direct its reflecting surface towards the sun.  
(ii) Direct the light reflected by the mirror on to a sheet of paper held close to the mirror.  
(iii) Move the sheet of paper back and forth gradually until a bright, sharp spot of light is found on the paper sheet, hold the mirror and the paper in the same position for a few minutes.

**Read the above information and answer the following questions:**

- (a) What is the separation between the concave mirror and the paper sheet having a bright, sharp spot of light in hands?  
(b) Draw the ray diagram used while observing the bright, sharp spot of light in above activity.

16. (a) Which hydrocarbons burn with (i) non-sooty blue flame and (ii) sooty yellow flame?  
(b) What happens when methane reacts with chlorine?  
(c) What is rectified spirit?  
(d) Why does soap not work in hard water?  
(e) What is glacial acetic acid?

**OR**

- (a) What is hydrogenation? Give one reaction. What is its industrial application?  
(b) What is esterification?

17. (a) Draw and explain the structure of neuron and label cell body and axon.  
(b) Name the part of neuron:  
(i) where information is acquired  
(ii) through which information travels as an electrical impulse.

18. (a) Write the chemical name of the coating that forms on silver and copper articles when these are left exposed to moist air.  
(b) Explain what is galvanisation. What purpose is served by it?  
(c) Define an alloy. How are alloys prepared? How do the properties of iron change when:  
(i) small quantity of carbon,  
(ii) nickel and chromium are mixed with it.
19. You are given that the diameter of the eyeball is about 2.3 cm and a normal eye can adjust the focal length of its eye lens to see objects situated anywhere from 25 cm to an infinite distance away from it.  
(a) What is the power of the (normal) eye lens, when ciliary muscles are fully relaxed?  
(b) What is the power of the (normal) eye lens, when ciliary muscles are in their maximum contract position?  
(c) The maximum variation in the power of the eye lens, when it adjust itself, from the normal relaxed position to the position where the eye can see the nearby object clearly?
20. (a) Describe an activity to demonstrate the pattern of magnetic field lines around a straight conductor carrying current.  
(b) State the rule to find the direction of magnetic field associated with a current carrying conductor.  
(c) What is the shape of a current carrying conductor whose magnetic field pattern resembles that of a bar-magnet?
21. (a) Differentiate between biodegradable and non-biodegradable substances with the help of one example for each.  
(b) State in brief two ways in which non-biodegradable substances would affect the environment. List two methods of safe disposal of the non-biodegradable waste.

**OR**

- (a) Name any four categories of people who depend on the forest resources, mentioning major needs of each category.  
(b) What is 'Chipko Movement'?  
(c) Why must we conserve our forests? List any two causes for deforestation to take place.

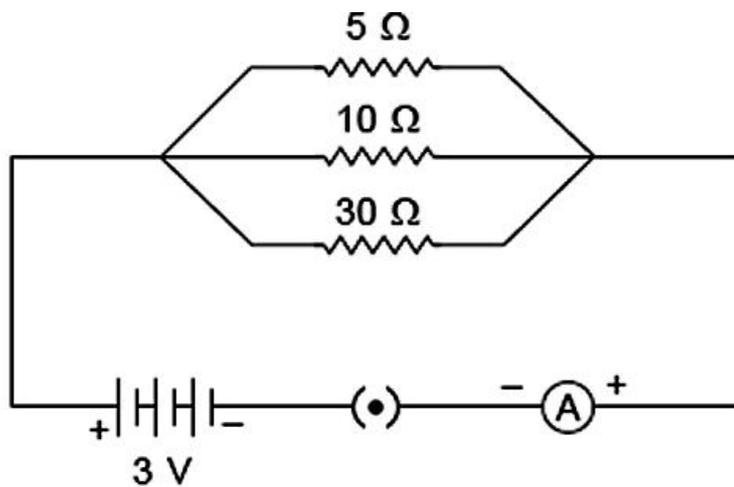
### **SECTION – B**

22. Name the components which you will observe when you focus the stomata slide under high power objective of a microscope.
23. A student obtains a white precipitate on mixing two different salt solutions in a beaker. What could these two solutions be? Identify and name the type of this reaction.
24. "Vehicles in this mirror are closer than they appear". Why is this warning printed on the side view mirror of most vehicles?
25. Consider the following salts:  $\text{Na}_2\text{CO}_3$ ,  $\text{NaCl}$ ,  $\text{NH}_4\text{Cl}$ ,  $\text{CH}_3\text{COONa}$ . Which of these salts will give  
(a) Acidic solution (b) Neutral solution and (c) Basic solution
26. Atom of an element contains five electrons in its valence shell. This element is major component of air. It exists as a diatomic molecule.  
(i) Identify the element.  
(ii) Show the bond formed between two atoms of this element.  
(iii) Write the nature of the bond between the two atoms.

27. Draw a labelled circuit diagram to study the dependence of current (I) on the potential difference (V) across a resistor.

OR

In the circuit diagram given below, calculate :



- (a) the total effective resistance of the circuit.
- (b) the total current in the circuit.

.....

# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 04 (2017-18)

SUBJECT: SCIENCE (086)

### BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
Chemical Substances - Nature and Behaviour	Chemical Reactions and Equations	--	--	3(1)	--	--	3(1)	25(8)
	Acids, Bases and Salts	--	--	3(1)*	--	2(1)	5(2)	
	Metals and Non- metals	--	--	--	5(1)	--	5(1)	
	Carbon and its compounds	--	--	--	5(1)*	2(1)	7(2)	
	Periodic Classification of Elements	--	2(1)	3(1)	--	--	5(2)	
World of Living	Life Process	1(1)	--	3(1)*	--	2(1)	6(3)	23(9)
	Control and Coordination	--	--	--	5(1)	--	5(1)	
	How do organisms reproduce?	1(1)	--	3(1)	--	2(1)	6(3)	
	Heredity and Evolution	--	--	6(2)	--	--	6(2)	
Natural Phenomena <sup>a</sup>	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
	The Human Eye and the colourful world	--	--	--	5(1)	--	5(1)	
Effects of Current	Electricity	--	--	3(1)	--	2(1)*	5(2)	13(4)
	Magnetic Effects of Electric Current	--	--	3(1)*	5(1)	--	8(2)	
Natural Resources	Sources of energy	--	2(1)	--	--	--	2(1)	7(2)
	Our Environment	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	Management of Natural Resources	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

Note: \* - Internal Choice Questions of same chapter.

# - Internal Choice Questions of two chapters

**KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION**  
**SAMPLE PAPER 04 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. There is an internal choice in three questions of three marks each, two question of five marks and one question of Practical Based Question.
5. Question number **1 to 2** in **Section-A** are **one mark** question. These are to be answered in **one word** or in **one sentence**.
6. Question numbers **3 to 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
7. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
8. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
9. Question numbers **22 to 27** in **Section-B** are questions based on practical skills and are **two marks** questions.

**SECTION – A**

1. Name the two ways in which glucose is oxidised to provide energy in various organisms.
2. Why is DNA copying necessary during reproduction?
3. The formula of magnesium oxide is MgO. State the formula of barium nitrate and barium sulphate, if barium belongs to the same group as magnesium.
4. Distinguish between a real and a virtual image of an object. What type of image is formed (i) by a plane mirror, (ii) on a cinema screen?
5. Describe how hydro-energy can be converted into electrical energy. Write any two limitations of hydro energy.
6. (a) A solution of Potassium chloride when mixed with silver nitrate solution, an insoluble white substances is formed. Write the chemical reaction involved and also mention the type of the chemical reaction  
(b) Ferrous sulphate when heated, decomposes with the evolution of a gas having a characteristic odour of burning sulphur. Write the chemical reaction involved and identify the type of reaction.
7. A student using a convex lens of focal length 20 cm, formed image of an object placed in front of the lens on one side a screen placed on the other side of the lens. He noted the following reading for object distance (u) and image distance (v) from lens.

S.No	1	2	3	4	5	6
u (cm)	60	45	40	32	35	15
v (cm)	30	36	45	53	25	10

Without using lens formula, comment, which of these observations are wrong. Justify your answer.

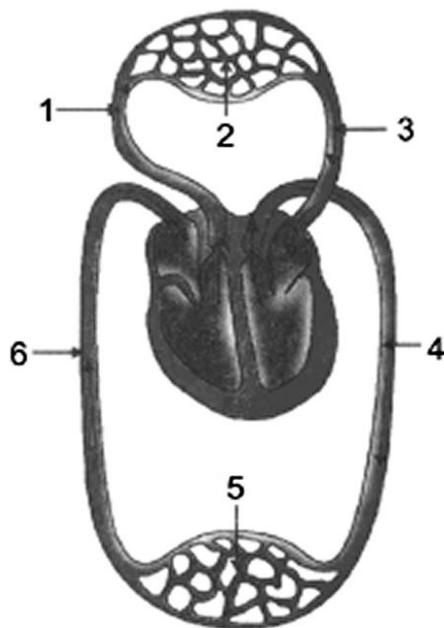
8. Explain how the tendency to gain electrons change on moving down a group?

9. Explain the structure of bronchi with the help of a neat diagram and label on it (i) trachea (ii) bronchiole.

OR

(a) Label any 4 parts in the given diagram.

(b) What are the two functions represented in this diagram?



10. What is tooth enamel chemically? State the condition when it starts corroding. What happens when food particles left in the mouth after eating degrade? Why do doctors suggest use of tooth powder/toothpaste to prevent tooth decay?

OR

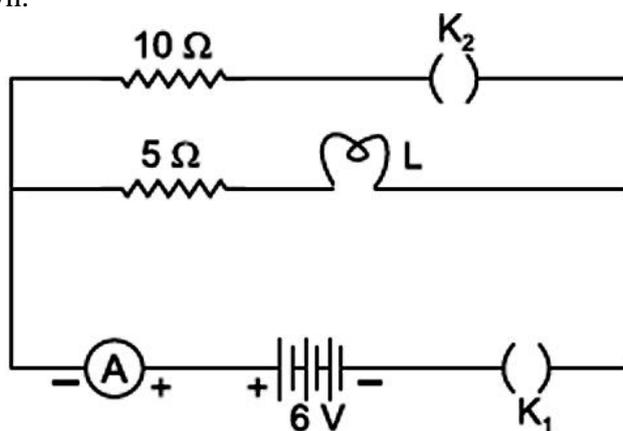
Answer the following questions:

(i) State the colour of phenolphthalein in soap solution.

(ii) Name the by-product of chlor-alkali process which is used for the manufacture of bleaching powder.

(iii) Name one indicator which specifies the various levels of  $H^+$  ion concentration.

11. Study the circuit shown:



A current of 0.6 A is shown by ammeter in the circuit when the key  $K_1$  is closed. Find the resistance of the lamp L. What change in current flowing through the 5  $\Omega$  resistor and potential difference across the lamp will take place, if the key  $K_2$  is also closed. Give reason for your answer.

12. How do Mendel's experiment show that traits are inherited independently?

13. What is pollination ? How is self-pollination different from cross-pollination ?
14. Explain the use of an electric fuse. What type of material is used for fuse wire and why?

**OR**

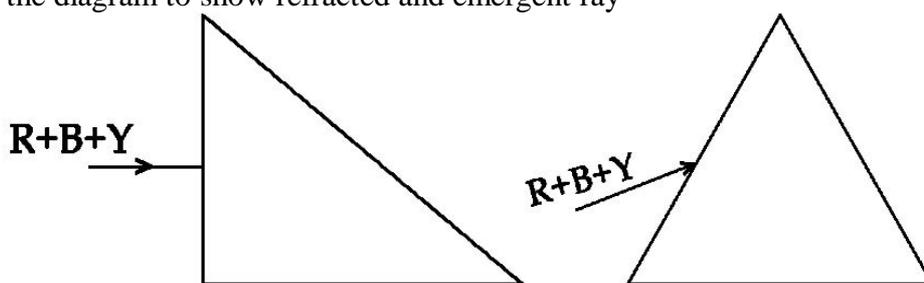
Explain the underlying principle and working of an electric generator by drawing a labelled diagram.

15. Give reasons for the following :
- Traits acquired during lifetime of an individual are not inherited.
  - All the human beings belong to a single species.
  - Variations keep on accumulating during reproduction, and do not disappear in next generation.
16. Draw a schematic diagram of the various steps involved in the extraction of metals from ores for metals of medium reactivity and for metals of low reactivity.
17. What is meant by reflex-action? With the help of a labelled diagram trace the sequence of events which occur when we touch a hot object.
18. (a) Distinguish between saturated hydrocarbon and unsaturated hydrocarbon with the help of combustion process.  
 (b) Write the chemical names of  $C_4H_{10}$  and  $C_2H_2$  and draw their structures.

**OR**

Soaps and detergents are both types of salts. State the difference between the two. Write the mechanism of the cleansing action of soaps. Why do soaps not form lather (foam) with hard water? Mention any two problems that arise due to the use of detergents instead of soaps.

19. (a) Define dispersion of light. How is scattering of light different from dispersion ? Give one example of natural phenomenon based on each of these.  
 (b) A beam of light consisting of red, blue and yellow is incident on the prisms as shown below. Complete the diagram to show refracted and emergent ray



20. (a) What is biodiversity? What will happen if biodiversity of an area is not preserved? Mention one effect of it.  
 (b) Why we say energy flow in the biosphere is unidirectional?

**OR**

- What is sustainable development? State its two main objectives.
- What is meant by three types of 'R' (3-R's) to save the environment? Explain with examples how would you follow the 3-R's in your school to save the environment.

21. Aishwarya once visited her uncle's house. Somehow she came to know about her uncle's illness and also about the neglect of MRI (Magnetic resonance imaging) due to its high cost. She then not only collected money from some of her family friends but also convinced her uncle for the test. The reports came after the test helped the doctors to treat him well. After getting well,

uncle arranged the money and returned to her saying thanks. Then her uncle did a brief research about the test and found that it was expensive because of its set-up, that needs a strong magnetic fields and pulses of radio wave energy.

- (a) What were the values shown by Aishwarya and her uncle ?
- (b) How the magnetic field produced due to a circular coil depends on its radius?
- (c) State the characteristics of magnetic field lines produce by current carrying circular coil.

### SECTION – B

22. You have been provided with a fresh plucked leaf of Rheo or lily. What will you do to obtain the transparent leaf peel?

23. What are the factors on which the resistance of a conductor depends?

**OR**

While experimentally verifying Ohm's Law a student observed that the pointer of the voltmeter coincide with 15th division when the voltmeter has a least count of 0.05 V. Find the observed reading of voltmeter.

24. Write the names and molecular formula of two organic compounds having functional group suffixed as '-oic acid'. With the help of a balanced chemical equation and explain what happens when any one of them reacts with sodium hydroxide.

25. A student performed an experiment for the image formation by a convex lens at different positions of an object. If focal length of lens is 15 cm.

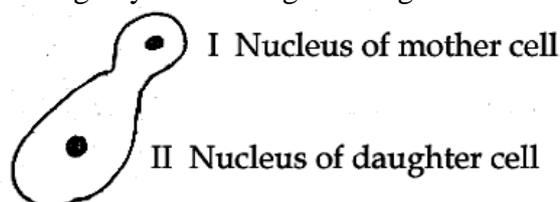
Match the following :

Position of object	Position of the image
(a) At 15 cm from convex lens	(a) At 30 cm from convex lens
(b) At 30 cm from lens	(b) On the same side of an object
(c) Beyond 30 cm of lens	(c) At infinity
(d) At 10 cm from lens	(d) Between 15 cm and 30 cm of lens

26. In an experiment to study the properties of Acetic acid, answer the following questions :

- (a) Name the substance which on addition to acetic acid produces carbon dioxide gas.
- (b) How carbon dioxide gas is tested in the laboratory ?

27. Correct the labelling of budding in yeast in the given diagram :



# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 05 (2017-18)

SUBJECT: SCIENCE (086)

### BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
Chemical Substances - Nature and Behaviour	Chemical Reactions and Equations	--	--	3(1)	--	--	3(1)	25(8)
	Acids, Bases and Salts	--	--	3(1)*	--	2(1)	5(2)	
	Metals and Non-metals	--	--	--	5(1)	--	5(1)	
	Carbon and its compounds	--	--	--	5(1)*	2(1)	7(2)	
	Periodic Classification of Elements	--	2(1)	3(1)	--	--	5(2)	
World of Living	Life Process	1(1)	--	3(1)*	--	2(1)	6(3)	23(9)
	Control and Coordination	--	--	--	5(1)	--	5(1)	
	How do organisms reproduce?	1(1)	--	3(1)	--	2(1)	6(3)	
	Heredity and Evolution	--	--	6(2)	--	--	6(2)	
Natural Phenomena	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
	The Human Eye and the colourful world	--	--	--	5(1)	--	5(1)	
Effects of Current	Electricity	--	--	3(1)	--	2(1)*	5(2)	13(4)
	Magnetic Effects of Electric Current	--	--	3(1)*	5(1)	--	8(2)	
Natural Resources	Sources of energy	--	2(1)	--	--	--	2(1)	7(2)
	Our Environment	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	Management of Natural Resources	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

Note: \* - Internal Choice Questions of same chapter.

# - Internal Choice Questions of two chapters

**KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION**  
**SAMPLE PAPER 05 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
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8. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
9. Question numbers **22 to 27** in **Section-B** are questions based on practical skills and are **two marks** questions.

**SECTION – A**

1. How is self-pollination different from the process where pollen grains are transferred to the stigma of a different flower?
2. What are the functions of gastric glands present in the wall of the stomach?
3. How does the valency of elements vary (a) in going down a group, and (b) in going from left to right in a period of the periodic table?
4. Define fuel. List any two characteristics that you would look for in a good fuel.
5. List four properties of the image formed by a concave mirror, when object is placed between focus and pole of the mirror.
6. Differentiate between the following :
  - (a) Pollen tube and Style
  - (b) Fission in *Amoeba* and *Plasmodium*
  - (c) Fragmentation and Regeneration
7. The position of three elements A, B and C in the periodic table is shown below :

Group →	I	II	III	IV	V	VI	VII	VIII
Period ↓								
1								
2							C	
3	A	B						

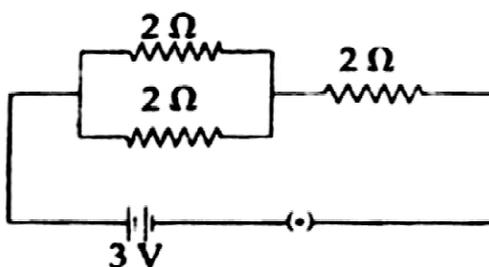
Giving reasons explain :

- (a) Element A is a metal.
- (b) Element B has larger atomic size than the element C.
- (c) Element C has a valency of one.

8. Give one example each of the following decomposition reactions. Write one balanced chemical equation in each case:
- The reaction which occurs on passing electric current.
  - The reaction which occurs in the presence of sunlight.
  - The reaction which occurs on heating of a substance.
9. A compound 'X' is a constituent of baking powder. It is used as an antacid. When 'X' is heated it gives out a gas 'Y' which, when passed through lime water turns it milky and salt 'Z' is formed which is the main constituent of washing powder. Identify X, Y and Z. Write the balanced chemical equations for the reactions involved.

**OR**

- A solution turns red litmus paper to blue. What can be pH of this solution?
  - 10mL of sodium hydroxide solution is completely neutralized by 8 mL of solution of hydrochloric acid. If we take 20 mL of the same solution hydroxide, what will be the amount of hydrochloric acid solution required to neutralized it?
  - What type of medicine is used for the treatment of indigestion?
10. State Ohm's law. Three resistors of  $2\Omega$  each are connected to a battery of 3 V as shown. Calculate the current drawn from the battery the battery and voltage across the  $2\Omega$  resistor.



- Mention effect of electric current on which the working of an electrical fuse is based.
- Draw a schematic labelled diagram of a domestic circuit which has a provision of a main fuse, meter, one light bulb and a socket.

**OR**

Why is pure iron not used for making permanent magnets? Name one material used for making permanent magnets. Describe how permanent magnets are made electrically.

12. Draw a diagram of the front view of human heart and label any six parts including at least two, that are concerned with arterial blood supply to the heart muscles.

**OR**

Draw a diagram of human respiratory system and label on it: (a) Diaphragm (b) Larynx

13. Darwin's theory of 'Survival of the fittest' states that only the fittest will survive.
- How will you relate the Darwin's theory to your day-to-day life?
  - How will you make yourself fit for a particular work?

- What are monohybrid and dihybrid cross ?
- How Mendel proved that tallness is the dominant trait and dwarfness is recessive in a pea plant ?

15. Rohit wants to have an erect image of an object, using a converging mirror of focal length 40 cm.
- Specify the range of distance where the object can be placed in front of the mirror. Give reason for your answer.
  - Will the image be bigger or smaller than the object ?
  - Draw a ray-diagram to show the image formation in this case.

16. Draw a neat diagram of human brain and label on it the following parts: (i) Midbrain (ii) Pituitary gland (iii) Cerebellum (iv) Cerebrum
17. (a) What is an ecosystem? List its two main components. We do not clean natural ponds or lakes but an aquarium needs to be cleaned regularly. Why is it so? Explain.  
(b) "Energy flow in food chains is always unidirectional." Justify this statement.
- OR**
- (a) What is sustainable development? Suggest any one method to achieve it.  
(b) Explain giving example where active involvement of local people lead to efficient management of forest.  
(c) What was "Chipko Andolan"? How did this 'Andolan' ultimately benefit the local people and the environment?
18. (a) Differentiate between roasting and calcination. Explain the two with the help of suitable chemical equations. How is zinc extracted from its ore ?  
(b) Name two metals that can be used to reduce metal oxides to metals.
19. (a) A positively charged particle (alpha) projected towards west is deflected towards north by a magnetic field. State the direction of magnetic field. State the rule used by you to find the direction.  
(b) Mention the factors on which the strength of forces experienced by a current carrying conductor placed in a magnetic field depend.  
(c) Under what condition is the force experienced by a current carrying conductor placed in a magnetic field maximum?
20. (a) If a person wears lens of power  $-6D$  for distant vision and for correcting his near vision he needs a lens of  $+2D$ . Determine the focal length of the lenses in both the case.  
(b) Give reason for the following natural phenomenon :  
(i) Stars twinkle  
(ii) Planets do not twinkle  
(iii) Stars appear raised in the sky
21. (i) What are soaps ?  
(ii) Explain the formation of micelle during the cleaning action of soaps and draw the structure of micelle.  
(iii) Write the effect of soap in cleaning with hard water.

**OR**

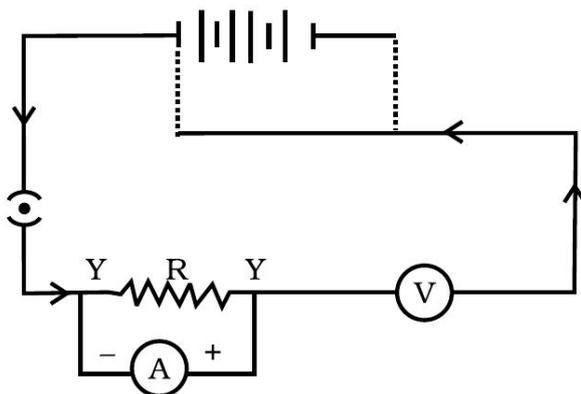
Give reasons for the following:

- (i) Element carbon forms compounds mainly by covalent bonding.
- (ii) Diamond has a high melting point.
- (iii) Graphite is a good conductor of electricity.
- (iv) Acetylene burns with a sooty flame.
- (v) Kerosene does not decolourise bromine water while cooking oils do.

### **SECTION – B**

22. Why are germinating seeds taken in the experiment? What would happen if germinating seeds are replaced by boiled seeds?
23. What is an oxidising agent? What happens when an oxidising agent is added to propanol? Explain with the help of a chemical equation.

24. A child has drawn the electric circuit to study Ohm's law as shown in below Figure. His teacher told that the circuit diagram needs correction. Study the circuit diagram and redraw it after making all corrections.

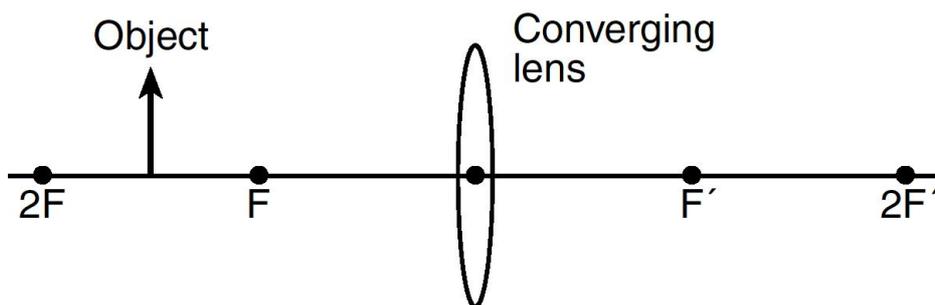


OR

What is likely to happen and how it would effect that value of resistance if we pass the current for a longer time?

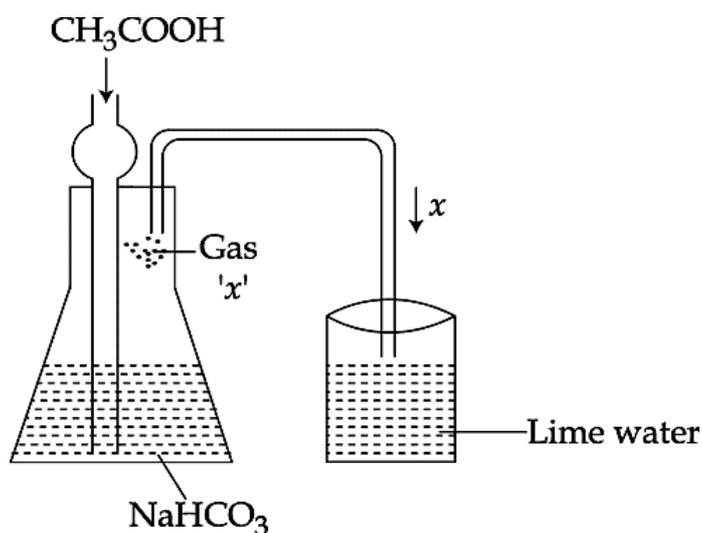
25. Mention the observations of the process of binary fission in amoeba.

26. (a) Complete the ray diagram for image formation by a convex lens.  
 (b) Mention the size and nature of image formed in above case.



27. In the experimental set up shown below the gas 'x' evolved is passed through lime water.

- (i) Name the gas 'x' evolved.  
 (ii) What change do you observe in the lime water ? Write the chemical equation.



# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 06 (2017-18)

SUBJECT: SCIENCE (086)

### BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
Chemical Substances - Nature and Behaviour	Chemical Reactions and Equations	--	--	3(1)	--	--	3(1)	25(8)
	Acids, Bases and Salts	--	--	3(1)*	--	2(1)	5(2)	
	Metals and Non-metals	--	--	--	5(1)	--	5(1)	
	Carbon and its compounds	--	--	--	5(1)*	2(1)	7(2)	
	Periodic Classification of Elements	--	2(1)	3(1)	--	--	5(2)	
World of Living	Life Process	1(1)	--	3(1)*	--	2(1)	6(3)	23(9)
	Control and Coordination	--	--	--	5(1)	--	5(1)	
	How do organisms reproduce?	1(1)	--	3(1)	--	2(1)	6(3)	
	Heredity and Evolution	--	--	6(2)	--	--	6(2)	
Natural Phenomena	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
	The Human Eye and the colourful world	--	--	--	5(1)	--	5(1)	
Effects of Current	Electricity	--	--	3(1)	--	2(1)*	5(2)	13(4)
	Magnetic Effects of Electric Current	--	--	3(1)*	5(1)	--	8(2)	
Natural Resources	Sources of energy	--	2(1)	--	--	--	2(1)	7(2)
	Our Environment	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	Management of Natural Resources	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

Note: \* - Internal Choice Questions of same chapter.

# - Internal Choice Questions of two chapters

**KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION**  
**SAMPLE PAPER 06 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. There is an internal choice in three questions of three marks each, two question of five marks and one question of Practical Based Question.
5. Question number **1 to 2** in **Section-A** are **one mark** question. These are to be answered in **one word** or in **one sentence**.
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7. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
8. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
9. Question numbers **22 to 27** in **Section-B** are questions based on practical skills and are **two marks** questions.

**SECTION – A**

1. Name the floral parts of a plant that develop into (i) Fruit (ii) Seeds
2. Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms?
3. Choose from the following:  ${}_6\text{C}$ ,  ${}_8\text{O}$ ,  ${}_{10}\text{Ne}$ ,  ${}_{11}\text{Na}$ ,  ${}_{14}\text{Si}$ 
  - a) Elements that should be in the same period.
  - b) Elements that should be in the same group.State reason for your selection in each case.
4. An object is placed at a distance of 30 cm in front of a convex mirror of focal length 15 cm. Write four characteristics of the image formed by the mirror.
5. What is windmill? State the energy conversion taking place in the working of a windmill.
6. In the electrolysis of water,
  - a) Name the gas collected at anode and cathode
  - b) Why is the volume of gas collected at one electrode double than the other?
  - c) What would happen if dil  $\text{H}_2\text{SO}_4$  is not added to water?
7. Differentiate between the arrangement of elements in Mendeleev's periodic table and Modern periodic table.
8. Rohit focused the image of a candle flame on a white screen using a convex lens. He noted down the position of the candle, screen and lens as under :  
Position of candle = 26.0 cm  
Position of convex lens = 50.0 cm  
Position of screen = 74.0 cm
  - i) What is the focal length of the convex lens?
  - ii) Where will the image be formed if he shifts the candle towards the lens at a position of 38 cm?
  - iii) Draw a ray diagram to show the formation of the image in case (ii) as said above?

9. Explain the ways in which glucose is broken down in absence of oxygen.

**OR**

List three differences between arteries and veins.

10. Why are fossils considered important in the study of evolution? Explain two ways by which age of fossils can be estimated.

11. Our government launches campaigns to provide information about AIDS prevention, testing and treatment by putting posters, conducting radio shows and using other agencies of advertisements.

a) To which category of diseases AIDS belong? Name its causative organism.

b) Which kind of value is government trying to develop in the citizens by conducting the above kind of programs.

12. How do Mendel's experiments show that traits may be dominant or recessive?

13. "pH has a great importance in our daily life" explain by giving three examples.

**OR**

A compound which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water. Identify the compound and write its chemical formula. Write the chemical equation for its preparation. Mention any one use of the compound.

14. Name the electric device that converts mechanical energy into electrical energy. Draw the labelled diagram and explain the principle involved in this device.

**OR**

i) What is the function of earth wire in electrical instruments?

ii) Explain what is short circuiting an electric supply.

iii) What is the usual current rating of the fuse wire in the line to feed (a) Lights and fans? (b) Appliances of 2kW or more power?

15. Draw a circuit diagram of an electric circuit containing a cell, a key, an ammeter, a resistor of  $4\Omega$  in series with a combination of two resistors ( $8\Omega$  each) in parallel and a voltmeter across parallel combination. Each of them dissipate maximum energy and can withstand a maximum power of 16W without melting. Find the maximum current that can flow through the three resistors.

16. A student fixes a sheet of white paper on a drawing board. He place a bar magnet at the centre of it. He sprinkles some iron filings uniformly around the bar magnet. Then he taps the board gently and observes that the iron filings arrange themselves in a particular pattern.

a) Why do the iron filings arrange in a pattern?

b) What is indicated by the crowding of iron filings at the end of the magnet?

c) What do the lines along which the iron filings align represent?

d) Draw a neat diagram to show the magnetic field lines around a bar magnet.

e) Write any two properties of magnetic field lines.

17. a) What is a reflex arc? Draw a neat labelled diagram of the components in a reflex arc.

b) Why do impulses flow only in one direction in a reflex arc?

18. a) Explain the following terms used in relation to defects in vision and correction provided by them:

(i) Myopia (ii) Bifocal lenses (iii) Far-sightedness.

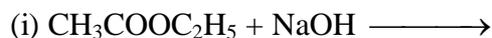
b) Why is the normal eye unable to focus on an object placed within 10 cm from the eye?

19. Soaps and detergents are both types of salts. State the difference between the two. Write the mechanism of the cleansing action of soaps. Why do soaps not form lather (foam) with hard water? Mention any two problems that arise due to the use of detergents instead of soaps.

**OR**

a) Two carbon compounds X and Y have the molecular formula  $C_4H_8$  and  $C_5H_{12}$  respectively. Which one of these is most likely to show addition reaction? Justify your answer. Also give the chemical equation to explain the process of addition in this case.

b) Complete the following chemical equations:



20. Give reasons for the following:

a) Silver and copper lose their shine when they are exposed to air. Name the substance formed on their surface in each case.

b) Tarnished copper vessels are cleaned with tamarind juice.

c) Aluminium is more reactive than iron yet there is less corrosion of aluminium as compared to iron when both are exposed to air.

21. a) What is sustainable management? Why is reuse considered better in comparison to recycle?

b) Management of forest and wild life resources is a very challenging task. Why? Give any two reasons.

c) Write the harmful effects of using plastic bags on the environment. Suggest alternatives to plastic bags.

**OR**

You have been selected to talk on 'ozone layer and its protection' in the school assembly on 'Environment Day.'

a) Define Ozone hole.

b) Why should ozone layer be protected to save the environment?

c) List any two ways that you would stress in your talk to bring in awareness amongst your fellow friends that would also help in protection of ozone layer as well as the environment.

### SECTION – B

22. The values of current I flowing in a given resistor for the corresponding values of potential difference V across the resistor are given below:

<b>I(ampere)</b>	0.5	1.0	2.0	3.0	4.0
<b>V(volt)</b>	1.6	3.4	6.7	10.2	13.2

Plot a graph between V and I and calculate the resistance of the resistor.

**OR**

In a given ammeter, a student sees that needle indicates 17 divisions in ammeter while performing an experiment to verify Ohm's law. If ammeter has 10 divisions between 0 and 0.5A, then what is the value corresponding to 17 divisions?

23. Draw a path of light ray passing through a prism. Label angle of incidence and angle of deviation in the ray diagram.

24. A student detected the pH four unknown solutions A, B, C and D as follows: 11, 5, 7 and 2. Predict the nature of the solution.

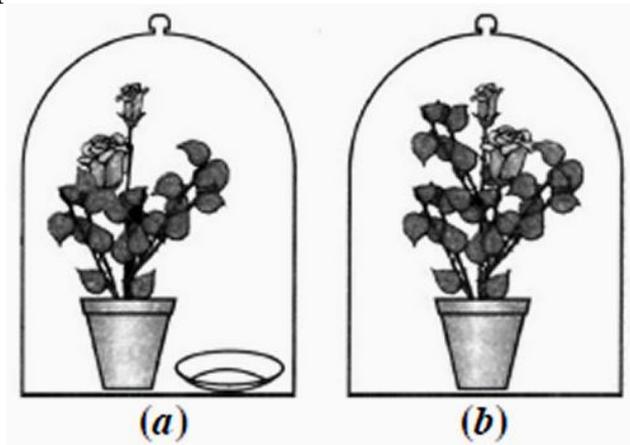
25. A student observed a permanent slide showing asexual reproduction in yeast. Draw diagrams of the observations he must have made from the slide. Name the process also.

26. Riya performs two set of experiments to study the length of the foam formed which are as follows:

Set I: she takes 10 ml of distilled water in test tube “A” and adds 5-6 drops of liquid soap in it and shakes the test tube vigorously.

Set II: she takes 10 ml of distilled water in a test tube “A” and adds 5-6 drops of liquid soap with half spoonful of  $\text{CaSO}_4$  in it and shakes the test tube. Write your observation and reason.

27. Given below is the experimental set-up to establish that one of the atmospheric gases is essential for photosynthesis in plants.



(a) Name the atmospheric gas which is essential for photosynthesis.

(b) What is kept in watch-glass in figure ‘a’ and why?

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# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 07 (2017-18)

SUBJECT: SCIENCE (086)

### BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
<b>Chemical Substances - Nature and Behaviour</b>	<b>Chemical Reactions and Equations</b>	--	--	3(1)	--	--	3(1)	<b>25(8)</b>
	<b>Acids, Bases and Salts</b>	--	--	3(1)*	--	2(1)	5(2)	
	<b>Metals and Non-metals</b>	--	--	--	5(1)	--	5(1)	
	<b>Carbon and its compounds</b>	--	--	--	5(1)*	2(1)	7(2)	
	<b>Periodic Classification of Elements</b>	--	2(1)	3(1)	--	--	5(2)	
<b>World of Living</b>	<b>Life Process</b>	1(1)	--	3(1)*	--	2(1)	6(3)	<b>23(9)</b>
	<b>Control and Coordination</b>	--	--	--	5(1)	--	5(1)	
	<b>How do organisms reproduce?</b>	1(1)	--	3(1)	--	2(1)	6(3)	
	<b>Heredity and Evolution</b>	--	--	6(2)	--	--	6(2)	
<b>Natural Phenomena</b>	<b>Light - Reflection and Refraction</b>	--	2(1)	3(1)	--	2(1)	7(3)	<b>12(4)</b>
	<b>The Human Eye and the colourful world</b>	--	--	--	5(1)	--	5(1)	
<b>Effects of Current</b>	<b>Electricity</b>	--	--	3(1)	--	2(1)*	5(2)	<b>13(4)</b>
	<b>Magnetic Effects of Electric Current</b>	--	--	3(1)*	5(1)	--	8(2)	
<b>Natural Resources</b>	<b>Sources of energy</b>	--	2(1)	--	--	--	2(1)	<b>7(2)</b>
	<b>Our Environment</b>	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	<b>Management of Natural Resources</b>	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

Note: \* - Internal Choice Questions of same chapter.

# - Internal Choice Questions of two chapters

**KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION**  
**SAMPLE PAPER 07 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

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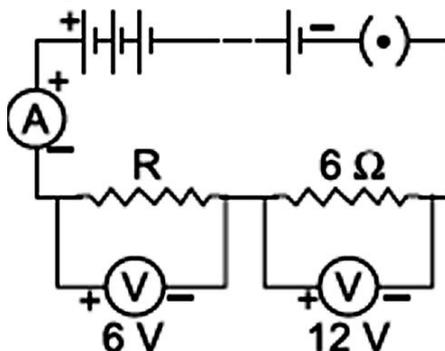
**SECTION – A**

1. Mention any one point of difference between Pepsin and Trypsin.
2. Give an example of a flower which contains both stamens and carpels.
3. Why is there a need to harness non-conventional sources of energy? Give two main reasons.
4. An element “X” has mass number 35 and the number of neutrons, is 18. Identify the group number and period of “X”.
5. An object is kept in front of a concave mirror of focal length 20 cm. The image is three times the size of the object. Calculate two possible distances of the object from the mirror.
6. Give scientific reasons.
  - (a) Wires carrying electricity should not be touched when bare-footed.
  - (b) We must not use many electrical appliances simultaneously.
  - (c) Electrical switches should not be operated with wet hand.

**OR**

State one main difference between AC and DC. Why AC is preferred over DC for long range transmission of electric power? Name one source each of DC and AC.

7. A circuit is shown in the diagram given below.



- (a) Find the value of R.
- (b) Find the reading of the ammeter.
- (c) Find the potential difference across the terminals of the battery.

8. What is meant by:

- (a) Displacement reaction
- (b) Reduction reaction
- (c) Combination reaction.

Write balanced chemical equation for each reaction:

9. How many groups and periods are there in the Modern Periodic Table? How do the atomic size and metallic character of elements vary as we move: (i) down a group and (ii) from left to right in a period
10. (a) Describe the mechanism of breathing in human beings.  
(b) (i) Under normal conditions, what is the rate of breathing per minute?  
(ii) Why does the rate of breathing increase by 20 to 25 times during vigorous exercise?

**OR**

Write one function of each of the following components of the transport system in human beings: (a) Blood vessels (b) Lymph (c) Heart

11. Define 'evolution'. Describe Darwin's theory of evolution.
12. An object placed on a metre scale at 8 cm mark was focussed on a white screen placed at 92 cm mark, using a converging lens placed on the scale at 50 cm mark.  
(i) Find the focal length of converging lens.  
(ii) Find the position of the image formed if the object is shifted towards the lens at a position of 29.0 cm.  
(iii) State the nature of the image formed if the object is further shifted towards the lens.
13. (a) Write the name given to bases that are highly soluble in water. Give an example.  
(b) How is tooth decay related to pH? How can it be prevented?  
(c) Why does bee sting cause pain and irritation? Rubbing of baking soda on the sting area gives relief. How?

**OR**

- (a) Name the compound which is obtained from baking soda and is used to remove permanent hardness of water.  
(b) Write its chemical formula.  
(c) What happens when it is recrystallised from its aqueous solution?
14. Distinguish between homologous organs and analogous organs. In which category would you place wings of a bird and wings of a bat? Justify your answer giving a suitable reason.
15. A newspaper has recently published a survey result which says that number of AIDS patients in the country is increasing everyday. The report also says that awareness among people about AIDS is still very poor. You discussed the newspaper report with your friend and both of you decided to help people to fight against this deadly disease.  
(a) To which category of diseases AIDS belong? Name its causative organism.  
(b) What problem do you anticipate if both of you try to educate the people of your village?

16. With the help of a labelled circuit diagram wire describe an activity to illustrate the pattern of the magnetic field lines around a straight current carrying long conducting wire .
- Name the rule that is used to find the direction of magnetic field associated with a current carrying conductor.
  - Is there a similar magnetic field produced around a thin beam of moving (a) alpha particles and (b) neutrons? Justify your answer.

17. You are given balls and stick model of six carbon atoms and fourteen hydrogen atoms and sufficient number of sticks. In how many ways one can join the models of six carbon atoms and fourteen hydrogen atoms to form different molecules of  $C_6H_{14}$ .

**OR**

Draw the structural formulae of all the possible isomers of the compound with the molecular formula  $C_3H_6O$  and also give their electron dot structures.

18. a) Draw a neat diagram of human brain and label Medulla and Cerebellum. Write the functions of the above mentioned parts
- b) "Both overproduction and underproduction of Growth hormone leads to disorders in the body." Explain
19. Noopur needs a lens of power  $-4.5D$  for correction of her vision.
- What kind of defect in vision is she suffering from?
  - What is the focal length and nature of the corrective lens?
  - Draw ray diagrams showing the (a) defected eye and (b) correction for this defect.
  - What are the causes of this defect?

20. a) What is reactivity series? How does the reactivity series of metals help in predicting the relative activities of various metals?
- b) Suggest different chemical processes used for obtaining a metal from its oxides for metals in the middle of the reactivity series and metals towards the top of the reactivity series. Support your answer with one example each.

21. a) "Improvements in our lifestyle have resulted in greater amounts of waste generation." Give two examples to support the given statement. Suggest one change that we can incorporate in our lifestyle in order to reduce non-biodegradable waste.
- b) The following organisms form a food chain.  
Insect, Hawk, Grass, Snake, Frog  
Which of these will have highest concentration of non-biodegradable chemicals? Name the phenomenon.

**OR**

- What do you understand by "Watershed Management"? List any two advantages of watershed management.
- "Human beings occupy the top level in any food chain." What are the consequences of this on our body?

### **SECTION – B**

22. A solution 'X' gives orange colour when a drop of universal indicator is added to it. On the other hand, another solution 'Y' gives bluish-green colour when a drop of universal indicator is added to it. What are the types of solution 'X' and 'Y' and what type of pH would they have?
23. With the help of a suitable example explain in brief the process of hydrogenation mentioning the conditions for the reaction and also state any one physical property of substances which changes due to hydrogenation.

24. Draw a labelled diagram to show that particular stage of binary fission in Amoeba in which its nucleus elongates and divide into two and a constriction appears in its cell membrane.
25. What would happen if: (a) KOH solution is not hung in conical flask during experiment.  
(b) seeds are not kept moist during experiment.
26. A student focuses the image of a well-illuminated distant object on a screen using a convex lens. After that he gradually moves the object towards the lens and each time focuses its image on the screen by adjusting the lens.
- (i) In which direction-towards the screen or away from the screen, does he move the lens?
  - (ii) What happens to the size of the image-does it decrease or increase?
  - (iii) What happens to the image on the screen when he moves the object very close to the lens?
27. (i) Draw a schematic diagram of a circuit consisting of a cell of 1.5 V, 10  $\Omega$  and 15  $\Omega$  resistor and a plug key all connected in series.  
(ii) Which one is same in series, current or voltage ?

**OR**

Write two precautions that must be taken while determining the equivalent resistance of the two resistors when connected in series.

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# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 08 (2017-18)

SUBJECT: SCIENCE (086)

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	Metals and Non-metals	--	--	--	5(1)	--	5(1)	
	Carbon and its compounds	--	--	--	5(1)*	2(1)	7(2)	
	Periodic Classification of Elements	--	2(1)	3(1)	--	--	5(2)	
World of Living	Life Process	1(1)	--	3(1)*	--	2(1)	6(3)	23(9)
	Control and Coordination	--	--	--	5(1)	--	5(1)	
	How do organisms reproduce?	1(1)	--	3(1)	--	2(1)	6(3)	
	Heredity and Evolution	--	--	6(2)	--	--	6(2)	
Natural Phenomena	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
	The Human Eye and the colourful world	--	--	--	5(1)	--	5(1)	
Effects of Current	Electricity	--	--	3(1)	--	2(1)*	5(2)	13(4)
	Magnetic Effects of Electric Current	--	--	3(1)*	5(1)	--	8(2)	
Natural Resources	Sources of energy	--	2(1)	--	--	--	2(1)	7(2)
	Our Environment	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	Management of Natural Resources	--	--	--		--		
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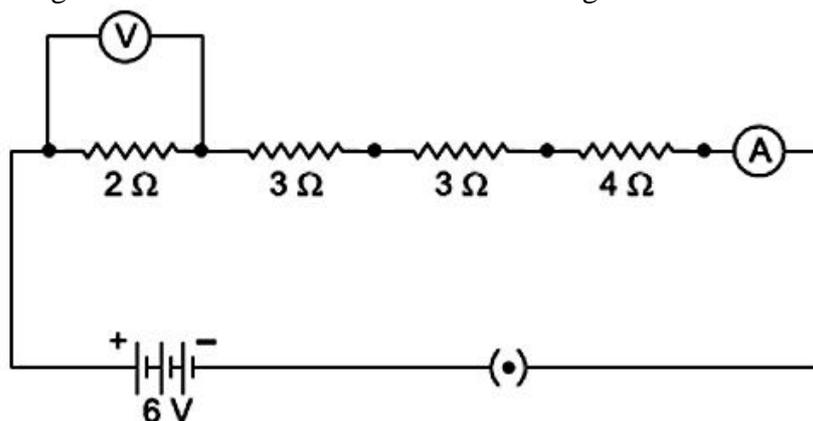
**SECTION – A**

1. Name an enzyme secreted from gastric glands in stomach that acts on proteins.
2. Why is DNA copying necessary during reproduction?
3. Why is bio-gas considered an ideal domestic fuel?
4. An element 'M' has atomic number 11.
  - (a) Write its electronic configuration.
  - (b) State the group to which 'M' belongs.
  - (c) Is 'M' a metal or a non-metal?
  - (d) Write the formula of its chloride.
5. What is the minimum number of rays required for locating the image formed by a concave mirror for an object? Draw a ray diagram to show the formation of a virtual image by a concave mirror.
6. Name the electric device that converts electrical energy into mechanical energy. Draw the labelled diagram and explain the principle involved in this device.

**OR**

- (a) Distinguish between the terms "overloading and short circuiting" as used in domestic circuits.
  - (b) Why are the coils of electric toasters made of an alloy rather than a pure metal?
7. Write balanced equations for the following, mentioning the type of reaction involved.
    - (a) Aluminium + Bromine → Aluminium bromide
    - (b) Calcium carbonate → Calcium oxide + Carbon dioxide
    - (c) Silver chloride → Silver + Chlorine
  8. Why is atomic number considered to be a more appropriate parameter than atomic mass for the classification of elements in a periodic table? How does the metallic character of elements vary as we move (i) from left to right in a period, and (ii) top to bottom in a group in the modern periodic table? Give reasons to justify your answers.

9. Find out the reading of ammeter and voltmeter in the circuit given below :



10. Draw a diagram of human alimentary canal and label on it: Oesophagus, Gallbladder, Liver and Pancreas.

**OR**

Draw a diagram of excretory system in human beings and label on it: Aorta, vena cava, urinary bladder, urethra.

11. List any three factors and mention how they could lead to the rise of a new species.
12. What are fossils? How do they act as an evidence for organic evolution?
13. (a) If the image formed by a mirror for all positions of the object placed in front of it is always diminished, erect and virtual, state the type of the mirror and also draw a ray diagram to justify your answer.  
(b) Define the radius of curvature of spherical mirrors. Find the nature and focal length of a spherical mirror whose radius of curvature is +24 cm.
14. (a) The pH of soil A is 7.5 while that of soil B is 4.5. Which of the two soils A or B should be treated with powdered chalk to adjust its pH and why?  
(b) Explain how the pH change in the river water can endanger the lives of aquatic animals like fish?

**OR**

- (a) State the chemical properties on which the following uses of baking soda are based:  
(i) as an antacid  
(ii) as soda-acid fire extinguisher  
(iii) to make bread and cake soft and spongy.  
(b) How washing soda is obtained from baking soda? Write balanced chemical equation.
15. List three techniques that have been developed to prevent pregnancy. Which one of these techniques is not meant for males? How does the use of these techniques have a direct impact on the health and prosperity of a family?
16. (a) What is a magnetic field? How can the direction of magnetic field lines at a placed by determined?  
(b) State the rule for the direction of the magnetic field produced around a current carrying conductor. Draw a sketch of the pattern of field lines due to a current carrying conductor. Draw a sketch of the pattern of filed lines due to a current flowing through a straight conductor.

17. (a) What are hydrocarbons? Write the general formula of (i) saturated hydrocarbons, and (ii) unsaturated hydrocarbons and draw the structure of one hydrocarbon of each type.  
(b) Explain, giving reason, why carbon neither forms  $C^{4+}$  cations nor  $C^{4-}$  anions, but forms covalent compounds which are bad conductors of electricity and have low melting point and low boiling point.

**OR**

- (a) Write the structural formula of ethanol. What happens when it is heated with excess of conc.  $H_2SO_4$  at 443 K? Write the chemical equation for the reaction stating the role of conc.  $H_2SO_4$  in this reaction.  
(b) Distinguish between esterification and saponification reaction with the help of the chemical equations for each. State one use of each (i) esters, and (ii) saponification process.
18. (a) Draw neat diagram of human brain and label on it the following parts: (i) Midbrain (ii) Pituitary gland  
(b) How is brain protected from injury and shock?  
(c) Name two main parts of hind brain and state the functions of each.

19. (a) Write the functions of each of the following parts of the human eye:  
(i) Cornea (ii) Iris (iii) Crystalline (Eye) lens (iv) Ciliary muscles (v) Retina  
(b) A person is unable to see distinctly the objects closer than 1 m. Name the defect of vision he is suffering from. Draw ray diagrams to illustrate the cause of the defect and its correction by suitable lens.

20. (a) Distinguish between 'roasting' and 'calcination'. Which of these two is used for sulphide ores and why?  
(b) Write a chemical equation to illustrate the use of aluminium for joining cracked railway lines.  
(c) Name the anode, the cathode and the electrolyte used in the electrolytic refining of impure copper.

21. (a) Water is an elixir of life, a very important natural resource. Your Science teacher wants you to prepare a plan for a formative assessment activity, "How to save water, the vital natural resource". Write any two ways that you will suggest to bring awareness in your neighbourhood, on 'how to save water'.  
(b) Name and explain any one way by which the underground water table does not go down further.  
(c) Explain two main advantages associated with water harvesting at the community level.

**OR**

- (a) What is meant by food chain?  
(b) Give reason to justify the following:  
(i) The existence of decomposers is essential in a biosphere.  
(ii) The number of trophic levels in a food chain is limited.  
(iii) Flow of energy in a food chain is unidirectional.

### **SECTION – B**

22. If you take a pinch of sodium hydrogen carbonate powder in a test-tube and add drop-by-drop acetic acid to it, what would you observe immediately? List any two main observations.
23. Draw in sequence (showing the four stages), the process of binary fission in Amoeba.
24. Mention the essential material (chemicals) to prepare soap in the laboratory. Describe in brief the test of determining the nature (acidic/alkaline) of the reaction mixture of saponification reaction.

25. You have to perform the experiment, "To identify the different parts of an embryo of a gram seed." Describe the procedure that you would follow.
26. The magnification of an image formed by a lens is  $-1$ . If the distance between the object and its image is 60 cm, what is the distance of the object from the optical centre of the lens? Find the nature and focal length of the lens. If the object is displaced 20 cm towards the optical centre of the lens, where would the image be formed and what would be its nature? Draw a ray diagram to justify your answer.
27. Two lamps, one rated 60 W at 220 V and the other 40 W at 220 V, are connected in parallel to the electric supply at 220 V. Draw a circuit diagram to show the connections. Calculate the current drawn from the electric supply.

**OR**

Draw a schematic diagram of an electric circuit comprising of 3 cells and an electric bulb, ammeter, plug-key in the ON mode and another with same components but with two bulbs in parallel and a voltmeter across the combination.

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# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 09 (2017-18)

SUBJECT: SCIENCE (086)

### BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
<b>Chemical Substances - Nature and Behaviour</b>	<b>Chemical Reactions and Equations</b>	--	--	3(1)	--	--	3(1)	<b>25(8)</b>
	<b>Acids, Bases and Salts</b>	--	--	3(1)*	--	2(1)	5(2)	
	<b>Metals and Non-metals</b>	--	--	--	5(1)	--	5(1)	
	<b>Carbon and its compounds</b>	--	--	--	5(1)*	2(1)	7(2)	
	<b>Periodic Classification of Elements</b>	--	2(1)	3(1)	--	--	5(2)	
<b>World of Living</b>	<b>Life Process</b>	1(1)	--	3(1)*	--	2(1)	6(3)	<b>23(9)</b>
	<b>Control and Coordination</b>	--	--	--	5(1)	--	5(1)	
	<b>How do organisms reproduce?</b>	1(1)	--	3(1)	--	2(1)	6(3)	
	<b>Heredity and Evolution</b>	--	--	6(2)	--	--	6(2)	
<b>Natural Phenomena</b>	<b>Light - Reflection and Refraction</b>	--	2(1)	3(1)	--	2(1)	7(3)	<b>12(4)</b>
	<b>The Human Eye and the colourful world</b>	--	--	--	5(1)	--	5(1)	
<b>Effects of Current</b>	<b>Electricity</b>	--	--	3(1)	--	2(1)*	5(2)	<b>13(4)</b>
	<b>Magnetic Effects of Electric Current</b>	--	--	3(1)*	5(1)	--	8(2)	
<b>Natural Resources</b>	<b>Sources of energy</b>	--	2(1)	--	--	--	2(1)	<b>7(2)</b>
	<b>Our Environment</b>	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	<b>Management of Natural Resources</b>	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

Note: \* - Internal Choice Questions of same chapter.

# - Internal Choice Questions of two chapters

**KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION**  
**SAMPLE PAPER 09 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. There is an internal choice in three questions of three marks each, two question of five marks and one question of Practical Based Question.
5. Question number **1 to 2** in **Section-A** are **one mark** question. These are to be answered in **one word** or in **one sentence**.
6. Question numbers **3 to 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
7. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
8. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
9. Question numbers **22 to 27** in **Section-B** are questions based on practical skills and are **two marks** questions.

**SECTION – A**

1. Name the method by which *Spirogyra* reproduces under favourable conditions. Is this method sexual or asexual?
2. Why do mammals require more extensive respiratory surface?
3. An object is placed at a distance of 30 cm from a concave lens of focal length 15 cm. List four characteristics (nature, position, etc.) of the image formed by the lens.
4. Describe how hydro-energy can be converted into electrical energy. Write two limitations of hydro-energy.
5. An element 'M' has atomic number 12.
  - (a) Write its electronic configuration.
  - (b) State the group to which 'M' belongs.
  - (c) Is 'M' a metal or a non-metal?
  - (d) Write the formula of its oxide.
6.
  - (a) Mention effect of electric current on which the working of an electrical fuse is based.
  - (b) Draw a schematic labelled diagram of a domestic circuit which has a provision of a main fuse, meter, one light bulb and a socket.

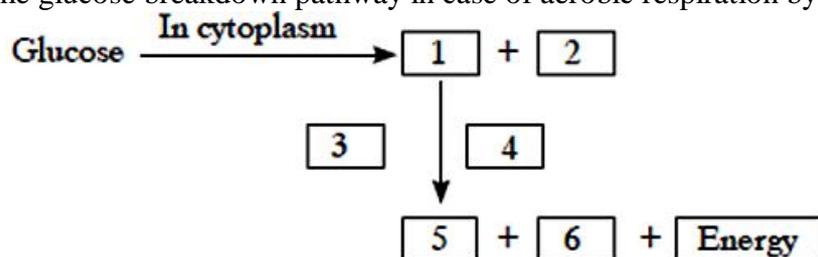
**OR**

- (a) Explain the term overloading of an electric circuit.
  - (b) Cable of a microwave oven has three wires inside it which have insulation of different colours black, green and red. Mention the significance of the three colours and potential difference between red and black one.
7. Two resistors  $3 \Omega$  and unknown resistor are connected in a series across a 12 V battery. If the voltage drop across the unknown resistor is 6 V, find (a) potential across  $3 \Omega$  resistance (b) the current through unknown resistor 'R' (c) equivalent resistance of the circuit.

8. (a) Define a balanced chemical equation. Why should an equation be balanced?  
 (b) Write the balanced chemical equation for the following reaction:  
 (i) phosphorus burns in presence of chlorine to form phosphorus pentachloride.  
 (ii) burning of natural gas.  
 (iii) the process of respiration.
9. Write the number of periods and groups in the Modern Periodic Table. How does the metallic character of elements vary on moving (i) from left to right in a period, and (ii) down a group? Give reason to justify your answer.
10. (a) Draw a diagram to show open stomatal pore and label on it: (i) guard cells (ii) chloroplast  
 (b) State two functions of stomata.

**OR**

- (a) Complete the glucose breakdown pathway in case of aerobic respiration by filling the blanks.



- (b) Name the molecule in the cell which stores the energy produced at the end of the pathway.

11. How did Mendel explain that it is possible that a trait is inherited but not expressed in an organism?
12. "Evolution and classification of organisms are interlinked." Give reasons to justify this statement.
13. (a) Define the following terms in the context of spherical mirrors : (i) Pole (ii) Centre of curvature (iii) Radius of curvature (iv) Principal axis  
 (b) Draw ray diagrams to show the principal focus of (i) a concave mirror, and (ii) a convex mirror.
14. (a) Mention the pH range within which our body works. Explain how antacids give relief from acidity. Write the name of one such antacid.  
 (b) Fresh milk has a pH of 6. How does the pH will change as it turns to curd? Explain your answer.  
 (c) A milkman adds a very small amount of baking soda to fresh milk. Why does this milk take a longer time to set as curd?

**OR**

- (a) Explain why is hydrochloric acid a strong acid and acetic acid, a weak acid. How can it be verified?  
 (b) Explain why aqueous solution of an acid conducts electricity.
15. What is contraception? Name any two methods. How does the use of these methods have a direct effect on the health and prosperity of a family? State any three points.

16. (a) What is a solenoid? Draw a sketch of the pattern of field lines of the magnetic field through and around a current carrying solenoid.  
(b) Consider a circular loop of a wire lying in the plane of the table. Let the current pass through the loop clockwise. Apply the right hand rule to find out the direction of the magnetic field inside and outside the loop.
17. (a) Draw the structure of a neuron and label the following on it: Nucleus, Dendrite, Cell body and Axon  
(b) Name the part of neuron:  
(i) where information is acquired.  
(ii) through which information travels as an electrical impulse.
18. (a) In the formation of compound between two atoms A and B, A loses two electrons and B gains one electron.  
(i) What is the nature of bond between A and B ?  
(ii) Suggest the formula of the compound formed between A and B.  
(b) On similar lines explain the formation of  $MgCl_2$  molecule.  
(c) Common salt conducts electricity only in the molten state. Why ?  
(d) Why is melting point of NaCl high ?
19. Why are certain compounds called hydrocarbons? Write the general formula for homologous series of alkanes, alkenes and alkynes and also draw the structure of the first member of each series. Write the name of the reaction that converts alkenes into alkanes and also write a chemical equation to show the necessary conditions for the reaction to occur.

**OR**

What are esters? How are esters prepared? Write the chemical equation for the reaction involved. What happens when an ester reacts with sodium hydroxide? Write the chemical equation for the reaction and also state the name and use of this reaction.

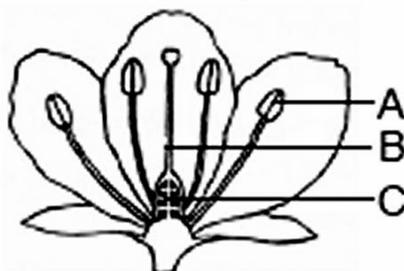
20. A student suffering from myopia is not able to see distinctly the objects placed beyond 5 m. List two possible reasons due to which this defect of vision may have arisen.  
(a) With the help of ray diagrams, explain  
(i) why the student is unable to see distinctly the objects placed beyond 5 m from his eyes.  
(ii) the type of the corrective lens used to restore proper vision and how this defect is corrected by the use of this lens.  
(b) If, in this case, the numerical value of the focal length of the corrective lens is 5 m, find the power of the lens as per the new Cartesian sign convention.
21. (a) What is 'environmental pollution'?  
(b) Distinguish between biodegradable and non-biodegradable pollutants.  
(c) State two problems caused by the non-biodegradable waste that we generate in our daily life.  
(d) Choose the biodegradable pollutants from the list : Sewage, DDT, radioactive waste, agricultural waste.

**OR**

What is water harvesting? Explain the traditional water harvesting system with a suitable diagram. Write about the techniques of water harvesting.

## SECTION – B

22. What do you observe when you drop a few drops of acetic acid to test tubes containing (a) phenolphthalein (b) distilled water (c) universal indicator (d) sodium hydrogen carbonate powder
23. What are isomers? Draw the structures of two isomers of butane,  $C_4H_{10}$ .
24. Name the parts A, B and C shown in the following diagram and state one function of each.



25. When a student observes a temporary mount of leaf peel under a microscope, he observes two different types of cells in leaf peel. Name these two different types of cells. On what basis can a student differentiate between these two cells.
26. If the image formed by a lens for all positions of an object placed in front of it is always erect and diminished, what is the nature of this lens? Draw a ray diagram to justify your answer. If the numerical value of the power of this lens is 10 D, what is its focal length in the Cartesian system?
27. In an experiment to study the relation between the potential difference across a resistor and the current through it, a student recorded the following observations:

Potential difference V (volts)	1.0	2.2	3.0	4.0	6.4
Current I (amperes)	0.1	0.2	0.6	0.4	0.6

On examine the above observations, the teacher asked the student to reject one set of readings as the values were out of agreement with the rest. Which one of the above sets of readings can be rejected? Calculate the mean value of resistance of the resistor based on the remaining four sets of readings.

**OR**

Draw an electric circuit to describe Ohm's law. Label the circuit components used to measure electric current and potential difference.

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# KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

## SAMPLE PAPER 10 (2017-18)

SUBJECT: SCIENCE (086)

### BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
<b>Chemical Substances - Nature and Behaviour</b>	<b>Chemical Reactions and Equations</b>	--	--	3(1)	--	--	3(1)	<b>25(8)</b>
	<b>Acids, Bases and Salts</b>	--	--	3(1)*	--	2(1)	5(2)	
	<b>Metals and Non-metals</b>	--	--	--	5(1)	--	5(1)	
	<b>Carbon and its compounds</b>	--	--	--	5(1)*	2(1)	7(2)	
	<b>Periodic Classification of Elements</b>	--	2(1)	3(1)	--	--	5(2)	
<b>World of Living</b>	<b>Life Process</b>	1(1)	--	3(1)*	--	2(1)	6(3)	<b>23(9)</b>
	<b>Control and Coordination</b>	--	--	--	5(1)	--	5(1)	
	<b>How do organisms reproduce?</b>	1(1)	--	3(1)	--	2(1)	6(3)	
	<b>Heredity and Evolution</b>	--	--	6(2)	--	--	6(2)	
<b>Natural Phenomena</b>	<b>Light - Reflection and Refraction</b>	--	2(1)	3(1)	--	2(1)	7(3)	<b>12(4)</b>
	<b>The Human Eye and the colourful world</b>	--	--	--	5(1)	--	5(1)	
<b>Effects of Current</b>	<b>Electricity</b>	--	--	3(1)	--	2(1)*	5(2)	<b>13(4)</b>
	<b>Magnetic Effects of Electric Current</b>	--	--	3(1)*	5(1)	--	8(2)	
<b>Natural Resources</b>	<b>Sources of energy</b>	--	2(1)	--	--	--	2(1)	<b>7(2)</b>
	<b>Our Environment</b>	--	--	--	5(1) <sup>#</sup>	--	5(1)	
	<b>Management of Natural Resources</b>	--	--	--		--		
<b>Total</b>		<b>2(2)</b>	<b>6(3)</b>	<b>30(10)</b>	<b>30(6)</b>	<b>12(6)</b>	<b>80(27)</b>	<b>80(27)</b>

Note: \* - Internal Choice Questions of same chapter.

# - Internal Choice Questions of two chapters

**KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION**  
**SAMPLE PAPER 10 (2017-18)**

**SUBJECT: SCIENCE**

**MAX. MARKS : 80**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. There is an internal choice in three questions of three marks each, two question of five marks and one question of Practical Based Question.
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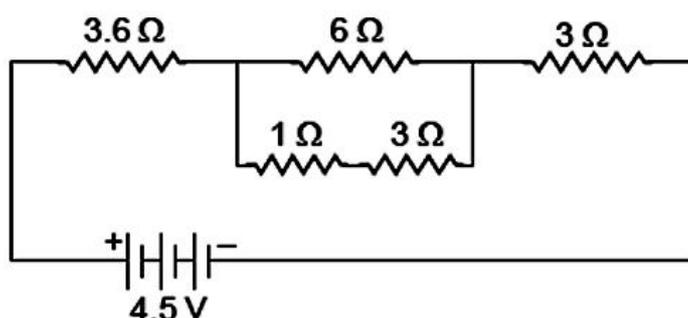
**SECTION – A**

1. List two functions of ovary of human female reproductive system.
2. How do the guard cells regulate opening and closing of stomatal pores?
3. What is windmill? State the energy conversion taking place in the working of a windmill.
4. Distinguish between a real and a virtual image of an object. What type of image is formed (i) by a plane mirror, (ii) on a cinema screen?
5. How can the valency of an element be determined if its electronic configuration is known? What will be the valency of an element of atomic number 9 (nine)?
6. Why does a current carrying conductor experiences a force when it is placed in a magnetic field? State Fleming's left hand rule.

**OR**

Why is pure iron not used for making permanent magnets? Name one material used for making permanent magnets. Describe how permanent magnets are made electrically. State two examples of electrical instruments made by using permanent magnets.

7. Find the current flowing through the following electric circuit.



8. (a) Draw a diagram to show the nutrition in Amoeba and label the parts used for this purpose. Mention any other purpose served by this part other than nutrition.  
(b) Name the glands associated with digestion of starch in human digestive tract and mention their role.

**OR**

Draw a diagram of the front view of human heart and label any six parts including at least two, that are concerned with arterial blood supply to the heart muscles.

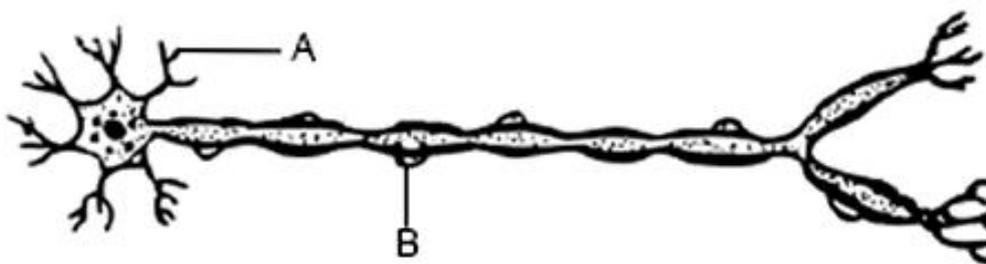
9. The element Be, Mg, Ca are placed in the second group of the periodic table. Their atomic numbers are 4, 12, 20 respectively.  
(a) Write the electronic configuration of these elements.  
(b) Write the valency exhibited by them.  
(c) Which of the three elements will be most reactive?
10. A reddish brown coloured metal, used in electrical wires, when powdered and heated strongly in an open china dish, its colour turns black. When hydrogen gas is passed over this black substance, it regains its original colour. Based on the above information answer the following questions.  
(a) Name the metal and the black coloured substance formed.  
(b) Write balanced chemical equations for both the reactions.
11. A white powder is added while baking breads and cakes to make them soft and fluffy. Write the name of the powder? Name its main ingredients. Explain the function of each ingredient. Write the chemical reaction taking place when the powder is heated during baking.

**OR**

State reason for the following statements:

- (a) During summer season, a milk man usually adds a very small amount of baking soda to fresh milk.  
(b) For a dilution of acid, acid is added into water and not water into acid.  
(c) Ammonia is a base but does not contain hydroxyl group.
12. What is AIDS? Which microbe is responsible for AIDS infection? State one mode of transmission of this disease. Explain in brief one measure for the prevention of AIDS.
13. A cross was made between pure breeding pea plants one with round and green seeds and the other with wrinkled and yellow seeds.  
(a) Write the phenotype of F1 progeny. Give reason for your answer.  
(b) Write the different types of F2 progeny obtained along with their ratio when F1 progeny was selfed.
14. (i) Planaria, insects, octopus and vertebrates all have eyes. Can we group eyes of these animals together to establish a common evolutionary origin? Justify your answer.  
(ii) "Birds have evolved from reptiles" State evidence to prove the statement.
15. To construct a ray diagram we use two rays of light which are so chosen that it is easy to determine their directions after reflection from the mirror. Choose these two rays and state the path of these rays after reflection from a concave mirror. Use these two rays to find the nature and position of the image of an object placed at a distance of 15 cm from a concave mirror of focal length 10 cm.
16. What is the principle of an electric motor? Briefly explain the construction and working of an electric motor using a labeled diagram. State the factors on which the strength of a motor depends.

17. (a) (i) Name the parts labelled A and B in the neuron drawn below.



- (ii) Which part acquires the information in the neuron?
  - (iii) Through which part does the information travel?
  - (iv) In what form does this information travel?
  - (v) Where is the impulse converted into a chemical signal for onward transmission?
- (b) Name the hormone secreted by thyroid. What is its function? Why is the use of iodised salt advisable.

18. A metal (E) is stored under kerosene. When a small piece of it is left open in the air, it catches fire. When the product formed is dissolved in water, it turns red litmus to blue.

- (a) Name the metal (E).
- (b) Write the chemical equation for the reaction when it is exposed to air and when the product is dissolved in water.
- (c) Explain the process by which the metal is obtained from its molten chloride.

19. (a) Define the term 'isomers'.

- (b) Draw two possible isomers of the compound with molecular formula  $C_3H_6O$  and write their names.
- (c) Give the electron dot structures of the above two compounds.

**OR**

(a) In tabular form, differentiate between ethanol and ethanoic acid under the following heads:

- (i) Physical state
- (ii) Taste
- (iii)  $NaHCO_3$  test
- (iv) Ester test

(b) Write a chemical reaction to show the dehydration of ethanol.

20. (a) List the parts of the human eye that control the amount of light entering into it. Explain how they perform this function.

(b) Write the function of retina in human eye.

(c) Do you know that the corneal-impairment can be cured by replacing the defective cornea with the cornea of the donated eye? How and why should we organize groups to motivate the community members to donate their eyes after death?

21. (a) What is ozone? How and where is it formed in the atmosphere?

(b) "Damage to the ozone layer is a cause for concern." Justify this statement. Suggest any two steps to limit this damage.

**OR**

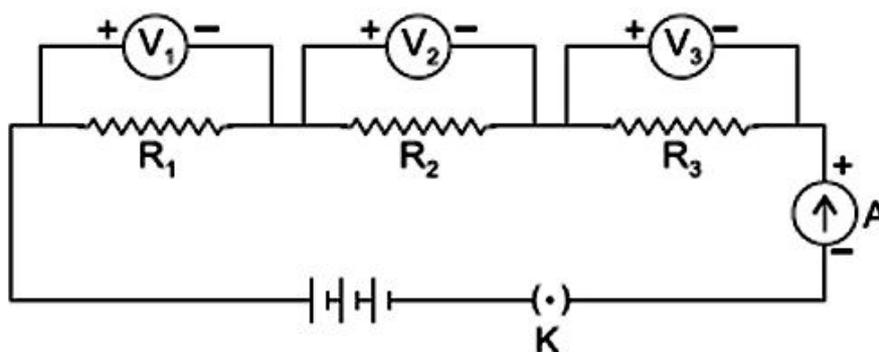
(a) Why is Government of India imposing a ban on the use of polythene bags?

(b) Write the harmful effects of using plastic bags on the environment.

(c) Suggest two alternatives to these bags and explain how this ban is likely to improve the environment.

## SECTION – B

22. On passing excess carbon dioxide gas through lime water, it first turns milky and then becomes colourless. Explain why? Write all the chemical equations of the reactions involved.
23. What is an oxidising agent? What happens when an oxidising agent is added to propanol? Explain with the help of a chemical equation.
24. Name the green dot like structures in some cells observed by a student when a leaf peel was viewed under a microscope. What is this green colour due to?
25. A teacher sets up a stand carrying a convex lens of focal length 15 cm at 20.5 cm mark on the optical bench. She asks the students to suggest the position of the screen on the optical bench so that a distinct image of a distant tree is obtained on it. What should be the correct position of screen as suggested by the students and why?
26. What happens when (a) Planaria gets cut into two pieces? (b) A mature Spirogyra filament attains considerable length?
27. A student has three voltmeters across three resistances  $R_1$ ,  $R_2$  and  $R_3$  as shown in the circuit. Given that  $R_1 < R_2 < R_3$  (i) Write  $V_1$ ,  $V_2$  and  $V_3$  in decreasing order of the reading shown by each of them. (ii) What will you observe about the potential difference across the series the series combination?



OR

- (i) Draw a schematic diagram of a circuit consisting of a cell of 1.5 V, 10  $\Omega$  and 15  $\Omega$  resistor and a plug key all connected in series.
- (ii) Which one is same in series, current or voltage ?