

QUESTION BANK SA1 CLASS X**SUBJECT:PHYSICS****PATTERN OF SA1 PAPER**

QUESTION TYPE	NO. OF QUESTIONS	TOTAL MARKS
Very short answer(1 Mark)	1	1
Short answer (2 Marks)	2	4
Short answer(3 Marks)	5	15
Long answer (5 Marks)	2	10
MCQ	6	6
	TOTAL	36

Chapter: Electricity

1. What is represented by joule/coulomb.
2. What is the shape of V-I graph for ohmic resistance.
3. Define electrical resistivity and give its SI unit.
4. How will you join three resistances, each of 2 ohms so that the effective resistance is 3 ohms.
5. State Ohm's Law. How can it be graphically represented?
6. An electric lamp draws a current of 0.5 A for 1 hour. Calculate the amount of charge that flows through the lamp.
7. Why is lead-tin alloy used for making fuse?
8. Write briefly two applications of heating effect of current.
9. Derive an expression for the equivalent resistance of three resistors connected in series.
10. In household circuits, why appliances are connected in parallel to one another?
11. What is the power of a bulb rated at 2.5 V and 500 mA?
12. Draw a schematic diagram of an electric circuit consisting of a battery of two cells each of 1.5 V, 5 ohms, 10 ohms resistors and a key, all connected in series.
13. Calculate the electric energy consumed by 1200 W toaster in 20 minutes.
14. What is commercial unit of electric energy? Obtain its value in SI unit of energy.
15. In the circuit where three resistors of resistance 2 ohms, 5 ohms and 10 ohms are connected in parallel to a battery of 6 V.
Find (a) the total current in the circuit (b) the current through each resistor.

Chapter: Magnetic Effects of Current

1. Name the device which converts mechanical energy into electrical energy.
2. What are the colours of live, neutral and earth wire?
3. State two ways by which the strength of electromagnet can be increased.
4. What is solenoid. Draw field lines around a current carrying solenoid.
5. Name and state the rule to find the direction of force on a current carrying conductor placed perpendicular to magnetic field.
6. What is electromagnetic induction? Give two ways to induce current in a coil.
7. How do we connect fuse in the domestic circuit?

8. What is earthing? How does it work as a safety measure?
9. What is an electromagnet? State two differences between electromagnet and permanent magnet.
10. Discuss the main features of domestic wiring with the help of a diagram.
11. What type of current is used in household supply? What is its advantage?
12. What is short circuit and overloading? How can overloading be avoided?
13. How is uniform magnetic field represented?
14. Name and state the rule to find the direction of induced current in the coil.
15. Write the characteristics of magnetic field lines. Draw magnetic field lines around a bar magnet.

Chapter: Sources of Energy

1. What are conventional sources of energy? Give two examples.
2. What is the major component of Biogas and Natural gas?
3. Why is biogas considered to be an ideal fuel? Give three reasons.
4. State two advantages and two limitations of solar energy.
5. What is hydel power. Draw a schematic diagram of a hydroelectric power plant.
6. Explain three ways in which energy can be harnessed from oceans.
7. Give one limitation of extracting energy from water, wind and oceans.
8. What is the minimum wind velocity required to obtain useful energy with a windmill?
9. Why is coke considered better fuel than coal?
10. Why sun is called the ultimate source of energy?
11. What are the merits of using solar cells to produce electricity.
12. Name two sources of energy that do not come directly or indirectly from the solar energy.
13. List some hazards of nuclear power generation and the safety measures that that should be taken.
14. Why are we looking at alternate sources of energy?
15. Name two renewable sources of energy.

SUBJECT: CHEMISTRY

PATTERN OF SA1 PAPER

S.No	Form of question	Marks for each question	No of questions	Total marks
1	VSA	1	3	3
2	SAI	2	4	8
3	SAII	3	2	6
4	LA	5	2	10
5	MCQ	1	6	6
				33

CHEMICAL REACTIONS

1. **VERY SHORT ANSWER QUESTIONS** (1 MARKERS)
 - i. When water is heated, it changes its state from liquid to gas (steam). Has any chemical reaction taken place during this change?

- ii. Write the chemical name of baking soda. What happens when it is heated?
Write two uses of baking soda.
- iii. Write two observations you make when quick lime is added to water
- iv. State the chemical property in each case on which the following used of baking soda are heated.
 - a. As an antacid
 - b. As a constituent of baking powder
- v. What does pH stands for? What does a pH scale indicate?
- vi. A blue salt becomes white on heating. With the help of a reaction, explain the change in colour.
- vii. What name is given to the substances which
 - i. Give hydrogen ions in aqueous solution?
 - ii. Give hydroxyl ions in aqueous solution?
 - iii. Are used to remove acidity?
- viii. State whether an aqueous solution of washing soda is acidic or alkaline. Support your answer with reaction
- ix. What are the constituents of baking powder? State the function of each constituent in it.
- x. What is meant by bleaching ? Write the chemical equation for the reaction involved in preparing bleaching powder.

3. LONG ANSWER QUESTIONS (5 MARKERS)

- i. State what would you observe when
 - a. Red litmus paper is introduced into a solution of sodium acetate
 - b. Methyl orange is added to dilute hydrochloric acid
 - c. A drop of phenolphthalein is added to a solution of sodium hydroxide
 - d. Blue litmus paper is introduced into a solution of brine
 - e. Turmeric powder comes in contact with moist alkaline
- ii.
 - a. A solution X turns blue litmus solution red. Name the ions present in X
 - b. A solution Y turns red litmus solution blue. Name the ions present in Y
 - c. Name the products formed when solutions of X and Y are mixed together
 - d. Name the gas evolved if a piece of magnesium ribbon is put into solution X.
- iii. Describe an activity to show that acids produce ions in aqueous solutions

METALS AND NON METALS

1. VERY SHORT ANSWER QUESTIONS (1 MARKERS)

1. What are metalloids? Give two examples of metalloids.
2. What are metals?
3. A green layer is gradually formed on a copper plate left exposed to air for a long time in a bathroom. What could this green substance be?
4. A vessel made of a metal X acquires a blackish tinge on exposure to air after a few days. Name the metal X and the black substance.
5. Which metal foil is used in the packaging of medicinal tablets?
6. Arrange the following metals in an increasing order of their reactivities towards water.
Zinc, iron, magnesium, sodium
7. In nature , metal A is found in free state, while metal B is found in the form of its compounds. Which of these two will be nearer to the top of the activity series of metals?
8. State the principle on which the processes used for the enrichment of ores are based.
9. How is alumina reduced to aluminium?
10. For the reduction of a metal oxide, suggest a reducing agent which is cheaper than aluminium.
11. Why can't carbon be used to reduce alumina to aluminium?
12. Write an equation for
 - i. Roasting of an ore
 - ii. Calcinations of an ore

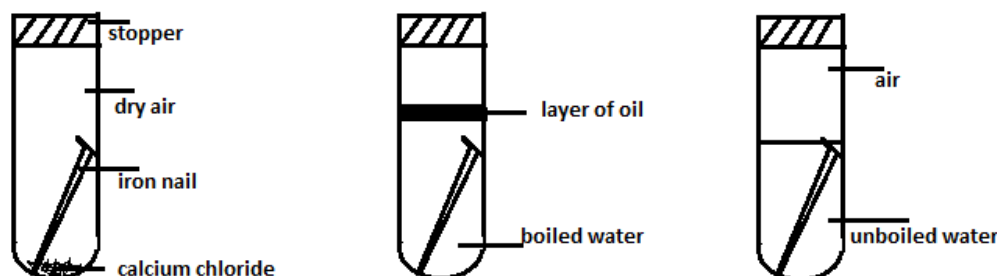
13. Why is iron never used in the pure state?
14. Name the metal which is always present in an amalgam.
15. An alloy solder is used in electronic industry to join different electronic components. What are the constituents of solder?
16. What is 24 carat gold? How will you convert it into 18 carat gold?
17. What do non metals not conduct electricity?
18. What is anodising?
19. An element X is represented as ${}^{28}\text{X}_{14}$. State whether it is a metal or a non metal. Explain your answer.
20. Show electronic transfers in the formation of MgCl_2 from its elements.
21. Name any one metal which reacts neither with cold water nor with hot water but reacts with steam to produce hydrogen gas.
22. Name two elements that are alloyed with iron to make stainless steel.

2. SHORT ANSWER QUESTIONS (2-3 MARKERS)

- i. Give reasons for the following
 - a. Gold and silver are used to make jewellery
 - b. Carbonate and sulphide ores are generally converted into oxide ores prior to reduction during the process of extraction
- ii. Why do we make alloys? State any two reasons
- iii. The reaction metal X with Fe_2O_3 is highly reactive and is used to join railway tracks. Identify the metal X. Write the chemical equation of its reaction with Fe_2O_3 .
- iv. Give reason for the following
Hydrogen is not a metal but it has been assigned a place in the reactivity series of metals.
- v. What are amphoteric oxides? Give 2 examples
- vi. Give reasons for the following
 - a. Platinum, gold and silver are used to make jewellery
 - b. To make hot water tanks, copper is used and not steel
 - c. Lemon is used for restoring the shine of tarnished copper decorations
- vii. Does every mineral have a definite and fixed composition? Explain
- viii. What is the difference between the corrosion of iron and corrosion of aluminium?
- ix. Is it safe to cook food containing iron salts in utensils made of aluminium?

3. LONG ANSWER QUESTIONS (5 MARKERS)

1. Three test tubes A, B, and C as shown below, have been setup to investigate the rusting of iron.



- i. In which test tube will the iron nails rust? Give reasons
- ii. What is the purpose of
 - a. Anhydrous calcium chloride in test tube A?
 - b. Boiled water and layer of oil in test tube B?
2. What is meant by refining of metals? Describe the electrolytic refining of copper with a neat labelled diagram.
3. a. Show on a diagram the transfer of electrons between the atoms in

- the formation of MgO
- Name the solvent in which ionic compounds are generally soluble
 - Why are aqueous solutions of ionic compounds able to conduct electricity?
4. Draw a flow diagram to explain the metallurgy of a metal.

MCQ

1. In an experiment to test the pH of the given sample using pH paper, four students recorded the following observations:

<u>Sample taken</u>	<u>pH paper turned to</u>
i. Dil. Hydrochloric acid	i. blue
ii. Dil. Sodium hydroxide solution	ii. Blue
iii. Water	iii. Green
iv. Dil. Sodium bicarbonate solution	iv. Red

Which of the above observations are incorrect?

- i,ii b. i,iv c. iii,iv d. i,iv
2. Which one of the following solutions turns red litmus to blue litmus?
- Lemon juice
 - Acetic acid
 - Hydrochloric acid
 - Sodium hydroxide
3. When zinc metal is added to dilute hydrochloric acid solution in a test tube, color of the gas evolved is:
- Reddish brown
 - pale blue
 - colorless
 - pale green yellow
4. A blue litmus paper was first dipped in dilute HCl and then in dilute NaOH solution. It was observed that the colour of the litmus paper
- Changes to red
 - Changes first to red and then blue
 - Changes blue to colourless
 - Remained blue in both the solutions
5. The zinc metal used in the laboratory for doing experiments is available in the form of
- filings
 - strips
 - granules
 - pellets
6. When you place an iron nail in copper sulphate solution, the reddish brown coating formed on the nail is
- soft and dull
 - hard and flaky
 - smooth and shining
 - rough and regular
7. The colour of ferrous sulphate solution is

- (a) Colourless (b) pale green
(c) blue (d) reddish brown

8. $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$, the type of reaction is

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

SUBJECT: BIOLOGY

QUESTION PAPER FORMAT CLASS X BIOLOGY

of questions	Type	Marks	No of questions	Total Marks
Short Answers I		2	2	4
Short Answers II		3	2	6
Long Answers		5	1	5
MCQ (Practical Based)		1	6	6
				21

TOPIC : NUTRITION & RESPIRATION

Q1. List the different steps in digestion of food.

Q2. Define peristalsis.

Q3. Which organ secretes bile juice and where is it stored in the human body?

Q4. What is emulsification of fat? Which organ is responsible for this?

Q5. Give the substance on which these enzymes act and what is their end products:

a. Ptyalin b. Pepsin c. Pancreatic amylase d. Lipase

Q6. What are the finger like folds in the small intestine called?

What is the function of these folds?

Q7. Which substance is absorbed by the large intestine?

Q8. How does amoeba obtain its food? Explain with diagram

Q9. What are the characteristic features of a respiratory surface?

Q10. What are the end products of anaerobic respiration in yeast and muscle cells?

Q11. Explain the mechanism of inhalation and exhalation in humans.

Q12. Differentiate between breathing and respiration

Q13. Why is trachea supported by cartilaginous rings?

Q14. Smokers have very low vital capacity. Give reason to support your answer

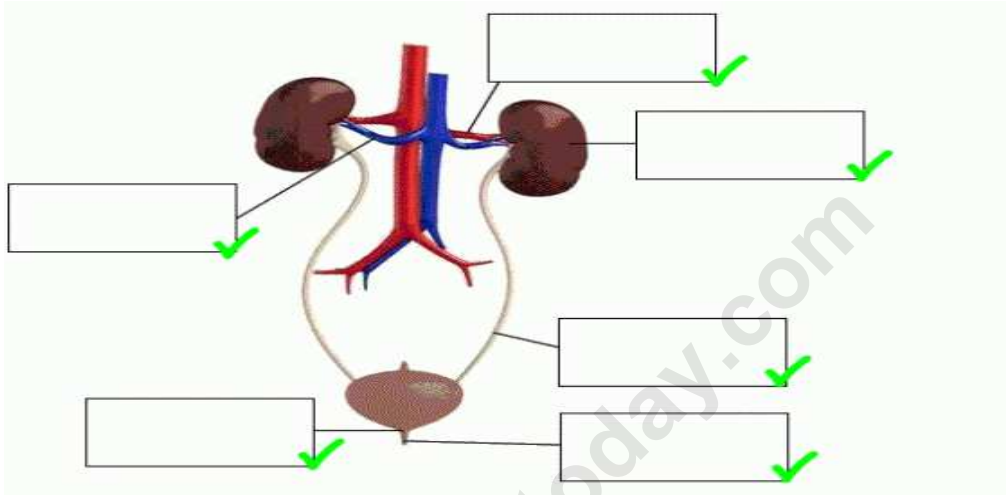
Q15. Why is the breathing rate of aquatic animals faster than terrestrial animals?

TOPIC : TRANSPORTATION & EXCRETION

Q1. List any three differences between blood and lymph.

Q2. Define double circulation.

- Q3. Which blood vessel brings impure blood to the kidneys ? What does this blood vessel branch into ?
- Q4. Which are the three steps of urine formation ? Where is the filtrate finally dropped ?
- Q5. Mention any four ways in which plants excrete their wastes.
- Q6. What is the unit of excretion called ? Name the hair pin shaped structure present in this unit .
- Q7. Draw a well labelled nephron.
- Q8. How is excretion different from osmoregulation ?
- Q9. Label the following diagram :



- Q10. Why is selective reabsorption an important step in urine formation ?
- Q11. Explain the mechanism of dialysis.
- Q12. Differentiate between transpiration and translocation
- Q13. Why is transpiration important for pulling the water up in tall trees ?
- Q14. How does food get transported in a plant ?
- Q15. How can we say that transport through phloem is bi -directional ?

TOPIC : CONTROL & COORDINATION

1. Which part of the brain gives rise to spinal cord?
2. What are the names of future shoot and future root in a germinating seed?
3. Which group of multicellular animals does not possess neurons?
4. Name the chemical substances which control and coordinate in plants.
5. Why are endocrine glands also known as ductless glands?
6. What are plant hormones? What is the relationship between their site of production and site of action?
7. Name the hormones secreted at puberty in males and females?
8. Fill the missing words in the given table.

Hormone	Deficiency Disease
Iodine	Goitre
	Dwarfism
Insulin	

9. (a) Mira planted a seed in her house but the plant is not growing as expected with respect to its length. Which hormone should be supplied externally to the plant so as to rectify the above discussed problem?

(b) A plant is showing rapid collapse of shoots, branches and leaves.

10. Which gland secretes a hormone when the blood sugar rises?

Name a digestive enzyme released by this gland?

11. Explain the terms Geotropism, Hydrotropism and Chemotropism with one example.
12. What are involuntary actions? Name few. Which parts of brain control these actions?
13. Compare and contrast nervous and hormonal mechanism for control and coordination in animals.
14. Draw the structure of neuron and label nucleus, cell body and axon on it?
15. How is reflex arc formed? Show it diagrammatically.
16. Answer the following:-
 - a. Name the endocrine gland associated with brain.
 - b. Which gland secretes digestive enzyme as well as hormone?
 - c. Name the endocrine gland associated with kidney.
 - d. Which endocrine gland is present in males but absent in females.
 - e. Dwarfism results due to less activity of which gland.
17. a. Define Tropism. What are the basic types of tropism?
 - b. Explain how nastic movements differ from tropic movements.
 - c. Name the kind of movement seen in growing pollen tube in a flower.
18. (a) Give the technical terms for:
 - (i) Bundle of axons enclosed in a tubular sheath.
 - (ii) Change of external or internal environment that result in a change in the activities of the organism.
 - (iii) Change of activity in an organism due to stimulus.
 - (iv) The ability of nerve cells to respond to stimuli and convert them into nerve impulses.
 - (v) The largest part of the brain.
19. Identify the parts of a neuron:
 1. Where is the information acquired?
 2. Through what, information travels as an electrical impulse?
 3. Where this impulse must be converted into a chemical signal for onward transmission?
20. Describe an activity to show that roots are negatively phototropic and shoots are negatively geotropic.