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

SUBJECT: SCIENCE (086)

<u>BLUE PRINT : CLASS X</u>

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)#	--	**5(1)**	
	Management of Natural Resources	--	--	--		--		
	Total	**2(2)**	**6(3)**	**30(10)**	**30(6)**	**12(6)**	**80(27)**	**80(27)**

Note: * - Internal Choice Questions of same chapter.
 # - Internal Choice Questions of two chapters

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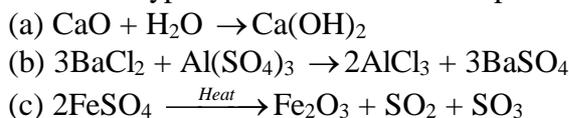Draw a diagram of human respiratory system and label on it: (a) Diaphragm (b) Larynx

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 x 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:
(a) $CaO + H_2O \rightarrow Ca(OH)_2$
(b) $3BaCl_2 + Al(SO_4)_3 \rightarrow 2AlCl_3 + 3BaSO_4$
(c) $2FeSO_4 \xrightarrow{Heat} Fe_2O_3 + SO_2 + SO_3$

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 CH_3COCH_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 from 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.

(a) What defect of vision is he suffering from? What is it?

(b) List two causes for the development of this defect.

(c) What kind of lens will be required to see clearly the nearby as well as distant objects? Give reasons.

(d) 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-

(a) radius of the loop is reduced to half its original value?

(b) 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.

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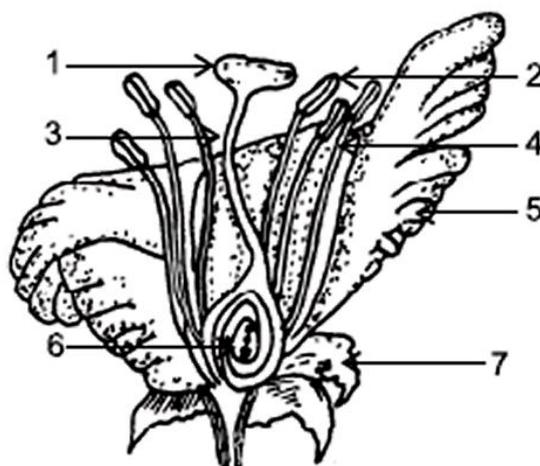
26. What happens when chlorine is passed over slaked lime at 313K ? Write chemical equation of the reaction involved and state two uses of the product obtained.

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
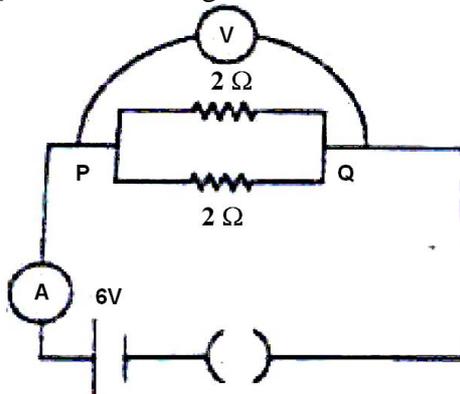
OR

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.