

KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION
SAMPLE PAPER 01 FOR SA - I (2016-17)

SUBJECT: SCIENCE

BLUE PRINT : SA-I CLASS X

Unit/Topic	VSA/MCQ (1 mark)	Short answer (2 marks)	Short answer (3 marks)	Long answer (5 marks)	Total
Chemical Reactions and Equations	-	-	3(1)	-	03(1)
Acids, Bases and Salts	3(3)	6(3)	3(1)	5(1)	17(8)
Metals and Non-metals	2(2)	-	6(2)	5(1)	13(5)
Life Processes	2(2)	4(2)	3(1)	5(1)	14(6)
Control and coordination	1(1)	-	6(2)	-	07(3)
Electricity	3(3)	2(1)	9(3)	5(1)	19(8)
Magnetic Effects of Electric current	-	-	-	10(2)	10(2)
Sources of Energy	1(1)	-	6(2)	-	07(3)
Total	12(12)	12(6)	36(12)	30(6)	90(36)

MARKING SCHEME FOR SA – I

SECTION	MARKS	NO. OF QUESTIONS	TOTAL
VSA	1	3	03
SA – I	2	3	06
SA – II	3	12	36
LA	5	6	30
Practical based MCQs	1	9	09
	2	3	06
GRAND TOTAL			90

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SUBJECT: SCIENCE

MAX. MARKS : 90

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. Question numbers **1 to 3** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
5. Question numbers **4 to 6** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7 to 18** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
7. Question numbers **19 to 24** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. Question numbers **25 to 33** in **Section-B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers **34 to 36** in **Section-B** are questions based on practical skills and are **two marks** questions.

SECTION – A

1. Name any two green house gases.
2. Name the rule which gives the direction of induced current in a conductor.
3. Name the tissue in animals which provides control and coordination to them.
4. How is lymph formed? Write its main function.
5. Metal oxides are basic in nature. But some metal oxides show both acidic as well as basic behaviour. What are these oxides called? Name one such oxide and write its reaction with acid and a base.
6. Name the acids and bases from which the following salts may be obtained:
Potassium sulphate and calcium chloride.
7. Calculate the heat produced when 48,000 coulombs of charge is transferred in 6 minutes through a potential difference of 50 volts.
8. A circuit has a fuse of rating 5 A. What is the maximum number of 40 Watts (200 V) bulbs that can be safely used in the circuit?
9. The resistance of a wire of length 250 m is 1 ohm. If the resistivity of the material of wire is 1.6×10^{-8} ohm meter, find the area of cross-section of the wire. How much does the resistance change if the diameter is doubled?
10. Aditya wants to install a solar cooker on his roof top. His mother tries to convince his not to do so as he is aware of the limitations of a solar cooker. But Aditya still wants to do it.
(i) What is the main limitation of using a solar cooker?

- (ii) Would you suggest Aditya to install a solar cooker at his home? Give reason for your answer.
- (iii) What values of Aditya are depicted in his way of thinking?

11. Biogas is an excellent fuel. Justify the statement by giving two reasons. Mention the mass constituent of biogas along with its percentage.

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

- (i) $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$
- (ii) $3\text{BaCl}_2 + \text{Al}(\text{SO}_4)_3 \rightarrow 2\text{AlCl}_3 + 3\text{BaSO}_4$
- (iii) $2\text{FeSO}_4 \xrightarrow{\text{Heat}} \text{Fe}_2\text{O}_3 + \text{SO}_2 + \text{SO}_3$

13. In one of the industrial process used for manufacture of sodium hydroxide, a gas 'X' is formed as by product. The gas 'X' reacts with dry slaked lime to give a compound 'Y' which used as a bleaching agent in textile industry.

- (i) Identify 'X' and 'Y'
- (ii) Give chemical equation of the reaction involved..

14. State two properties of each of the following metals which make them suitable for:

- (i) copper and aluminium for making electric wires.
- (ii) Gold, platinum and silver are used to make jewellery
- (iii) Copper to make hot water tank.

15. Translate the following statements into chemical equations and balance them:

- (a) Lead nitrate reacts with sulphuric acid to form a precipitate of lead sulphate and nitric acid.
- (b) Magnesium burns in the presence of nitrogen to form magnesium nitride.
- (c) Aluminium metal strip is added in hydrochloride acid to produce aluminium chloride and hydrogen gas.

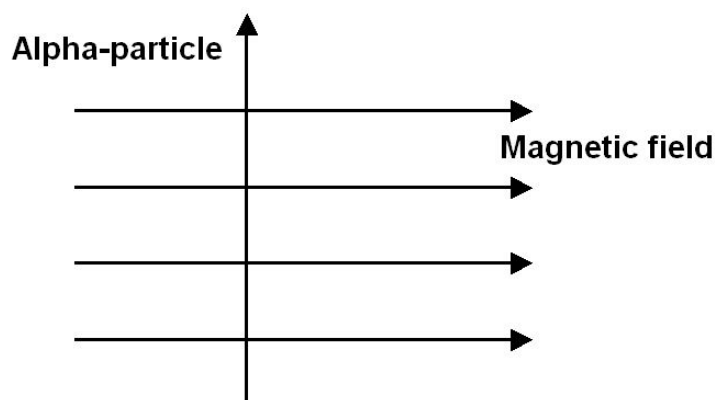
16. Define transpiration. State the significance of flattened structure of leaf.

17. Explain how nervous impulses travel in the body?

18. Name and state briefly one function each of any three phyto-hormones.

19. (a) Describe an activity to determine the direction of magnetic field produced by a current carrying straight conductor. Also show that the direction of the magnetic field is reversed on reversing the direction of current.

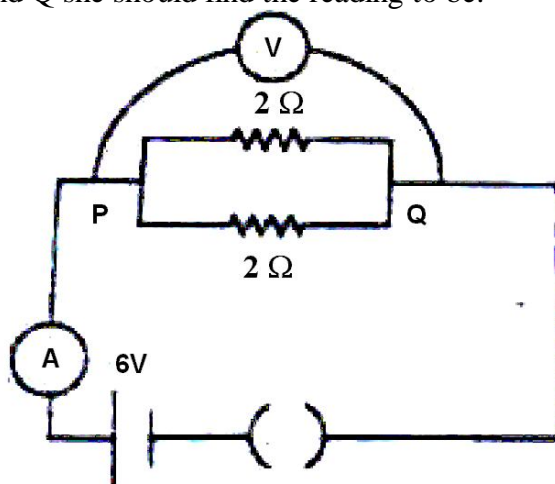
(b) An α -particle, (which is a positively charged particle) enters, a uniform magnetic field at right angles to it as shown below. Stating the relevant principle explain in which direction will this α -particle move?



20. (a) State Ohm's law. Give the relationship between potential difference, electric current and resistance of conductor.
 (b) 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.
21. Differentiate between AC and DC. Name one source of each. Write any advantages of alternating current over direct current.
22. (a) In a tabular form write the colours of the following indicators in presence of acid and base:
 Litmus solution, phenolphthalein solution, methyl orange solution
 (b) Classify the following given solutions A and B in acidic and basic, giving reason.
 Solution A : $[H^+] < [OH^-]$
 Solution B : $[H^+] > [OH^-]$
23. (i) Write the electron-dot structures for sodium, oxygen and magnesium.
 (ii) Show the formation of Na_2O and MgO by the transfer of electrons.
 (iii) What are the ions present in these compounds?
 (iv) Why do ionic compounds have high melting points?
24. Mention the organ and site of photosynthesis in green plants. What are the raw materials essential for this process? How are they obtained? Write complete balanced chemical equation for the process. Name the byproducts.

SECTION – B

25. If $M + BX \rightarrow MX + B$ and B is seen as reddish brown deposit, then M and BX respectively are:
 (a) Iron and Aluminium sulphate
 (b) Iron and Zinc sulphate
 (c) Aluminium and copper sulphate
 (d) Zinc and Iron aluminium sulphate
26. 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 she should find the reading to be:

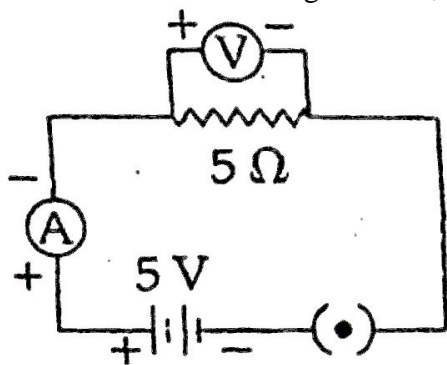


- (a) 2 V (b) 4 V (c) 6 V (d) 8 V

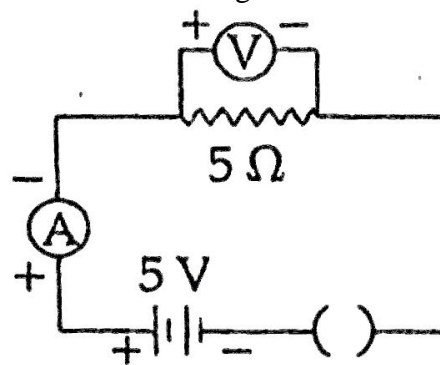
27. When two resistors of resistance $3\ \Omega$ and $5\ \Omega$ are connected to a battery, it will have across the two resistors
- Same potential difference when connected in series
 - Same current when connected in parallel
 - Different potential difference when connected in parallel
 - Same current flowing through them when connected in series
28. A portion of each of four de-starched leaves of plant was covered with paper strips of various colours. The plants was exposed to sunlight for 5 hours. Thereafter the strips were removed and the leaves tested for starch in the covered portion. Which one out of the four leaves gave the positive starch test in the covered portion?
- That covered with black paper strip
 - That covered with green paper strip
 - That covered with white paper strip
 - That covered with a transparent paper strip
29. Shreya used totally dry seeds in the experimental set-up to show that CO_2 is released during respiration. After about two hours she observed that:
- Water level in the bent tube remains at the initial level
 - Water level in the bent tube rises above the initial level
 - Water level in the bent tube first rises, then decreases from the initial level
 - Water level in the bent tube decreases than the initial level
30. In a school laboratory, a student was provided with a pH chart by his teacher and was asked to observe the colours corresponding to pH 1 and pH 14 respectively. The colours observed by him would be:
- red and blue
 - blue and orange
 - yellow and green
 - blue and red
31. During an experiment a student was provided a sample solution to find the pH value. He added a few drops of universal indicator to it and observed that the colour changed to green. The sample should be of:
- Sodium bicarbonate solution
 - Distilled water
 - Dilute hydrochloride acid
 - Lemon juice
32. The colour change of litmus paper found in a given solution of sodium hydroxide is:
- Red to blue
 - Blue to red
 - Blue to colourless
 - Red to colourless
33. From the reactions given below identify the most reactive metal:
- $$\text{Zn} + \text{Fe SO}_4 \rightarrow \text{ZnSO}_4 + \text{Fe}$$
- $$2\text{Al} + 3\text{ZnSO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + 3\text{Zn}$$
- Zn
 - Fe
 - Al
 - All are equally reactive

34. A stained leaf peel has been given to you and you have been told to temporarily mount it before viewing it under low power microscope. What will you do?

35. For the circuits shown in fig. I and II, what would be the ammeter reading and how?



(I)



(II)

36. While demonstrating a reaction in laboratory, a teacher added small amount of sodium sulphate solution to barium chloride solution in a test tube.

- (i) Name the products obtained. Are the products soluble in each other?
- (ii) Write the type of chemical reactions in this case.

