KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

SAMPLE PAPER 03 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	-	2(1)	3(1)	-	**05(2)**
Acids, Bases and Salts	4(4)	4(2)	6(2)	5(1)	**19(9)**
Metals and Non-metals	1(1)	-	3(1)	5(1)	**09(3)**
Life Processes	3(3)	4(2)	3(1)	-	**10(6)**
Control and coordination	-	-	6(2)	5(1)	**11(3)**
Electricity	3(3)	2(1)	6(2)	5(1)	**16(7)**
Magnetic Effects of Electric current	-	-	3(1)	10(2)	**13(3)**
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. What are hot spots inside earth's crust?

2. How is the type of current that we receive in domestic circuit different from the one that reuns a clock?

3. Mention the site of complete digestion of carbohydrates, proteins and fats in humans.

4. How does auxin promote phototropism?

5. Consider the following salts:
Na_2CO_3, NaCl. NH_4Cl. CH_3COONa. Which of these salts will give
(a) Acidic solution
(b) Neutral solution and
(c) Basic solution

6. Translate the following reactions into balanced chemical equations:
(a) Manganese dioxide is heated with aluminium powder.
(b) Iron is treated with stream

7. What is an electromagnet? Draw a circuit diagram to show how a soft iron can be changed into an electromagnet by a solenoid. Identify the region in the solenoid where filed is uniform.

8. What is meant by electric current? Write its SI unit. Calculate the amount of charge that flows through a conductor when a current of 5A flows through it for 2 minutes.

9. Aditya suggests his family to install a solar water heater at their residence. But some of the family members were in a favour of installing an electric geyser.
(a) Who according to you is taking a correct decision? Mention the value exhibited by Aditya.
(b) Also give reasons (any two) for your answer.

10. Identify the type of reactions in each of the following reactions:

(a) $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

(b) $CaO + H_2O \rightarrow Ca(OH)_2$

(c) $CaCO_3 \xrightarrow{Heat} CaO + CO_2$

11. 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?

12. (a) Write any two properties of ionic compounds.

(b) Show the formation of aluminium choride by the transfer of electrons between the atoms. (Atomic no. of Al and Cl are 13 and 17 respectively)

13. (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.

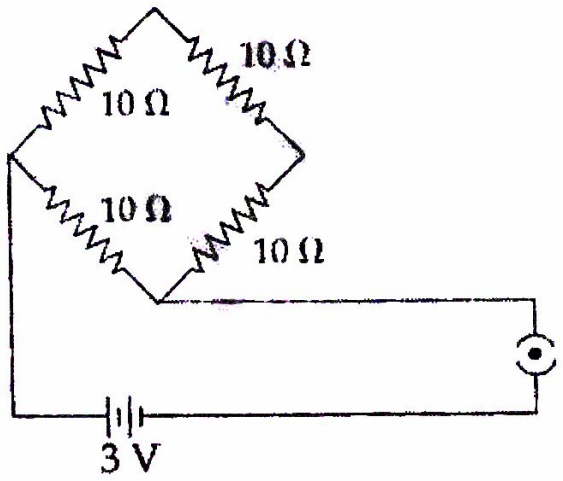
(b) What changes in the colour of iron nails and copper sulphate solution do you observe after keeping the iron nails in copper sulphate for about half an hour.

14. "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.

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

16. Draw a flowchart to show the breakdown of glucose by various pathways.

17. Find the current drawn from the battery by the network of four resistances shown in the figure.



18. Define the process of nuclear fission. Write the steps involved in generating electricity in a nuclear reactor.

19. (a) Define electromagnet induction and state the law that helps in determining the direction of induced current.

(b) Mention three ways to increase the magnitude of the induced current in a coil.

20. Describe an activity with labelled diagram to show that a force act on current carrying conductor placed in a magnetic field and its direction changes with direction of current through conductor. Name the rule which determines the direction of this force.

21. (a) An ore on treatment with dilute hydrochloric acid produces brisk effervescence. What type of ore is this? What steps will be required to obtain metal from the enriched ore?

(b) A copper coin is kept immersed in silver nitrate solution for some time. What change will take place in the coin and colour of the solution? Write the chemical equation for reaction involved.

22. State the changes you observe when:
(a) Lead nitrate powder is heated in a dry boiling tube.
(b) Ferrous sulphate crystals are heated is a dry boiling tube. Write balanced chemical equations in each case. Name the category of reactions in which you would place these reactions stating reason.

23. Draw a labelled diagram of human brain and mention the functions of the following:
Medulla, cerebellum and forebrain.

24. (a) What is meant by heating effect of electric current? Give two applications of heating effect of current.

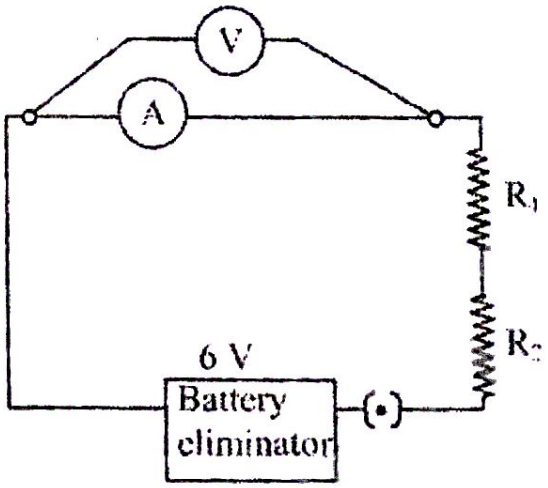
(b) Explain why, tungsten is used for making the filaments of electric bulbs.

(c) 50 J of heat is produced each second in a 2 Ω resistor. Find the potential difference across the resistor.

SECTION – B

25. A sample of soil is mixed with water and allowed to settle. The clear supernatant solution turns the pH paper yellowish-orange. Which of the following would change the colour of this pH paper to greenish-blue?
(a) Lemon juice
(b) Vinegar
(c) Common salt
(d) An antacid

26. In an experiment to find the equivalent resistance of a series of combination of two resistors R_1 and R_2 a student uses the circuit shown here:

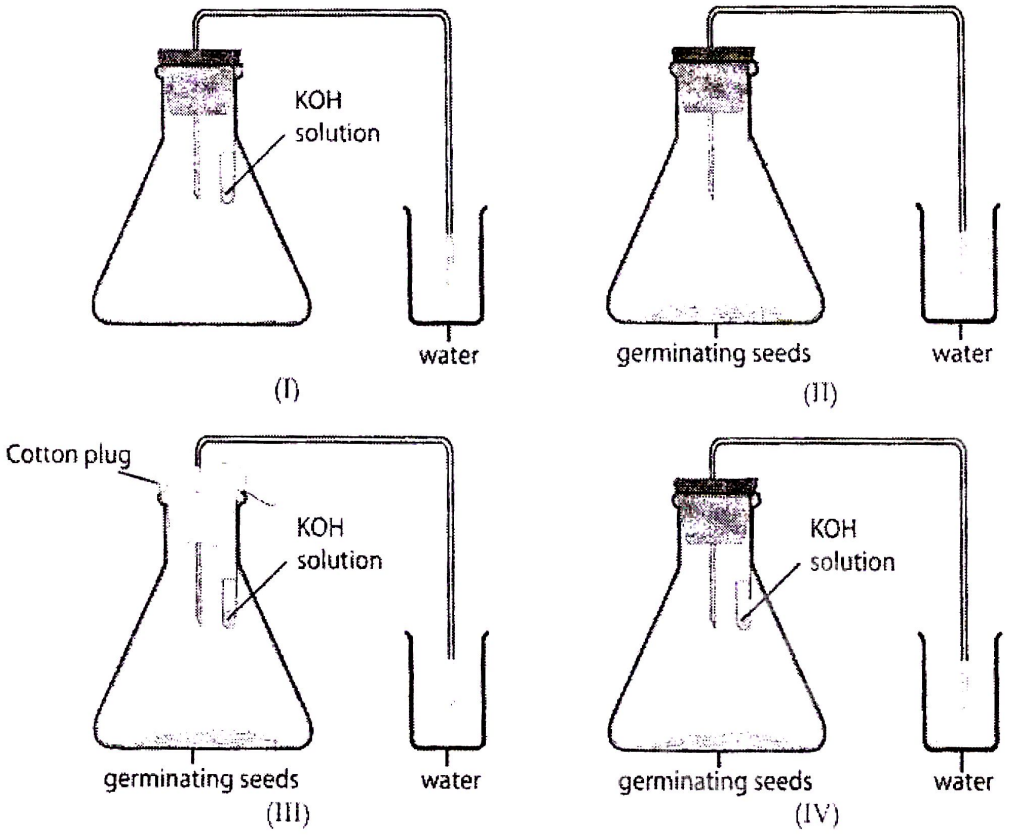


The circuit will give:
(a) Correct reading for voltage V but incorrect reading for current I.
(b) Correct reading for current I but incorrect reading for voltage V
(c) Correct reading for both current I and voltage V
(d) Incorrect reading for both current I and voltage V

27. Three beakers labelled as A, B and C each containing 25 mL of water were taken. A small amount of NaOH, anhydrous $CuSO_4$ and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement(s) is(are) correct?
(i) In beakers A and B, exothermic process has occurred.
(ii) In beakers A and B, endothermic process has occurred.
(iii) In beaker C exothermic process has occurred.
(iv) In beaker C endothermic process has occurred.

(a) (i) only
(b) (ii) only
(c) (i) and (iv)
(d) (ii) and (iii)

28. Choose the correct the set-up to demonstrate that CO_2 is given out during respiration:



(a) I (b) II (c) III (d) IV

29. Aqueous solution of which of the following is colourless?
(a) $FeSO_4$
(b) $ZnSO_4$
(c) $Al_2(SO_4)_3$
(d) Both (b) and (c)

30. Which of the following statements is correct about an aqueous solution of an acid and of a base?
(i) Higher the pH, stronger the acid
(ii) Higher the pH, weaker the acid
(iii) Lower the pH, stronger the base
(iv) Lower the pH, weaker the base

(a) (i) and (iii)
(b) (ii) and (iii)
(c) (i) and (iv)
(d) (ii) and (iv)

31. Shreya took two iron nails and put them in aluminium sulphate solution. After sometimes she observed that:
(a) the solution becomes warm
(b) grey-metal is deposited on the iron nail
(c) the colourless solution changes to light green
(d) solution remains colourless and no deposition is observed on the iron nail

32. To perform the experiment of finding equivalent resistance of a parallel combination of resistances, a student should join voltmeter and ammeter with the combination as:
(a) both in series with it.
(b) both in parallel in it
(c) ammeter in parallel and voltmeter in series with it.
(d) ammeter in series and voltmeter in parallel with it.

33. In the experiment to show that 'light is necessary for photosynthesis', the reason for boiling the leaf in alcohol is to:
(a) Kill its cells and make it soft
(b) Bleach it so that it stops photosynthesizing
(c) Remove chlorophyll as it interferes with the iodine test
(d) Activate chlorophyll

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

35. Name the components which you will observe when you focus the stomata slide under high power objective of a microscope.

36. 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.