KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

SAMPLE PAPER 02 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	1(1)	2(1)	3(1)	-	**06(3)**
Acids, Bases and Salts	4(4)	2(1)	3(1)	-	**09(6)**
Metals and Non-metals	-	2(1)	6(2)	10(2)	**18(5)**
Life Processes	2(2)	2(1)	6(2)	5(1)	**15(6)**
Control and coordination	1(1)	2(1)	3(1)	-	**06(3)**
Electricity	2(2)	2(1)	6(2)	10(2)	**20(7)**
Magnetic Effects of Electric current	1(1)	-	3(1)	5(1)	**09(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. Draw a diagram to show uniform magnetic field in a given region.

2. List the energy transformations that take place in a hydropower plant.

3. Name the part of the neuron: (i) where information is acquired (ii) through which information travels.

4. Write any two involuntary actions performed by our body. Which part of our brain control actions?

5. Name the products formed when sodium hydrogen carbonate is heated. Write the chemical equation for the reaction involved.

6. Define the term alloy. Give two advantages of making alloys.

7. Name any three glands associated with digestion in humans. Write the names of enzymes secreted by them.

8. On touching a hot plate, we suddenly withdraw our hand. List two categories of neurons that become active. Describe this process.

9. Write three points of difference anaerobic respiration and aerobic respiration.

10. Calculate the resistance of a 1 km long copper wire of cross-section $2 \times 10^{-2} cm^2$. The resistivity of copper is 1.62×10^{-8} ohm meter.

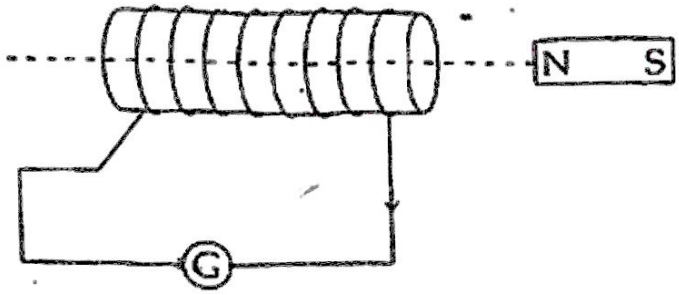
11. A letter 'A' is constructed of a uniform wire of resistance 1 ohm per centimeter. The sides of the letter are 6 cm each and the cross piece in middle is 3 cm long. Calculate the resistance between the ends of the legs.

12. What change in the galvanometer needle would you observe when a strong bar magnet is:

(i) kept stationary at a distance from the coil?

(ii) pushed towards the coil?

(iii) Pulled away from the coil? Give reason to justify your answer.



13. Aditya and his friends decided to set up a biogas plant in their village. They formed a committee and collected money for this purpose. Many people were against the coming up of such a biogas plant. Aditya explained to each one of them the importance of biogas plant.

(i) What could be the advantage as given by Aditya for setting up of the biogas plant?

(ii) Name any two substances that can be put in the biogas plant.

(iii) Aditya should be appreciated for which qualities that are reflected in his action?

14. Write any three characteristics of a good fuel.

15. Write the balanced equations for the following reactions and identify the type of reaction in each case:

(a) Silver Nitrate (aq) + Potassium iodide (aq) $\rightarrow$ Silver iodide (s) + Potassium Nitrate (aq)

(b) Potassium Chlorate (s) $\xrightarrow{\Delta}$ Potassium chloride (s) + Oxygen (g)

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

17. (a) Write the electro dot structure for calcium and sulphur.

(b) Show the formation of CaS by the transfer of electron.

(c) Name of ions present in this compound CaS (Atomic number of Ca=20, S=16)

18. (a) Name any one metal each which can be extracted by:

(i) electrolytic reduction

(ii) reduction with heat alone

(iii) reduction with carbon

(iv) reduction with aluminium

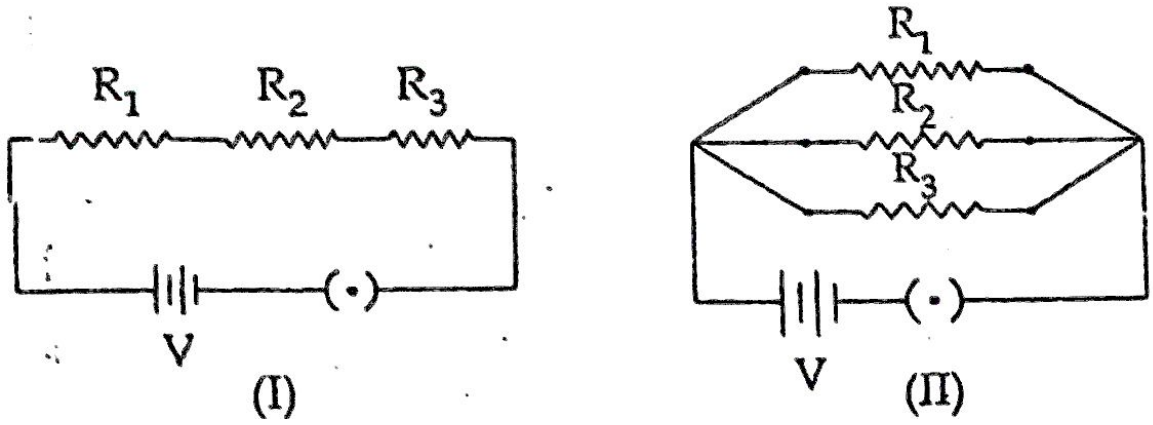
(b) Write a chemical equation for any of the above four parts.

19. (a) Define electric power. State its unit. Also derive formula of power P = V x I

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

20. 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.

21. Name an instrument that measures potential difference between two points in a circuit. Define the unit of potential difference in terms of SI unit of charge and work. Draw the circuit symbols for (i) variable resistor (ii) a plug key which is closed one.
Two electric circuits I and II are shown below



(i) Which of the two circuits has more resistance?
(ii) Through which circuit more current passes?
(iii) In which circuit, the potential difference across each resistor is equal?
(iv) If $R_1 > R_2 > R_3$, in which circuit more heat will be produced in R_1 as compared to other two resistors?

22. (a) Write electron dot structure for chlorine (Atomic No. 17) and calcium (Atomic no. 20). Show the formation of calcium choride by the transfer of electrons.

(b) Identify the nature of the above compound and explain three physical properties of such compounds.

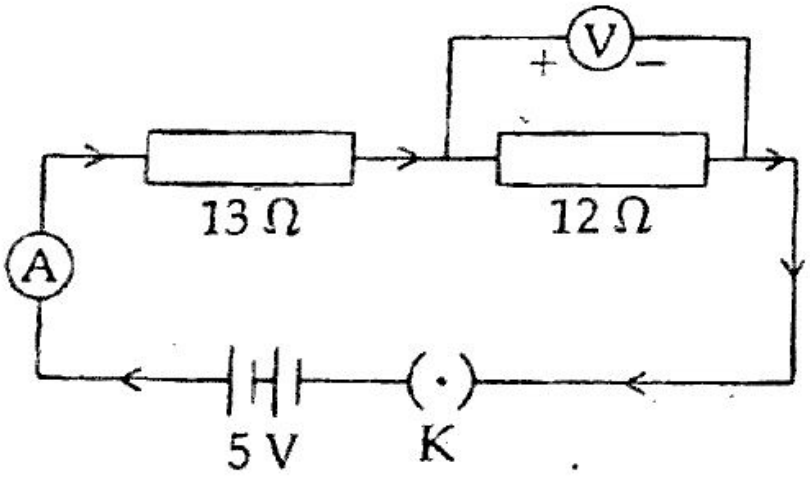
23. Give reasons for the following:
(i) Calcium and magnesium are found in the combined form in nature while gold and platinum are found in the free state.
(ii) Aluminium vessel loses its shine readily.
(iii) Aluminium cannot be obtained by reduction of its oxide with coke.
(iv) We cannot store silver nitrate solution in a copper vessel.
(v) When a piece of copper metal is added to a solution of zinc sulphate, no change takes place, but the blue colour of copper sulphate fades away when a piece of zinc is placed in its solution.

24. (a) The upward movement of water normally requires a pump in our houses but in tall trees rises up without any external support. Explain this mechanism.
(b) State three points of difference between the transport of materials in xylem and phloem tissues.

SECTION – B

25. $2Al + 3CuSO_4 \rightarrow 3Cu + Al_2(SO_4)_3$
The type of reaction shown above and the change of colour of reaction solution to products that was observed is:
(a) Combination reaction, blue to green
(b) Displacement reaction, blue to colourless
(c) Decomposition reaction, blue to green
(d) Displacement reaction, blue to green

26. Two resitsances are connected in series as shown in the diagram



The potential difference across: 12 ohms resistor will be:
(a) 6 V (b) 2.4 V (c) 2.8 V (d) 12 V

27. A student collected apparatus for carrying out the experiment of finding equivalent resistance of a parallel combination of resistance. He observed that the ammeter given to him has 50 divisions and it could read upto 100mA. The least count of the ammeter will be:
(a) 2 mA (b) 0.2 mA (c) 0.02 mA (d) 0.5 mA

28. A portion of destarched leaf of a potted plant was covered with a black strip of paper. The plant was exposed of sunlight for six hours and then tested for starch. It was observed that:
(a) Both covered and uncovered parts turned blue black
(b) Both covered and uncovered parts turned yellowish brown
(c) Only the uncovered part turned blue black
(d) Only the covered part turned blue black

29. In the experiment to show that CO_2 is released during respiration, the solution in the test tube is chemically:
(a) NaOH (b) KOH (c) NaCl (d) KCl

30. Suggest the solution which you would choose for testing pH of given sample:
(a) Blue litmus
(b) Red litmus
(c) Universal indicator solution
(d) Lime water

31. A drop of colourless liquid is poured over blue litmus paper and it turns red. The colourless liquid is:
(a) Sodium hydroxide solution
(b) sodium bicarbonate solution
(c) pure water
(d) dilute hydrochloride acid

32. When zinc metal reacts with dilute sodium hydroxide solution on heating, the gas evolved:
(a) turns lime water milky
(b) supports combustion
(c) burns with a pop sound
(d) has a pungent odour

33. A few small pieces of aluminium metal were added to ferrous sulphate solution. It was observed that:
(a) Pale green colour of solution disappears, and it becomes colourless.
(b) Pale green colour of solution persists
(c) Pale green colour of solution turns blue
(d) Pale green colour of solution turns red.

34. 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.

35. State four factors that affect resistance.

36. One student was assigned the experiment of interaction of iron nail with a solution of copper sulphate. What observations he/she would have recorded as per given below:
(i) Initial colour of the solution
(ii) Final colour of the solution
(iii) Change in the colour of iron nail. Mention the type of this reaction