KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

SAMPLE PAPER 04 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)	-	-	**02(1)**
Acids, Bases and Salts	3(3)	4(2)	9(3)	5(1)	**21(9)**
Metals and Non-metals	2(2)	-	3(1)	5(1)	**10(4)**
Life Processes	3(3)	2(1)	6(2)	-	**11(6)**
Control and coordination	-	2(1)	3(1)	5(1)	**10(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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SAMPLE PAPER 04 FOR SA – I (2016-17)

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. Power of a lamp is 60W. Find the energy in joules consumed by it in 1s.

2. Name any two conventional sources of energy.

3. State the location and function of gastric glands.

4. Define neuron. Name the parts of the neuron where: (i) information is acquired (ii) impulse must be converted into a chemical signal for onward transmission

5. Write the chemical formula of Bleaching powder. How is bleaching powder prepared? For what purpose is it used in drinking water?

6. Reverse the following chemical reaction is not possible:
$Zn(s) + CuSO_4(aq) \rightarrow ZnSO_4(aq) + Cu(s)$
Justify this statement with reason.

7. Explain the structure of bronchi with the help of a neat diagram and label on it (i) trachea (ii) bronchiole.

8. An electric iron has a rating of 750 W; 200 V. Calculate (i) the current required (ii) the resistance of its heating element. (iii) energy consumed by the iron in 2 hours.

9. What are magnetic field lines? Justify the following statements:
(a) Two magnetic field lines never intersect each other
(b) Magnetic field lines are closed curves.

10. Explain the use of an electric fuse. What type of material is used for fuse wire and why?

11. Aditya visited his neighbouring village where a biogas plant has been installed recently. He was very surprise to see the working of the biogas plant. He told his village elders about the advantages of setting up a biogas plant in their village. Now answer the following questions:

(a) What are the advantages of a biogas plant (any two)

(b) Why is a biogas plant commonly called as 'gobar gas' plant?

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

13. 2 g ferrous sulphate crystals are heated in a dry boiling tube.

(a) List any two observations.

(b) Name the type of chemical reaction taking place.

(c) Write the chemical equation of the reaction.

14. A white coloured powder is used by doctors for supporting fractured bones.

(a) Write chemical name and formula of the powder.

(b) When this white powder is mixed with water a hard solid mass is obtained. Write balanced chemical equation for this change.

15. Give reason for the following:

(a) Hydrogen gas is not evolved when most metals react with nitric acid.

(b) Zinc oxide is considered as an amphoteric oxide.

(c) Metals conduct electricity

16. (a) A solution of Potassium chloride when mixed with silver nitrate solution, an insoluble white substances is formed. Write the chemical reaction involved and also mention the type of the chemical reaction

(b) Ferrous sulphate when heated, decomposes with the evolution of a gas having a characteristic odour of burning sulphur. Write the chemical reaction involved and identify the type of reaction.

17. Describe heterotrophic mode of nutrition and give its examples. Name the three types of this nutrition.

18. Give reason to explain why endocrine glands release their secretions into the blood directly.

19. What are plant hormones? Give four different types of plant hormones and state their functions briefly.

20. Explain the following.

(a) Why is the tungsten used almost exclusively for filament of electric lamps?

(b) Why are the conductors of electric heating devices, such as bread-toasters and electric irons, made of an alloy rather than a pure metal?

(c) Why is the series arrangement not used for domestic circuits?

(d) How does the resistance of a wire vary with its area of cross-section?

(e) Why are copper and aluminium wires usually employed for electricity transmission?

21. (a) Draw the magnetic field lines through and around a single loop of wire carrying electric current.

(b) State whether an alpha particle will experience any force in a magnetic field if (alpha particles are positively charged particles)

(i) it is placed in the field at rest.

(ii) it moves in the magnetic field parallel to field lines

(iii) it moves in the magnetic field perpendicular to field lines.

Justify your answer in each case.

22. What are magnetic field lines? List three characteristics of these lines. Describe in brief an activity to study the magnetic field lines due to a current flowing in a circular coil.

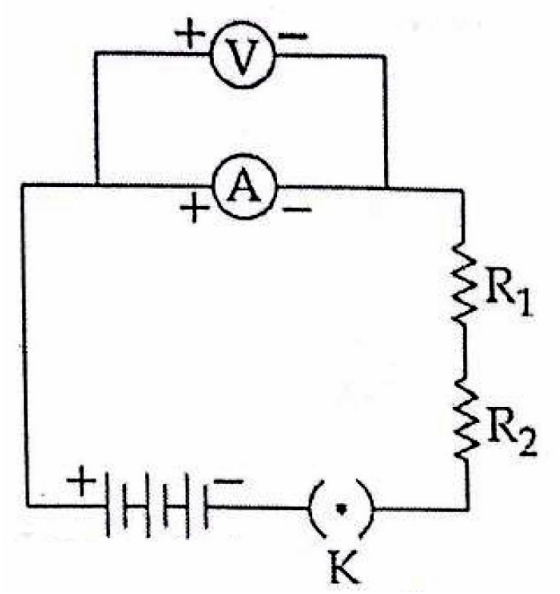
23. Draw a schematic diagram of the various steps involved in the extraction of metals from ores for metals of medium reactivity and for metals of low reactivity.

24. (a) Illustrate an activity to investigate whether all compounds containing hydrogen are acidic.

(b) What happens when hydrochloride acid and sodium hydroxide are dissolved in water. Explain giving equation of each.

SECTION – B

25. To find the equivalent resistance of a series combination of two resistors R_1 and R_2, a students uses the circuit diagram shown below:



Circuit will give
(a) correct reading of voltage V, but incorrect reading for current I
(b) correct reading of 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

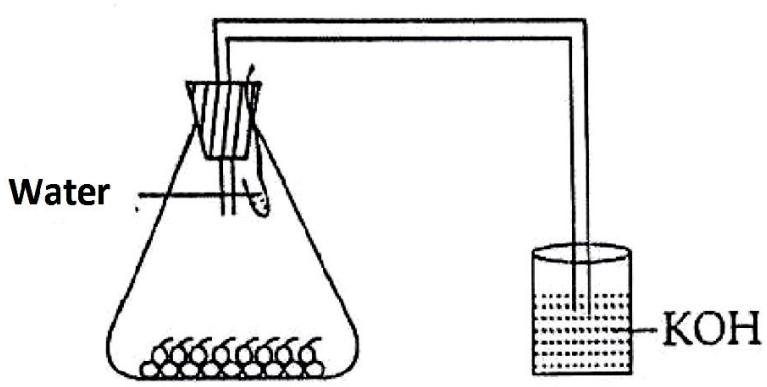
26. Given below are diagrams of three test tubes containing dil. HCl, dil, ethanoic acid and NaOH solution. Choose the correct statement:
(a) pH of I is greater than pH of II and III
(b) pH of III is greater than pH of I and II
(c) pH of I, II and III are equal
(d) pH of II is greater than pH of I and III

27. A student was provided a sodium bicarbonate solution to determine its pH value. He put a few drops of this solution on the pH strip and observed that it:
(a) turned blue
(b) had no change
(c) turned red
(d) turned green

28. Resistance of 1Ω and 100Ω are arranged in parallel. The resultant resistance will be:
(a) More than 100 Ω
(b) Less than 100 Ω but not less
(c) Less than 1 Ω
(d) More than 1 Ω but not more than 100 Ω

29. Dilute NaOH solution and solid sodium carbonate:
(a) react only on heating
(b) react very slowly
(c) do not react
(d) react vigorously

30. Aditi, while setting up the experiment to show that CO_2 is evolved during respiration committed some errors, as shown in the figure below. The change in the set up that will give correct results is:



(a) KOH solution should be taken in the small test tube inside the flask and germinating seeds in the beaker
(b) Water should be taken in the beaker and KOH solution in the flask
(c) KOH solution should be taken in the flask and water be taken in the small test tube.
(d) KOH solution should be taken in the small test tube and water in the beaker.

31. Reddish – brown deposits will be seen on aluminium strip when it reacts with an aqueous solution of:
(a) $ZnSO_4$
(b) $Al_2(SO_4)_3$
(c) $CuSO_4$
(d) $FeSO_4$

32. The set of metal and chemical which will not react together is:
(a) Zn (s), $FeSO_4$ (aq)
(b) Al (s), $FeSO_4$ (aq)
(c) Zn (s), $CuSO_4$ (aq)
(d) Fe (s), $ZnSO_4$ (aq)

33. In an experiment to show that 'sunlight is necessary for photosynthesis', the leaf is boiled in alcohol for few minutes using a water bath. It is essential because:
(a) Alcohol is highly volatile
(b) Steam from the water bath heats the leaf rapidly
(c) Steam from the water dissolves the chlorophyll
(d) Alcohol is flammable

34. You have been provided with a fresh plucked leaf of Rheo or lily. What will you do to obtain the transparent leaf peel?

35. Ferrous sulphate decomposes with the evolution of a gas having a characteristic odour of burning sulphur. Write the chemical reaction involved and identify the type of reaction.

36. What are the factors on which the resistance of a conductor depends?