CLASS X (2019-20)
SCIENCE (CODE 086)
SAMPLE PAPER-2

Time : 3 Hours **Maximum Marks : 80**

General Instructions :

(i) The question paper comprises of three sections-A, B and C. Attempt all the sections.
(ii) All questions are compulsory.
(iii) Internal choice is given in each sections.
(iv) All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
(v) All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50-60 words each.
(vi) All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80-90 words each.
(vii) This question paper consists of a total of 30 questions.

SECTION A

Q1. The pH of a sample of vegetable soup was found to be 6.5. How is this soup likely to taste? [1]

Q2. What is an alkali? [1]

Q3. **Answer question numbers 3.1-3.4 on the basis of your understanding of the following paragraph and the related studied concepts.**

Metals occur in nature in the free as well as in the combined state. The less reactive metals are generally found in the free state. Most of the metals, however are found in the combined form as minerals. The minerals from which metals can be obtained on a commercial scale are called ores. In other words, the minerals from which metals can be extracted profitably are called ores. Thus, bauxite ($Al_2O_3 \cdot 2H_2O$) and clay ($Al_2O_3 \cdot 2SiO_2 \cdot 2H_2O$) are minerals of aluminium. However, it is bauxite that is chiefly used to obtain aluminium commercially. So, bauxite, and not clay, is an ore of aluminium.

3.1 Which metal occurs in native state? [1]

3.2 Write the name of the sulphide ore? [1]

3.3 What is native of Halide ore? [1]

3.4 Which is the most abundant metal on the earth's crust? [1]

Q4. **Question number 4.1 - 4.4 are based on the two tables given below study these table related to measurement of voltage and current and answer the question that follow**

Ideal measurement (Table – A)

S.N.	Voltmeter reading (mV)	Ammeter reading (mA)
1.	4	2
2.	6	3
3.	8	4
4.	10	5
5.	12	6

Table – B

Student	S.No.	Voltmeter reading (mV)	Ammeter reading (mA)
Student A	1. 2. 3.	2 4 6	1 2 3
Student B	1. 2. 3.	4 6 8	4 3 4

4.1 Which student measurement is wrong in the table B? [1]

4.2 What is the mathematical relation between voltage and current ? [1]

4.3 In the following measurement of student B. Which measurement is wrong? [1]

(a) I = 4, V = 4 (b) I = 3, V = 6

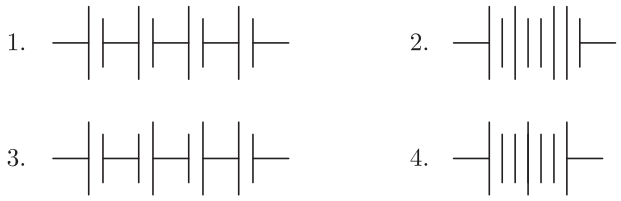
(c) I = 4, V = 8 (d) None of these

4.4 The value of resistance from the measurement of student A is [1]

(a) 2Ω (b) 3Ω

(c) 4Ω (d) 1Ω

Q5. The proper representation of series combination of cells (Figure) obtaining maximum potential is [1]

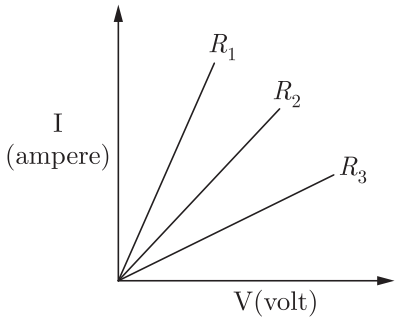


(a) 1 (b) 2

(c) 3 (d) 4

OR

A student carries out an experiment and plots the V-I graph of three samples of nichrome wire with resistances R_1, R_2 and R_3 respectively (Figure). Which of the following is true?



(a) $R_1 = R_2 = R_3$ (b) $R_1 > R_2 > R_3$

(c) $R_3 > R_2 > R_1$ (d) $R_2 > R_3 > R_1$

Q6. In order to determine the focal length of a concave mirror by obtaining the image of distant object on screen, the position of screen should be : [1]

(a) parallel to plane of concave mirror
(b) perpendicular to plane of concave mirror
(c) inclined at an angle 60° to plane of mirror
(d) in any direction with respect to the plane of concave mirror

Q7. After observing a permanent slide of binary fission, a student was asked to specify the total number of daughter cells formed from a single parent Amoeba at the end of binary fission. His reply would be : [1]
(a) one (b) two
(c) many in chains (d) not definite

Q8. The use of vaseline in the experiment to show that CO_2 is given out during respiration, is to [1]
(a) lubricate the joints
(b) make the set-up air-tight
(c) absorb oxygen
(d) absorb carbon dioxide

OR

A student was provided with a pH chart by the teacher and asked to observe the colour corresponding to pH 1 and 14 respectively. The correct answer would be :
(a) yellow, green (b) violet, orange
(c) red, blue (d) blue, mustard

Q9. While preparing a temporary stained mount of a leaf epidermal peel, the extra stain is removed by [1]
(a) washing with water
(b) washing with calcium chloride solution
(c) soaking with blotting paper
(d) absorbing with cotton wool

Q10. On adding acetic acid to solid hydrogen carbonate, a student observes the liberation of a : [1]
(a) greenish yellow gas with a pungent smell
(b) colourless and odourless gas
(c) yellow coloured and odourless gas
(d) colourless gas with the smell of rotten eggs

Q11. If water has magnesium sulphate dissolved in it, for testing its cleaning action, it is to be considered as : [1]
(a) permanent hard water
(b) hard water
(c) soft water
(d) temporary hard water

Q12. A metal powder was added to dil. HCl and dil. NaOH solutions taken in separate test tubes. On making the contents react in both the test tubes, hydrogen gas was formed in both the cases. The metal used will be: [1]
(a) Cu (b) Zn
(c) Fe (d) Pb

OR

Silver articles become black on prolonged exposure to air. This is due to the formation of

(a) Ag_3N (b) Ag_3O

(c) Ag_3S (d) Ag_3S and Ag_3N

For question numbers 13 and 14, two statements are given-one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.

(a) Assertion is true and reason is correct explanation of assertion.

(b) Assertion is true but reason is false.

(c) Assertion is false but reason is true.

(d) Both are true but reason is not correct explanation of assertion.

Q13. **Assertion**: Magnesium ribbon should be cleaned before burning in air.
Reason: Magnesium ribbon is coated with a thin layer of dust containing moisture. [1]

Q14. **Assertion**: Green plants are autotrophs.
Reason: Green plants synthesise their own food using sunlight, chlorophyll, carbon dioxide and water [1]

SECTION B

Q15. i. Write the chemical formula for washing soda.
ii. How may it be obtained from baking soda?
iii. Name an industrial use of washing soda other than washing clothes. [3]

Q16. Out of the elements H(1), Be(4), Na(11) and Mg(12). [3]
i. Write the pair of elements having similar chemical properties.
ii. State the group number of each pair,
iii. Name one another element belonging to each of these groups.

OR

Calcium is an element with atomic number 20. Stating the reason, answer each of the following questions:
i. Is calcium a metal or a non-metal?
ii. Will its atomic radius be larger or smaller than that of potassium with atomic number 19?
iii. Write the formula of its oxide.

Q17. Write an equation each for decomposition reactions, where energy is supplied in the form of heat, light or electricity. [3]

Q18. How does control and coordination take place in plants? [3]

OR

Explain the process of break down of glucose in a cell (i) in the presence of oxygen (ii) in the absence of oxygen.

Q19. What are plant hormones? Give its examples. [3]

Q20. How do Mendel's experiment show that traits are inherited independently? [3]

Q21. Name the hormones secreted by the following endocrine glands and specify one function of each:

(a) Thyroid (b) Pituitary (c) Pancreas [3]

Q22. Describe an activity to show that the colours of white light splitted by a glass prism can be recombined to get white light by another identical glass prism. Also draw ray diagram to show the recombination of the spectrum of white light. [3]

Q23. i Name and define SI unit of resistance.
ii. Calculate the resistance of a resistor if the current flowing through it is 200 mA, when the applied potential difference is 0.8 V. [3]

Q24. i. List the factors on which the resistance of a conductor in the shape of a wire depends.
ii. Why are metals good conductors of electricity whereas glass is a bad conductor of electricity? Give reason.
iii. Why are alloys commonly used in electrical heating devices? Give reason. [3]

OR

Name an instrument used for measuring electric potential difference by drawing a diagram. Show how this instrument is connected in an electric circuit. Why does this instrument practically not consume any electric energy from the electric circuit?

SECTION C

Q25. A carbon compound 'P' on heating with excess conc. H_2SO_4 forms another carbon compound 'Q' which on addition of hydrogen in the presence of nickel catalyst forms a saturated carbon compound 'R'. One molecule of 'R' on combustion forms two molecules of carbon dioxide and three molecules of water. Identify P, Q and R and write chemical equations for the reactions involved. [5]

Q26. Answer the following: [5]
i. How is zygote formed?
ii. State the function of placenta in the mother's body.
iii. At what interval the egg is formed in human female ovary?
iv. Name two STDs caused by bacterial infection.
v. Why is prenatal sex determination prohibited?

Q27. i. What is galvanised iron?
ii. How is iron galvanised?
iii. What is the advantage of galvanised iron?
iv. How does galvanised iron get its name? State its two uses. [5]

Q28. How does an artificial kidney or a dialysis machine work? [5]

OR

Give stepwise detail of the working of human kidneys leading to the formation of urine.

Q29. i. What is a magnetic field? How can the direction of magnetic field lines at a place be determined ?
ii. State the rule for the direction of the magnetic field produced around a current carrying conductor. [5]

Q30. It is desired to obtain an erect image of an object, using concave mirror of focal length of 12 cm.
i. What should be the range of distance of an object placed in front of the mirror?
ii. Will the image be smaller or larger than the object. Draw ray diagram to show the formation

of image in this case.

iii. Where will the image of this object be, if it is placed 24 cm in front of the mirror? Draw ray diagram for this situation also to justify your answer.
Show the positions of pole, principal focus and the centre of curvature in the above ray diagrams. [5]

OR

i. Define real image of an object.
ii. Name the mirror that
(a) can give real as well as virtual image of an object.
(b) will always give virtual image of same size of an object.
(c) will always give virtual and diminished image of an object.
(d) is used by a doctor in examining teeth.
iii. With the help of a ray diagram explain the use of concave mirror as solar concentrators.

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