

JSUNIL TUTORIAL

ACBSE Coaching for Mathematics and Science

SUMMATIVE ASSESSMENT - I, 2017

SCIENCE

Class - X

Time Allowed: 3 hours

Maximum Marks: 80

This question paper comprises of two Sections, (Section A and Section B)

Section A has 21 question (Theory based Question)

Q- 1 to 2 = 1 marks

Q-3 to 5 = 2 marks

Q- 6 to 15 = 3 marks

Q- 16 to 21 = 5 marks

Section B has 6 questions each carrying 2 marks (Practical based question)

Section A

1. How is the direction of electric Current related to the direction of flow of electrons and Positive charged ions? 1
2. Name the tissue that transports water and minerals in Plants. 1
3. Using balanced reaction (equation), explain the difference between a displacement reaction and double displacement reaction. 2
4. (i) What will happen if mucus is not secreted by the gastric glands? 2
(ii) What are the adaptations of leaf to carry out Photosynthesis?
5. Name and define the smallest commercial unit of electricity. 2
6. Name the hormone secreted by the thyroid gland in our body and write its functions. Why is the use of iodized salt advisable in our diet? 3
7. What is redox reaction? Identify the substance oxidized and the substance reduced in the following reactions. 3
(i) $2\text{PbO} + \text{C} \longrightarrow \text{Pb} + \text{CO}_2$
(ii) $\text{MnO}_2 + 4\text{HCl} \longrightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$
8. Does respiration take place in plants similar to that of human beings? States yes or no. Explain your choice with reasons. 3
9. How are involuntary actions and reflex actions different from each other? Give any three points. 3
10. Compare the power used in the $2\ \Omega$ resistor in each of the following circuits. 3
(i) A 6V battery in series with $1\ \Omega$ and $2\ \Omega$ resistors.
(ii) A 4V battery in parallel with $12\ \Omega$ and $2\ \Omega$ resistors.
11. Solar energy can be harnessed directly as well as indirectly. Give two examples of each type. 3
12. Two identical wires, one of nichrome and other of copper are connected in series and a current (I) is passed through them. State change observed in the temperatures of the two wires. Justify your answer. State the law which explains the above observation. 3
13. A hot plate of an electric oven Connected to 220 V line has two resistance Coils A and B, each of $24\ \Omega$ resistance, which may be used separately in series or in parallel. What are the currents in the three cases? 3
14. (i) Show the electron transfer between the atoms in the formation of NaCl. Write symbols of cation and anion present in NaCl. 3
(ii) Name the solvent in which ionic compounds are generally soluble.
(iii) Why are aqueous solutions of ionic compound able to conduct electricity?

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15. Identify the reducing agent in the following reactions.
- (i) $4\text{NH}_3 + 5\text{O}_2 \rightarrow 4\text{NO} + 6\text{H}_2\text{O}$ — Reducing agent NH_3 3
- (ii) $\text{H}_2\text{O} + \text{F}_2 \rightarrow \text{HF} + \text{HOF}$ — Fe
- (iii) $\text{Fe}_2\text{O}_3 + 3\text{CO} \rightarrow 2\text{Fe} + 3\text{CO}_2$ — Co
16. Explain the underlying principle and working of electric generator by drawing a labelled diagram. What is the function of brushes? 5
17. (i) Derive the expression for the heat produced due to a current (I) flowing for a time interval (t) through a resistor (R) having a potential difference (V) across its ends. 5
- (ii) With which name is the relation known?
- (iii) how much heat will an instrument of 12 w produce in one minute if it is connected to a battery of 12V?
18. (i) Give a schematic representation of transport and exchange of oxygen, Carbon dioxide in human beings. 5
- (ii) How is it beneficial to have large number of highly coiled nephron in our kidney?
19. (i) what is blood clotting? Why is it known to be useful mechanism? 5
- (ii) what is meant by heartbeat and what is the usual heartbeat at rest?
20. (i) What is meant by reactivity series of metals? 5
- (ii) Give reasons to justify that aluminium oxide is an amphoteric oxide. Give another examples of amphoteric oxide also.
- (iii) Mention Constituents metals presents in bronze.
21. (i) Explain the following chemical properties of acids with the help of balanced equations only. 5
- (a) When an acid reacts with a metal carbonate.
- (b) When acid reacts with a metal bicarbonate.
- (c) When an acid reacts with a metal oxide.
- (ii) You are given three solutions A, B and C with PH values 2, 10 and 13 respectively. Then which solution has more hydrogen ion concentration among the three and state the nature (acidic and basic) of each solution?

Section B

22. Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate X. Write the chemical reaction involved and also name the type of the reaction. 2
23. Why it is suggested to preferably take the leaf from a plant growing in a sunlight if we intend to observe a clear stomata in a temporary stain mount of a leaf peel? 2
24. Magnesium ribbon was heated in air then the powder obtained was dissolved in water. What will you observe when few of this solution are placed on blue and Red litmus paper? 2
25. Why are germinating seeds taken in the experiment to show CO_2 is given out during respiration? What would happen if germinating seeds are replaced by boiled seeds? 2
26. Draw a labelled diagram using a cell of two batteries, two resistors of 5Ω each connected in series, a plug, key and a Rheostat. 2
27. A student verifying Ohm's law computed the value of resistance of a resistor for each set of observation. However, the values of the resistance were slightly different from the actual value. Is this experiment wrong? Justify your answer. 2