



SESSION 2016 - 17

CANDIDATE'S NAME:

SUMMATIVE ONE EXAMINATION

SUBJECT: SCIENCE

Sheetal

CLASS: X

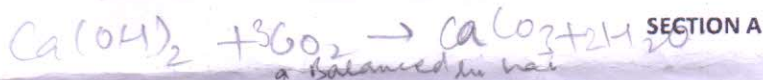
DATE OF EXAMINATION: -14/09/2016

General Instructions:

1. This Question Paper contains...6...printed pages.
2. Please check that this questions paper contains...36....questions. All are compulsory.
3. Marks for Questions are indicated against each of them
4. This question paper consists of two sections, Section A comprising of theory based questions and Section B comprising of practical skills based questions.
5. 15 minutes time has been allotted to read this question paper. The Question paper will be distributed at 8:15 am. From 8:15 am to 8:30 am students will read the Question paper only and will not write any answer on the answer book during this period.
6. Nine multiple choice questions of 1 mark each to be attempted in the answer sheet. Correct option number along with the statement should be written.
7. Three practical based questions of 2 marks each also needs to be attempted in the answer sheet.

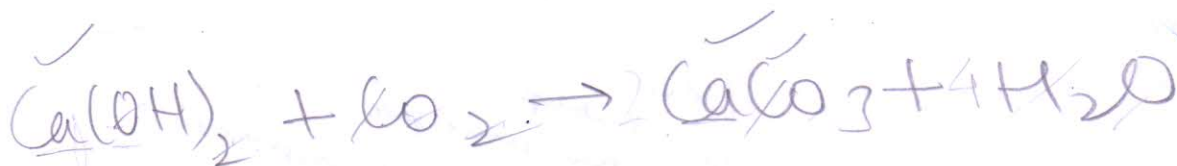
DURATION OF EXAMINATION: 15 minutes (Reading Time) + 3 hours (Writing Time)

MAXIMUM MARKS: 90



SECTION A

- Q1. Write the balanced chemical equations for the following reactions: 1
- a. Calcium hydroxide + carbon dioxide \longrightarrow Calcium carbonate + water
- b. Aluminium + copper chloride \longrightarrow Aluminium chloride + copper
- Q2. Which part of the brain maintains posture and equilibrium of the body? 1
- Q3. Seven solutions A, B, C, D, E, F and G have pH 1, 2, 7, 9, 11, 13 and 14 respectively. 1
- a. Identify which of them is strongly acidic and weakly basic.
- b. Which of the above solution will turn phenolphthalein pink?
- Q4. A coil 'A' of insulated copper wire is connected to a galvanometer. What would you observe when: 2
- a. A current carrying coil 'B' is brought near 'A'
- b. Strength of current in coil 'B' is changed.
- Q5. Balance the following equations and identify the type of reactions: 2
- a. $\text{Fe(OH)}_3 \longrightarrow \text{Fe}_2\text{O}_3 + \text{H}_2\text{O}$
- b. $\text{HgO} \longrightarrow \text{Hg} + \text{O}_2$



- Q6. a. Zinc liberates hydrogen gas when reacted with dilute hydrochloric acid, whereas copper does not. Explain why? 2
 b. A silver article generally turns black when kept in the open for few days. The article when rubbed with toothpaste again starts shining.
 I. Why do silver articles turn black when kept in the open for few days? Name the phenomenon involved.
 II. Name the black substance formed.

- Q7. a. Name three forms in which energy from ocean is made available for use. 3
 b. What are OTEC power plants?
 c. How do they operate?

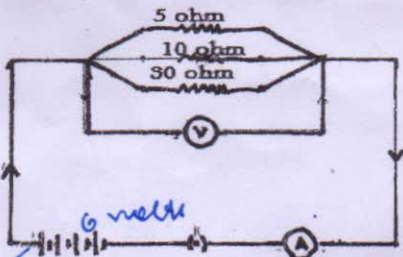
- Q8. a. Salt A commonly used in bakery products on heating gets converted into another salt B which itself is used for removal of hardness of water and a gas C is evolved. The gas C when passed through lime water turns it milky. Identify A, B and C. 3
 b. Which of the following is acidic salt and why:
 Sodium carbonate, copper sulphate, sodium chloride

- Q9. a. What is the standard color code followed for the following wires used in the electric circuit: 3
 i) Live ii) Neutral iii) Earth
 b. Which part of an electrical appliance is earthed and why?

- Q10. Define reflex arc. Give a flow chart of a spinal reflex arc? 3

- Q11. Give reasons for the following: 3
 a. Carbonate and sulphide ores are usually converted into oxides prior to reduction during the process of extraction.
 b. Hydrogen is not evolved when a metal reacts with nitric acid.
 c. Highly reactive metals cannot be obtained from their oxides by heating with carbon.

- Q12. For the circuit shown in the diagram below, calculate: 3



- a. The total effective resistance of the circuit
 b. The total current in the circuit **2 A**
 c. Value of current through each resistor
- Q13. a. Explain the formation of ionic compound Magnesium chloride with electron dot structure. Atomic number of magnesium is 12 and oxygen is 8 respectively. 3
 b. Why ionic compounds in general have high melting and boiling points.
 c. From amongst the metals sodium, calcium, aluminium, copper and magnesium, name the metal:
 I. Which reacts with water only on boiling
 II. Which does not react even with steam

- Q14. Leaves of healthy potted plant were coated with Vaseline. Will this plant remain healthy for long? Give three reasons for your answer. 3

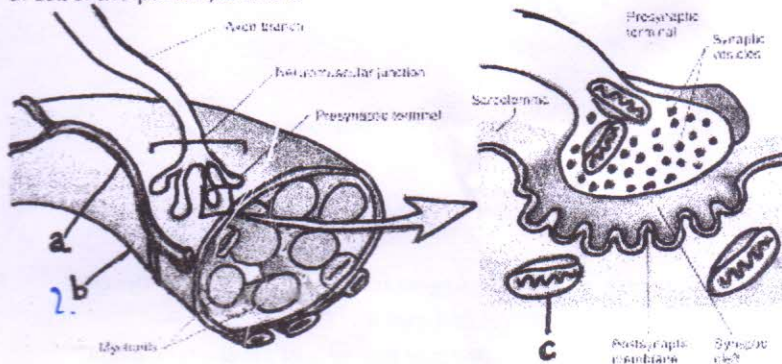
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 glass
 reflect light
 prevent transpiration, respiration

Q15. In a household, 5 tube lights each of 40 W are used for 5 hours and an electric press of 500 W for 4 hours everyday. Calculate the cost of using tube lights and the electric press for the month of July and August, if the cost of 1 unit of electrical energy is Rs 2.50.

3

Q16. a. Label the parts a, b and c

3



b. How do auxins promote the growth of a tendril around the support?

Q17. a. What is Biogas?

3

b. How can biogas be obtained?

c. Why is the use of biogas obtained from cow dung advised in preference to burning of cow dung cakes?

Q18. a. Write the name given to base that are highly soluble in water. Give an example.

3

b. How is tooth decay related to pH. How can it be prevented?

c. Why do HCl, HNO₃ etc. show acidic characters in aqueous solutions while solutions of compounds like alcohol and glucose do not show acidic character?

Q19. a. Draw the pattern of magnetic field lines through and around a current carrying solenoid. What does the magnetic field pattern inside the solenoid indicate?

5

b. How can this principle be utilized to make an electromagnet?

c. State two ways by which the strength of this electromagnet can be increased.

Q20. a. When electricity is passed through a common salt solution, sodium hydroxide is produced along with the liberation of two gases 'X' and 'Y'. X burns with a pop sound whereas Y is used for disinfecting drinking water.

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i. Identify X and Y.

ii. Give the chemical equation for the reaction stated above.

iii. State the reaction of Y with dry slaked lime.

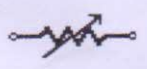
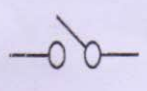
b. A compound 'X' of sodium is commonly used in kitchens for making crispy pakoras. It is also used for curing acidity in the stomach. Identify 'X'. What is its chemical formula? State the reaction which takes place when it is heated during cooking.

Q21. a. How does urine formation take place in our bodies? Explain the steps with the help a neat and well labeled figure?

5

b. Why is double circulation necessary in birds and mammals? (Give four points)

- Q22. a. Name an instrument that measure electric current in a circuit. Give the unit of electric current.
 b. What do the following symbols mean in a circuit diagram?



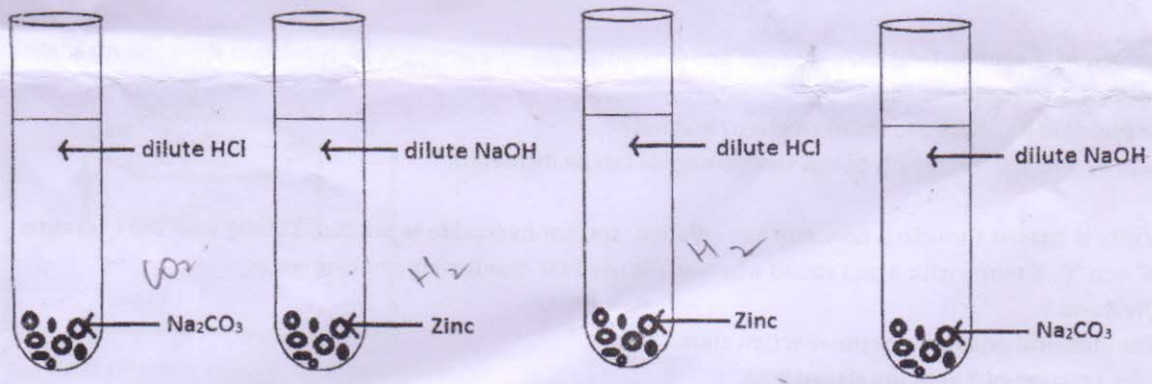
- c. By giving reason explain how the resistance of the conductor will varies if:
 a. Area is halved
 b. Length is doubled
 c. Both area and length are doubled

- Q23. a. An ore on heating in air produces sulphur dioxide. Which process would you suggest for its concentration? Describe briefly any two steps involved in the conversion of this concentrated ore into related metal.
 b. Give reason to justify that aluminium oxide is an amphoteric oxide. Also give another example of amphoteric oxide.
 c. Name the reaction involved in joining of railway tracks. Write a chemical equation for the same.

- Q24. a. Six equal resistors of $1\ \Omega$ each are connected to form the sides of a hexagon ABCDEF. Calculate the resistance offered by the combination if the current enters at A and leaves at D. $1.5\ \Omega$
 b. Derive an expression for heat produced in a conductor when an electric current flows through it.

SECTION-B

- Q25. Four students were asked by their teacher to arrange the set-ups- I-IV as given below and identify the gas evolved in each case if any.



After observations, they arrived at the following inferences and recorded them in the form of a table given below:

Student	I	II	III	IV
A	Hydrogen	No gas	Carbon dioxide	Hydrogen
B	Carbon dioxide	Hydrogen	No gas	Carbon dioxide
C	Carbon dioxide	Hydrogen	Hydrogen	No gas
D	No gas	Carbon dioxide	Carbon dioxide	Hydrogen

The correct observations and influences have been reported by student

- a. A
 b. B
 c. C
 d. D

$Na_2CO_3 + HCl$

$2Zn + HCl \rightarrow ZnCl_2 + H_2 \uparrow$

$2Zn + NaOH \rightarrow Na_2ZnO_2 + H_2 \uparrow$

Metal + Acid \rightarrow Salt + H_2
 Base

Q26. Four students A, B, C, D make the records given below, for the parts marked X and Y in this diagram. 1

Student	X	Y
A	Stoma	Guard cell
B	Guard cell	Stoma
C	Epidermal cell	Stoma
D	Stoma	Epidermal cell



The correct record out of these is that of student:

- a. A b. B c. C d. D

Q27. When a student added zinc granules to dilute hydrochloric acid, a colourless and odourless gas evolved. On testing with a burning matchstick it was observed that the matchstick: 1

- a. Continued to burn brilliantly
 b. Burnt slowly with a blue flame
 c. Extinguished and the gas burnt with pop sound
d. Continued to burn brilliantly and the gas burnt with a pop sound.

Q28. Which one of the following forms of energy leads to least environmental pollution in the process of its harnessing and utilization? 1

- a. Nuclear energy b. Thermal energy
c. Solar energy d. Geothermal energy

Q29. The steps, necessary for setting up the experiment, "To demonstrate that light is necessary for photosynthesis" are not given here in proper sequence. 1

- I. Keep the potted plant in sunlight for 3 to 4 hours. 3
 II. Keep the potted plant in darkness for about 48 hours. 1
 III. Cover a leaf of the plant with a strip of black paper. 2
 IV. Pluck the leaf and test it for starch. 4

The correct sequence of steps is

- a. I, III, IV, II b. I, IV, III, II c. II, IV, III, I d. II, III, I, IV

Q30. Overloading is a phenomena of more 1

- a. Voltage b. Current
 c. Resistance d. Resistivity

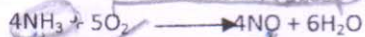
Q31. When asked to set up an experiment to show that 'light is essential for photosynthesis', Rahul ran to the school garden and set up the experiment by using a plant growing in the school garden. However his experiment failed. His classmates made following suggestions to get success in the experiment: 1

- Nidhi: Safranin should be used instead of iodine.
 Surbhi: the leaf should not be boiled in alcohol to remove chlorophyll before testing for starch.
 Ramesh: Transparent paper should be used instead of black paper.
 Vinod: The leaf should be destarched before starting the experiment.

The correct suggestion is given by

- a. Nidhi b. Surbhi c. Ramesh d. Vinod.

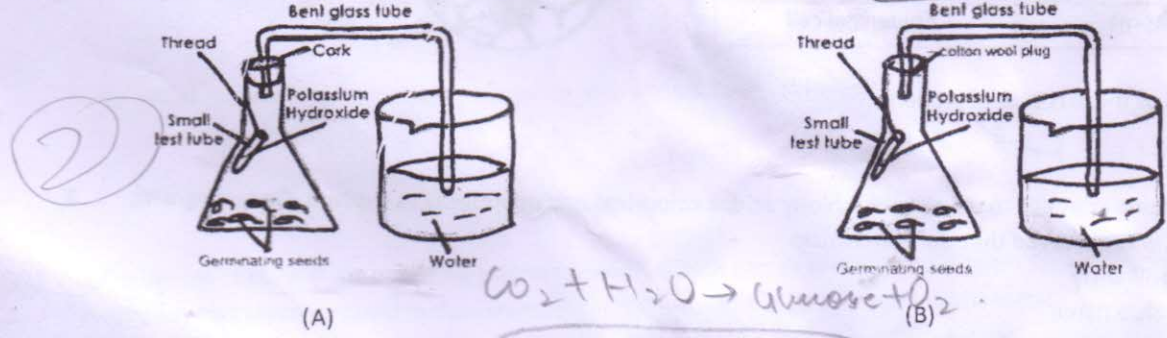
Q32. In the reaction given below, the reducing agent is: 1



- a. NH₃ b. O₂
 c. NO d. H₂O

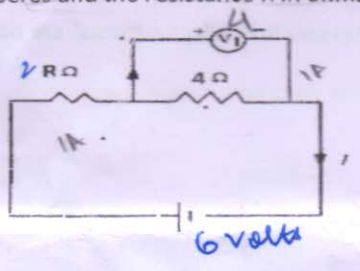
Q33. Starch test in a foodstuff solution can be tested by: 1
 a. Water b. Test tube c. Iodine d. Saliva

Q34. Following experimental setups were kept in the laboratory to show that 'CO₂ is given out during respiration'. 2



After two hours students observed that water rises in the delivery tube:
 a. Only in Set up A b. Only in Set up B
 c. In both Set A and B d. Neither in Set A or set up B

Q35. In the arrangement shown below the voltmeter connected across 4 Ω reads 4 V. Find out the value of the current I in Amperes and the resistance R in ohms. 2



Handwritten calculations:
 $V = IR$
 $4 = I \cdot 4$
 $I = 1$
 A.I.A = current

Q36. Observe the two test tubes A and B in the diagram given below and answer the following questions: 2

- In which test tube will reaction take place?
- Write a balanced equation for the reaction.
- Name the type of reaction.

