Vidit

DELHI PUBLIC SCHOOL, ROHINI
SUMMATIVE EXAMINATION I (2012-2013)
Class: X
Subject: Science (Set 2)

Time allowed: 3 hrs **M.M: 90**
No. of pages - 8

General Instructions:
1. The question paper comprises of two sections, A and B. You are to attempt both the sections.
2. All questions are compulsory.
3. There is no overall choice. However, internal choice has been provided in all the questions of five marks category. Only one option in such question is to be attempted.

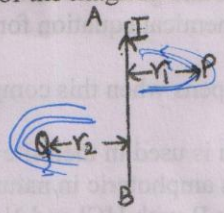
SECTION A

Q1 Give reason why metals conduct electric charges easily? 1

Q2 What is the advantage of the third wire of earth connection in domestic electric appliances? 1

Q3 Construction of big Dams causes large ecosystems to submerge under the water. What are the ill effects of the above-mentioned condition? 1

Q4 AB is a current carrying conductor in the plane of the paper as shown in figure. Draw the directions of magnetic fields produced by it at points P and Q? Given $r_1 > r_2$ where will the strength of the magnetic field be larger and why? 2



Q5 A current of 1 A flow through the filament of an electric bulb. What is the number of electrons passing through a cross-section of the filament in 16 seconds? 2

Q6 Complete the following equations: 2
a) $Zn(OH)_2 + H_2CO_3 \rightarrow$
b) $Ca(OH)_2 + Cl_2 \rightarrow$

Q7 Give reason: "Domestic use of solar cells is limited". (Two reasons) 2

Q8 a) What is electrical resistivity? Write its S.I unit. 3
b) In a series electrical circuit comprising a resistor made up of a metallic wire, the ammeter reads 5A. The reading of the ammeter decreases to half when the length of the wire is doubled. Why?

Q9 a) Name any two devices that use current carrying conductors and magnetic fields. 3

b) State the rule to determine the direction of force experienced by a current carrying conductor placed in a magnetic field. How will this force get affected on:

i) Doubling the magnitude of current?

ii) Reversing the direction of current flow?

Q10 Two room heaters are marked 220V, 500W and 220V, 800W respectively. If the heaters are connected in parallel to 220V mains supply, calculate 3

a) resistance of each heater

b) the energy consumed in when they operate for 2hours.

Q11 a) Which effect of the electric current is utilized in the working of an electrical fuse? A fuse is connected in series or in parallel in household circuit? 3

b) Why is the filament of the bulb made up of tungsten? Write its characteristics.

Q12 a) What change is observed if white silver chloride is placed in sunlight? Write an equation for the reaction and name the type of the reaction. 3

b) Identify the substance oxidized and reduced in the following reaction:

$$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$$

Q13 a) What are double displacement reactions? Give one example. 3

b) State two ways by which food industries prevent rancidity.

Q14 A chemical compound X is used in soda acid fire extinguisher and is also an ingredient in antacids. 3

a) Identify X and give its chemical formula.

b) Write a chemical equation for its preparation starting from sodium chloride

c) What happens when this compound is strongly heated?

Q15 A metal A, which is used in thermite process, when heated with oxygen gives an oxide B, which is amphoteric in nature. Identify A and B. Write down the reactions of oxide B with HCl and NaOH. 3

Q16 Give reasons: 3

a) Zinc does not give hydrogen gas on reacting with HNO_3

b) Sodium is kept immersed in kerosene.

c) Carbonate and sulphide ores are usually converted into oxides during the process of extraction.

$Al_2O_3 + NaOH \rightarrow NaAlO_2$

$Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$

Q17 a) What is the role of Bile juice in digestion of Food?(Give two functions) 3

b) Name the site for:

i) Breakdown of glucose into pyruvate
ii) Anaerobic respiration in Man.

Q18 a) How do plant cells change shape to cause movement? 3
b) What is the difference between actions like watering of mouth on smelling good food and going for a morning walk?

Q19 a) What is the composition of Biogas? 3
b) How is nuclear power generation a contributor towards environmental contamination?

Q20 a) A coil of copper wire is connected to a galvanometer. What would happen if a bar magnet is 5
i) pushed into the coil with its north pole entering first?
ii) held at rest inside the coil?
iii) pulled out again?
iv) pushed into the coil with its south pole entering first?

b) Draw a schematic labelled diagram of a domestic circuit consisting of
i) main fuse ii) electricity board's fuse electricity meter
iii) one light point and iv) one power plug.

OR

Q20 a) Write any two properties of magnetic lines of force. 5
b) Draw the magnetic field lines of the field produced due to a current carrying circular loop. Name any two factors on which the magnitude of the magnetic field due to this coil depends.

Q21 a) A compound, which is prepared from gypsum, has the property of hardening when mixed with proper quantity of water. Identify the compound and write the chemical equation of its preparation. 5
b)Give reasons:
i) Milk of Magnesia acts as an antacid.
ii) An acid should be added to water while diluting
iii) Colour of copper sulphate crystals changes on heating

OR

Q21 a) Complete the reaction: 5
$CaCO_3 + H_2O + CO_2 \rightarrow$ $Ca(HCO_3)_2$
b) What will you observe when dilute hydrochloric acid is added to a small amount of copper oxide in a beaker? Give the chemical equation involved.
c) Name and give the formulae of the acid and base needed for the formation of the following salts:
i) Aluminum carbonate ii) Ammonium sulphate
$Al_2(CO_3)_3$ NH_4SO_4

Q22 a) Show the formation of calcium oxide by transfer of electrons and name the ions present in it. 5
CaO
b) Give the balanced chemical equation for the reaction between Aluminum and steam. $Al + H_2O \rightarrow Al_2O_3 + H_2$

c) State two physical properties of gold, which are of extreme use to jewellers.

OR

Q22 a) A metal A that exists as a liquid at room temperature is obtained from its sulphide ore. Identify the metal A. Name the ore and write the equations involved in the extraction of this metal from this sulphide ore. 5

b) Calcium metal starts floating on the surface of water when reacted with water. Why? Explain with the help of the chemical equation involved.

Q23 a) Leaves of a healthy Potted Plant were coated with Vaseline. Which two processes will get affected by it? 5

b) Give any two differences between Respiration and Breathing.

c) Draw a neat-labeled diagram of V.S of a Leaf.

OR

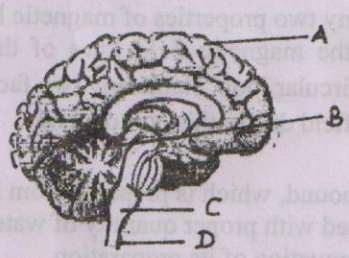
Q23. a) Justify the statement, 'Plants can tolerate a slower transport system as compared to Animals'. 5

b) Draw a neat-labeled Diagram of Digestive System in Man.

Q24 a) State the Function of the Following Hormones: 5

i) Thyroxin ii. Insulin.

b) In the Given Diagram Label Parts A, B, C and D.



c) What happens at the synapse between two neurons?

OR

a) Name the Plant hormone responsible for the given functions in plants:

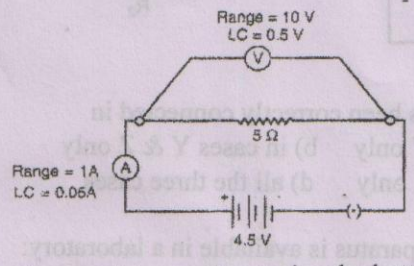
i. Elongation of the shoot apex ii. Growth of the stem

iii. Promotion of cell division iv Falling of Leaves.

b) Give a heading to the process shown in the diagram given below and explain the process in context with the phyto hormone involved in the process.

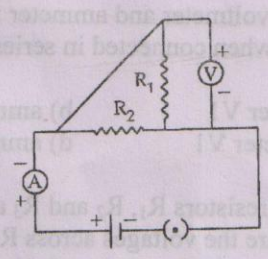
SECTION B

Q25 The voltmeter, ammeter and resistance in the circuit shown have been checked to be correct. On plugging the key, the ammeter reads 0.9A, but the voltmeter reads zero. This could be because: 1



a)The range of voltmeter is more than twice the battery voltage
b) least count of voltmeter is too high
c) voltmeter is incorrectly placed in the circuit
d) the wires joined to the voltmeter terminals are loose

Q26 Which of the circuit components in the given figure are connected in parallel 1



a)R_1 and R_2 only b) R_2 and V only c) R_1 and V only d) R_1 and R_2 only &V

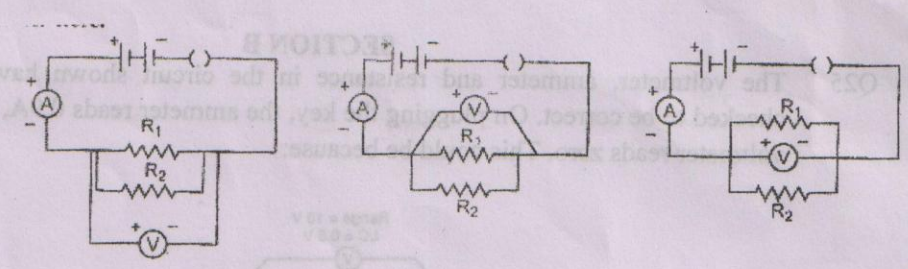
Q27 The current flowing through a conductor and the potential difference across its two ends are as per readings of the ammeter and the voltmeter shown below. The resistance of the conductor would be 1

The value of the resistance of the resistor is

a) 1 b) 10 c) 20 d) 25

Q28 In the experiment on finding the equivalent resistance of two resistors connected in parallel three students connected the voltmeter in their circuits in the three ways 1

X, Y and Z shown here :



The voltmeter has been correctly connected in

a) in cases X & Y only b) in cases Y & Z only

c) in cases Z & X only d) all the three cases

Q29 The following apparatus is available in a laboratory: 1

Cell : adjustable from 0 to 4.5V

Resistors : 3Ω and 6 Ω

Ammeters : A1 of range 0-3A and least count 0.1A

A2: range 0-1A and least count 0.05A

Voltmeter : V1: range 0-10V and least count 0.5V

V2: range 0-5V and least count 0.1V

The best combination of voltmeter and ammeter for finding the equivalent resistance of two resistors when connected in series would be

a)ammeter A1and Voltmeter V1 b) ammeter A1and Voltmeter V2

c) ammeter A2 and Voltmeter V1 d) ammeter A2and Voltmeter V2

Q30 In an electric circuit, three resistors R_1, R_2 and R_3 are connected in series such that $R_2 = R_3$. If V_1, V_2 and V_3 are the voltages across R_1, R_2 and R_3 respectively, then 1

a)$V_1 = V_2$ b) $V_1 = V_3$ c) $V_2 = V_3$ d) $V_1 = V2 = V_3$

Q31 When a student added zinc granules to dilite HCl, a colourless and odourless gas was evolved, which was tested with a burning matchstick, it was observed that 1

a) the matchstick continued to burn brilliantly

b) the matchstick burnt slowly with a blue flame

c) the matchstick extinguished and the gas burnt with pop sound

d) the matchstick burnt with a blue flame.

Q32 When drops of blue litmus solutions are added to dil. HCl and aqueous NaOH taken in two different test tubes A and B respectively, what will be the colour changes occurring? 1

a) blue to red in both A and B. b) no change in both A and B

c) blue to red in A and no change in B d) blue to red in B and no change in A.

Q33 A student was given four unknown colourless samples labelled A, B, C, and D and asked to test their pH with pH paper. He observed the following colour 1

changes

A - gives light green
B - dark red
C - light orange
D - dark blue

The correct sequence of increasing order of pH samples is

a) A < B < C < D
b) A < D < C < B
c) C < B < A < D
d) B < C < A < D

Q34 To show that zinc is more reactive than copper, the correct procedure is to 1

a) Prepare copper sulphate solution and dip zinc strip in it
b) Prepare zinc sulphate solution and dip copper in it
c) Heat zinc and copper strips
d) Add water to both the strips

Q35 When crystals of $FeSO_4$ are strongly heated the residue obtained is 1

a) red in colour
b) blue in colour
c) green in colour
d) colourless.

Q36 When aqueous solutions of sodium sulphate and barium chloride are mixed together we find that the reaction mixture : 1

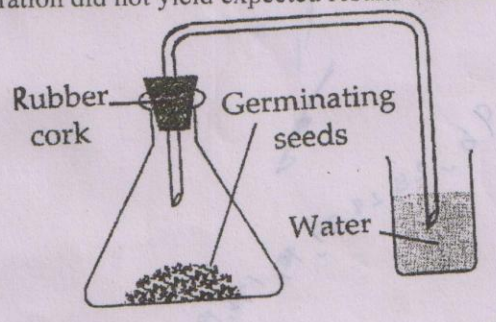
a) turns red
b) forms a white precipitate
c) forms a yellow precipitate
d) remains colourless

Q37 A well stained leaf peel mount of a dicot leaf, when observed under high power of the microscope shows nuclei in: 1

a) Guard cells only
b) Epidermal cells only.
c) Both guard cells and epidermal cells
d) Neither guard cells nor Epidermal cells.

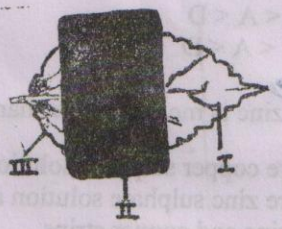
1

Q38 The experimental setup shown below to demonstrate that carbon-dioxide is given out during respiration did not yield expected results because:



a)The flask was not air tight
b) There was no KOH in a specimen tube inside the flask.
c) the delivery tube was dipped in water.
d) the germinating seeds were not immersed in water.

Q39 Given below is the sketch of a leaf covered with black paper. At the end of the experiment, which of the parts labeled I, II, and III will turn blue black when dipped in Iodine Solution: 1



a) Only I b) Only II c) I and III d) II and III

Q40 A leaf is boiled in alcohol before starch test in order to dissolve: 1
a) Starch b) Chlorophyll c) Cuticle d) Epidermal cells

Q41 Stomata plays an important role in: 1
a) Respiration b)Transpiration c)Photosynthesis d) All the Above.

Q42 What is the role of KOH in the experiment to test that carbon-dioxide is given out during respiration: 1
a) Absorb Oxygen b) Absorb Residual air
c) Absorb environmental carbon-dioxide
d) Absorb carbon dioxide given out by germinating seeds.