

D.A.V.PUBLIC SCHOOL,IB VALLEY AREA,MCL,BRAJNAGAR
SUMMATIVE- (2015-2016)

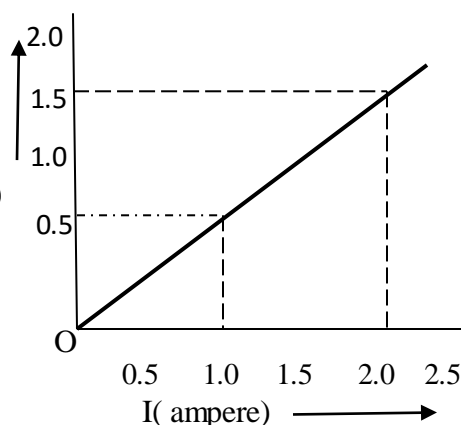
Std : X

Sub :Science

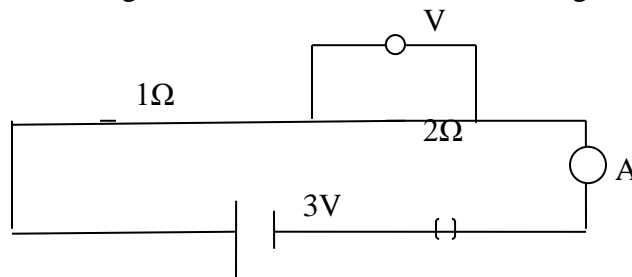
1. State and define the unit of current. [1]
2. State the property of black surface which is used in the working of solar heaters. [1]
3. Balance the chemical equation given below. [1]

$$Fe + H_2O \rightarrow Fe_3O_4 + H_2$$
4. A piece of wire having resistance of R is cut into four equal parts.
 - a. How is the resistance of each part compared with the original resistance?
 - b. If the four parts are placed in parallel, how is the resistance of combination compared with the resistance of original wire? [2]
5. What are the products of carbohydrates, proteins and fats after digestion? [2]
6. Crystal of some substance change their colour on heating on a closed vessel but regained it after some time, when they were allowed to cool down. [2]
 - a. Name one substance.
 - b. Explain the phenomenon involved
7. State three advantages associated with using solar cells to produce electricity. [3]
8. A group of farmers teamed together to set up a biogas plant close to their farms. List any six advantages that they would be able to derive from plant. [3]
9. An electric circuit consisting of a 1.0 m long metallic Wire XY, an ammeter, a voltmeter, 4 cells of 1.5 V Each and a plug key was set up. [3]

- a. Draw a schematic diagram of this electric circuit in the 'On' position.
- b. The graph alongside was plotted between the V(volt) values of potential difference (V) and current (I).
- c. What conclusion do you draw between V & I from this graph? State the relation in your words.



10. What would be the reading of ammeter and voltmeter in the given circuit? [3]



11. (i) Distinguish between the terms electrical resistance and resistivity of a conductor .
 (ii) A copper wire resistivity 1.6×10^{-4} ohm-metres has a cross-sectional area of $20 \times 10^{-4} \text{ cm}^2$. Calculate the length of this wire required to make a 10 ohm coil. [3]
12. (i) State the function of 'a fuse' in a circuit. How is it connected in the domestic circuit?
 (ii) An electric fuse of rating 3 A is connected in a circuit in which an electric iron of power 1kW is connected which operates at 220 V . What would happen? Explain. [3]

13. (a) Classify the following reactions into different types [3]
- $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$
 - $CaO + H_2O \rightarrow Ca(OH)_2$
 - $2KClO_3 \rightarrow 2KCl + 3O_2$
- (b) Which of the above reaction is precipitation reaction? Why this reaction is called precipitation reaction?
14. (a) What is redox reaction? Identify the oxidizing and reducing agent in the following reaction. $CuO + H_2 \rightarrow Cu + H_2O$ [3]
- (b) Why is Nitrogen gas flushed in packaging of dry food stuffs
15. When electricity is passed through the common salt, Sodium hydroxide is produced along with liberation of two gases 'X' and 'y'. X burns with a pop sound whereas Y is used for disinfecting drinking water.
- Identify 'X' and 'y'
 - Give the chemical reaction for the reaction stated above.
 - Write the chemical equation of Y with dry slaked lime. [3]
16. Write the electronic configuration of Sodium and chlorine and explain the formation of sodium chloride by electron dot structure. State the types of bonding formed and any properties of the compounds formed. [3]
17. Nishant is a lazy boy. He does not like to brush his teeth. He only rinses his mouth. His mother makes sure that he brushes his teeth twice daily.
- Why does Nishant's mother insist him to brush twice a day?
 - How is tooth paste better than just water for cleaning teeth?
 - What values are promoted by Nishant's mother? [3]
18. Which part of the nervous system controls reflex arcs? With the help of diagram trace the sequence of events which occur when we touch a hot object. [3]
19. Draw the pattern of magnetic field lines through and around a current carrying solenoid. What does the magnetic field pattern inside the solenoid indicate? How can this principle be utilized to make an electromagnet? State two ways by which strength of this electromagnet can be increased? [5]
20. Two resistors with resistance $10\ \Omega$ and $15\ \Omega$ are connected to a battery of 12 V so as to obtain and measure (i) minimum electric current (ii) maximum electric current.
- State the mode of connecting the resistors in each case with help of a circuit diagram.
 - Calculate the strength of total electric current in the circuit in each case. [5]
21. Salt 'A' commonly used in bakery industries. [5]
- On heating gets converted into another salt 'B' and a gas 'C' is evolved
 - Salt 'B' after re-crystallisation is used for removing hardness of water.
 - The gas 'C' when passed through lime water turns milky.
- Identify A, B and C, write the balanced chemical equation for each step from (i) to (iii)
22. (a) What is electrolytic reduction [5]
- (b) How is impure copper refined by electrolyte refining? Explain with the help of a diagram and write the reactions occurring at cathode and anode.
23. Answer the following questions.
- Draw the diagram of human heart and label the parts which: (5m)
 - Receive deoxygenated blood from vena cava.
 - Send deoxygenated blood to lungs through pulmonary artery.
 - Receive oxygenated blood from lungs.

- iv. Send oxygenated blood to all parts of the body through aorta.
- b. Write two functions of blood. [5]
24. Answer the following questions.
- a. What causes tendrils to encircle or coil around the object in contact with it? Explain the process involved.
- b. What is chemotropism? Give one example. [5]

Multiple choice question

25. Stoma open when guard cells are [1]
 a. Swollen b. Non-swollen c. Flaccid
26. Both b and c .Leaf peel is stained with [1]
 a. Iodine b. Safranin c. Methylene blue d. Eosine
27. The best result for the experiment that light is necessary for photosynthesis would be yield by using leaves from plant that was initially kept for over 24 hours [1]
 a. In a pitch dark room b. In dark room with table lamp switched on
 c. In the garden d. In the garden with glass case
28. Before setting a pan experiment to show that seed release carbon dioxide during respiration, the seed should be [1]
 a. Dried completely b. Boiled to make them soft
 c. Soaked in vinegar d. Kept moist till they germinate
29. In an experiment to study the dependence of current on the potential difference across a given resistor ,four students P, Q, R and S kept the plug key in the circuit closed for time t1 and then open for time t2 as given in the table below .

Student	Closed T2 (s)	Open T1(s)
P	30	60
Q	60	30
R	60	15
S	45	15

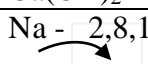
- The best choice of open and closed time is that of student [1]
 a. P b. Q c. R d. S
30. While performing the experiment to study the dependence of current on potential difference, if the circuit that is used to measure current and voltage is kept 'on' for a long time, then [1]
 (a) the voltmeter will start giving wrong readings
 (b) the ammeter's zero error will change
 (c) the resistor will get heated up changing the value of 'R'
 (d) the potential difference of the cell will change .
31. When few drops of universal indicator were added to a dilute solution of HCl, it is observed that the colour of the solution changes from [1]
 (a) Colourless to blue (b) Colourless to red
 (c) blue to colourless (d) colourless to green

32. Aluminium powder is added to a solution of copper sulphate. The colour of the solution changes from [1]
- (a) Colourless to blue (b) blue to colourless
(c) light green to blue (d) redish brown to light green
33. When a student added zinc granules to dilute HCl, a colourless and odorless gas evolved. On testing with a burning match stick it was observed that the match sticks [1]
- (a) Continued to burn brilliantly
(b) Burnt slowly with blue flame
(c) Extinguished and the gas grunt with a pop sound
(d) Continued to burn brilliantly and the gas burnt with a pop sound.
34. When a (60 W, 220V) bulb and a (100 W, 220 V) bulb are connected in series, then which bulb will glow brighter? [2]
35. What will happen if setup is not airtight in the experiment of carbon dioxide is produced during respiration? [2]
36. On adding a few drops of phenolphthalein to a dilute solution of sodium hydroxide a pink colour is produced . What will be the colour of the final mixture when excess *HCl* is added to it? Give reason. [2]

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SUMMATIVE- (2015-2016)
MARKING SCHEME

Std: X

Sub: Science

Q. No.	Answer / Hints	Marks	Total Marks
1.	Name & definition	½+½	1
2.	One property	1	1
3.	$3\text{Fe} + 4\text{H}_2\text{O} \longrightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$	1	1
4.	Calculation of resistance of each part Calculation of combined resistance	1 1	2
5.	Carbohydrate - Glucose Protein - Amino acid Fat - Glycerol and fatty acids	½ ½ ½ + ½	2
6.	a) Becomes colourless on heating as it loses its water of crystallization. Appearance of colour again due to absorption of moisture from air.	1+1	2
7.	Any six advantages	½+½+½+½ +½+½	3
8.	Required diagram Conclusion & relation	1 1+1	3
9.	Diagram Conclusion drawn Relation in wards	1 1 1	3
10.	Calculation for ammeter reading Calculation for voltmeter reading	1½+1½	3
11.	Distinction between resistivity & resistance Calculation of length of the wire	1½+1½	3
12.	Function & Connection Calculation & Explanation	½+½ 1+1	3
13.	Precipitation reaction Combination Decomposition (i) as insoluble white precipitate of AgCl is formed in the reaction mixture	½ ½ ½ 1½	3
14.	The reaction in which oxidation and reduction reaction takes place simultaneously. o.A -CuO R.A-H ₂ Nitrogen is an inert gas. it protects the food materials from rancidity.	1 1 1	3
15.	I) X-----H ₂ , y-----Cl ₂ II) $2\text{NaCl} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2 + \text{Cl}_2$ iii) Bleaching powder is formed $\text{Ca}(\text{OH})_2 + \text{Cl}_2 \rightarrow \text{CaOCl}_2 + \text{H}_2\text{O}$	1 1 1	3
16.	Na - 2,8,1 Cl -2,8,7  (Na) .Cl: → Na ⁺ Cl ⁻ → NaCl Ionic bond Solutions of ionic compounds conduct electricity. They have high m.p and b.p.	½ ½ 1 1	3

17.	i) To protect the teeth from decay ii) Tooth paste is alkaline .It helps to neutralize the acid formed in our mouth. iii) Careful, Knowledge of cause of tooth decay.	1 1 1	3
18	Spinal cord Diagram Page number NCERT Receptor → sensory neuron → Spinal cord → Relay neuron → Motor neuron → Effector	½ 1 1 ½	3
19.	Diagram of field lines ,Conclusion from diagram Preparation of electromagnet Ways to increase the strength of electromagnet	1+1 1 1+1	5
20.	Diagram of each mode Calculation of current for each mode	1+1 1½+1½	5
21.	a) A-NaHCO ₃ , B-Na ₂ CO ₃ , C-CO ₂ i) 2NaHCO ₃ → Na ₂ CO ₃ + H ₂ O + CO ₂ ii) Na ₂ CO ₃ + 10 H ₂ O → Na ₂ CO ₃ .10 H ₂ O iii) Ca(OH) ₂ + CO ₂ → CaCO ₃ + H ₂ O b) The fruit contains some acid. Acid changes blue litmus paper to red.	1 1 1 1	5
22.	(a) Reduction of metals passing electricity through aqueous solution of salt of the metal (b) Impure metal. Is made as anode. A thin strip of pure metal is made as cathode .solution of copper sulphate is made as electrolyte .On passing the current through the electrolyte pure metal from anode dissolves into electrolyte .An equivalent amount of pure metal from electrolyte is deposited on the cathode. The soluble impurities go into the solution, whereas the insoluble impurities settle down at the bottom of the anode as anode mud. Diagram Reactions	1 2 1 1	5
23.	Diagram Right Atrium Right Ventricle Left Atrium Left Ventricle Any two functions of blood	1 ½ ½ ½ ½ 2	5
24.	Auxin diffuses to the other parts which are away from the support. Part of the tendril in contact with the support does not grow rapidly. Part of the tendril away from the support grows rapidly and causes the tendril to grow around the support. Chemotropism: Movement in plants due to chemicals as stimulus. Example: Growth of the pollen tube towards ovule, or any other..	1 1 1 1	5
25.	a	1	1
26.	b	1	1
27.	a	1	1

28.	d	1	1
29.	a	1	1
30.	c	1	1
31.	b	1	1
32.	b	1	1
33.	d	1	1
34.	Calculation for current Cause of brightness	1 1	2
35.	If the setup is not airtight then the water level will not rise due to the lack of vacuum.	2	2
36.	Colourless. Phenolphthalein is colourless in acidic medium	1+1	2