



# UNIVERSAL EDUCATION CENTRE

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SUMMATIVE ASSESSMENT – I (2015 – 2016)

SCIENCE

Class – X

Time allowed: 3 hours

Maximum Marks: 90

## General Instructions:

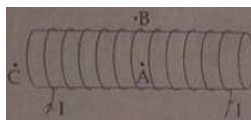
- The question paper comprises of two sections, A and B. you are to attempt both the sections.
- All questions are compulsory.
- Questions **1 to 3** are **one** mark question of section A.
- Questions **4 to 6** carry **two** marks each of section A.
- Questions **7 to 18** carry **three** marks each of section A.
- Questions **19 to 24** carry **five** marks each of section A.
- Questions **25 to 33** carry **one** mark each of section B.
- Questions **34 to 36** are **two** marks each of section A..

## Section – A

- Identify the category in which the organisms using carbon dioxide and water as food are placed.
- Define 1 Watt.
- Why is a solar cooker painted black from outside?
- Name the chemical which is injected into the skin of a person during
  - Honey bee's sting
  - The nettle leaf sting. How can the effect of these stings be neutralized?
- Rahul has been collecting copper coins and silver coins. One day he observed a green coating on copper coins and a black coating on silver coins. State the chemical phenomenon responsible for these coatings and also write chemical names of each coating.
- How is our brain double-protected against injuries and shocks?
- Identify the type of chemical reactions in the following processes:
  - Barium chloride solution is mixed with copper sulphate solution and a white precipitate is formed.
  - On heating copper powder in a china dish, the surface of copper powder become black.
  - On heating green ferrous sulphate crystals, reddish brown solid is left as residue and a gas having smell of burning Sulphur is evolved.
  - Iron nails when left dipped in blue copper sulphate solution become brownish in colour and blue colour of copper sulphate solution fades away.
  - Quicklime reacts vigorously with water releasing large amount of heat.
  - Silver nitrate solution reacts with sodium chloride solution and a white precipitate is formed.
- A) Define the term pH of a solution. The pH of gastric juices of the sample collected from the stomach of two persons A and B were found to be 1 and 3 respectively. The gastric juice of which person is more acidic?  
B) Name one salt whose solution has pH more than 7 and one salt whose solution has pH less than 7.
- Define water of crystallization. Explain with the help of an activity that copper sulphate crystals contain water of crystallization.
- Write chemical equations for the following reactions:
  - A piece of calcium metal is dropped in water
  - Steam is passed over red hot iron

c) Zinc sulphide is heated in air

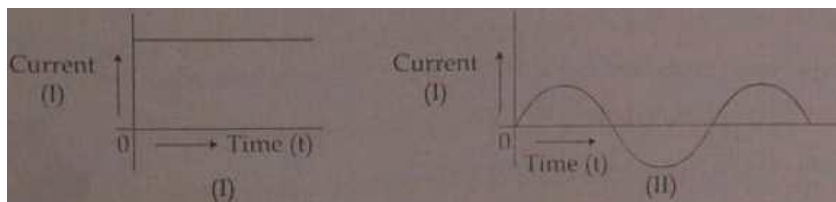
11. Define hormone. Name the hormone secreted by thyroid gland. Write its function why is it advised to use iodised salt?
12. Compare alveoli in the lungs and nephrons in the kidneys with respect to their structure and functioning.
13. Mention the pathway of urine starting from the organ of its formation. Name four substances which are reabsorbed from the initial filtrate in the tubular part of the nephron.
14. For the current carrying solenoid shown, draw magnetic field lines, and giving reason explain. Out of the three points A, B and C at which point the field strength is maximum and at which point it is minimum.



15. In Faraday's experiment if instead of moving the magnet towards the coil we move the coil towards the magnet, will there be any induced current? Justify your answer. Compare the two cases.
16. Draw a V-I graph based on the following data:

V(in volts)	1	2	3	4	5
I(in amperes)	0.25	0.50	0.75	1.0	1.25

What would be the value of V/I ratio when the potential difference (V) across the resistor is 3.6V?
17. Nishant went to see a thermal power plant where large amount of fossil fuels are burnt every day, to heat water to produce steam. This steam runs the turbine of generator to generate electricity. His friend Akshit explained that this technique of generating electricity has many harmful effects over to establish the solar cell panel by using cells to obtain electricity.
  - a) Do you agree with the explanation given by Akshit? Name the element used to fabricate solar cell.
  - b) Write two advantages of solar cells.
  - c) What values are demonstrated by Akshit?
18. List any three parameters, which categories any source of energy as a good source of energy?
19. Define, rancidity. What kind of substances are used to prevent rancidity? Explain any three methods to prevent rancidity.
20. A) Write three properties each of acids and bases.  
B) How will you show with an example that metal oxides are basic in nature? Give chemical equation also.
21. A) Define reflex action. State its significance.  
B) How do plants respond to external stimuli?
22. Explain the meanings of the words "electromagnetic" and "induction" in the term electromagnetic induction. List three factors on which the value of induced current produced in a circuit depends. Name the state the rule used to determine the direction of induced current. State one practical application of this phenomenon in everyday life.
23. A) Write three distinguish features between an alternating current and a direct current.  
B) A current through a horizontal power line flows in east to west direction. What is the direction of magnetic field at a point directly below it and at a point directly above it?  
Name the rule you have applied in this case.
24. Study the following current - time graphs from two different sources:



- Use above graphs to list two differences between the current in two cases
- Name the type of current in two cases
- Identify one source each for these currents
- What is meant by the statement that "the frequency of current in India is 50 Hz"?

### Section – B

- Which of the following solutions with same concentrations will have lowest pH?  
 a)  $H_2SO_4$       b)  $HCOOH$       c)  $CH_3COOH$       d)  $H_2CO_3$
- While doing an experiment a student added drop of given solution on pH paper and observed that pH paper turned to blue. He inferred that given solution is:  
 a) dilute  $CH_3COOH$     b) Conc.  $HCl$       c) dilute  $HCl$       d) dilute solution of  $Na_2CO_3$
- Slaked lime is used for white washing. After two or three days of white washing it gives shiny finish to walls due to the formation of the compound:  
 a)  $CaCO_3$       b)  $CaO$       c)  $CaCl_2$       d)  $CaSO_4$
- The set of colourless solution is:  
 a)  $ZnSO_4(aq)$ ,  $FeSO_4(aq)$       b)  $Al_2(SO_4)_3(aq)$ ,  $CuSO_4(aq)$   
 c)  $Al_2(SO_4)_3(aq)$ ,  $FeSO_4(aq)$       d)  $ZnSO_4(aq)$ ,  $Al_2(SO_4)_3(aq)$
- Debo added a few Zn granules to 50 ml. of a solution of  $CuSO_4$  in a test tube. The correct observation made by him for change of solution is:  
 a) Colourless solution turned blue      b) Blue solution turned colourless  
 c) Pale green solution turned colourless      d) Blue solution turned pale green
- The equivalent resistance of a series combination of two resistors is  $X\Omega$ . If the resistors are of  $10\Omega$  and  $40\Omega$  respectively the value of X will be:  
 a)  $10\Omega$       b)  $20\Omega$       c)  $50\Omega$       d)  $40\Omega$
- The resultant resistance in a parallel combination of three resistances  $1\Omega$ ,  $2\Omega$  and  $3\Omega$ , is  
 a)  $3/11\Omega$       b)  $4/11\Omega$       c)  $5/11\Omega$       d)  $6/11\Omega$
- During an experiment on photosynthesis, in the step shown in figure below, the alcohol turns green because:



- Of heating      b) Chlorophyll being organic in nature, dissolve in it
  - Of the impurities of the surroundings      d) Cells of leaf disintegrate in it
- The role of potassium hydroxide in the experiment to show that  $CO_2$  is given out during respiration is  
 a) To absorb oxygen      b) To absorb carbon dioxide  
 c) To create a partial vacuum in the conical flask      d) Both (b) and (c)
  - A student prepares aqueous solutions of the following salts:  
 Copper sulphate, ferrous sulphate, Sodium sulphate, Barium chloride  
 Write the colour of each solution thus formed.
  - Draw a labelled circuit diagram to study the dependence of current (I) on the potential difference (V) across a resistor.
  - Draw a labelled diagram of a stomatal apparatus with open stomatal pore.

ALL THE BEST