

SUMMATIVE ASSESSMENT – I, 2016-17

SCIENCE  
Class – X

Time Allowed : 3 hours

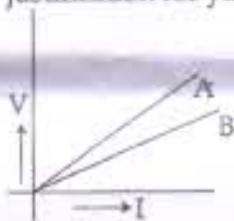
Maximum Marks : 90

General Instructions :

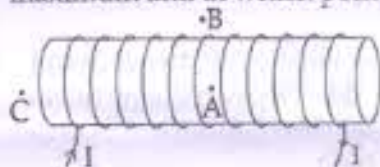
- (i) The question paper comprises of three Sections, A, B and C.
- (ii) All questions are compulsory.
- (iii) There is no choice in any of the questions.
- (iv) All questions of Section-A, Section-B and Section-C are to be attempted in separate answer sheets.

SECTION-A PHYSICS

- 1 Mention the commercial unit of electric energy. Write its relation with Joule. 1
- 2 Name the part of a biogas plant where reactions take place in the absence of oxygen. 1
- 3 V - I graphs for two wires A and B are shown in the figure. If both the wires are of same length and same thickness, which of the two is made of a material of high resistivity? Give justification for your answer. 3



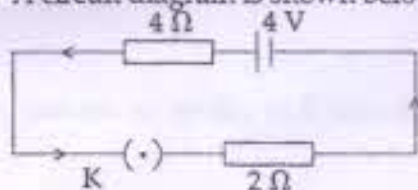
- 4 What is an electric fuse? What is its role in electric circuits? Should it be placed on neutral wire or on live wire? Justify your answer. 3
- 5 For the current carrying solenoid as shown below, draw magnetic field lines and giving reason explain that out of the three points A, B and C at which point the field strength is maximum and at which point it is minimum. 3



- 6 Mr. Kumar visited the newly built bungalow of his friend Mr. Kamat. There he observed that a big solar geyser was installed on the roof. Mr Kumar told his friend that he was unable to appreciate why he was miser in spending money on installation of electric geysers in each bath-room. Mr. Kamat not only explained him the reason rather convinced Mr. Kumar too to install one in his house. 3
  - (a) Explain the values exhibited by Mr Kamat.
  - (b) List the advantages of solar geyser that convinced Mr. Kumar to adopt it.

- 7 Define a fuel. List any two characteristics that you would look for in a good fuel. 3
- 8 (a) State Ohm's law. Give the relationship between potential difference, electric current and resistance of a conductor. 5  
 (b) An electric circuit consisting of a 1.0 m long metallic wire AB, an ammeter, a voltmeter, 3 cells of 2.0 volts each and plug key was set up. Draw a diagram of this electric circuit in the on position.  
 (c) Find the resistance of an electric lamp, if the lamp uses 20 A. When connected to a 220 V line.
- 9 (a) The flow of current in a circular loop of wire creates a magnetic field at its centre. How can the existence of this field be detected? State the rule which helps to determine the direction of this magnetic field. 5  
 (b) Name four common devices that use current carrying conductors and magnetic fields.
- 10 (i) With the help of a diagram describe in brief an activity to show how a moving magnet may be used to induce an electric current in a coil. State the rule to find the direction of induced current. 5  
 (ii) A coil 'A' of insulated copper wire is connected to a galvanometer. What would you observe when :  
 (a) a current carrying coil 'B' is brought near to 'A',  
 (b) the strength of current in coil 'B' is changed ?

- 11 A circuit diagram is shown below. 1



The electric current flowing in the circuit will be :

- (a)  $\frac{2}{3}$  A (b)  $\frac{3}{2}$  A (c) 1 A (d) 6 A
- 12 A student while measuring equivalent resistance of a parallel combination of resistance found that voltmeter reading was 3.5 V while the current was 0.7 A. He calculated equivalent resistance to be : 1  
 (a) 5 Ω (b) 2 Ω (c) 2.45 Ω (d) 0.2 Ω
- 13 To study ohm's law the value of electric current (I) corresponding to potential difference (V) across a resistor are given below : 2

Potential difference (V) in volt :	0.5	1.0	1.5	2.0	2.5
Electric current (I) in mA :	10	20	30	40	50

- (a) Plot the graph between V and I.  
 (b) Calculate the resistance of the resistor by graph.

Handwritten calculation:  $\frac{1}{20} \times 10^3 = \frac{1}{20} \times \frac{1000}{30}$

Handwritten calculation:  $\frac{2.5}{50} = \frac{10}{1000}$ ,  $\frac{0.5}{10} = \frac{10}{1000}$

## SECTION-B CHEMISTRY

1. A milkman adds a very small amount of baking soda to fresh milk. 2  
(a) Why does he shift the pH of fresh milk from 6 to slightly alkaline?  
(b) Why does this milk take a long time to set as curd?
2. The reaction of metal 'X' with  $\text{Fe}_2\text{O}_3$  is highly exothermic and is used to join railway tracks. 2  
Identify the metal 'X'. Write the chemical equation of the reaction.
3. Illustrate any three chemical properties of acids. Write examples. 3
4. (a) Mention two observations which you will make on heating ferrous sulphate crystals in a boiling tube. 3  
(b) On placing a zinc plate in copper sulphate solution, it was observed that the zinc plate develops holes after a few days. Give chemical equation to explain this.  
(c) Silver chloride turns grey when exposed to sunlight. Give chemical equation to explain it.
5. (a) What is an alloy and how is it prepared give two examples of alloys. 3  
(b) Iron is not used in its pure state. Give reason.
6. (a) Name the acid present in each of the following foodstuffs which provides a sour taste to them: 3  
(i) Lemon juice (ii) curd  
(iii) Vinegar (iv) Orange  
(b) Why does an aqueous solution of an acid conduct electricity?
7. (a) Explain two ways by which food industries prevent rancidity. 5  
(b) Identify the type of chemical reaction in the following statements and define each of them:  
(i) Digestion of food in our body  
(ii) Blue colour of copper sulphate solution disappears when iron filings are added to it  
(iii) Dilute hydrochloric acid is added to sodium hydroxide solution to form sodium chloride and water.
8. (a) Write balanced chemical equations for the following statements: 5  
(i) HCl solution is added to zinc granules.  
(ii) Carbon dioxide gas is passed through lime water.  
(iii) Dilute sulphuric acid reacts with sodium carbonate.  
(b) While diluting an acid what is recommended, the acid should be added to water or water to the acid? Why?
9. Rama placed one drop of dilute sodium hydroxide solution on pH paper. The colour of pH paper will be: 1  
(a) red (b) orange  
(c) green (d) blue

- 10 Which of the following solutions will turn pH paper to red ? 1  
 (a) water  
 (b) sodium bicarbonate solution  
 (c) sodium hydroxide solution  
 (d) hydrochloric acid
- 11 After performing the reaction between dil HCl and sodium carbonate, a student noted the properties of carbon dioxide. Correct observation would be that carbon dioxide is : 1  
 (a) pale yellow in colour  
 (b) has pungent odour  
 (c) burns with a blue flame  
 (d) extinguishes a burning candle
- 12 Raju puts an iron nail each in four test-tubes containing solutions of zinc sulphate, aluminium sulphate, copper sulphate and ferrous sulphate. He observed a reddish brown coating on the surface of the nail in the test tube which contains : 1  
 (a) ferrous sulphate (b) Zinc sulphate  
 (c) aluminium sulphate (d) copper sulphate
- 13 Which of the following solution is coloured ? 1  
 (a)  $ZnSO_4$  (b)  $FeSO_4$   
 (c)  $Al_2(SO_4)_3$  (d)  $Na_2SO_4$
14. You want to study a decomposition reaction by taking ferrous sulphate crystals in a boiling tube. List two precautions you would follow while doing the experiment. 2

### SECTION-C BIOLOGY

1. Name the vein which brings blood to left atrium from lungs. 1
- 2 Give one example for each of the following : 2  
 (i) Chemotropism *POLLIN TUBES*  
 (ii) Phototropism *→ SHOOT & ROOT*
- 3 Draw the structure of neuron and label the following parts on it : 3  
 (i) Nucleus (ii) Dendrite  
 (iii) Cell body (iv) Axon
- 4 Explain the term 'Nutrition'. State different modes of nutrition. 3
- 5 State the source of secretion and function of the following hormones : 3  
 (i) Thyroxin (ii) Insulin (iii) Growth hormone
- 6 (a) What are the different pathways by which Glucose is oxidized to provide energy in various organisms. 5  
 (b) What advantage over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration.

*SHOOT*  
*ROOT*



- 7 The colour of light in which rate of photosynthesis is minimum : 1
- (a) Red (b) Blue  
(c) Green (d) Yellow
- 8 In the experimental set up of respiration by germinating seeds, if the gas that is evolved is 1  
passed through lime water, the change that will be observed is :
- (a) Lime water becomes yellow  
(b) Lime water turns milky  
(c) Bubbles are seen in lime water  
(d) Lime water becomes hot
- 9 Record your observations when a stained and mounted leaf peel is viewed by you under low 2  
power ( $10\times$ ) microscope.