SUMMATIVE ASSESSMENT –I

SCIENCE

Class – X

Time allowed: 3 hours Maximum Marks: 90

General Instructions:

(i) All questions are compulsory.

(ii) The question paper comprises of two sections, A and B. You are to attempt both the sections.

(iii) Questions 1 to 4 in section A are one mark questions. These are to be answered in one word or in one sentence.

(iv) Questions 5 to 11 in section A are two marks questions. These are to be answered in about 30 words each.

(v) Questions 12 to 23 in section A are three marks questions. These are to be answered in about 50 words each.

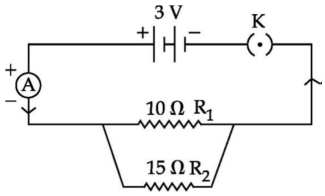
(vi) Questions 24 to 27 in section A are five marks questions. These are to be answered in about 70 words each.

(vii) Questions 28 to 43 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.

SECTION-A

1. A few drops of sulphuric acid are added into water before electrolysis. Why ?
2. An element A forms two oxides AO and AO_2. The oxide AO is neutral whereas the oxide AO_2 is acidic in nature. Would you call element A a metal or a non-metal ?
3. Give the composition of the slurry fed into the digester of a gobar gas plant.
4. Draw circuit symbols of the following components :
   (i) Variable resistance or rheostat
   (ii) Plug key or switch (closed)
5. What are the products formed when magnesium metal reacts with water ? Why do the pieces of metal start floating during the reaction ?
6. While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid.
7. A solution of potassium chloride when mixed with silver nitrate solution, an insoluble white substance is formed. Write the chemical reaction involved and also mention the type of the chemical reaction ?
8. When a green iron compound is heated strongly, its colour changes to black and odour of burning sulphure is given out.
   (a) Name the compound
   (b) State the type of reaction
   (c) Write the chemical equation involved
9. Name the two glands associated with the digestive system in humans. Name their secretion also.
10. Biogas is considered to be a boon to the farmers. Give reasons.
11. Define resistivity. Aluminium wire has radius 0.25 mm and length of 75 m. If the resistance of the wire is 10 Ω, calculate the resistivity of aluminium.

12. What do you understand by short circuiting? Why is it not advisable to handle domestic electrical circuit with wet hands ?
13. In a house, four 60W electric bulbs are lighted for 2 hours and two 100W bulbs are lighted for 4 hours everyday. Calculate the energy consumed in the house for 30 days.
14. State what is observed when water is added slowly to a small amount of calcium oxide (quick lime). Name the type of reaction that takes place and write a balanced chemical equation for the reaction involved.
15. A water insoluble calcium compound (A) on reacting with dil. H_2SO_4 released a colourless and odourless gas (B) with brisk effervescence. When gas (B) is passed through lime water, lime water turns milky and again formed compound A. Identify A and B and write the chemical equations for the reactions involved.
16. (a) Define 'water of crystallisation'.
    (b) Give two examples of substances having water of crystallisation. Write their molecular formulae also.
17. (a) Which hormone is responsible for the changes noticed in males at puberty ?
    (b) Deficiency of which hormone leads to dwarfism.
    (c) Name the hormone which is injected to a diabetic patient.
18. How does our body respond when adrenaline is secreted into the blood ?
19. Name the various forms in which energy is available from the sea. For any two types give one limitation in harnessing.
20. A piece of wire of resistance 20 Ωis drawn out so that its length increases to twice its original length. Calculate the resistance of the wire in the new situation.
21. Study the following circuit and answer the following questions.



    (i) State the type of combination of the two resistors in the circuit.
    (ii) How much current would flow through (a) 10Ω resistor and (b) 15 Ω resistors.
22. (a) Draw a labelled diagram of the pattern of field lines due to a current flowing through a circular coil?
    (b) What does the degree of closeness of field lines signify ?
23. (a) Write the electron dot structure for calcium and oxygen. The atomic numbers of calcium and oxygen are 20 and 8 respectively.
    (b) Show the formation of calcium oxide by the transfer of electrons.
    (c) Give reason for the following:
        (i) Ionic compounds are hard solids
        (ii) Ionic compounds conduct electricity in the molten state but not in the solid state.
24. Draw the labelled structure of a neuron and explain the function of any two of its parts.
25. Sunlight is necessary for photosynthesis." Explain an experiment to prove it.

OR

    (a) Draw the structure of a nephron and label on it the following parts :
        (i) Glomerulus (ii) Bowman's capsule
        (iii) Renal artery (iv) Collecting duct
    (b) What happens to glucose, amino acids, salts and water that enter the nephron along with filtrate ?

26. (a) Describe an activity to demonstrate the pattern of magnetic field lines around a straight conductor carrying current.
(b) State the rule to find the direction of magnetic field associated with a current carrying conductor.
(c) What is the shape of a current carrying conductor whose magnetic field pattern resembles that of a bar-magnet ?

OR

Give an experiment to demonstrate the force acting on current carrying conductor placed in a magnetic field. What conclusion can be drawn from this experiment ? On what factors does this force depend ?

27. (a) Draw neat diagram of human respiratory system and label its following parts : Rings of cartilage, lung, bronchii , alveolar sac
(b) Write two differences between Aerobic and Anaerobic Respiration.

OR

(a) Draw a neat diagram depicting human alimentary canal and label its following parts. stomach, liver, pancreas, small Intestine
(b) State in brief the function of digestive enzymes ?

SECTION –B

28.. A student was observing a pH chart. He observed that the two colours at the extreme ends of the pH chart are :
(a) red and green (b) red and blue
(c) green and blue (d) orange and green

29. A pH paper is first dipped in distilled water and then in the dilute solution of lemon juice. The colour of pH paper changes from :
(a) indigo to green (b) indigo to orange
(c) green to blue (d) green to orange

30. A blue litmus paper was first dipped in dil. HC*l* and then in dil. NaOH solution. It was observed that the colour of the litmus paper :
(a) Changed to red
(b) Changed first to red and then to blue
(c) Changed blue to colourless
(d) Remained blue in both the solutions

31. When iron nail is kept in copper sulphate solution for about 3-4 hours, it is observed that
(a) only the tip of nail get the coating of copper
(b) only the bottom of the nail get the coating of copper
(c) whole nail get the coating of copper
(d) no coating is formed on the nail

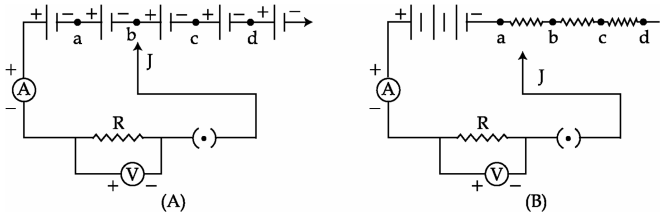
32. When sodium sulphate solution and barium chloride solution are mixed together, the colour of precipitate formed is :
(a) Yellow (b) Green

(c) White (d) Red

33. To study the dependence of current (I) on the potential difference (V) across a resistor R, two students used the two set ups shown in figure A and B respectively. They kept the contact point J in four different positions marked, (a), (b), (c), (d), in the two figures

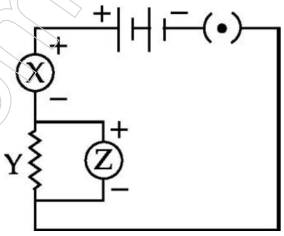
For the two students the ammeter and voltmeter readings will be maximum when the contact J is in the position :

(a) d in both the set ups.
(b) a in both the set ups.
(c) d in set up A and a in set up B.
(d) a in set up A and d in set up B.



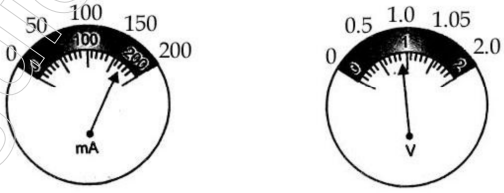
34. A student draws the circuit diagram as shown. The parts labelled X, Y and Z respectively are :

(a) Ammeter, resistor, voltmeter
(b) Ammeter, voltmeter, resistor
(c) Voltmeter, resistor, ammeter
(d) Voltmeter, ammeter, resistor,

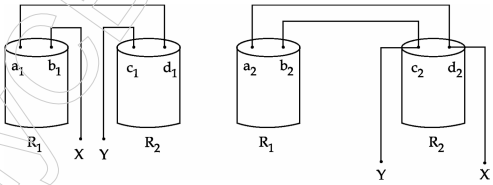


35. The current flowing through a resistor and the potential difference developed across its end are shown in figures given below. The value of resistance of the resistor is.

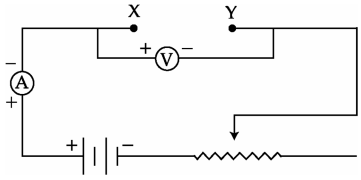
(a) 0.5 ohm (b) 5.0 ohm
(c) 50 ohm (d) 500 ohm



36. Two students (A) and (B) connect their two given resistors R1 and R2 in the manners shown below.



Student A connects the terminals marked b1 and c1 while student B connects the terminals marked d_2 and c_2 in their respective circuits at the points marked X and Y.



Which one of the following is correct in relation to above arrangement?

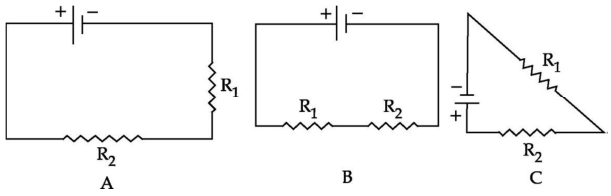
(a) both the students will determine the equivalent resistance of the series combination of the two resistors
(b) both the students will determine the equivalent resistance of the parallel combination of the two resistors

(c) Student A will determine the equivalent resistance of series combination while student B will determine the equivalent resistance of parallel combination of the two resistors

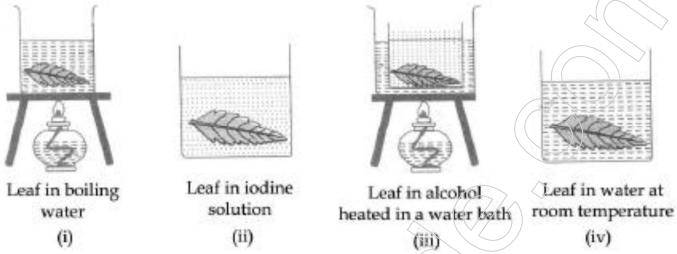
(d) Student A will determine the equivalent resistance of the parallel combination while student B will determine the equivalent resistance of the series combination of the two resistors.

37. Two resistances R_1 and R_2 are to be connected in series combination. Out of the following the correct combination is shown in :

(a) only A
(b) only B
(c) only C
(d) all of them A, B and C



38. A student performed the starch test on a leaf. Some steps involved are shown below.



The correct sequence of steps should be :

(a) (i), (ii) , (iii), (iv)
(b) (iv), (iii), (ii), (i)
(c) (ii), (iii), (iv), (i)
(d) (i), (iii), (iv), (ii)

39. A black strip of paper was clipped on to a destarched leaf in a potted plant to cover a part of the leaf. The plant was then exposed to sunlight for four hours, the paper strip was removed and the leaf tested for starch. When iodine solution was added :

(a) the entire leaf turned blue - black
(b) the covered part of the leaf became blue - black
(c) the uncovered part of the leaf became blue - black.
(d) the colour of iodine solution remained unchanged

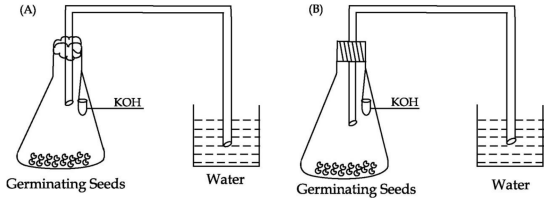
40. Temporary mount of a peel is made in :

(a) Alcohol
(b) Water
(c) Glycerine
(d) Acetone

41. The stain used in the preparation of temporary mount of a leaf peel to observe stomata is :

(a) safranin
(b) methylene blue
(c) glycerin
(d) iodine solution

42. Using the same number of given germinating seeds, two students A and B set up the experiment separately. Student A used a cotton plug to hold the bent tube to the mouth of the flask. Student B used air tight rubber cork.



Which one of the following is to be observed after a few hours ?

(a) Water level would rise in the bent tube of A.
(b) Water level would rise in the bent tube of B.
(c) The cotton plug would become wet.
(d) The water in the beaker of B would turn milky.

43. The correct set of three precautions for setting up the experiment to demonstrate that CO_2 is evolved during respiration is :
(a) Thread holding KOH test tube, Airtight flask, delivery tube above water surface in the beaker
(b) Flask has just germinated seeds, Airtight set up, delivery tube dip in water in beaker.
(c) Flask has seeds covered with water, Airtight set up, KOH test tube held by a thick wire.
(d) Just germinated seeds under water in the flask, delivery tube above water level, Thread holding KOH test tube.