



## D.A.V. PUBLIC SCHOOL, NEW PANVEL

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### PRACTICE PAPER FOR SUMMATIVE ASSESSMENT – I

2014-2015

STD:- X

**Sub: - Science & Technology**

**Time:- 3 Hours**

**Marks:- 90**

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**General Instructions:-**

1. The question paper comprises two sections, A and B. You are to attempt both the sections.
  2. All questions are compulsory.
  3. All questions of section A and all questions of section B are to be attempted separately.
  4. Question numbers 1 to 3 in section A are one mark questions. These are to be answered in one word or one sentence.
  5. Question numbers 4 to 7 are two mark questions, to be answered in about 30 words.
  6. Question numbers 8 to 19 are three mark questions, to be answered in about 50 words.
  7. Question numbers 20 to 24 are five mark questions, to be answered in about 70 words.
  8. Question numbers 25 to 42 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to choose one most appropriate response out of the four provided to you.
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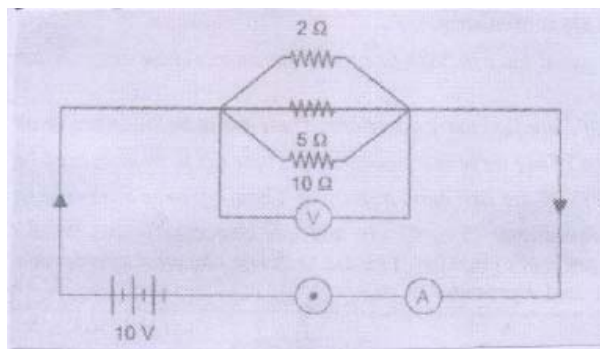
### SECTION – A

- |  |     |
|--|-----|
| 1) Name the gases evolved at anode and cathode on electrolysis of water.   | 1 M |
| 2) Why is the large scale use of nuclear energy prohibitive?   | 1M  |
| 3) State S.I. unit of electric current.  | 1M  |
| 4) In some reactions, the process of oxidation and reduction take place simultaneously. What are these reactions called? Explain citing a suitable example.              | 2M  |
| 5) A student heats 2 g of ferrous sulphate crystals in a dry boiling tube and observes that a reddish brown solid is left behind and a smell of burning sulphur is felt. | 2M  |
| a) Identify the type of chemical reaction.   |     |
| b) Write a chemical equation to represent the above change.  |     |
| 6) How do auxins promote the growth of a tendril around a support?   | 2M  |
| 7) Alveoli are designed to maximise the exchange of gases. Comment.  | 2M  |

- 8) Baking soda is used in a small amount in making bread and cake. It helps to make these soft and spongy. An aqueous solution of baking soda turns red litmus blue. It is also used in a fire extinguisher. 3M
- a) How does baking soda help to make cakes and bread soft and spongy?  
b) How does it help to extinguish fires?  
c) Is the pH value of baking soda solution lesser than or greater than 7?
- 9) a) A chemical compound X is used in glass and soap industry. Identify the compound and give its chemical formula. 3M  
b) How many molecules of water of crystallisation are present in compound X?  
c) How will you prepare the above compound starting from sodium chloride? Write all relevant equations involved in the process.
- 10) No chemical reaction takes place when granules of solid A are mixed with powder of another solid B. However when the mixture is heated, a reaction takes place between them. One of the products C is a metal and settles down in the molten state while the other product D floats over it. It was observed that the reaction is highly exothermic. 3M
- a) Based on the above information identify A and B and write the chemical equation for the chemical reaction..  
b) Mention any two types of reactions under which the above chemical reaction can be classified.
- 11) Write balanced chemical equations for the following and identify the type of chemical reactions 3M
- a) Hydrogen sulphide gas burns in air to give water and sulphur dioxide.  
b) Methane gas burns in oxygen of air to form carbon dioxide and water.  
c) On passing electric current through molten aluminium oxide, it decomposes to form aluminium metal and oxygen gas.
- 12) Give reasons: 3M
- i) Valves are present in veins but not in arteries.  
ii) Transpiration in plants is called a necessary evil.  
iii) Bile has no digestive enzymes but still has a significant role in the digestion process.
- 13) i) How does our body respond when adrenaline is secreted in the blood? 3M  
ii) Name two hormones secreted by the ovaries.
- 14) Name two fossil fuels. Why should these non-renewable sources of energy be replaced? (2+1)
- 15) State three advantages of biogas if it is used as a source of energy. 3M

16) A circuit diagram is given below:

3M

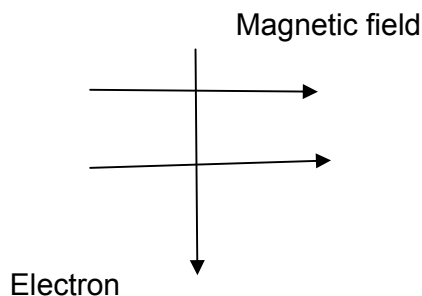


Calculate current through each resistor, total current in the circuit and effective resistance in the circuit.

17) An electron enters a magnetic field at right angles to the field direction.

3M

- State the rule to find the direction of force acting on the electron.
- What will be the direction of force acting on the electron?



18) i) A piece of wire of resistance  $20\ \Omega$  is drawn out so that its length is increased to twice its original length. Calculate the resistance of the wire in the new situation.

1M

ii) State one difference between resistance and resistivity.

2M

19) i) Why is the fuse necessary in a household circuit?

1M

ii) How is the parallel connection of appliances advantageous over series connection? Mention two points.

2M

20) Give reasons for the following

5M

- Zinc can displace copper from copper sulphate solution.
- Silver articles become black after sometime when exposed to air.
- a metal sulphide is converted to its oxide to extract the metal from a sulphide ore.
- Hydrogen gas is not evolved when a metal reacts with nitric acid.
- For storing, sodium metal is kept immersed in kerosene.

21) a) Iron objects acquire a reddish brown coating when left exposed to moist air. Name the chemical process responsible for this coating and name the red coating formed.

5M

b) Why do we apply paint on iron articles?

c) List two important methods to prevent the food from getting rancid.

- 22) i) Draw a neat and labelled diagram showing the schematic representation of transport and exchange of  $O_2$  and  $CO_2$ . (3+2)  
 ii) State the functions of the following:-  
 a) rings of cartilage  
 b) capillaries  
 c) Lymph  
 d) Vena cava
- 23) a) Draw the magnetic field lines around a straight current carrying conductor. (2+1+2)  
 b) What is a solenoid?  
 c) Comment on the nature of field lines around a circular coil carrying current.
- 24) a) Define short circuiting and overloading. (2+1+2)  
 b) When can we say that the power of an appliance is 1 watt?  
 c) Calculate the electricity bill for the month of September for a house which uses 1 fan of 60 W for 5 hours daily and 1 tubelight of 40 W for 4 hours daily if the cost of 1 unit is Rs. 4

### SECTION - B

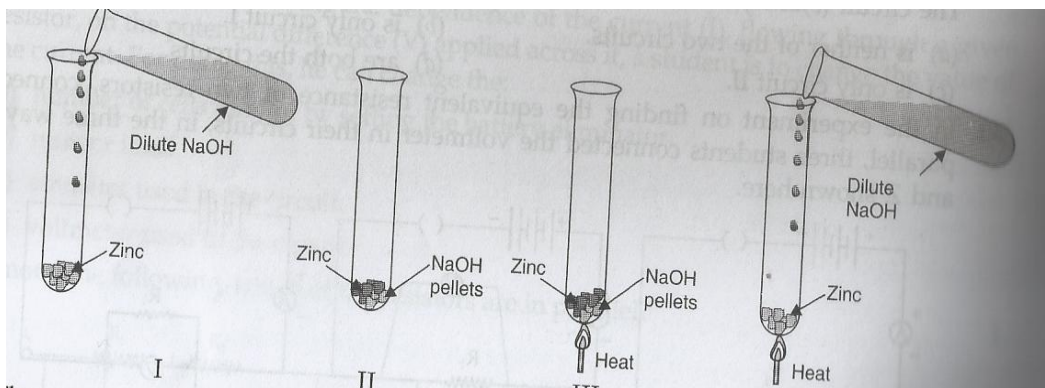
- 25) Solid sodium carbonate was placed on a strip of pH paper. The colour of the strip 1M  
 a) turned blue  
 b) did not change  
 c) turned green and suddenly yellow  
 d) turned light pink
- 26) A student added a few drops of the universal indicator to a solution of dilute hydrochloric acid .The colour of the solution changes from colourless to 1M  
 a) red  
 b) yellow  
 c) violet  
 d) green
- 27) Four students I, II, III and IV were asked to examine the changes for blue and red litmus paper strips with dil. HCl ( Solution A) and dil. NaOH( Solution B). 1M  
 The following observations were reported by the 4 students. The sign – indicates no colour change.

litmus	A	B	litmus	A	B	litmus	A	B	litmus	A	B
Blue	----	red	blue	red	----	blue	red	red	blue	blue	blue
Red	----	blue	red	----	blue	red	blue	blue	red	red	red

The correct observation would be that of student

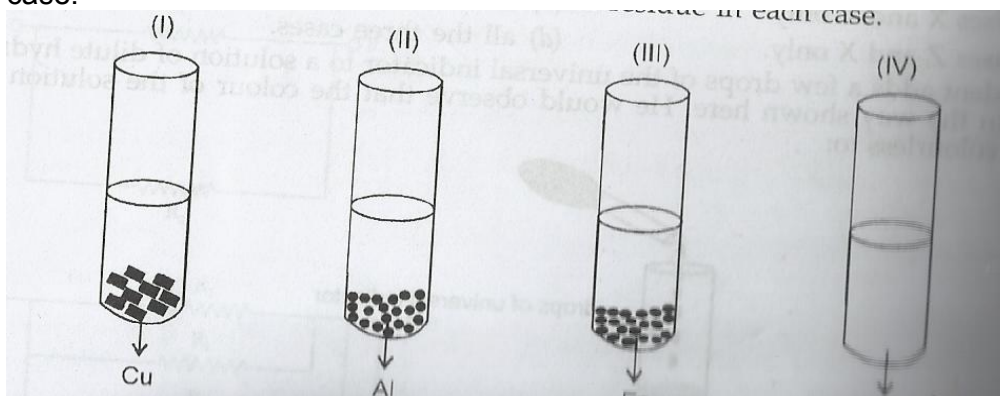
- a) I      b) II      c) III      d) IV

- 28) The figures below show set-ups to study the reaction of zinc with sodium hydroxide. 1M



The correct set-up is

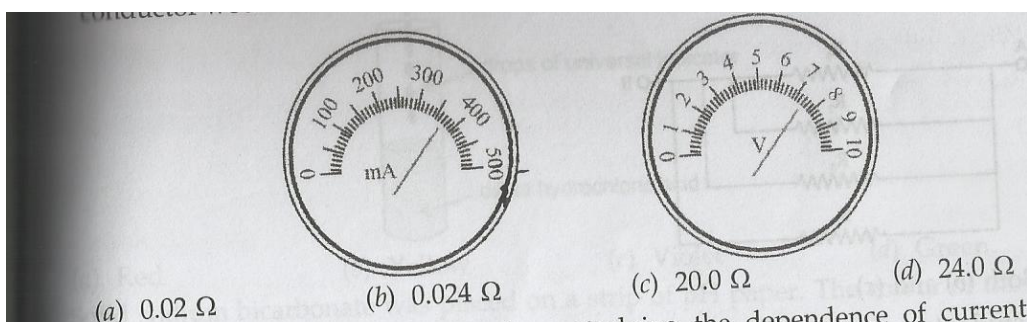
- a) I    b) II    c) III    d) IV
- 29) A student takes Cu, Al, Fe, and Zn strips separately in 4 test tubes labelled as I, II, III, and IV respectively. He adds 10 ml. of freshly prepared ferrous sulphate solution to each test tube and observes the colour of the metal residue in each case. 1M



He would observe a black residue in the test tube

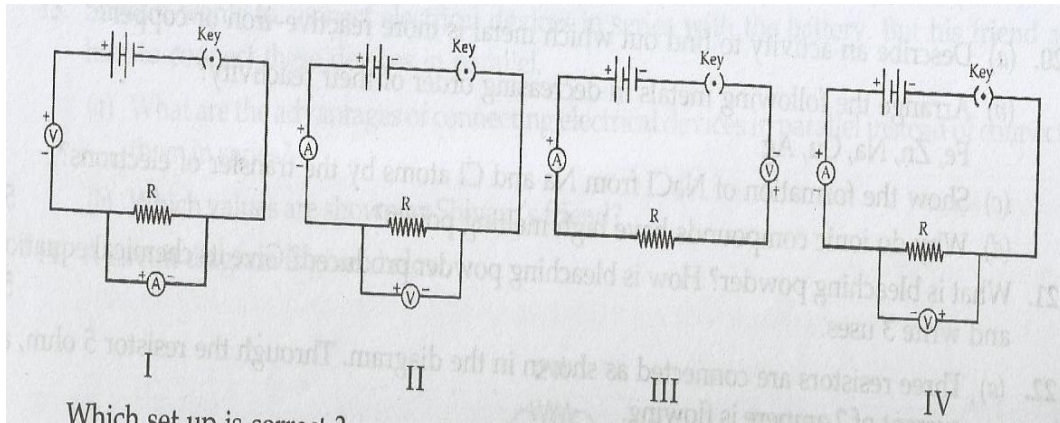
- a) I and II    b) I and III    c) II and III    d) II and IV
- 30) A drop of liquid was put on pH paper. The colour of the pH paper turned green. The liquid sample could be that of 1M
- a) lemon juice    b) hydrochloric acid  
c)  $\text{NaHCO}_3$  solution    d) ethanoic acid

- 31) The resistance of the conductor is 1M



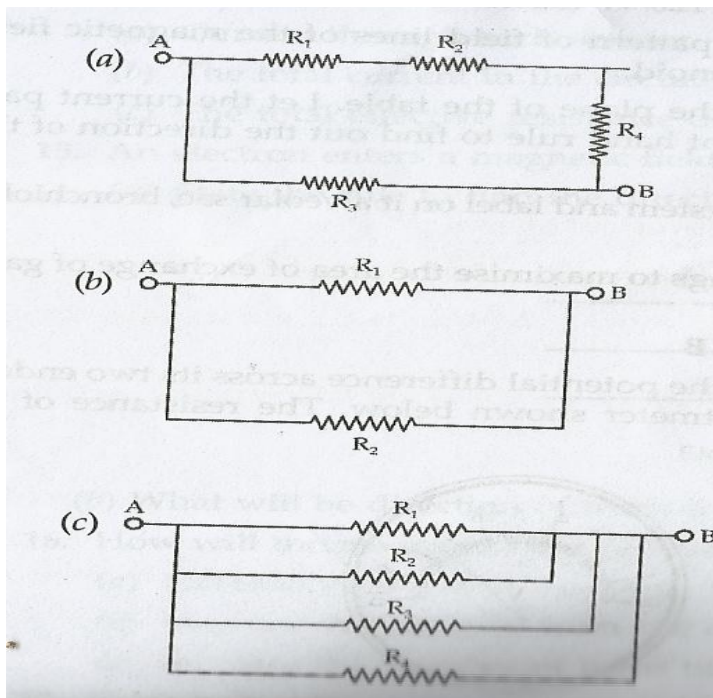
- a)  $0.02 \Omega$     b)  $0.024 \Omega$     c)  $20 \Omega$     d)  $24 \Omega$

- 32) While performing the experiment on studying the dependence of current (I) on the potential difference (V) across a resistor, four students I, II, III and IV set up the circuit as shown. 1M



The correct set-up is

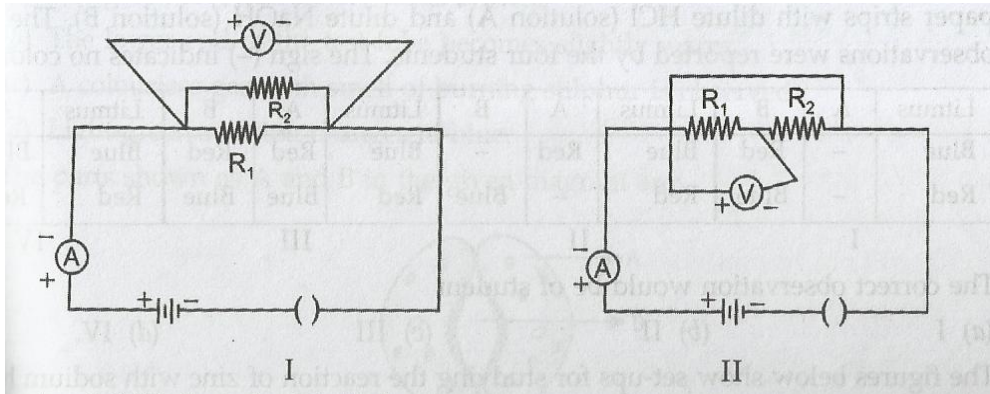
- a) I   b) II   c) III   d) IV
- 33) In an experiment to study the dependence of current on potential difference, a student is to change the value of current. For doing this, he can change 1M
- number of cells used or by setting the battery eliminator
  - resistor itself
  - ammeter used in the circuit
  - voltmeter used in the circuit
- 34) Among the following, which resistors are in parallel? 1M



- i) a                      ii) b                      iii) c                      iv) b and c

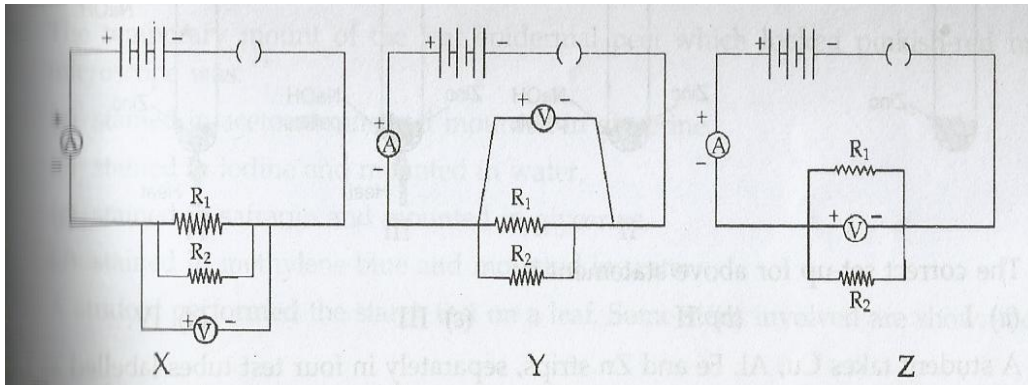


- 35) Two students set up their circuits for finding equivalent resistance of 2 resistors connected in parallel. 1M



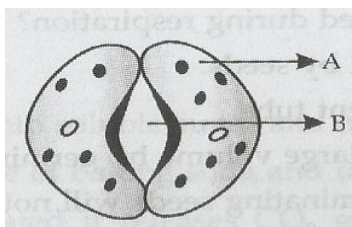
The circuit likely to be labelled as correct

- is neither of the two circuits
  - is only circuit I
  - is only circuit II
  - are both the circuits
- 36) In the experiment to find equivalent resistance of two resistors connected in parallel, three students connected the voltmeter in their circuits, in the 3 ways, X, Y and Z as shown. 1M



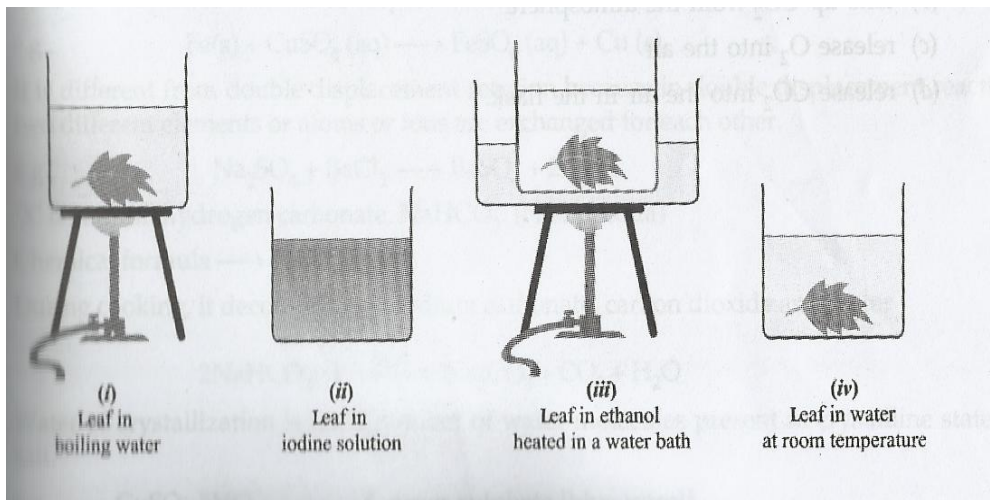
The voltmeter has been correctly connected in

- X and Y
  - Y and Z
  - Z and X
  - All the 3 cases
- 37) The parts as shown A and B in the given diagram are 1M



- A is epidermal cell, B is stomatal pore
- A is guard cell, B is stomatal pore
- A is epidermal cell, B is guard cell
- A is guard cell, B is epidermal pore

- 38) A student performed the starch test on a leaf. Some steps involved are shown below: 1M



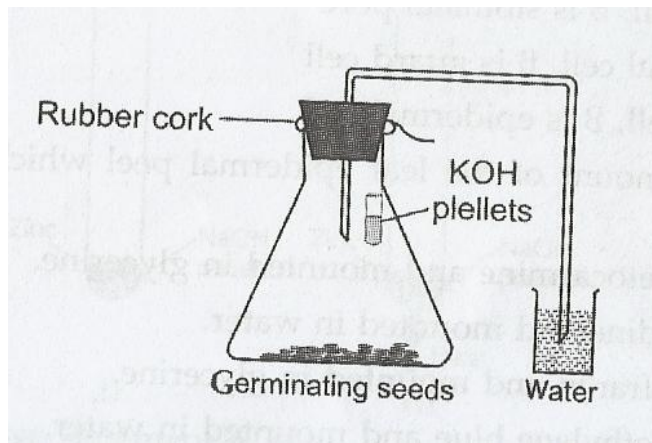
The correct sequence of steps is

- a) iv, iii, ii, i  
 b) i, ii, iii, iv  
 c) ii, iii, iv, i  
 d) i, iii, iv, ii
- 39) The temporary mount of the leaf epidermal peel which looked pinkish-red under the microscope was 1M
- a) stained in acetocarmine and mounted in glycerine  
 b) stained in iodine and mounted in glycerine  
 c) stained in safranin and mounted in water  
 d) stained in methylene blue and mounted in water
- 40) In an experiment on photosynthesis, a student fixed a strip of black paper on the dorsal surface of a Bougainvillea leaf in the morning. In the evening, she tested the leaf for starch. The result was 1M
- a) the dorsal surface of the leaf was white but the ventral surface turned blue.  
 b) both the surfaces of the covered portion remained blue.  
 c) the entire leaf turned blue black.  
 d) the entire leaf turned white
- 41) What will happen if KOH pellets are not used in the small test tube in the experimental set-up to show that CO<sub>2</sub> is produced during respiration? 1M
- a) CO<sub>2</sub> will not be produced by the seeds.  
 b) water level will rise in the bent tube.  
 c) CO<sub>2</sub> will be produced in large volume by the germinating seeds.  
 d) CO<sub>2</sub> produced by the germinating seeds will not be absorbed and water level in the bent tube will not rise up.



42) The germinating seeds present in the experimental set-up shown below:

1M



- a) take up  $O_2$  from water
- b) take up  $CO_2$  from atmosphere
- c) release  $O_2$  into air
- d) release  $CO_2$  into air in the flask