

D.A.V. PUBLIC SCHOOL, SECTOR 8-C, CHANDIGARH
SUMMATIVE ASSESSMENT – I [2014-15]
SCIENCE – CLASS X

Time Allowed : 3 hours

Maximum Marks : 90

General Instructions:

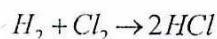
- (i) The question paper comprises of two Sections, A and B. You are to attempt both the sections.
- (ii) All questions are compulsory.
- (iii) There is no overall choice. However, internal choice has been provided in all the five questions of five marks category. Only one option in such questions is to be attempted.
- (iv) All questions of Section-A and all questions of Section-B are to be attempted separately.
- (v) Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.
- (vi) Question numbers 4 to 7 in Sections-A are two marks questions. These are to be answered in about 30 words each.
- (vii) Question numbers 8 to 19 in Section-A are three marks questions. These are to be answered in about 50 words each.
- (viii) Question numbers 20 to 24 in Section-A are five marks questions. These are to be answered in about 70 words each.
- (ix) 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 select one most appropriate response out of the four provided to you.

Q1. Write the frequency of alternating current (AC) in India. How many times per second it changes its direction? [1]

Q2. State one example of chemotropism. [1]

Q3. Name the energy obtained from sea or ocean water due to the difference in temperature at the surface and in deeper sections of these water bodies. [1]

Q4. Study the following equation of a chemical reaction [2]



(i) Identify the type of reaction

(ii) Write a balanced chemical equation of another example of this type of reaction.

Q5. Name a metal which: [2]

(a) is the best conductor of heat

(b) has a very low melting point

(c) does not react with oxygen even at high temperature

(d) is most ductile

Q6. i) List three factors on which the resistance of a conductor depends. [2]

ii) Write the SI unit of resistivity.

Q7. Draw magnetic field lines around a bar magnet. Name the device which is used to draw magnetic field lines. [2]

Q8. i) Why is respiration considered as an exothermic reaction?

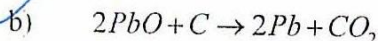
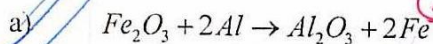
ii) Write chemical name and the formula of the brown gas produced during thermal decomposition of lead nitrate.

iii) Why do chips manufacturers flush bags of chips with gas such as nitrogen? [3]

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Q9. What is a reduction reaction?
Identify the substances that are oxidised and the substances that are reduced in the following reaction. [3]



Q10. Write the names of the products formed when zinc reacts with NaOH. Also write the balanced chemical equation for the reaction involved. Write a test to confirm the presence of the gas evolved during this reaction. [3]

Q11. (a) Why does calcium start floating when it reacts with water? Write the balanced chemical equation of the reaction. [3]

(b) Name two metals which do not react with water. (2)

Q12. A copper wire has diameter 0.5 mm and resistivity $1.6 \times 10^{-8} \Omega m$. Calculate the length of this wire to make its resistance 100Ω . How much does the resistance change if the diameter is doubled without changing its length. [3]

Q13. (a) Why is tungsten used for making bulb filaments of incandescent lamps. [3]

(b) Name any two electric devices based on heating effect of electric current. (3)

(c) An electric bulb is connected to a 220V generator. The current is 2.5 A. Calculate the power of the bulb.

Q14. (a) State Right Hand Thumb rule to find the direction of the magnetic field around a current carrying straight conductor. [3]

(b) How will the magnetic field be affected on :

(i) increasing the current through the conductor

(ii) reversing the direction of flow of current in the conductor. (3)

Q15. Explain with the help of neat and well labelled diagrams the different steps involved in nutrition in Amoeba. [3]

Q16. (a) Complete the following table: [3]

	Name of the hormone	Gland which secretes the hormone	Function of the hormone
(i)	Thyroxine	Thyroid	_____
(ii)	Growth Hormone	_____	Regulates growth and development of the body
(iii)	Insulin	Pancreas	_____

(b) List three characteristics of animal hormones. (2)

Q17. (a) Draw a neat diagram of a neuron and label

(i) dendrite and

(ii) axon [3]

(b) Which part of the human brain is :

(i) the main thinking part of the brain?

(ii) responsible for maintaining the posture and balance of the body?

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Q18. Nuclear power is an excellent non - conventional source of energy. Still it is not used commonly for power generation. Why? State three reasons. (3) [3]

Q19. State the main difference between thermal power and hydro power plants based on electricity generation. Name two dams/projects which were opposed due to the problems of rehabilitation of displaced people, damage to the ecosystem etc. (2) [3]

Q20. Give reason for the following:

- (a) ionic compounds have higher melting point and higher boiling point.
- (b) Sodium is kept immersed in kerosene. (3) [5]
- (c) reaction of calcium with water is less violent
- (d) silver articles become black after some time when exposed to air.
- (e) Prior to reduction the metal sulphides and carbonates must be converted into metal oxides for extracting metals.

OR

How is copper obtained from its ore (Cu_2S)? Write only the chemical equations
How is copper thus obtained refined. Name and explain the process along with a labelled diagram.

Q21. How is sodium hydroxide produced? Write the balanced chemical equation also Why is this process called as chlor - alkali process ? In this process name the products given off at :

- (a) anode (5)
- (b) cathode

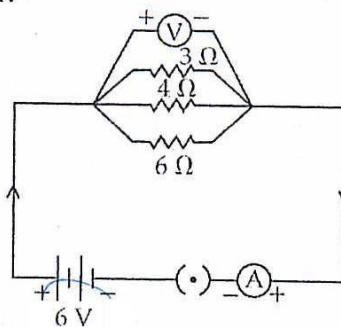
Write one use of each of these products. [5]

OR

What is water of crystallization? Write the common name and chemical formula of a commercially important compound which has ten water molecules as water of crystallization. How is this compound obtained? Write the chemical equation also.
List any two uses of this compound.

Q22. State ohm's law. Represent it graphically. In the given circuit diagram calculate

- (i) the total effective resistance of the circuit. [5]
- (ii) the current through each resistor.



OR

- (a) Define one ampere.
- (b) Prove that the equivalent resistance of three resistors R_1 , R_2 and R_3 in series is $R_1 + R_2 + R_3$
- (c) You have four resistors of 8Ω each. Show how would you connect these resistors to have effective resistance of 8Ω ?

((Page - 3))

Q23. What is a solenoid? Draw a diagram to show field lines of the magnetic field through and around a current carrying solenoid. State the use of magnetic field produced inside a solenoid. List two properties of magnetic lines of force. [5]

OR

(a) Draw a schematic diagram of a common domestic circuit showing provision of

- (i) Earth wire, (ii) Main fuse
(iii) Electricity meter and (iv) distribution box

(b) Distinguish between Short Circuiting and Overloading.

Q24. Draw a flow chart showing the three different pathways involved in the breakdown of glucose in different organisms. Name the respiratory pigment present in human beings. State the function of rings of cartilage present in our throat. [5]

OR

(a) Draw a neat diagram of the human excretory system and label following parts:

- (i) Urethra
(ii) Kidney
(iii) Ureter
(iv) Urinary bladder

(b) What are nephrons. How is a nephron involved in the filtration of blood and formation of urine?

SECTION - B

Q25. The colour of the precipitate formed when barium chloride solution is mixed with sodium sulphate solution is :

- (a) blue (b) black (c) white (d) green [1]

Q26. A student heated small amount of ferrous sulphate in a test tube. She made the following observations.

- (i) Ferrous sulphate colour changes to brown
(ii) A gas having a smell of burning sulphur is evolved
(iii) Water droplets collect on the upper side of the test tube.
(iv) Brown coloured gas is evolved

The correct set of observations is:

- (a) (i), (ii), (iv) (b) (i), (ii), (iii)
(c) (i), (iii), (iv) (d) (ii), (iii), (iv) [1]

Q27. A drop of a liquid sample was put on the pH paper. It was observed that the colour of the pH paper turned blue. The liquid sample is :

- (a) lemon juice (b) sodium bicarbonate solution [1]
(c) distilled water (d) hydrochloric acid

Q28. Two solutions X and Y were found to have pH value of 4 and 10 respectively. The inference that can be drawn is :

- (a) X is a base and Y is an acid
(b) Both X and Y are acidic solutions. [1]
(c) X is an acid and Y is a base
(d) Both X and Y are bases

Q29. Which one of the following would you need to identify the gas that evolve when you heat NaOH solution with zinc metal? [1]

(a) red litmus solution (b) blue litmus solution
 (c) a burning splinter / match stick (d) lime water

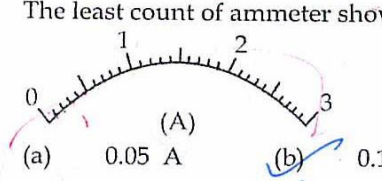
Q30. An iron nail was suspended in copper sulphate solution. After about one hour it was observed that the solution. [1]

(a) remained blue and a reddish brown coating was formed on the nail
 (b) remained blue and no coating was formed on the nail
 (c) turned pale green and a reddish brown coating was formed on the nail
 (d) turned pale green and no coating was formed on the nail

Q31. Freshly prepared aqueous solutions of ferrous sulphate and zinc sulphate respectively appear: [1]

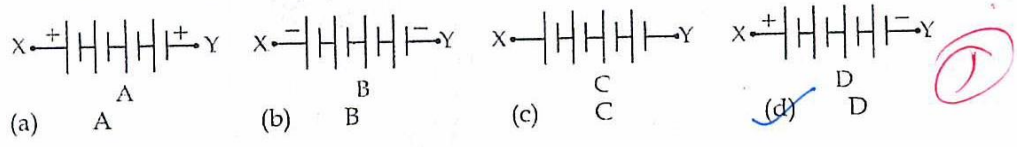
(a) pale green and colourless (b) blue and colourless
 (c) colourless and pale green (d) pale green and light blue

Q32. The least count of ammeter shown below is : [1]

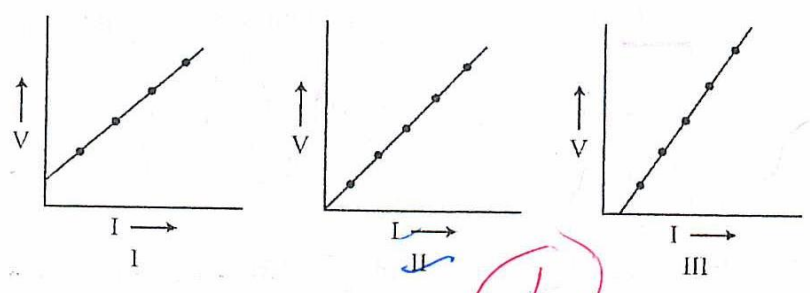


(a) 0.05 A (b) 0.1 A (c) 0.2 A (d) 0.25 A

Q33. A student performed an experiment "To study the dependence of potential difference (V) across a resistor on current (I) flowing through it" by using four cells, each of 1.5 V. She connected the cells as shown below. The correct combination of cells to obtain 6V potential difference across XY is : [1]



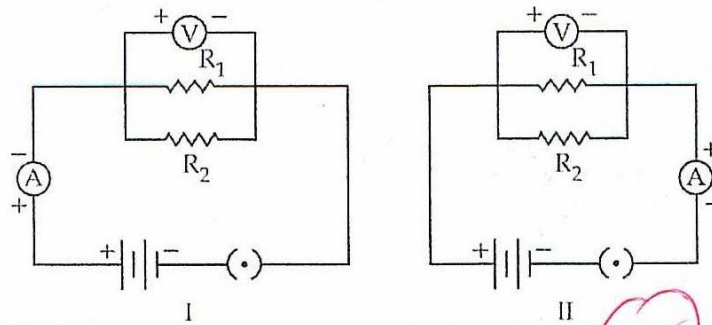
Q34. In the experiment 'To study the dependence of potential difference on current (I), three students plotted the following graphs between V and I as per their respective observations. [1]



The observations, likely to be correct are those of

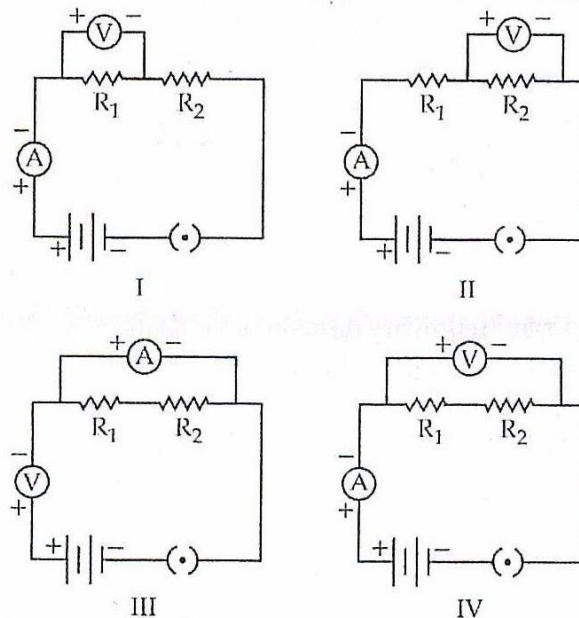
(a) student I only (b) student II only
 (c) student III only (d) all the students I, II and III

- Q35. In the experiment 'To find the equivalent resistance of two resistors, connected in parallel' two students connected the ammeter in two different ways as shown in the given circuits I and II. The ammeter has been correctly connected in : [1]



- a) Circuit I only b) Circuit II only
c) Both the circuits I and II d) neither I nor II

- Q36. In the experiment on finding the equivalent resistance of two resistors, connected in series, the voltmeter across the combination is connected correctly only in circuit. [1]



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

- Q37. A student performed the experiment 'To show that light is necessary for photosynthesis'. Before carrying out the test for the presence of starch in a leaf on exposure to sunlight, the leaf is put into alcohol contained in beaker and boiled over a water bath. This step is carried out to : [1]

- (a) extract starch
(b) remove the chlorophyll from the leaf
(c) allow water to move into the leaf
(d) activate the chloroplasts

- Q38. A student covered a portion of the experimental leaf from a destarched plant with a black paper strip and kept it in the garden outside. In the evening she tested the covered portion of the leaf for the presence of starch. The student was performing the experiment to verify that: [1]
- (a) CO₂ is given out during respiration
(b) CO₂ is necessary for photosynthesis
(c) Chlorophyll is necessary for photosynthesis
(d) Light is necessary for photosynthesis

Q39. In order to prepare a temporary mount of a leaf peel for observing stomata, the chemicals used for staining and mounting respectively are:

- (a) Safranin and glycerin (b) methyl orange and glycerin [1]
(c) glycerin and safranin (d) ethyl alcohol and safranin

Q40. Which of the following precautions should be kept in mind while preparing a temporary mount of an epidermal peel of a leaf:

- I Wash off extra stain from the peel with distilled water
II Clean slide and cover slip before use
III Put only a drop of glycerin on the cover slip [1]
IV Pull out a thin leaf peel
V Use filter paper to remove extra stain from the peel

- (a) I, II, III (b) I, II, IV
(c) III, IV, V (d) II, IV, V

Q41. In the experiment to show that CO_2 is given out during respiration, KOH is used to:

- (a) enhance respiration [1]
(b) to release oxygen for respiration
(c) to absorb CO_2 released by germinating seeds
(d) to remove water vapour from the flask

Q42. Which of the following precautions are to be taken to perform the experiment 'To show that CO_2 is given out during respiration. [1]

- (A) Conical flask should be air tight
(B) Seeds in the flask should be totally dry
(C) A small tube with freshly prepared KOH solution should be placed in the flask
(D) The end of the delivery tube should be above water level

The correct answer is :

- (a) A and B (b) A and C
(c) A, B and C (d) A, B and D

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$$x = \frac{27500}{275} = 1227.67$$

$$\frac{27500 \times 10}{275} = x$$

$$100 = \frac{106 \times 14 \times 7}{11 \times 29 \times 5 \times 10 \times 5 \times 10 \times 7} \times x$$

$$100 = 1.6 \times 10 \times 10 \times x$$

$$\frac{100}{1.6 \times 10 \times 10} = x$$

$$\frac{100}{160} = x$$

$$\frac{100}{16} = x$$

$$\frac{100}{16} = x$$

$$\frac{100}{16} = x$$

$$\frac{100}{16} = x$$

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$$\frac{100}{16} = x$$

$$\frac{100}{16} = x$$

$$\frac{100}{16} = x$$

100

$$\frac{27500 \times 10}{112} = x$$

$$27500 = 1102 \times x$$

$$100 = \frac{1102 \times x}{275}$$

$$100 = \frac{106 \times 14 \times 7}{11 \times 29} \times x$$

$$100 = \frac{106 \times 14 \times 7}{11 \times 29} \times x$$

$$100 = 106 \times 10 \times x$$

$$100 = 5 \times 10^{-4}$$

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