SAMPLE PAPER (SA-I)

Subject- Science

Time: - 3Hrs. **Class -X** **Maximum Marks 90**

Section A

Q1. Write the balanced chemical equation for the following reaction:

Sodium + Water →Sodium Hydroxide + Hydrogen

Q2. Name the pigment present in plants which can absorb solar energy.

Q3. Write any two characteristics of good fuel.

Q4. What is the difference between sensory and motor neurons? Which part of the brain maintains posture and equilibrium of the body?

Q5. What is an oxidation reaction? Identify in the following reactions

(i) The substance oxidized
(ii) The substance reduced
Zno + C →Zn + CO

Q6. Write the Namesand chemical formulae of the products formed by heating gypsum at 373 K.

Q7. What is meant by the term magnetic field lines ? List any two properties of magnetic field lines?

Q8.(a) Why cannot a chemical change be normally reversed?

(b) Why is it always essential to balance a chemical equation?

(c) Why does the colour of copper sulphate solution change when an iron nail is dipped in it?

Q9. Crystals of copper sulphateare heated in a test tube for some time.

(a) What is the colour of crystals (i) Before heating (ii) After Heating
(b) What is the source of liquid droplets seen on the inner wall of the test tube during the heating process?

Q10. (a) What are alloys

(b) Name the alloy of aluminium used in making aircraft? (
c)Write the names of metals present in solder?

Q11. (a) Classify the following reactions into different types

(i) $AgNo_3$ (aq) +Nacl(aq)→AgCl(s)+ $NaNo_3$
(ii) Cao(s)+H_2O →$Ca(OH)_2$
(iii) $2KClO_3$(s)--------> 2KCl + $3O_2$

(b)Which of the above reaction(s) is /are participation reaction(s) ?Why is a reaction called precipitation reaction?

Q12. Define the following terms:-

(1). Minerals

(2) Ores

(3) Gangue

Q13. What are the different ways in which glucose is oxidized to provide energy in various organisms?

Q14.Draw human excretory system and label

(1) Left Kidney (2) Ureter (3) Urinary bladder (4) Urethra

Q15. Which animal or plant hormone is associated with the following

1. Change at puberty in boys
2. Goitre
3. Inhibits growth of plants
4. promotes cell division
5. Increased sugar level in blood
6. Dwarfism

Q16. State three advantages of using solar cell to produce electricity. Why is their use for domestic purposes limited?

Q17 (a) What is meant by saying that the potential difference between two points is 1V? Name a device used to measure potential difference across a conductor.

(b) Electricity Resistivity of two substances at 20^0 C are given below

Silver $1.60 \times 10^{-8}\ \Omega m$

Copper $1.62 \times 10^{-8}\ \Omega m$

Among silver and copper, which one is better conductor ?Why ?

Q18.State Ohm's Law? How this law can be verified experimentally?

Q19 (a) State two factors on which the strength of magnetic field due to current carrying conductor depends

(b) Which rule is used to find the direction of magnetic field due to a straight current carrying conductor

Q20. Name the product formed in each case when

(1) Hydrochloric acid reacts with sodium hydroxide(aq)
(2) Cl_2 reacts with slaked lime
(3) Carbon dioxide is passed through lime water
(4) Zinc(s) reacts with Hydrochloric acid(l)

(5) Sodium Bicarbonate (s) is heated

Or

Give reasons for the following

(1) Zinc can displace copper from copper sulphate solution
(2) Silver articles become black after sometime when exposed to air
(3) H_2 gas is not evolved when most metals react with HNO_3
(4) We apply paint on iron grills
(5) We use gold in jewellery

Q21(a) Draw a diagram of nerve cell and label on it following

(1) Nucleus
(2) Dendrites

(b) With the help of schematic diagram trace the events occurring when you step on a sharp object

Or

(a) Name the enzyme present in the saliva? What is its importance
(b) What is emulsification of fats?
(c) Name the substance oxidized in human body during respiration
(d) Why are valves needed in the heart
(e) Why are lungs divided into very small sac like structures

Q22. What are the environmental consequences of the increasing demand of energy ? What steps would you suggest to reduce energy consumption

Or

(a) What ate the limitations of extracting energy from the wind?
(b) What are renewable & non-renewable sources of energy .write two examples of each

Q23(a) Write a short note on (1) Fuse (2) Earthing

(b) What is short circuit ?what happens if a domestic circuit is short circuited

Or

A current carrying wire is placed in east west direction. What will be the direction of force experienced by it due to a particular perpendicular magnetic field(external). How will the force will be affected on

(i) Doubling the magnitude of current
(ii) Reversing the direction of current through the wire

Q24(a)What is

(a) The highest (b) The lowest resistance that can be secured by combination of four coils of resistances 4Ω,8 Ω,12 Ω and 24 Ω
(b) An electric lamp of 100 Ω, a toaster of resistance 50 Ω and a water filter of resistance 500 Ω are connected in a parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all three appliances, and what is the current through it.?

Or

(a) What are the advantages of connecting electrical devices in parallel with the battery instead of connecting them in series

(b) How can three resistors of resistances 2 Ω,3 Ω and 6 Ω connected to give a total of (a) 4 Ω (b) 1 Ω

Section B

Multiple Choice questions

Q25. A solution has pH4. The solution will be

(a) Neutral
(b) Acidic
(c) Basic
(d) Ionic

Q26. What will be the pH of a basic solution

(a) pH>7
(b) pH=7
(c) pH < 7
(d) pH=0

Q27.If pH of solution changes from 3 to 4 , the solution becomes

(a) less acidic
(b) Basic
(c) More acidic
(d) Strongly basic

Q28.Which gas is evolved in the reaction of Zinc metal and NaOH

(a) Cl_2
(b) N_2
(c)O_2
(d) H_2

Q29.Name the scientist who proposed acid- Base theory

(a)Arrhenius
(b) Newton
(c) Dalton
(d) Einstein

Q30.Name the gas evolved when Zinc metal reacts with HCl acid

(a) CO
(b) CO_2
(c) SO_2
(d)H_2

Q31. What is the important property of an acid?

(a) Sour taste
(b) Soapy touch
(c) Bitter Taste
(d) No odour

Q32. A blue litmus paper was first dipped in dil. HCl and then in dil. NaOH solution. Itwas 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

Q33.Mathematically form of ohm's law is:

(a) R=1/V
(c) V= I/R

(b) R= V/I (d) None of above

Q34. Why do we use thick connecting wire

(a) Thick connecting wires offer negligible resistance
(b) Thick connecting wires offer less resistance
(c) Thick connecting wires offer more resistance
(d) None of above

Q35. How do you conclude that the conductor used in experiment obeyed Ohms law

(a) A graph between V and I comes to be straight line
(b) A graph between V and I comes to be parabolic line
(c) A graph between V and I comes to be parallel line
(d) None of above

Q36. The resistance of a straight conductor does not depend on its

(a) Temperature (c) Length
(b) Material (d) Shape of cross section

Q37.The commercial unit of electric power is :

(a) Volt (c) Watt
(b) Ampere (d)kWh

Q38. The movement of solvent particles from a region of higher concentration to a region of lower concentration is known as

(a) Transpiration (c) Diffusion
(b) Osmosis (d) None of the above

Q39. The chemical used for carrying out the starch test on a leaf is

(a) Iodine crystal (c) Iodine Solution
(b) Iodine powder (d) Potassium Iodide

Q40. Name the pigment which can absorb solar energy

(a) Carotenoids (c) Chlorophyll
(b) Plastides (d) None of these

Q41.The seeds used in experiment to show that co_2 is given out during respiration are:-

(a) Dry seeds (c) Crushed seeds
(b) Boiled Seeds (d) Germinated seeds

Q42.Barium Sulphate is:

(a) White (c) Green
(b) Yellow (d) Red

MODEL ANSWERS SAMPLE PAPER (SA-I)

1.2Na+ 2H2O-> 2 NaOH +H2

2.Chlorophyll

3. 1 high calorific value

2.Economic

4. Sensory nerves carry message from muscles to brain , motor nerves to carry message from brain to the muscles .

5. If substance gains oxygen during the reaction.

Oxidation C

Reduction ZnO

6. Plaster of paris, CaSO4.1/2 H2O

7. The field lines which emerges from north and merges at south

(i) They never intersect each other

(ii) They have maximum strength at poles.

8. (a) It cannot be reversed because new substances with new properties are formed.

(b) It is essential to balance the chemical equation to obey law of conservation of mass.

(c) Iron being more reactive than copper displace. So it displace copper from copper sulphate. Blue colour changes to green due to the formation of FeSO4 .

9. (a)(i) Blue (ii)White

(b) loss of water in crystalisation.

10.(a) Homogeneous mixture of two or more metals or non- metals mixed in molten state.

(b) Duralium

(c) solder is an alloy of lead and tin

11. (a) (i) Double displacement

(ii) Combination

(iii) Decomposition

(b) It is a precipitation reaction because precipitates are formed.

12.(i) Materials extracted from ore are called mineral.

(ii) Mineral from which metal is extracted called an ore.

(iii) Impurities present in an ore are called gangue.

13. Glucose (in cytoplasm)--→Energy+Pyruvate-------→(i) Absence of O2(yeast)->C2H5OH+ CO2+Energy

(ii) Lack of O2(muscle cells)-> Lactic acid + Energy

(iii) Presence of O2(mito.)->CO2+ H2O+ Energy

14.Fig. 6.30 Page no.110 NCERT

15.(i)Testosterone (ii) Thyroxine (iii)Abscissic acid (iv) Cytokinin (v)Insulin(vi) growth hormone

16. (i)Renewable source of energy

(ii) Accessible

(iii) Causes no pollution

(iv)Have no moving parts and requires less maintenance

(b) Availability of Si for making solar cell is limited.

17. 1 volt=1 joule/1 coulomb

Voltmeter

Silver is better conductor since resistivity is less than copper

18. At constant temperature, current flowing through a conductor is directly proportional to potential difference. Fig.12.2 of P.No. 204

19. (i) Number of coils

(ii) nature of materials

Right hand thumb rule

20. 1. NaCl (aq) and water

2. CaOCl2

3CaCO3

ZnCl2 and H2

5 Na2CO3, H2O and CO2

OR

Zn is more reactive than Cu

Tarnishing occurs due to formation of Ag2S

HNO3 is a strong oxidizing agent

To prevent rusting

It is a noble metal

21. Fig 7.1 a P.No. 115

(b) Sharp object-receptor of skin ->sensory nerve-> Spinal cord ->motor nerve->effector muscle in foot

(Reflex arc)

OR

Salivary amylase (digestion of starch)

Breakdown of bigger fat molecules into small globules

Carbohydrates

To prevent backward flow of blood

To increase the surface area

22. (i) Global warming

(ii) Green house effect

(iii) Melting of glaciers

(iv) Chances of flood

Steps to reduce energy-

Alternate source of energy

Economic use of energy.

OR

(a) 1. Wind energy farms can be established where wind blows for greater part of the year.

2 Establishment is costly

3 large area of land is required

b. The source of energy which can be renewed easily and are abundance in nature are called renewable source of energy. E.g. wind , air, sunlight.

Those sources of energy which cannot be renewed easily and are limited called non renewablr sources of energy. e.g coal, petroleum.

23. 1. It consists of a piece of wire of alloy having appropriate melting point.

2. transfer of charge from charged body to earth.

3. When the current in the circuit is increased suddenly.

Fuse wire melts and circuit breakdown

OR

The direction of force will be the north direction of wire .

Doubling the magnitude of current , the force acting will be doubled.

The direction of force will be reversed i.e. in the south direction.

24.(a)The highest value of resistance can be secured combining the four coils in series.

(b) The lowest resistance can be secured by combining the four coils in parallel. (ii)

Resistance of electric lamp=100 ohms

Resistance of electric toaster=50 ohm

Resistance of electric filter=500 ohm

Potential difference=220 V

Current flowing through the lamp=V/R=220/100=2.2A

Current flowing through toaster=220/50=4.4A

Current flowing through filter=220/500=0.4A

Total current through the electric iron =2.2+4.4+0.4=7A

Resistance of electric iron=V/I=220/7=31.4 Ohm

OR

Electrical devices are connected in parallel because (i) total resistance dec. when resistances are connected in parallel

(ii) If one appliance is switched off

(iii) Different amount of current flow through each appliance

B.Given

R1=2 Ohm

R2=3 Ohm

R3=6 Ohm

When R2 and R3 are connected in parallel R'=1/3+1/6=2+1/6=2 Ohm R1

and R' are connected in series 2+2=4 Ohm

When all 3 resistances are connected in parallel 1/R=1/2+1/3+1/6=1 Ohm

25. B	**26** A	**27**. A	**28**. B	**29** A	**30** D	**31** A
32 B	**33** B	**34** A	**35** A	**36** D	**37** D	**38** D
39 C	**40** C	**41** D	**42** A			