

**DWARKA INTERNATIONAL SCHOOL**  
**SECTOR-12, DWARKA, NEW DELHI-78**

**Science- Sample Paper**

**Half yearly examination**

**Class -X**

**MAX MARKS: 80**

**TIME: 3 Hours**

**GENERAL INSTRUCTIONS:**

- 1) This question paper is divided into three sections.
  - 2) All sections are compulsory.
  - 3) Marks of each question is written along with them.
  - 4) There is no overall choice.
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**SECTION A - PHYSICS**

**27 MARKS**

1. Fill in the blanks(1 mark each)
  - (i) ohms law gives the relationship between.....
  - (ii) Electric generator work on the principle of .....
  - (iii) Refractive Index of water is .....than glass.
  - (iv) .....is used as safety device in electrical appliances.
  - (v) Lens work on the phenomenon of .....of light.
2. Explain two disadvantages of series arrangement for house hold circuit. 2
3. A current carrying conductor produces a magnetic field around it. Is there a similar magnetic field produced around a thin beam of moving 2
  - (i) electrons
  - (ii) neutrons. Justify your answer.
4. Define refractive index. What are its units. 2
5. (a) Two lenses have powers of (i) + 2D and (ii) - 4D. What is the nature and focal length of each lens? 3
- (b) An object is kept at a distance of 100 cm from each of the above lenses. Calculate the (i) image distance and (ii) magnification in each of the two cases.
6. Explain the construction and working of AC generator with a diagram. 3
7. (i) What is meant by the statement that the resistance of a wire is  $1 \Omega$ ? 5
- (ii) Two identical resistors each of resistance  $12 \Omega$  are connected (i) in series (ii) in parallel, in turn to a battery of 6 V. Calculate the ratio of power consumed in the combination of resistors in the two cases.
- (iii) What combination is used for connecting in the circuit to measure the potential difference across two points ?
8. (i) State Fleming's left hand rule. 5
- (ii) A coil of insulated copper wire is connected to a galvanometer. What happens if a bar magnet is :
  - (a) pushed into the coil
  - (b) withdrawn from inside the coil



(b) Write the equation for the decomposition reaction.

5. Write balanced equations for the following, mentioning the type of reaction involved.

(a) Aluminium + Bromine  $\rightarrow$  Aluminiumbromide

(b) Calcium carbonate  $\rightarrow$  Calcium oxide + Carbon dioxide

(c) Silver chloride  $\rightarrow$  Silver + Chlorine

6. Name the type of chemical reaction represent by the following equation:

(a)  $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$

(b)  $3\text{BaCl}_2 + \text{Al}_2(\text{SO}_4)_3 \rightarrow 3\text{BaSO}_4 + 2\text{AlCl}_3$

(c)  $2\text{FeSO}_4 \rightarrow \text{Fe}_2\text{O}_3 + \text{SO}_2 + \text{SO}_3$

7. Explain the action of dilute hydrochloric acid on the following with chemical equations:

(a) Magnesium ribbon (b) Sodium hydroxide (c) Crushed egg shells

8. (a) Write the name given to bases that are highly soluble in water. Give an example.

(b) How is tooth decay related to pH? How can it be prevented?

(c) Why does bee sting cause pain and irritation? Rubbing of baking soda on the sting area gives relief. How?

9. A white powder is added while baking breads and cakes to make them soft and fluffy. Write the name of the powder? Name its main ingredients. Explain the function of each ingredient. Write the chemical reaction taking place when the powder is heated during baking.

10. (a) Name the compound which is obtained from baking soda and is used to remove permanent hardness of water.

(b) Write its chemical formula.

(c) What happens when it is recrystallised from its aqueous solution?

11. Answer the following questions:

(i) State the colour of phenolphthalein in soap solution.

(ii) Name the by-product of chlor-alkali process which is used for the manufacture of bleaching powder.

(iii) Name one indicator which specifies the various levels of  $\text{H}^+$  ion concentration.

12. Name the products formed in each case when

(a) hydrochloric acid reacts with caustic soda.

(b) granulated zinc reacts with caustic soda.

(c) carbon dioxide is passed into lime water.

13. Name the following:

(a) A metal, which is preserved in kerosene.

(b) A lustrous coloured non-metal.

(c) A metal, which can melt while kept on palm.

(d) A metal, which is a poor conductor of heat.

14. Write the electron dot structure for sodium and chlorine atoms. How do these form a chemical bond? Name the type of bond so formed. Why does a compound so formed have high melting point ?

15. Mention the names of the metals for the following:

- (a) Two metals which are alloyed with iron to make stainless steel.
- (b) Two metals which are used to make jewellery.

16. A student has been collecting silver coins and copper coins. One day she observed a black coating on silver coins and green coating on copper coins. Give the chemical name of black and green coating. How are they formed ?

17. State three reasons for the following facts:

- (a) Sulphur is a non-metal
- (b) Magnesium is a metal

One of the reasons must be supported with a chemical equation.

18. Write balanced equations for the reaction of :

- (a) aluminium when heated in air. Write the name of the product.
- (b) iron with steam. Name the product obtained.
- (c) calcium with water. Why does calcium start floating in water ?