

## CHAPTERWISE ONE MARK QUESTIONS WITH SOLUTIONS

### PHYSICS

#### 1. ELECTRICITY

1. What does an electric circuit mean?

A: Electric circuit means a continuous closed path of an electric current.

2. Define the unit of current.

A: The flow of 1 Coulomb of charge through a wire in 1 second (Ampere).

3. Name the device that helps to maintain a potential difference across a conductor.

A: Battery, Cell, Power supply etc.

4. What is meant by saying that the potential difference between two points is 1V?

A: If 1J of work is required to move a charge of 1C from one point to another

5. Define Coulomb's law.

A: The force of attraction or repulsion acting along a straight line between two electric charges is directly proportional to the product of the charges and inversely to the square of distance between them.

6. Define electric potential.

A: It is the work done in carrying a unit positive charge from infinity to that point against electric field.

7. Define electric potential difference.

A: The electrical potential difference is defined as the amount of work done to carrying a unit charge from one point to another in an electric field.

8. Define electrical resistance.

A: The opposition offered by a conductor to the flow of current through it is called electrical resistance.

9. What is the SI unit of resistance?

A: The SI unit of resistance is 'Ohm'.

10. How does a resistance of a wire vary with its area of cross section?

A: Resistance of wire is indirectly proportional to the area of cross section.

11. Define Ohm's law.

A: At constant temperature, the potential difference across a conductor is directly proportional to the current flowing through it.

#### 2. MAGNETIC EFFECTS OF ELECTRIC CURRENT:

12. Why does a compass needle get deflected when brought near a bar magnet?

A: The needle of the compass is a small magnet. It deflects because its magnetic field lines interact with the bar magnet.

13. Why don't two magnetic field lines of force intersect each other?

OR

Can two magnetic lines of force ever intersect? Justify your answer.

A: No, two magnetic lines of force never intersect each other. If they did, then there would be two directions at one point, which is not possible.

14. What is the principle of an electric motor?

A: An electric motor works on the principle that "a conductor carrying current experiences a mechanical force when placed in a magnetic field".

15. State the principle of an electric generator.

A: An Electric generator works on the principle of electromagnetic induction. It converts mechanical energy into electrical energy.

16. Name some sources of direct current.

A: Some forces of direct current are cell, DC generator, etc.

17. Which sources produce alternating current?

A: AC generators. Power plants, a cell, a battery, etc., produce alternating current.

18. When is the force experienced by a current- carrying conductor placed in a magnetic field largest?

A: The force experienced by a current carrying conductor is largest when the direction of current is perpendicular to the direction of the magnetic field.

19. Name some devices in which electric motors are used?

A: Some of the devices in which electric motors are used are Water pumps, Electric fans, Electric mixers and washing machine.

20. What does the direction of thumb indicate in the right-hand thumb rule?

A: Direction of the thumb indicates the motion of the conductor.

21. Why does the acceleration of a bar magnet decreases while falling through a solenoid, connected to a closed circuit?

A: The induced current will exert an opposing force which will reduce the acceleration of falling bar magnet.

22. What is the advantage of A.C over D. C?

A: The advantage of AC over DC is that electric power can be transmitted over long distances without much energy loss.

23. What does MRI stands for?

A: Magnetic Resonance Imaging.

24. What color conventions are used in domestic electrical wiring to indicate?

(i) Live wire      (ii) Neutral wire      (iii) Earth wire

A: (i) Live wire: Red      (ii) Neutral wire – Black      (iii) Earth wire – Green

### **3.CHAPTER: LIGHT**

25. Name the mirror that can give an erect and enlarged image of an object.

A: Concave mirror.

26. Define one diopter of power of lens.

A: A lens whose focal length is 1 meter, has optical power of Diopter.

27. Define principal focus of a concave mirror.

A: The principal focus of a concave mirror is a point on its principal axis to which all the light rays which is parallel and close to the axis; converge after reflection from the concave mirror.

28. The radius of a curvature of a spherical mirror is 26cm. What is its focal length?

A: Radius of curvature,  $R = 2 \times \text{focal length}$

$$f = R / 2$$

$$f = 26/2 = 13 \text{ cm}$$

29. Write the mirror formula.

A:  $1/v + 1/u = 1/f$

30. Write use of concave and convex mirror.

A: Concave mirror: telescopes, in shaving mirrors, vehicle headlights etc.

Convex mirror: rear view mirror in vehicles, street lamps etc.

31. What is radius of plane mirror?

A: The radius of a plane mirror is infinity.

32. What is the angle of reflection for a ray falling normally on a plane mirror?

A: Zero (0)

33. Write use of concave and convex mirror.

A: Concave mirror: telescopes, in shaving mirrors, vehicle headlights etc.

Convex mirror: rear view mirror in vehicles, street lamps etc.

**34. What is radius of plane mirror?**

**A: The radius of a plane mirror is infinity.**

**35. What is the angle of reflection for a ray falling normally on a plane mirror?**

**A: Zero (0)**

**36. Why do we use convex surface for side view mirror?**

**A: Convex mirror always form virtual, smaller and upright image of object for wide image.**

**37. What is the power of a plane mirror?**

**A: It is zero (0) since the focal length is at infinity.**

**38. When the angle of incidence is 90, what is the angle of refraction?**

**A: The angle of refraction is Zero degree.**

**39. What is the magnification produced by plane mirror?**

**A: Plane mirror cannot magnify image and has magnification 1.**

**40. Define power of a lens.**

**A: Power of lens is the ability of a lens to converge or diverge an incident ray of light.  
Its S I unit is Dioptre.**

**41. What are the two factors on which the lateral displacement of an emergent ray from a glass slab depends?**

**A: (i) Angle of incidence  
(ii) Thickness of glass slab.**

**42. What is the minimum distance between an object and its real image in case of a concave mirror?**

**A: The minimum distance is zero (0).**

**43. Why do we prefer a convex mirror as a rear view mirror in vehicles?**

**A: It is because, it covers a wide rear field and forms small, erect and virtual image, close to the eye of the driver of the vehicle.**

#### **4. THE HUMAN EYE AND THE COLORFUL WORLD**

**44. What is meant by power of accommodation of the eye?**

**A: The ability of the eye to adjust its focal length is called accommodation.**

**45. What is the far point and near point of the human eye with normal vision?**

**A: For normal eye, near point is 25cm and far point is at infinity.**

**46. Why is eye lens of telescope smaller than objective lens?**

**A: To sharpen the image which is obtained using telescope.**

**47. What is short sight? How can it be corrected?**

**A: Short sighted person can see near objects clearly but not far objects. It can be corrected by using suitable concave lens.**

**48. Which part of the human eye helps in the perception of colors?**

**A: The retina of the human eye.**

**49. Why does the objective lens of an astronomical telescope have a large light gathering power?**

**A: The objective lens of a telescope has a large space to have a large part of gathering power.**

**50. What property of the eye is the principle of motion pictures?**

**A: "Refraction of the light through the eye lens" is the basic principle for the motion pictures.**

**51. What is spectrum?**

**A: The band of colors obtained by the dispersion of complex light is called spectrum.**

**52. What is dispersion of light?**

**A: The splitting up of white light into seven colors on passing through a transparent medium is called dispersion.**

**53. What is Astigmatism?**

**A: It is the defect of an eye due to which person cannot focus on both the horizontal and vertical lines.**

**54. What is Tyndall effect?**

**A: The phenomenon of scattering of light by the colloidal particles gives rise to Tyndall effect.**

**55. What is Prism?**

**A: It is a transparent optical element which refracts light.**

## **5.SOURCES OF ENERGY**

**56. What is a good source of energy?**

**A: A good source of energy should be renewable and environmental friendly.**

**57. Which is the largest component of biogas?**

**A: Methane (up to 75%)**

**58. Name the gaseous fuel, which has the highest calorific value.**

**A: Hydrogen**

**59. CNG (Compressed Natural Gas) is considered as environmental friendly fuel. Why?**

**A: CNG does not produce toxic gases on burning.**

**60. What is slurry left over after generation of biogas in biogas plant and where is it used?**

**A: The slurry is rich in nitrogenous and phosphorus compounds and serves as excellent manures.**

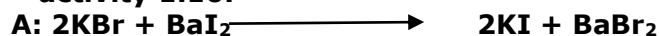
**61. How energy is produced in a nuclear reactor?**

**A: By the process of nuclear fission.**

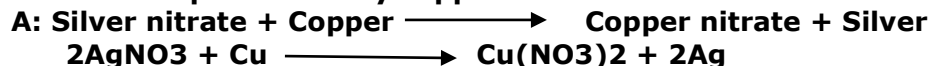
## **CHEMISTRY**

### **6.CHAPTER: CHEMICAL REACTIONS AND EQUATIONS**

**1. Give an example of a double displacement reaction other than the one given in activity 1.10.**



**2. In the refining of silver, the recovery of silver from silver nitrate solution involved displacement by copper metal. Write down the reaction involved.**



**3. What happens when magnesium ribbon burns in air?**

**A: When magnesium ribbon burns in air, it combines with the oxygen to form magnesium oxide.**

**4. Name the gas evolved when zinc reacts with dil HCl.**

**A: Hydrogen gas**

**5. On what chemical law, balancing of chemical equation is based?**

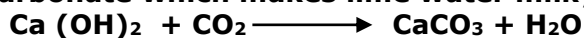
**A: It is based on Law of conservation of mass.**

**6. Represents decomposition of ferrous sulphate with the help of a balanced chemical equation.**



**7. When carbon dioxide is passed through lime water, it turns milky, Why?**

**A: Lime water combines with carbon dioxide to form a suspension of calcium carbonate which makes lime water milky.**



## **7.CHAPTER: ACIDS, BASES AND SALTS**

**8. Why does an aqueous solution of acid conduct electricity?**

**A: The presence of Hydrogen ion i.e., H<sup>+</sup> is charged ion. Movement of these ions causes flow of current in aqueous solution.**

**9. Why does HCL gas not change the color of the dry litmus paper?**

**A: Because it has no Hydrogen ions (H<sup>+</sup>) in it.**

**10. How is the concentration of Hydronium ions (H<sub>3</sub>O<sup>+</sup>) affected when a solution of an acid is diluted?**

**A: The concentration of hydronium ions(H<sub>3</sub>O<sup>+</sup>) decreases.**

**11. How is the concentration of hydroxide ions (OH<sup>-</sup>) affected when excess base is dissolved in a solution of sodium hydroxide?**

**A: The concentration of hydroxide ions (OH<sup>-</sup>) increases.**

**12. What is the common name of the compound CaOCl<sub>2</sub>?**

**A: Bleaching powder.**

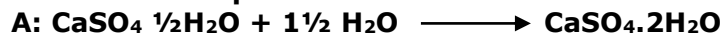
**13. Name the substance which on treatment with chlorine yields bleaching powder?**

**A: Calcium Hydroxide [Ca (OH)<sub>2</sub>]**

**14. Name the sodium compound which is used for softening hard water.**

**A: Washing soda (Na<sub>2</sub>CO<sub>3</sub>.10H<sub>2</sub>O)**

**15. Write an equation to show the reaction between Plaster of Paris and water.**



**16. Which acid is used in Pickling and why?**

**A: Acetic acid present in vinegar is used in pickling, because it prevents the growth of microorganisms and keeps pickle fresh.**

**17. What is an amphoteric substance?**

**A: A substance which it can behave either as an acid or base. Eg: Water**

**18. On the basis of origin, how acids are classified?**

**A: Acids are classified as Organic acids and inorganic acids.**

## **8.METALS AND NON-METALS**

**19. Give an example of a metal which is liquid at room temperature: A: Mercury**

**20. Give an example of a metal which can be cut with a knife: A: Sodium**

**21. Give an example of a metal which is the best conductor of heat: A: Silver**

**22. Give an example of a metal which is poor conductor of heat.**

**A: Mercury and Lead**

**23. What is malleability?**

**A: Substances that can be beaten into thin sheets are called malleability.**

**24. What is ductility?**

**A: Substances that can be drawn into thin wires are called ductility.**

**25. Why is sodium kept immersed in kerosene oil?**

**A: Sodium is highly reactive element. If it is kept in the open, it can explosively react with oxygen and catch fire. To prevent accidental damage, sodium is kept under kerosene.**

**26. Define Mineral.**

**A: The naturally occurring compounds of elements are known as minerals.**

**27. What is ore?**

**A: Minerals from which metals can be profitably extracted are known as ores.**

**28. What is Gangue?**

**A: The impurities present in an ore such as sand, rocks etc, are known as gangue.**

**29. Name two metals which re found in nature in the free state.**

**A: Gold, silver and platinum**

**30. Which metals do not corrode easily?**

**A: Metals which have low reactivity such as silver and gold do not corrode easily.**

**31. What are alloys? Give example.**

**A: An alloy is a homogeneous mixture of two or more metals and non-metals.**

**Eg: Brass is an alloy of Copper and Zinc.**

**32. What are amphoteric oxides? Give examples.**

**A: The oxides which behave as both acidic and basic oxides are called amphoteric oxides. Eg: Aluminium oxides, Zinc Oxides.**

**33. Give example for a non-metal which is the hardest substance.**

**A: Diamond**

**34. Give an example for a non-metal which is liquid at room temperature.**

**A: Bromine.**

**35. Which two metals are alloyed with iron to make stainless steel?**

**A: Nickel and Chromium.**

**36. Name two metals used to make jewelry.**

**A: Gold and Platinum.**

## **9. CARBON AND ITS COMPOUNDS:**

**37. Why is the conversion of ethanol to ethanoic acid an oxidation reaction?**

**A:  $\text{CH}_3\text{CH}_2\text{OH} + (\text{Alkaline KMnO}_4) \rightarrow \text{CH}_3\text{COOH}$**

**Since, in this reaction one oxygen is added to ethanol, it is an oxidation reaction.**

**38. What are oxidizing agents?**

**A: Chemical substances that are capable of adding oxygen to other chemical substances are known as oxidizing agents.**

**39. Would you be able to check if water is hard by using a detergent?**

**A: Detergents gives lather for both hard and soft water. Thus it is not possible to check if water is hard using a detergent.**

**40. What change will you observe if you test soap with litmus paper?**

**A: Since soap is basic in nature, it will turn red litmus to blue.**

41. Which of the following hydrocarbon undergo addition reactions?

$C_2H_6$ ,  $C_3H_8$ ,  $C_3H_6$ ,  $C_2H_2$  and  $CH_4$

A: Unsaturated hydrocarbons undergo addition reactions. Being unsaturated hydrocarbons,  $C_3H_6$  and  $C_2H_2$  undergo addition reaction.

42. What is hydrolysis?

A: Hydrolysis means addition of water molecule to break the bonds that are present in molecules.

43. What is dehydrogenation? Give example.

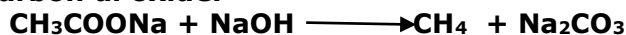
A: It is a chemical reaction that involves the removal of hydrogen from a molecule.

Ex: When ethanol is passed over red hot copper catalyst. It dehydrogenated to form acetaldehyde.



44. What is decarboxylation?

A: Decarboxylation is a chemical reaction that removes a carboxyl group and releases carbon di oxide.



45. How can you check which one is saturated butter or vegetable oil?

A: Butter contains saturated compound where as cooking oil contains unsaturated compounds. If alkaline  $KMnO_4$  is added to both, pink color will disappear in cooking oil but remains pink in butter.

46. What is isomerism?

A: The group of atoms in an organic compound that determines the chemical behavior of the compound is called a functional group.

47. Write the general formula for alkanes. Alkenes and alkynes.

A: Alkanes:  $C_nH_{2n+2}$                       Alkenes:  $C_nH_{2n}$                       Alkynes:  $C_nH_{2n-2}$

### **10 PERIODIC CLASSIFICATION OF ELEMENTS:**

48. State Dobereiner's law of triads.

A: 'When the elements are arranged in groups of three in increasing order of atomic masses, the atomic mass of the middle element is roughly the average of the atomic masses of the other two elements'.

49. What is the achievement of Dobereiner's law of triads?

A: This law was first to recognise relationship between atomic weight and chemical properties.

50. What are periods and groups in a Periodic table?

A: Periods: The horizontal rows of the periodic table.

Groups: The vertical columns of the periodic table.

51. State the modern periodic table.

A: Modern periodic table states that 'the properties of elements are periodic functions of their atomic numbers.'

52. Besides Gallium, which other elements have since been discovered that were left by Mendeleev.

A: Scandium and Germanium.

53. Why do you think the noble gases are placed in a separate group?

A: Noble gases are inert elements. Their properties are different from all other elements. Therefore noble gases are placed in a separate group.

54. In the modern periodic table, which are the Metals among the first ten elements.

A: Lithium (Li), Beryllium (Be)

55. Name four alkaline earth metals and to which group do they belong.

A: Any four alkaline earth metals are: Beryllium, Magnesium, Calcium and Strontium.

They belong to group 2.

## **BIOLOGY**

### **11. LIFE PROCESSES**

1. Which instrument is used to measure blood pressure in human beings?

A: Blood pressure is measured using Sphygmomanometer.

2. What is the function of ureter?

A: Ureters are long tubes which transport the urine from kidneys to the urinary bladder.

3. Name the solution is used to test the presence of starch in plants.

A: Iodine solution is used to test the presence of starch of in plants.

4. Name an organ which is a part of two body systems. Name those systems.

A: Pancreas.

The systems are: Endocrine system and Digestive system.

5. What are the simplest digestive products of Carbohydrates, Proteins and Fats?

A: Carbohydrates: Glucose, Proteins: Amino acids, Fats: Fatty acids and Glycerol.

6. What is autotrophic nutrition? Give example.

A: It is a kind of nutrition where the organisms prepare their own food by using raw materials like carbon dioxide, water and sunlight. Ex: Plants.

7. What are the methods used by the plants to get rid of excretory products?

A: Methods like: Transpiration and secretion of Gums and resins from the old xylem.

### **12. CONTROL AND COORDINATION:**

8. What is the difference between a reflex action and walking:

A: A reflex action is an involuntary action. It is an automatic response to stimuli. Walking is a voluntary action which requires our thinking. It is under our will and control.

9. Which part of the brain maintains posture and equilibrium of the body?

A: Cerebellum

10. What is the role of the brain in reflex action?

A: Brain has no direct involvement in reflex action. It is mainly controlled by Spinal cord as this action requires no thinking and is very quick action.

11. What are plant hormones or phytohormones?

A: Plant hormones or Phyto hormones are naturally- occurring chemicals. These are synthesized in one part of the plant body in little amounts and are translocated to other parts when required.

12. Give an example of plant hormone that promotes growth.

A: Auxin



**13. What is neuron?**

**A: It is the structural and functional unit of the nervous system.**

**14. Give examples for plant hormones that promotes growth?**

**A: Auxins, Gibberellins, Cytokinin.**

**15. Which part of the body produce growth regulators?**

**A: Pituitary Glands.**

**16. What is synapse?**

**A: It is the junction between two neurons.**

**17. List two functions performed by ovaries in a human female.**

**A: (a) Produces ovum or egg.**

**(b) Produces hormones like progesterone and oestrogen.**

**18. What does a stem (or shoot) do in a response to light?**

**A: The stem is positively phototropic (grows towards light).**

**19. What is coordination in living things?**

**A: The organ system cannot work independently. They are linked with various other systems of the body. Working together of all these systems is called coordination.**

**20. Mention the receptors of light and sound in animals.**

**A: Photoreceptor is the receptor for Light**

**Phono receptor is the receptor for sound.**

### **13.HOW DO ORGANISMS REPRODUCE?**

**21. Give example of two bacterial and two viral diseases which are transmitted through sexual contact.**

**A: Bacterial disease: Gonorrhoea, Syphilis    Viral Disease: Aids Genital Warts**

**22. Why is pair of testes located outside the body?**

**A: Because, Sperm formation requires a lower temperature than normal body temperature.**

**23. What is the function of seminal vesicle and prostate glands in the body?**

**A: The function is: the secretion of both the glands makes the flow of sperms easier.**

**24. Give one difference between Zygote and Embryo?**

**A: Zygote: It is single cell fusion.**

**Embryo: Multi cellular product.**

**25. How do oral contraceptive pills prevent the pregnancy?**

**A: Contraceptive pills do not allow release of ovum from the follicle. Hence fertilization does not take place.**

**26. If a woman is using a copper-T, will it help in protecting her from sexually transmitted diseases?**

**A: No, Copper T avoids only pregnancy.**

### **14.CHAPTER: HEREDITY AND EVOLUTION:**

**27. If a trait A exists in 10% of a population of an asexually reproducing species and trait B exists in 60% of the same population, which trait is likely to have arisen earlier?**

**A: Trait B, because it exists in a larger % in the population.**

**28. What factors could lead to the rise of a new species?**

**A: Natural selection, genetic drift and Gene flow lead to the rise of new species.**

**29. Define Natural selection.**

**A: It is a process by which nature selects individuals with the most favorable traits to survive and reproduce is known as natural selection.**

**30. Define Heredity.**

**A: "It is a process where certain features are transmitted from parents to an offspring".**

**31. Define Variation.**

**A: Offspring's of the same parents do not exactly resemble each other as well as their parents. It is known as species.**

**32. Define Homozygous.**

**A: Two alleles of a gene are said to be homozygous if they are similar. Ex: TT, tt**

**33. Define Heterozygous.**

**A: Two alleles of a gene are said to be heterozygous if they are different. Ex: Tt**

**34. Define Speciation.**

**A: Speciation is Development of one or more species from an existing species.**

**35. Define monohybrid inheritance.**

**A: It refers to the inheritance of single gene with two traits. (e.g T and t giving three possible genotypes i.e., TT, Tt and tt)**

**36. Define Artificial selection.**

**A: The process by which human beings artificially produce new plants or animals with improved characteristics through selective breeding in known as artificial selection.**

**37. Name the two law of inheritance postulated by Mendel?**

**A: (a) The law of segregation  
(b) The law of independent Assortment**

**38. What is DNA?**

**A: DNA stands for Deoxyribonucleic acid. It is found in chromosomes and carries genetic information.**

**39. Define Gene.**

**A: A segment of DNA that forms the heredity unit is called gene.**

## **15.OUR ENVIRONMENT**

**40. What is the role of decomposers in the ecosystem?**

**A: The decomposers break down the complex organic substances in dead plant and animal into simple inorganic substances. Ex: bacteria, fungi and worms.**

**41. What is environment?**

**A: The sum total of all surroundings of a living organism, including biotic and abiotic factors is called environment.**

**42. What happens when we add our waste to the environment?**

**A: When we add our waste to the environment, some of them are broken down by the biological processes, but rest persists for a long time and thus by causing imbalance in the ecosystem.**

**43. What happens after we throw waste away?**

**A: Fungi, bacteria and other living organisms in the presence of temperature and sunlight act on waste and try to break down.**

**44. What is an ecosystem?**

**A: It is the interaction between biotic and abiotic components present in a particular area.**

**45. What is CFC?**

**A: Chlorofluorocarbons are a group of chemicals whose molecules are made up of atoms of carbon, fluorine and chlorine.**

**46. What are primary and secondary pollutants?**

**A: Primary pollutants are those which are released directly into the atmosphere.**

**Ex: Sulphur di oxide. Nitric oxides and carbon monoxide.**

**Secondary pollutants are pollutants formed by photochemical reaction of primary pollutants. Ex: Ozone.**

## **16. SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES**

**47. What are natural resources?**

**A: Resources that are found in nature that support life and contribute to our development.**

**48. What do you mean by sustainable development?**

**A: Sustainable development means to meet the needs of present generation and preserving for future generation, to keep balance between development and environment.**

**49. How does mining lead to pollution?**

**A: Mining causes pollution because the large amount of stony waste matter (slag) is discarded for every tonne of metal extracted in the earth.**

**50. What is water shed management?**

**A: It is the scientific method of developing primary and secondary sources of water.**

**51. Write the ecological functions of forests.**

**A: Forests regulate climate, they help in retaining rain water, controls soil erosion and floods.**

**52. What is rain water harvesting?**

**A: The practice of collecting, storing and utilizing rainwater is known as rain water harvesting.**

**53. What are fossil fuels? Give example**

**A: Fuels formed in the interior of the earth over millions of years from the remains of dead plants and animals are called fossil fuels.**

**Ex: Coal, Petroleum and natural gas.**

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