Chemistry Worksheet on Chapter 16 Chemistry in Everyday life with answers – Set 4

Q-1: Among the following, a natural dye is

a) Phenolphthalein
b) Orange-I
c) Indigo
d) None of the above

Answer: c) Indigo

Explanation: Natural dyes come from natural sources. The majority are plant-based and derived from roots, wood, bark, berries, lichens, leaves, flowers, nuts, and seeds. Other sources include insects, shellfish, and mineral compounds. Until the development of synthetic dyes, natural dyes were the only source of colour for textiles, leather, basketry, and other materials.

Some examples are indigo , alizarin etc.

Q-2: List the four classification criteria for drugs?

Answer: Drugs are classified primarily based on the following criteria:

a) On the basis of pharmacological effect
b) On the basis of drug action
c) On the basis of chemical structure
d) On the basis of molecular targets

Q-3: Target molecules do not interact with

a) Carbohydrates
b) Proteins
c) Vitamins
d) Nucleic acids

Answer: c) Vitamins

Explanation: Drugs interact with biomolecules such as carbohydrates, lipids, proteins, and nucleic acids. These are referred to as target molecules or drug targets. Thus target molecules do not interact with vitamins.

Q-4: Which chemicals send messages to cells without entering them?

a) Chemical molecules
b) Chemical messengers
c) Chemical neurons
d) None of the above

Answer: b) Chemical messengers

Explanation: Certain chemicals in the body communicate messages between neurons and between neurons and muscles. Chemical messengers are chemicals that are received at the binding sites of receptor proteins. The shape of the receptor site changes to accommodate a messenger.This causes the message to be transferred into the cell. Thus, a chemical messenger delivers a message to a cell without entering it.

Q-5: Why are receptors selective for different chemical messengers?

Answer: In the body, there are numerous receptors that interact with various chemical messengers. Because their binding sites differ in shape, structure, and amino acid composition, these receptors prefer one chemical messenger over another.

Q-6: Which chemical is present in hair dye?

a) $AgNO_3$
b) $AgCl$
c) $AuCl_3$
d) $CuSO_4$

Answer: a) $AgNO_3$

Explanation: Silver nitrate is also used in the production of a variety of colouring agents such as dyes and inks. Some people use hair dyes that contain silver nitrate. Markers are used in the textile industry to mark the fabric. Silver Nitrate is also used in these markers. Indelible inks, which also use this chemical, create links that can never be removed.

Q-7: Which of the following is incorrect?

a) Amoxicillin is a naturally occurring antibiotic.
b) Aspirin works as an antipyretic.
c) Morphine is derived from opium poppy.
d) At certain low concentrations, some disinfectants can be used as antiseptics.

Answer: a) Amoxicillin is a naturally occurring antibiotic.

Explanation: Amoxicillin is the synthetic modification of penicillins.

Q-8: Which of the following is not an antibiotic?

a) Aminoglycosides
b) Tetracycline
c) Ofloxacin
d) Chloroxylenol

Answer: d) Chloroxylenol

Explanation: Dettol is an antiseptic composed of chloroxylenol and terpineol. As a result, chloroxylenol is a component of the antiseptic dettol.

Q-9: Which of the following is used as an abrasive in soap powders?

a) Finely divided sand
b) Trisodium phosphate
c) Sodium Hydrogen carbonate
d) Glycerol

Answer: a) Finely divided sand

Explanation: Soap powders and scouring soaps contain soap, an abrasive (scouring agent) such as powdered pumice or finely divided sand, and builders such as sodium carbonate and trisodium phosphate.

Q-10: Glycerol is an agent used to keep shaving soaps from drying out too quickly. Which type of chemical alcohol is it?

a) Dihydric alcohol
b) Trihydric alcohol
c) Monohydric alcohol
d) Tetrahydric alcohol

Answer: b) Trihydric alcohol

Explanation: Alcohols on the basis of the number of hydroxyl groups can be classified as:

Type of alcohol	Number of hydroxyl groups

Monohydric alcohol	1
Dihydric alcohol	2
Trihydric alcohol	3
Tetrahydric alcohol	4

Glycerol has the formula $CH_2(OH)CH(OH)CH_2(OH)$. It is a trihydric alcohol because it contains three hydroxyl groups.

Q-11: Which of the following saccharin-related statements is false?

a) It is the first widely used artificial sweetener.
b) It has a 100-fold sweeter taste than cane sugar.
c) Diabetics will benefit greatly from its use.
d) It is eliminated from the body in the form of urine.

Answer: b) It has a 100-fold sweeter taste than cane sugar.

Explanation: Saccharin was the first widely used artificial sweetening agent. It has been used as a sweetening agent since it was discovered in 1879. It is about 550 times sweeter than cane sugar. It is excreted from the body unchanged in urine. When consumed, it appears to be completely inert and harmless. Its application is extremely beneficial to diabetics and people who need to limit their calorie intake.

Q-12: Which of the following will have an effect on the nutritional value of food?

a) Amino acids
b) Antioxidants
c) Minerals
d) Vitamins

Answer: a), c) and d)

Explanation: Vitamins and minerals are important nutrients because they play a variety of roles in the body. They help to strengthen bones, heal wounds, and boost the immune system. In addition, they convert food into energy and repair cellular damage. Protein monomers are amino acids. Proteins are required for the body's growth and maintenance. As a result, amino acids will improve the nutritional value of food.

Antioxidants, on the other hand, aid in food preservation by slowing the action of oxygen on food. They work through a variety of chemical mechanisms and thus do not improve the nutritional value of food.

Q-13: Why is the branching of detergent hydrocarbon chains now regulated?

Answer: The main issue with detergents is that if their hydrocarbon chain is highly branched, bacteria cannot easily degrade it. Detergents accumulate due to their slow degradation.
Effluents containing such detergents enter rivers, ponds, and other bodies of water.
These remain in the water after sewage treatment and cause foaming in rivers, ponds, and streams, polluting the water.The branching of the hydrocarbon chain is now controlled and kept to a minimum. Because unbranched chains biodegrade more easily, pollution is avoided.

Q-14: What happens when drugs bind to the enzyme's allosteric site?

Answer: Some drugs do not bind to the active site of the enzyme. These bind to a different site of the enzyme known as the allosteric site.The binding of the inhibitor at the allosteric site alters the shape of the active site so that the substrate cannot recognise it.

Q-15: Soaps are salts of

a) Sodium and Calcium
b) Carbonate and Bicarbonate
c) Sodium and potassium
d) Potassium and magnesium

Answer: c) Sodium and potassium

Explanation: Cleaning soaps are sodium or potassium salts of long chain fatty acids such as stearic, oleic, and palmitic acids.

Q-16: Permanent hardness of water is due to

a) Magnesium and sodium carbonates
b) Magnesium and calcium bicarbonates
c) Magnesium and calcium chlorides
d) Magnesium and sodium chlorides

Answer: c) Magnesium and calcium chlorides

Explanation: Permanent hardness occurs when soluble salts of magnesium and calcium in the form of chlorides and sulphates are present in water.

Q-17: Which cleansing agents use polyethylene glycols for their preparation?

a) Cationic Detergents
b) Anionic Detergents
c) Non Ionic Detergents
d) Soaps

Answer: c) Non Ionic Detergents

Q-18: Which of the following vitamins is found in edible oil as an antioxidant?

a) K-vitamin
b) D vitamin
c) E vitamin
d) C vitamin

Answer: E vitamin

Q-19: Which drug classification is useful for medicinal chemists?

a) Based on the pharmacological effect
b) Based on chemical structure
c) Based on molecular targets
d) Based on drug action

Answer: c) Based on molecular targets

Explanation: Typically, drugs interact with biomolecules such as carbohydrates, lipids, proteins, and nucleic acids. These are referred to as target molecules or drug targets. Drugs with some structural similarities may have the same mechanism of action on targets. For medicinal chemists, the classification based on molecular targets is the most useful.

Q-20: Where are receptors found?

Answer: Receptors are proteins that are essential to the body's communication process. The vast majority of these are found in cell membranes. Receptor proteins are embedded in the cell membrane in such a way that their small active site-containing portion protrudes from the membrane's surface and opens on the cell membrane's outside region.