Chemistry Worksheet on Chapter 16 Chemistry in Everyday life With Answers− Set 1

Q-1: Sodium rosinate is used to

a) improve cleansing properties of water
b) improve leathering property of soaps
c) remove fats that bind other materials to fabrics or skin
d) remove gummy mass

Answer: b) improve leathering property of soaps

Explanation: Rosin gum is used in the manufacturing process of soap.It produces sodium rosinate, which lathers nicely.

Q-2: Which of the following builders is present in soap powders and scouring soap?

a) Magnesium carbonate
b) Trisodium phosphate
c) Powdered pumice
d) Lime

Answer: b) Trisodium phosphate

Explanation: The purpose of the builders is to speed up the action of the soaps. Builders such as sodium carbonate and trisodium phosphate are present in soap powders and scouring soaps along with soap, an abrasive (scouring agent) such as powdered pumice or finely divided sand.

Q-3: Bithional is added to medicinal soaps to improve their _____ properties.

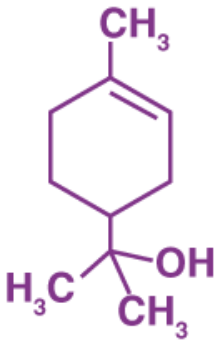
a) antibiotic
b) leathering
c) antiseptic
d) Rapid drying

Answer: c) antiseptic

Explanation: Antiseptics are chemicals that kill or inhibit the growth of microorganisms. They're used on living tissues like wounds, cuts, ulcers, and diseased skin surfaces. These are not taken orally like antibiotics.

One such antiseptic is Bithionol (also known as bithional) which is added to soaps to provide antiseptic properties.

Q-4: Dettol is an antiseptic that contains terpineol as one of its ingredients. The chemical structure of terpineol is show below:



Terpineol

Answer the following questions:

a) Is terpineol a terpene?
b) How many isoprene units does it contain?
c) Is it monoterpene or diterpene?

Answer:

a) Terpenes are plant produced compounds which contain one or more isoprene units in their carbon skeleton usually joined in a head to tail fashion.

Yes, terpineol is an example of terpene.

b) Calculate the total number of carbon atoms in the structure of terpineol and divide it by 5 to get isoprene units.

Total number of carbon atoms = 10
Number of isoprene unit = 10/5 = 2

c) Terpenes are classified according to the number of isoprene units in the molecule.

Terpene	Number of isoprene units

Monoterpenes	2
Sesquiterpenes	3
Diterpenes	4
Triterpenes	6
Tetraterpenes	8

Terpineol is a monoterpene because it contains two isoprene units.

Q-5: Drugs are chemicals of

a) High molecular mass
b) Low molecular mass
c) Very low molecular mass
d) No mass

Answer: b) Low molecular mass

Explanation: Drugs are low-molecular-mass chemicals (100 – 500u). These bind to macromolecular targets, eliciting a biological response.When the biological response is beneficial and therapeutic, these chemicals are called medicines that are used in diagnosis, prevention and disease treatment.

Q-6: Drug classification on the basis of _____is most useful to doctors?

a) Drug action
b) Pharmacological effect
c) Chemical structure
d) Molecular targets

Answer: b) Pharmacological effect

Explanation: Pharmacological effect classification is based on the drugs' pharmacological effects. It is beneficial to doctors because it provides them with a comprehensive list of drugs available for the treatment of a specific type of problem. Analgesics, for example, relieve pain while antiseptics kill or slow the growth of microorganisms.

Q-7: Match the medicine given in column I with their use in Column II.

Column I	Column II
a) Seldane	i) Analgesic
b) Iproniazid	ii) Neurotransmitter
c) Noradrenaline	iii) Antihistamine
d) Morphine	iv) Antidepressant drugs

Answer: a)- iii), b)-iv), c)-ii), d)-i)

Q-8: What exactly are antimicrobial drugs? Give three broad categories of antimicrobial drugs.

Answer: Microorganisms such as bacteria, viruses, fungi, and other pathogens can cause diseases in humans and animals.

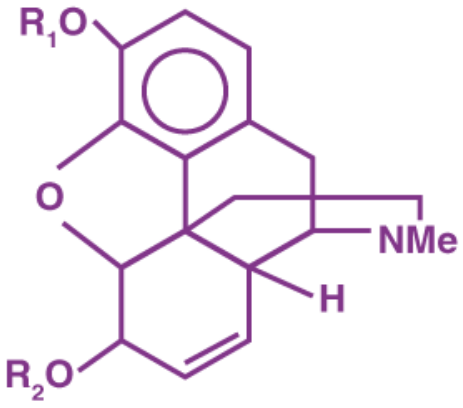
Antimicrobials selectively destroy/prevent the development of microbes such as bacteria (antibacterial drugs), fungi (antifungal agents), viruses (antiviral agents), or other parasites (antiparasitic drugs).

Antimicrobial drugs include antibiotics, antiseptics, and disinfectants.

Q-9: What is the primary issue with using synthetic detergents as a cleansing agent?

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.

Q-10: The phenanthrene group serves as the nucleus in many alkaloids, the structure of which is shown below. Determine R_1 and R_2 for morphine, a chief alkaloid in opium.



a) $R_1=R_2=CH_3$
b) $R_1=R_2=H$
c) $R_1=$ H and $R_2=CH_3$
d) $R_1=CH_3$ and $R_2=$ H

Answer: b) $R_1=R_2=H$

Q-11: Saccharin is the first popular artificial sweetening agent. What is its chemical name?

a) Benzonitrile
b) Ortho-sulphobenzimide
c) Benzamide
d) Ortho-hydroxymethyl benzamide

Answer: b) Ortho-sulphobenzimide

Q-12: BHA an acronym for Butylated hydroxy anisole is

a) An antioxidant
b) An analgesic
c) An antiseptic
d) A tranquiliser

Answer: a) An antioxidant

Explanation: These are necessary and important food additives. These contribute to food preservation by slowing the action of oxygen on food. They work through a variety of chemical mechanisms.

The two most well-known antioxidants are: Butylated hydroxytoluene (BHT) and butylated hydroxy anisole (BHA).

Q-13: Glycerol is produced during saponification, along with soap, which can be removed from solution by

a) Centrifugation
b) Fractional Distillation
c) Column Chromatography
d) Sedimentation

Answer: b) Fractional Distillation

Explanation: Soaps with sodium salts are made by heating glyceryl ester of fatty acid (fat) with an aqueous sodium hydroxide solution.This is called saponification.
In this reaction,esters of fatty acids are hydrolyzed and the resulting soap is colloidal. Sodium chloride is used to precipitate it from the solution. Glycerol can be recovered by fractional distillation from the solution left after removing the soap.

Q-14: What is the basic difference between bactericidal and bacteriostatic antibiotics?

Answer: The antibiotics that have cidal (killing) effect are termed as bactericidal and the one which have a static (inhibitory) effect on microbes is called bacteriostatic.

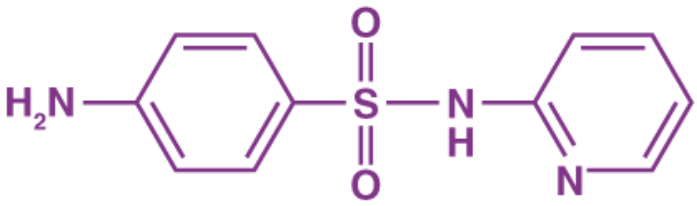
A few examples of the two types of antibiotics are as follows:

Bactericidal: Penicillin Erythromycin Aminoglycosides
Bacteriostatic: Tetracycline Ofloxacin Chloramphenicol

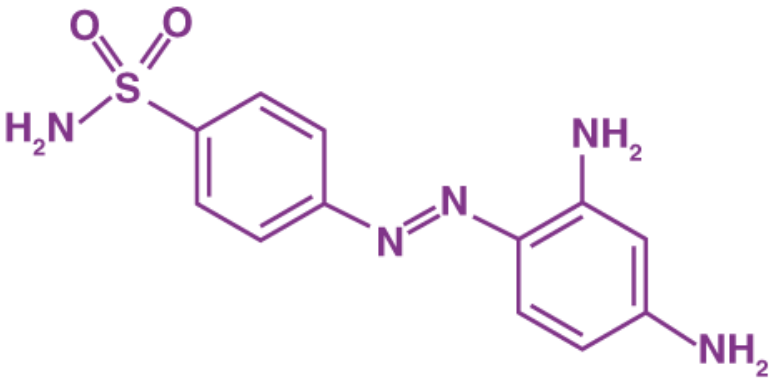
Q-15: What are sulpha drugs? Give some examples with their chemical structures.

Answer: Drugs that contain sulfonamide group(SO_2NH_2) are said to be sulpha drugs. These drugs are used to treat bacterial infections.

For example: Sulphapyridine, prontosil



Sulphapyridine



Q-16: What is tincture of iodine? What is its main purpose?

Answer: Iodine tincture is a 2-3 percent solution of iodine in an alcohol water mixture. It is an antiseptic that is used to treat wounds.

Q-17: Which of the following statements about enzyme inhibitors is false?

a) Hinders the substrate binding to active site of enzyme
b) Disturb the catalytic activity of enzyme
c) Form a strong bond with the enzyme to prevent substrate binding.
d) It can be non competitive and competitive

Answer: c) Form a strong bond with the enzyme to prevent substrate binding.

Explanation: Enzyme inhibitors are drugs that either block the enzyme's binding site and prevent substrate binding or inhibit the enzyme's catalytic activity.Depending on how they inhibit substrate attachment on enzyme active sites, they can be competitive or non-competitive.

Q-18: Iodex is one of the widely used medicinal drugs. Its another name is

a) Oil of vitriol
b) Oil of wintergreen
c) Red vitriol
d) Ethyl salicylate

Answer: b) Oil of wintergreen

Explanation: Methyl salicylate, also known as wintergreen oil, is a medicine iodex used to treat rheumatic pains and as a remedy for aches, sprains, and bruises.

Q-19: Define the terms:

a) Chemical Messengers
b) Antagonists
c) Competitive inhibitors

Answer:

a) **Chemical Messenger:** Certain chemicals in the body communicate messages between neurons and between neurons and muscles. These chemicals, known as chemical messengers, are received at receptor protein binding sites.
b) **Antagonists:** Antagonists are drugs that bind to the receptor site and inhibit its natural function. These are useful when message blocking is required.
c) **Competitive inhibitors:** Drugs compete with natural substrates for attachment to enzyme active sites. These drugs are known as competitive inhibitors.

Q-20: What are anionic detergents?How are they formed? Give two examples.

Answer: Anionic detergents are sodium salts of sulphonated long chain alcohols or hydrocarbons.

Alkyl hydrogen sulphates formed by treating long chain alcohols with concentrated sulphuric acid are neutralised with alkali to form anionic detergents.Similarly, alkyl benzene sulphonates are formed by neutralising alkyl benzene sulphonic acids with alkali.

Examples: Sodium lauryl sulphate and sodium dodecylbenzenesulfonate