

Chemistry Worksheet on Chapter 16 Chemistry in Everyday life with Answers – Set 3

Q-1: Which of the following statements is/are incorrect?

- a) Boric acid in diluted aqueous solutions is an effective wound antiseptic.
- b) Disinfectants are antimicrobial drugs
- c) Antiseptic medications can be consumed.
- d) Antiseptics are used on inanimate objects.

Answer: a),c) and d)

Explanation: Both antiseptics and disinfectants are classified as antimicrobial drugs.

An antiseptic has the ability to destroy/prevent the development of microbes as well as inhibit their pathogenic activity. Antiseptics are substances that are applied to living tissues such as wounds, cuts, ulcers, and diseased skin surfaces. Antiseptic medicines cannot be taken orally like antibiotics. For example: Dilute aqueous solution of Boric acid has a weak antiseptic effect on the eyes.

Above discussion makes option a),c) and d) incorrect.

Q-2: Which of the following statements about antifertility drugs is true?

- a) Only progesterone is present.
- b) Only estrogen is present.
- c) They contain a combination of synthetic estrogen and progesterone derivatives.
- d) Both synthetic estrogen and progesterone are sex glands.

Answer: c) They contain a combination of synthetic estrogen and progesterone derivatives.

Explanation: Antifertility drugs are chemical substances that are used to prevent pregnancy in women. Antifertility drug are essentially a combination of synthetic oestrogen and progesterone derivatives, which are both sex hormones. It is well understood that progesterone suppresses ovulation and estrogen regulates the menstrual cycle. Some common antifertility drugs contain a combination of norethindrone (a progesterone derivative) and novestrol (an estrogen).

Q-3: A limited-spectrum antibiotic is effective against

- a) Bacteria with Gram negative characteristics
- b) Bacteria that are Gram positive
- c) Gram positive and gramme negative bacteria
- d) Individual disease or organism

Answer: d) Individual disease or organism

Explanation: Antibiotics can be classified in three categories:

1. Broad spectrum antibiotics are effective against a wide variety of harmful bacteria, including both gram-positive and gram-negative bacteria.
2. Narrow spectrum antibiotics are mostly effective against gram-positive or gram-negative bacteria.
3. A limited spectrum antibiotic is one that is only effective against a single organism or disease.

Q-4: Parkinson's disease is associated with changes in dopamine levels in the body. The IUPAC name for dopamine is

- a) 1-aminoethyl-4,5-dihydroxybenzene
- b) 4,5-dihydroxy-1-aminoethyl benzene
- c) 4-(2-aminoethyl)benzene-1,2-diol
- d) 1,2-dihydroxy-4-aminoethyl benzene

Answer: c) 4-(2-aminoethyl)benzene-1,2-diol

Q-5: What do you mean by anaesthetics? Give its two types?

Answer: Anaesthetics are used during surgical procedures producing temporary insensibility to the vital functions of all types of cells, particularly those of the nervous system. These are classified as

(a) General anaesthetics, which produce unconsciousness throughout the body (e.g., N_2O , Cyclopropane, chloroform).

(b) Local anaesthetic that affects only a specific part of the body such as Xylocaine, Procain.

Q-6: Which of the following statements is false about aspirin ?

- a) It is a drug that has no effect on the nervous system.
- b) It has anti-clotting properties.
- c) It prevents the synthesis of prostaglandins, which are responsible for tissue inflammation and pain.
- d) It is a non-addictive analgesic.

Answer: a) It is a drug that has no effect on the nervous system

Explanation: Aspirin is an analgesic, and analgesics are drugs that act on the nervous system.

Aspirin inhibits the synthesis of compounds known as prostaglandins, which cause tissue inflammation and pain. As a result, it is effective in pain relief. Aside from that, aspirin has a variety of other effects,

including the reduction of fever and the prevention of blood platelet coagulation. It is not addictive because it is a non-narcotic drug.

Q-7: Sodium lauryl sulphate is an anionic detergent which is prepared by the action of sulphuric acid followed by neutralisation starting with

- a) Lauryl Hydrogen sulphate
- b) Lauryl alcohol
- c) Lauryl alcohol ethoxylate
- d) Cyclohexanol

Answer: b) Lauryl alcohol

Explanation: Sodium lauryl sulphate (anionic detergent) is formed by neutralising lauryl hydrogen sulphate, which is formed by treating lauryl alcohol with concentrated sulfuric acid.

Q-8: Which of the following statements is/are wrong for non-ionic detergents?

- a) They do not contain any charge
- b) They do not contain any ion
- c) They are not neutral
- d) Pentaerythryl stearate is non - ionic detergent

Answer: c) They are not neutral

Explanation: Non-ionic detergents have no ions in their composition. Non-ionic detergents have no anionic or cationic charge, which means they are neutral due to the lack of charge.

Liquid dishwashing detergents and Pentaerythryl stearate are non-ionic types.

Q-9: Which of the following can be employed as a tranquiliser?

- a) Promethazine
- b) Valium
- c) Naproxen
- d) Ibuprofen

Answer: b) Valium

Example: Tranquillisers are a type of chemical compound that is used to treat stress and mild to severe mental illnesses. There are various types of tranquillisers.

Valium and serotonin are two examples of tranquillisers.

Q-10: How do antihistamines work? Give some examples.

Answer: Antihistamines interfere with histamine's natural action by competing with it for binding sites on receptors where histamine acts. Brompheniramine (Dimetapp) and terfenadine (Seldane) are a few antihistamines.

Q-11: Give the distinction between antagonists and agonists.

Answer:

Antagonists	Agonists
Antagonists are drugs that bind to the receptor site and inhibit its natural function.	Agonists are the drugs that mimic the natural messenger by switching on the receptor.
These are useful when message blocking is required.	These are employed when there is a lack of natural chemical messengers.

Q-12: Which if the following is not an antipyretic?

- a) Phenacetin
- b) Meprobamate
- c) Paracetamol
- d) Arthriten

Answer: b) Meprobamate

Explanation: Antipyretics are medications that effectively reduce fever. Except meprobamate, all are antipyretics.

Meprobamate is a tranquiliser.

Q-13: What are micelles? Provide the conditions for their formation.

Answer: Some substances behave as normal strong electrolytes at low concentrations but exhibit colloidal behaviour at higher concentrations due to aggregate formation. Micelles are the aggregated particles that are produce from this process. These are also referred to as associated colloids. Micelle formation occurs only above a certain temperature known as the Kraft temperature (T_k) and a certain concentration known as the critical micelle concentration (CMC).

Q-14: Chloramphenicol is an antibiotic with a broad spectrum of action. What is its function?

Answer: Chloramphenicol, isolated in 1947, is a broad spectrum antibiotic. It is rapidly absorbed from the gastrointestinal tract, and therefore can be administered orally in cases of typhoid, acute fever, dysentery, certain types of urinary infections, meningitis, and pneumonia.

Q-15: The new enzyme is created by the body when

- a) Between the enzyme and the inhibitor, a weak bond forms.
- b) An enzyme-inhibitor covalent bond is formed.
- c) There is no interaction between the enzyme and the inhibitor.
- d) Van der Waals forces attract the enzyme and the inhibitor.

Answer: b) An enzyme-inhibitor covalent bond is formed.

Explanation: If the bond formed between an enzyme and an inhibitor is a strong covalent bond that cannot be easily broken, the enzyme is permanently blocked.

The enzyme-inhibitor complex is then degraded by the body, and the new enzyme is synthesised.

Q-16: How do azodyes and salvarsan resemble each other?

Answer: Paul Ehrlich studied arsenic-based structures in order to create less toxic substances for syphilis treatment. Arsphenamine, also known as salvarsan, was developed by him. Ehrlich was also working on azodyes at the time. He noticed similarities in the structures of salvarsan and azodyes. The $-As = As-$ linkage in arsphenamine is similar to the $-N = N -$ linkage in azodyes in that an arsenic atom is present in place of nitrogen.

Q-17: What is the underlying cause of a person's depression? How can it be cured?

Answer: If the noradrenaline level falls for any reason, the signal-sending activity falls, and the person suffers from depression. Antidepressant medications are required in such cases. These medications work by inhibiting the enzymes that catalyse the breakdown of noradrenaline. If the enzyme is inhibited, this important neurotransmitter is slowly metabolised and can activate its receptor for longer periods of time, effectively counteracting the effect of depression. Iproniazid and phenelzine are two examples of such medications.

Q-18: What could happen if you ingest poisonous doses of narcotic analgesics?

Answer: In toxic doses, narcotic analgesics cause stupor, coma, convulsions, and, eventually, death.

Q-19: Which soap is created by dissolving the soap in ethanol and then evaporating the excess solvent?

- a) Toilet soaps

- b) Medicated soaps
- c) Shaving soaps
- d) Transparent soaps

Answer: d) Transparent soaps

Q-20: How are potassium soaps made? What name is given to such reactions?

Answer: Potassium salt soaps are made by heating fat (glyceryl ester of fatty acid) with an aqueous potassium hydroxide solution. Saponification is the name given to this reaction. Esters of fatty acids are hydrolyzed in this reaction, and the resulting soap is colloidal. Sodium chloride is used to precipitate it from the solution.

