

## Chemistry in Everyday Life

### Practice Questions

- A biological response is produced by drugs when it interacts with
  - micromolecular targets
  - macromolecular targets
  - any type of molecules
  - micromolecules as well as macromolecules
- Use of chemicals for therapeutic effect is known as
  - physiotherapy
  - radiotherapy
  - chemotherapy
  - endotherapy
- Drugs can be classified on the basis of
  - pharmacological effect
  - molecular target
  - chemical structure
  - All of the above
- Receptors are selective in nature because it binds to
  - all type of chemical messengers.
  - a particular type of chemical messenger
  - cell membrane
  - All of the above
- Which of the following is a function of antagonist?
  - Mimic the natural messenger
  - It mimics the receptor
  - It binds to receptor site and inhibits its function
  - All of the above
- In the stomach, histamine stimulates the secretion of pepsin and
  - sulphuric acid and hydrochloric acid
  - sulphuric acid
  - hydrochloric acid
  - sodium hydroxide
- Noradrenaline is a/an
  - antidepressant
  - antihistamine
  - neurotransmitter
  - antacid
- Drugs, iproniazid and phenelzine belong to class of
  - depressant drugs
  - antidepressant drugs
  - antibiotics
  - antiseptic
- Drug which is used in controlling depression as well as hypertension is
  - penicillin
  - tetracycline
  - salvarsan
  - equanil
- Which of the following are the derivatives of barbituric acid?
  - Veronal and amytal
  - Nembutal and luminal
  - Both (a) and (b)
  - Neither (a) nor (b)
- The IUPAC name of aspirin is
  - o*-acetyl salicylic acid
  - phenyl salicylate
  - acetyl salicylate
  - methyl salicylic acid
- Which of the following drug inhibits the synthesis of prostaglandins?
  - Paracetamol
  - Aspirin
  - Codeine
  - Valium
- Which of the following analgesics are called opiates?
  - Morphine
  - Codeine
  - Both (a) and (b)
  - Aspirin
- Which of the following is a function of enzyme?
  - It holds the substrate for a chemical reaction
  - It provides functional groups
  - Both (a) and (b)
  - None of the above
- The site, apart from active site, at which the binding of drug to the enzyme takes place is called
  - activator site
  - regular site
  - allosteric site
  - All of these
- The receptor proteins are embedded in the
  - DNA
  - cell membrane
  - cytoplasm
  - RNA
- Which of the following is an arsenic containing drug?
  - Penicillin
  - Equanil
  - Salvarsan
  - Chloramphenicol
- Among the following, the narrow spectrum antibiotic is
  - ampicillin
  - amoxycillin
  - chloramphenicol
  - penicillin G
- Which of the following antibiotics is supposed to be toxic towards certain strains of cancer cells?
  - Vancomycin
  - Dysidazirine
  - Ofloxacin
  - Penicillin G
- Which of the following is an example of synthetic progesterone derivative?
  - Novestrol
  - Chloroxylenol
  - Norethindrone
  - Terpineol
- Artificial sweetener which is stable under cold conditions only is
  - saccharin
  - sucralose
  - aspartame
  - alitame
- Food preservatives prevent spoilage of food due to microbial growth. The most commonly used preservative is
  - $C_6H_5COONa$
  - table salt
  - vegetable oils
  - All of the above
- The product formed in the reaction given below is
 
$$2C_{17}H_{35}COONa + CaCl_2 \longrightarrow 2NaCl + \dots$$
  - $(C_{17}H_{35}COO)_2Ca$ ; insoluble calcium stearate
  - $(C_{17}H_{35}COO)_2Ca$ ; soluble calcium stearate
  - $(C_{16}H_{34}COO)_2Ca$ ; soluble calcium stearate
  - $(C_{16}H_{34}COO)_2Ca$ ; insoluble calcium stearate
- Which of the following is an anionic detergent?
  - Sodium lauryl sulphate
  - Cetyltrimethyl ammonium bromide
  - Glyceryl oleate
  - Sodium stearate
- Which type of detergent is formed when stearic acid reacts with polyethylene glycol?
  - cationic detergents
  - non-ionic detergents
  - anionic detergents
  - None of the above

## ANSWERS

1. (b)	2. (c)	3. (d)	4. (c)	5. (c)	6. (b)	7. (b)	8. (c)	9. (c)	10. (c)
11. (b)	12. (d)	13. (c)	14. (a)	15. (b)	16. (a)	17. (c)	18. (d)	19. (b)	20. (c)
21. (c)	22. (d)	23. (a)	24. (a)	25. (b)					

## Hints & Solutions

- 1. (b)** Drugs interact with macromolecular targets to produce a biological response. When the biological response is therapeutic and useful, these chemicals are called medicines.
- 4. (c)** The first function of enzyme is to hold the substrate molecule for chemical reaction and the second function is to provide functional groups that will attack the substrate and carry out the reaction.  
Thus, the correct option is (c).
- 7. (b)** Receptors are selective in nature as they bind to a particular type of chemical messenger. This is because, their binding sites have different shape, structure and amino acid composition.
- 10. (c)** Noradrenaline is one of the example of neurotransmitters. It plays a major role in mood changes. If the level of noradrenaline is low for some reason, then signal-sending activity becomes low and the person suffers from depression.
- 11. (b)** Iproniazid and phenelzine are antidepressant drugs. These drugs inhibit the enzymes which catalyse the degradation of noradrenaline. If the enzyme is inhibited, this important neurotransmitter is slowly metabolised and can activate its receptor for longer periods of time, thus counteracting the effect of depression.
- 17. (c)** Salvarsan is an arsenic containing drug which was first used for curing syphilis.
- 18. (d)** Penicillin G has a narrow spectrum. Ampicillin and amoxycillin are synthetic modifications of penicillin. These have broad spectrum, also chloramphenicol is a broad spectrum antibiotic.
- 20. (c)** Norethindrone is an example of synthetic progesterone derivative most widely used as a antifertility drug.
- 21. (c)** Aspartame is the only artificial sweetener which is stable at lower temperature and decomposes at higher temperature. Therefore, its use is limited to cold foods and soft drinks.
- 24. (a)** Sodium lauryl sulphate  $[(CH_3(CH_2)_{10}CH_2OSO_3^-Na^+)] =$   
Anionic detergent  
Cetyltrimethyl ammonium bromide
- $$\left[ CH_3(CH_2)_{15} - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{N}} - CH_3 \right]^+ Br^- = \text{Cationic detergent}$$
- Glyceryl oleate  $[(C_{17}H_{32}COO)_3C_3H_5] =$   
Non-ionic detergent  
Sodium stearate  $[C_{17}H_{35}COO^-Na^+] =$  Anionic soap