

I. Multiple Choice Questions (Type-I)

1. Which of the following statements is not correct.

- (i) Some antiseptics can be added to soaps.
- (ii) Dilute solutions of some disinfectants can be used as antiseptic.
- (iii) Disinfectants are antimicrobial drugs.
- (iv) Antiseptic medicines can be ingested.

Solution:

Option (iv) is the answer.

2. Which is the correct statement about birth control pills?

- (i) Contain estrogen only.
- (ii) Contain progesterone only.
- (iii) Contain a mixture of estrogen and progesterone derivatives.
- (iv) Progesterone enhances ovulation.

Solution:

Option (iii) is the answer.

3. Which statement about aspirin is not true

- (i) Aspirin belongs to narcotic analgesics.
- (ii) It is effective in relieving pain.
- (iii) It has an anti-blood-clotting action.
- (iv) It is a neurologically active drug.

Solution:

Option (i) is the answer.

4. The most useful classification of drugs for medicinal chemists is _____.

- (i) based on chemical structure.
- (ii) on the basis of drug action.
- (iii) on the basis of molecular targets.
- (iv) on the basis of the pharmacological effect.

Solution:

Option (iii) is the answer.

5. Which of the following statements is correct?

- (i) Some tranquilisers function by inhibiting the enzymes which catalyse the degradation of noradrenaline.
- (ii) Tranquilisers are narcotic drugs.
- (iii) Tranquillizers are chemical compounds that do not affect the message transfer from nerve to the receptor.
- (iv) Tranquilisers are chemical compounds that can relieve pain and fever.

Solution:

Option (i) is the answer.

6. Salvarsan is an arsenic-containing drug which was first used for the treatment of _____.

- (i) syphilis
- (ii) typhoid
- (iii) meningitis
- (iv) dysentery

Solution:

Option (i) is the answer.

7. A narrow-spectrum antibiotic is active against _____.

- (i) gram-positive or gram-negative bacteria.
- (ii) gram-negative bacteria only.
- (iii) single organism or one disease.
- (iv) both gram-positive and gram-negative bacteria.

Solution:

Option (i) is the answer.

8. The compound that causes general antidepressant action on the central nervous system belongs to the class of _____.

- (i) analgesics
- (ii) tranquillizers
- (iii) narcotic analgesics
- (iv) antihistamines

Solution:

Option (ii) is the answer.

9. Compound which is added to soap to impart antiseptic properties is _____.

- (i) sodium laurylsulphate
- (ii) sodium dodecylbenzenesulphonate
- (iii) rosin
- (iv) bithional

Solution:

Option (iv) is the answer.

10. Equanil is _____.

- (i) artificial sweetener
- (ii) tranquilizer
- (iii) antihistamine
- (iv) antifertility drug

Solution:

Option (ii) is the answer.

11. Which of the following enhances the leathering property of soap?

- (i) Sodium carbonate
- (ii) Sodium resinate
- (iii) Sodium stearate
- (iv) Trisodium phosphate

Solution:

Option (ii) is the answer.

12. Glycerol is added to soap. It functions _____.

(i) as a filler.

(ii) to increase leathering.

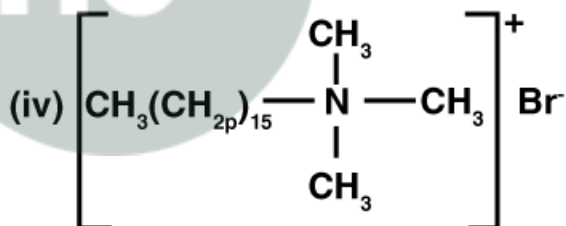
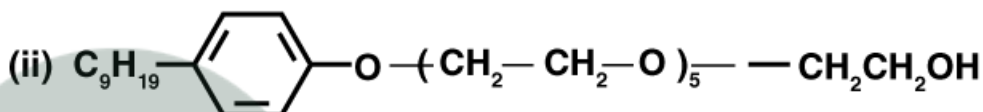
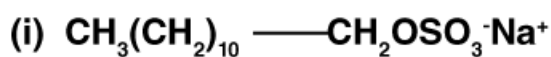
(iii) to prevent rapid drying.

(iv) to make soap granules.

Solution:

Option (iii) is the answer.

13. Which of the following is an example of liquid dishwashing detergent?



Solution:

Option (ii) is the answer.

14. Polyethyleneglycols are used in the preparation of which type of detergents?

(i) Cationic detergents

(ii) Anionic detergents

(iii) Non-ionic detergents

(iv) Soaps

Solution:

Option (iii) is the answer.

15. Which of the following is not a target molecule for drug function in the body?

(i) Carbohydrates

- (ii) Lipids
- (iii) Vitamins
- (iv) Proteins

Solution:

Option (iii) is the answer.

16. Which of the following statements is not true about enzyme inhibitors?

- (i) Inhibit the catalytic activity of the enzyme.
- (ii) Prevent the binding of substrate.
- (iii) Generally, a strong covalent bond is formed between an inhibitor and an enzyme.
- (iv) Inhibitors can be competitive or non-competitive.

Solution:

Option (iii) is the answer.

17. Which of the following chemicals can be added for sweetening of food items at cooking temperature and does not provide calories?

- (i) Sucrose
- (ii) Glucose
- (iii) Aspartame
- (iv) Sucralose

Solution:

Option (iv) is the answer.

18. Which of the following will not enhance the nutritional value of food?

- (i) Minerals
- (ii) Artificial sweeteners
- (iii) Vitamins
- (iv) Aminoacids

Solution:

Option (ii) is the answer.

II. Multiple Choice Questions (Type-II)

Note: In the following questions two or more options may be correct.

19. Which of the following statements are incorrect about receptor proteins?

- (i) Majority of receptor proteins are embedded in the cell membranes.
- (ii) The active site of receptor proteins opens on the inside region of the cell.
- (iii) Chemical messengers are received at the binding sites of receptor proteins.
- (iv) The shape of the receptor doesn't change during attachment of the messenger.

Solution:

Option (ii) and (iv) are the answers.

20. Which of the following are not used as food preservatives?

- (i) Table salt

- (ii) Sodium hydrogen carbonate
- (iii) Cane sugar
- (iv) Benzoic acid

Solution:

Option (i) and (iii) are the answers.

21. Compounds with antiseptic properties are _____.

- (i) CHCl_3
- (ii) CHI_3
- (iii) Boric acid
- (iv) 0.3 ppm aqueous solution of Cl_2

Solution:

Option (ii) and (iii) are the answers.

22. Which of the following statements are correct about barbiturates?

- (i) Hypnotics or sleep producing agents.
- (ii) These are tranquillizers.
- (iii) Non-narcotic analgesics.
- (iv) Pain reducing without disturbing the nervous system.

Solution:

Option (i) and (ii) are the answers.

23. Which of the following are sulpha drugs?

- (i) Sulphapyridine
- (ii) Prontosil
- (iii) Salvarsan
- (iv) Nardil

Solution:

Option (i) and (ii) are the answers.

24. Which of the following are antidepressants?

- (i) Iproniazid
- (ii) Phenelzine
- (iii) Equanil
- (iv) Salvarsan

Solution:

Option (i), (ii) and (iii) are the answers.

25. Which of the following statements are incorrect about penicillin?

- (i) An antibacterial fungus.
- (ii) Ampicillin is its synthetic modification.
- (iii) It has a bacteriostatic effect.
- (iv) It is a broad-spectrum antibiotic.

Solution:

Option (iii) and (iv) are the answers.

26. Which of the following compounds are administered as antacids?

- (i) Sodium carbonate
- (ii) Sodium hydrogen carbonate
- (iii) Aluminium carbonate
- (iv) Magnesium hydroxide

Solution:

Option (ii) and (iv) are the answers.

27. Amongst the following antihistamines, which are antacids?

- (i) Ranitidine
- (ii) Brompheniramine
- (iii) Terfenadine
- (iv) Cimetidine

Solution:

Option (i) and (iv) are the answers.

28. Veronal and luminal are derivatives of barbituric acid which are _____.

- (i) Tranquillizers
- (ii) Non-narcotic analgesic
- (iii) Antiallergic drugs
- (iv) Neurologically active drugs

Solution:

Option (i) and (iv) are the answers.

29. Which of the following are anionic detergents?

- (i) Sodium salts of sulfonated long-chain alcohol.
- (ii) Ester of stearic acid and polyethylene glycol.
- (iii) Quarternary ammonium salt of an amine with acetate ion.
- (iv) Sodium salts of sulfonated long-chain hydrocarbons.

Solution:

Option (i) and (iv) are the answers.

30. Which of the following statements are correct?

- (i) Cationic detergents have germicidal properties
- (ii) Bacteria can degrade the detergents containing highly branched chains.
- (iii) Some synthetic detergents can give foam even in ice-cold water.
- (iv) Synthetic detergents are not soaps.

Solution:

Option (i), (iii) and (iv) are the answers.

III. Short Answer Type

31. What is the average molecular mass of drugs?

Solution:

Drugs have an average molecular mass of 100-500u.

32. Write the uses of medicines.

Solution:

Medicines have an important role in our day to day life. It cures diseases. There are various types of medicines present in the form of tablets, syrups, ointments etc. It promotes and maintains health.

33. What are antiseptics?

Solution:

Antiseptics are those which are applied to the living body to prevent the growth of microorganisms. It is used in the case of cuts or wounds.

34. Which type of drugs comes under antimicrobial drugs?

Solution:

Mainly the antimicrobial drugs are used to treat the microbial functions. Examples like antiseptics, sulphur drugs and antibiotics come under this category.

35. Where are receptors located?

Solution:

Receptors are located on the cell surface membrane or within the cytoplasm. They are biological transducers.

36. What is the harmful effect of hyperacidity?

Solution:

Hyperacidity can cause an ulcer or gastric refluxes in the stomach. The main cause of hyperacidity is the secretion of acid in an excess amount.

37. Which site of an enzyme is called allosteric site?

Solution:

This is the site other than the active site in which the drugs can bind and cause its action. They regulate chemical reactions occurring in the human body.

38. What type of forces are involved in binding of substrate to the active site of an enzyme?

Solution:

- i) Van der Waal force
- ii) hydrogen bonding
- iii) dipole interactions
- iv) ionic bonds etc are involved in the binding of substrate.

39. What is the commonality between the antibiotic arsphenamine and azodye?

Solution:

The type of linkage possessed by the antibiotic arsphenamine is similar to that of azodye. antibiotic arsphenamine possesses $-As=As-$ linkage which is similar to $-N=N-$ linkage in azodye.

40. Which class of drugs is used in sleeping pills?

Solution:

It contains tranquillizers as a drug which is designed for the treatment of fear, anxiety and mental distractions.

41. Aspirin is a pain relieving antipyretic drug but can be used to prevent heart attack. Explain.

Solution:

Aspirin prevents blood clotting in the heart as it has anti-blood-clotting action. This action helps in preventing heart attack.

42. Both antacids and antiallergic drugs are antihistamines but they cannot replace each other.

Explain why?

Solution:

Antacids are used for the treatment of acid in the stomach and antihistamines inhibit the action of histamine in the body. Both antacids and antiallergic drugs work on different receptors in the body and hence they cannot replace each other.

43. What is a soft soap?

Solution:

They are easily soluble which contains potassium salts of fatty acids as a major component.

44. If the soap has high alkali content it irritates the skin. How can the amount of excess alkali be determined? What can be the source of excess alkali?

Solution:

Excess of alkali can be found out using acid-base titration.

The alkali that is formed during the hydrolyses of oil during soap preparation may be a cause of excess alkali in the soap.

45. Explain why some times foaming is seen in river water near the place where sewage water is poured after treatment?

Solution:

The foam is due to the non-biodegradable detergents which are present in water after sewage treatment. A detergent is a water-soluble cleansing agent which combines with impurities and dirt to make them more soluble.

46. Which category of the synthetic detergents is used in toothpaste?

Solution:

Anionic detergents are used in toothpaste to clean teeth and form suitable foam. Eg: sodium or ammonium lauryl sulphate

47. Hair shampoos belong to which class of synthetic detergent?

Solution:

Cationic detergents are used in hair shampoos. eg: cetyltrimethylammonium bromide. Cationic detergents are quarternary ammonium salts of acetates, chlorides or bromides.

48. Dishwashing soaps are synthetic detergents. What is their chemical nature?

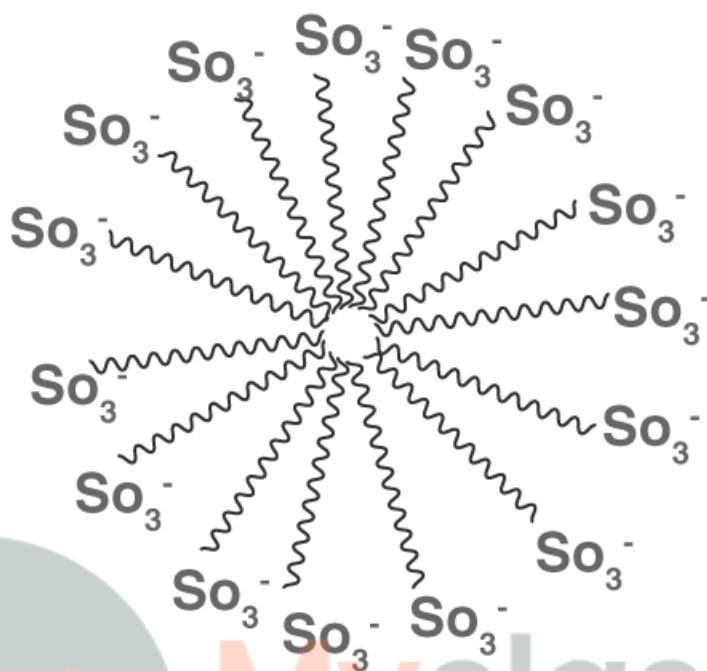
Solution:

Detergents are synthetic detergents which contain non-ionic detergents that have a cleansing property. They combine with the dirt and impurities and make them soluble.

49. Draw the diagram showing micelle formation by the following detergent.

$\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2\text{OSO}_3\text{-Na}^+$

Solution:



50. How does the branching of the hydrocarbon chain of synthetic detergents affect their biodegradability?

Solution:

Lesser the branching lesser is the non-polluting nature of the detergent and increased in branching causes the polluting nature of the detergent to increase.

51. Why is it safer to use soap from the environmental point of view?

Solution:

When compared to the detergents soaps are safer to use which is biodegradable. It doesn't have a polluting nature.

52. What are analgesics?

Solution:

The analgesics drug is a neurologically active drug which is used to reduce pain. They don't have any side effects.

53. What is the scientific explanation for the feeling of depression?

Solution;

A hormone called Noradrenaline controls the mood swings. Depression can be caused due to the low level of noradrenaline which hampers the signal activities in the brain.

54. What is the basic difference between antiseptics and disinfectants?

Solution:

1. Antiseptics are applied to living tissues whereas disinfectants are applied on non-living substances
2. Antiseptics are antimicrobial whereas disinfectants are anti-microbial too
3. Antiseptics applied on cuts or wounds whereas disinfectants are used in floors, toilets etc.

55. Between sodium hydrogen carbonate and magnesium hydroxide which is a better antacid and why?

Solution:

Magnesium hydroxide is a better antacid because it maintains a pH level in the stomach and insoluble in the stomach. It does not make stomach alkaline whereas sodium hydrogen carbonate makes stomach alkaline.



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