

#### **CHEMISTRY**

# BOOKS - U-LIKE CHEMISTRY (HINGLISH)

#### **CHEMISTRY IN EVERYDAY LIFE**

Ncert Intext Questions

1. Sleeping pills are recommended by doctors

to the patients suffering from sleeplessness

but it is not advisable to take its doses without consultation with the doctor. Why?



2. With reference to which classification has the statement, "ranitidine is an antacid" been given?



**3.** Why do we require artificial sweetening agents?



- **4.** Write the chemical equation for preparing sodium soap from glyceryl oleate and glyceryl palmitate. Structural formulae of these compounds are given below:
- (i)  $(C_{15}H_{31}COO)_3C_3H_5$  Glyceryl palmitate.
- (ii)  $(C_{17}H_{32}COO)_3C_3H_5$  Glyceryl oleate.

#### **View Text Solution**

**5.** Following type of non-ionic detergents are present in liquid detergents, emulsifying agents and wetting agents. Label the hydrophilic and hydrophobic parts in the molecule. Identify the functional group(s) present in the molecule.





#### **Ncert Textbook Exercises**

**1.** Why do we need to classify drugs in different ways?



**2.** Explain the term, target molecules or drug targets as used in medicinal chemistry.



3. Name the macromolecules that are chosen as drug targets.



**View Text Solution** 

4. Why should not medicines be taken without consulting doctors?



**View Text Solution** 

**5.** Define the term chemotherapy.



**6.** Which forces are involved in holding the drugs to the active site of enzymes?



**View Text Solution** 

**7.** While antacids and antiallergic drugs interfere with the function of histamines, why do these not interfere with the function of each other?



**8.** Low level of noradrenaline is the cause of depression. What types of drugs are needed to cure this problem? Name two drugs.



**View Text Solution** 

**9.** What is meant by the term 'broad spectrum antibiotics' ? Explain.



**10.** How do antiseptics differ from disinfectants? Give one example of each.



**View Text Solution** 

**11.** Why are cimetidine and ranitidine better antacids than sodium hydrogen carbonate or magnesium or aluminium hydroxide?



**12.** Name a substance which can be used as an antiseptic as well as disinfectant.



### **View Text Solution**

13. What are the main constituents of dettol?



**View Text Solution** 

14. What is tincture of iodine? What is its use

?



15. What are food preservatives?



View Text Solution

**16.** Why is use of aspartame limited to cold foods and drinks ?



**17.** What are artificial sweetening agents? Give two examples.



### **View Text Solution**

**18.** Name the sweetening agent used in the preparation of sweets for a diabetic patient.



**19.** What problem arises in using alitame as artificial sweetener?



**View Text Solution** 

**20.** How are synthetic detergents better than soaps ?



- **21.** Explain the following terms with suitable examples:
- (i) Cationic detergents
- (ii) Anionic detergents and
- (iii) Non-ionic detergents.



**View Text Solution** 

**22.** What are biodegradable and non-biodegradable detergents? Give one example of each.





23. Why do soaps not work in hard water?



**24.** Can you use soaps and synthetic detergents to check the hardness of water ?



25. Explain the cleansing action of soaps.



**View Text Solution** 

26. If water contains dissolved calcium hydrogencarbonate, out of soaps and synthetic detergents, which one will you use for cleaning clothes?



**27.** Label the hydrophilic and hydrophobic parts in the following compounds:

(i) 
$$CH_3(CH_2)_{10}CH_2OSO_3^-Na^+$$

(ii) 
$$CH_3{\left(CH_2
ight)_{15}}-\stackrel{+}{N}{\left(CH_3
ight)_3}Br^-$$

(iii)

$$CH_3(CH_2)_{16}COO(CH_2CH_2O)_nCH_2CH_2OH$$



**View Text Solution** 

**Case Based Source Based Integrated Questions** 

**1.** Over production of acid in the stomach causes irritation and pain. In severe cases, ulcers are developed in the stomach. Until 1970, only treatment for acidity was administration of antacids, such as sodium hydrogencarbonate or a mixture of aluminium and magnesium hydroxide. However, excessive hydrogencarbonate can make the stomach alkaline and trigger the production of even more acid. Metal hydroxides are better alternatives because of being insoluble, these do not increase the pH above neutrality. These

treatments control only symptoms, and not the cause. Therefore, with these metal salts, the patients cannot be treated easily. In advanced stages, ulcers become life threatening and its only treatment is removal of the affected part of the stomach. A major breakthrough in the treatment of hyperacidity came through the discovery according to which a chemical, histamine stimulates the secretion of pepsin and hydrochloric acid in the stomach. The drug cimetidine (Tegamet), was designed to prevent the interaction of histamine with the receptors present in the

stomach wall. This resulted in release of lesser amount of acid. The importance of the drug was so much that it remained the largest selling drug in the world until another drug, ranitidine (Zantac), was discovered.

What happens in serious case of over production of acid in the stomach?



**2.** Over production of acid in the stomach causes irritation and pain. In severe cases,

ulcers are developed in the stomach. Until 1970, only treatment for acidity was administration of antacids, such as sodium hydrogencarbonate or a mixture of aluminium and magnesium hydroxide. However, excessive hydrogencarbonate can make the stomach alkaline and trigger the production of even more acid. Metal hydroxides are better alternatives because of being insoluble, these do not increase the pH above neutrality. These treatments control only symptoms, and not the cause. Therefore, with these metal salts, the patients cannot be treated easily. In

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selling drug in the world until another drug, ranitidine (Zantac), was discovered.

Which of the two treatments to heal acidity, hydrogencarbonate and metal hydroxide, is better and why?



## **View Text Solution**

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What happens in advanced cases to the patients of hyperacidity?



#### **View Text Solution**

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Why is acidity caused in the stomach?



**5.** Over production of acid in the stomach causes irritation and pain. In severe cases, ulcers are developed in the stomach. Until 1970, only treatment for acidity was administration of antacids, such as sodium hydrogencarbonate or a mixture of aluminium and magnesium hydroxide. However, excessive hydrogencarbonate can make the stomach alkaline and trigger the production of even more acid. Metal hydroxides are better alternatives because of being insoluble, these do not increase the pH above neutrality. These

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stomach wall. This resulted in release of lesser amount of acid. The importance of the drug was so much that it remained the largest selling drug in the world until another drug, ranitidine (Zantac), was discovered.

Name two drugs that have helped check acidity without causing damage to the stomach.



**6.** Natural sweeteners, e.g., sucrose add to calorie intake and therefore many people prefer to use artificial sweeteners. Orthosulphobenzimide, also called saccharin, is the first popular artificial sweetening agent. It has been used as a sweetening agent ever since it was discovered in 1879. It is about 550 times as sweet as cane sugar. It is excreted from the body in urine unchanged. It appears to be entirely inert and harmless when taken. Its use is of great value to diabetic persons and people who need to control intake of calories.

Aspartame is the most successful and widely used artificial sweetener. It is roughly 100 times as sweet as cane sugar. It is methyl ester of dipeptide formed from aspartic acid and phenylalanine. Use of aspartame is limited to cold foods and soft drinks because it is unstable at cooking temperature. Alitame is high potency sweetener, although it is more stable than aspartame, the control of sweetness of food is difficult while using it. Sucralose is trichloro derivative of sucrose. Its appearance and taste are like sugar. It is stable at cooking temperature. It does not provide calories.

What is the chemical name of saccharin?



#### **View Text Solution**

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What is the utility of sweeteners in general?



**8.** Natural sweeteners, e.g., sucrose add to calorie intake and therefore many people

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food with alitame?

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What is the advantage of using sucrolose?



### **View Text Solution**

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What is the chemical composition of aspartame?



11. Basically all soaps are made by boiling fats or oils with suitable soluble hydroxide.Variations are made by using different raw materials.Toilet soaps are prepared by using better

grades of fats and oils and care is taken to remove excess alkali. Colour and perfumes are added to make these more attractive. Soaps that float in water are made by beating tiny air bubbles before their hardening. Transparent soaps are made by dissolving the soap in ethanol and then evaporating the excess solvent. In medicated soaps, substances of medicinal value are added. In some soaps, deodorants are added. Shaving soaps contain glycerol to prevent rapid drying. A gum called, rosin is added while making them. It forms sodium rosinate which lathers well. Laundry soaps contain fillers like sodium rosinate, sodium silicate, borax and sodium carbonate. Soap chips are made by running a thin sheet of melted soap onto a cool cylinder and scraping off the soaps in small broken pieces. What is the general procedure of making soap ?



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Variations are made by using different raw materials.

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Why do we remove excess alkali from the soap



?

#### **View Text Solution**

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Soap chips are made by running a thin sheet of melted soap onto a cool cylinder and scraping off the soaps in small broken pieces.

Which additional materials are added in the preparation of laundry soap?



### **View Text Solution**

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VIEW TEXT SOLUTION

# Fill In The Blanks

1.	Ampicillin	and	amoxycillin	are	synt	hetic
m	odifications	of	penicillin	ar	nd	have



**2.** Over production of acid in the stomach causes \_\_\_\_\_ and \_\_\_\_\_.



**3.** \_\_\_\_\_ was the first popular artificial sweetener.



**4.** \_\_\_\_\_ stimulates the secretion of pepsin and hydrochloric acid.



5. Histamine is responsible for nasal congestion associated with \_\_\_\_\_.



View Text Solution

6. Because of its anti blood clotting action, aspirin finds use in prevention of





7. Antibiotics have either effect
or effect.
View Text Solution
8. Antiallergic and antacid drugs work on receptors.
View Text Solution

**Very Short Answer Questions** 

**1.** Which foods are protected from oxidation using sulphur dioxide and sulphites ?



**View Text Solution** 

2. How do we make transparent soaps?



**View Text Solution** 

**3.** Why is the use of aspartame limited to cold foods and drinks?

4. What are tranquilisers? Give an example.



**5.** Give an example of artificial sweetener that could have been recommended to diabetic patients.



**6.** What type of analgetics are chiefly used for the relief of pains of terminal cancer ?



**View Text Solution** 

**7.** Name a substance that can be used as an antiseptic as well as disinfectant.



**View Text Solution** 

**8.** Describe and illustrate with an example, a detergent.



**9.** Describe the following type of substances, giving suitable example: antiseptics.



**View Text Solution** 

10. Why is bithional added to toilet soap?



**11.** Sodium salts of some acids are used as food preservatives. Suggest a few such acids.



### **View Text Solution**

**12.** How are antiseptics different from disinfectants? Give one example of each of them.



**13.** Write the formula and IUPAC name of aspirin. Why should it not be taken on empty stomach?



**View Text Solution** 

**14.** What are synthetic detergents? Give one example.



**15.** Name a food preservative which is most commonly used by food producers.



**View Text Solution** 

**16.** Define the following and give one example : Tranquilizers.



**17.** List two major classes of antibiotics and give one example of each class.



### **View Text Solution**

**18.** Give an example of a narcotic which is used as an analgesic.



**19.** State an example and function of the following: wide spectrum antibiotics.



### **View Text Solution**

**20.** Soap is a weak antiseptic. What may be added to soaps to improve its antiseptic action?



21. Why do soaps not work in hard water?



22. Write the uses of medicines.



**23.** Which type of drugs come under antimicrobial drugs?



24. What is the harmful effect of hyperacidity?



**View Text Solution** 

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



**26.** Sodium salts of some acids are very useful as food preservatives. Suggest a few such acids.



**View Text Solution** 

**27.** Name an artificial sweetener which is a derivative of sucrose.



**28.** Name two  $\alpha$  - amino acids which form a dipeptide which is 100 times sweeter than cane sugar.



**View Text Solution** 

**29.** What is a soft soap?



**30.** Hair shampoos belong to which class of detergents?



# **View Text Solution**

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



32. Write the formula for sulphanilic acid and mention any one of its uses.



**View Text Solution** 

33. What type of drug is chloramphenicol?



**View Text Solution** 

**34.** What are antiseptics?



**35.** Where are receptors located?



**View Text Solution** 

**36.** Which site of an enzyme is called allosteric site ?



**37.** Which class of drugs is used in sleeping pills?



### **View Text Solution**

**38.** Which category of the synthetic detergents is used in toothpastes?



**39.** Draw the structure of saccharin. How many times is it sweeter than cane sugar?



### **View Text Solution**

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



**41.** What is the average molecular mass of drugs?



**View Text Solution** 

**42.** What type of drugs kill or arrest the growth of microorganism?



**43.** What do you call the proteins which are crucial to communication system in the body?



### **View Text Solution**

**44.** Which chemicals have coded genetic information for the cell ?



**45.** Name one type of bond that bind substrates to the active sites of the enzymes.



# **View Text Solution**

**46.** Name the site other than the active site to which the drugs bind to the enzymes.



**47.** What do we call the drugs that bind to the receptor sites and inhibit natural function?



**View Text Solution** 

**48.** What type of drugs mimic the natural messengers by switching on the receptor ?



**49.** Which chemical is responsible for nasal congestion associated with common cold and allergic response to pollen?



**View Text Solution** 

**50.** Name a chemical which stimulates the secretion of pepsin and hydrochloric acid in the stomach.



**51.** Name a drug for acidity which treats the cause of acidity.



**View Text Solution** 

**52.** Name a drug which acts as antihistamine.



**View Text Solution** 

**53.** What name is given to neurologically active drugs?





**54.** Name an antidepressant drug.



**55.** Name a sweetener which is stable at cooking temperature.



56. Name an oxidant for wine and beer.



**View Text Solution** 

**57.** Name the process by which soaps are obtained by heating fat with aqueous sodium hydroxide solution.



**58.** What kind of soaps are obtained by dissolving the soap in ethanol and then evaporating the excess solvent?



**View Text Solution** 

# **Short Answer Questions**

- 1. (a) Why do soaps not work in hard water?
- (b) What are the disadvantages of using hard water?

**2.** (i) Why should antidepressant drugs not be taken without consulting a doctor?

(ii) Give two examples of artificial sweeteners.



example.

3. (i) Name the sweetening agent used in the preparation of sweets for a diabetic patient.(ii) What are antidepressant drugs? Give one



**4.** (i) Why should antidepressant drugs not be taken without consulting a doctor?

(ii) Give two examples of artificial sweeteners.



**5.** What are biodegradable and non-biodegradable detergents? Give one example of each class.

- **6.** Mention one important use of each of the following:
- (i) Equanil
- (ii) Sucrolose



- 7. Describe the following with examples:
- (i) Preservatives
- (ii) Biodegradable detergents

- **8.** Give one important use of each of the following:
- (i) Bithional
- (ii) Chloramphenicol
- (iii) Streptomycin
- (iv) Paracetamol



**9.** Pickles and jams have a long shelf life and do not get spoilt for a long time. Explain.



**View Text Solution** 

**10.** Write the formula of paracetamol. What is it used for in medicine?



**11.** Describe the following giving an example, Antifertility drugs.



**View Text Solution** 

**12.** Give three examples of sulpha drugs and write their main uses.



**13.** Name a drug used in case of mental depression.



### **View Text Solution**

**14.** Define the following and give one example of each :

- (i) Antipyretics,
- (ii) Antibiotics



**15.** What are antipyretic medicines? Name one of them. Can it play any other role also?



#### **View Text Solution**

**16.** In order to wash clothes with water containing dissolved calcium hydrogencarbonate, which cleaning agent would you prefer and why: soaps or synthetic detergents? Give one advantage of soaps over synthetic detergents.



**17.** What is the mode of action of antimicrobial drugs ?



**View Text Solution** 

18. Which analgesics are called opiates?



**19.** What is the difference between bathing soap and washing soap ?



**View Text Solution** 

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



**21.** What is the basic difference between antiseptics and disinfectants?



**View Text Solution** 

22. What is the medicinal use of narcotic drugs

?



**23.** Explain why sometimes foaming is seen in river water near the place where sewage water is poured after treatment.



**View Text Solution** 

**24.** What are antagonistic drugs?



**View Text Solution** 

Long Answer Questions I

- 1. (a) Why is bithional added to soap?
- (b) What is tincture of iodine? Write its one use.
- (c) Among the following, which one acts as a food preservative?

Aspartame, Aspirin, Sodium Benzoate,
Paracetamol



- 2. Define the following:
- (i) Anionic detergents.

(ii) Broad spectrum antibiotics.

(iii) Antiseptic.



**View Text Solution** 

- **3.** Define the following terms :
- (a) Tranquilizer
- (b) Limited spectrum antibiotics.
- (c) Disinfectant.



- **4.** (i) Give two examples of macromolecules that are chosen as drug targets.
- (ii) What are antiseptics? Give an example.
- (iii) Why is the use of aspartame limited to cold foods and soft drinks?



5. (i) What class of drug is Ranitidine?

(ii) If water contains dissolved  $Ca^{2+}$  ions, out of soaps and synthetic detergents, which will

- you use for cleaning clothes?
- (iii) Which of the following is an antiseptic?
- $0.2\,\%$  phenol,  $1\,\%$  phenol



- **6.** What are the following substances? Give one example of each one of them.
  - (i) Tranquilizers
- (ii) Food preservatives
- (iii) Synthetic detergents.



- **7.** Describe the following giving one example for each :
- (i) Detergents
- (ii) Food preservatives
- (iii) Antacids.



- **8.** What are the following substances? Give one example of each.
- (i) Food preservatives

(ii) Synthetic detergents

(iii) Antacids.



**9.** What are analgesic medicines ? How are they classified and when are they commonly recommended for use ?



- **10.** Explain the following terms with one example in each case:
- (i) Food preservatives
- (ii) Enzymes
- (iii) Detergents.



- 11. (a) Justify the following:
- (i) Sleeping pills are recommended to patients suffering from sleeplessness but it is not

advisable to take them without consulting the doctor.

- (ii) Why do we require artificial sweetening agents?
- (b) Write the composition of Dettol.



**12.** (i) Write the chemical equation for the preparation of soap.

(ii) Write notes on

- (a) Toilet soap
- (b) Medicinal soap



- **13.** Mention one use each of the following drugs:
  - (i) Ranitidine
- (ii) Paracetamol
- (iii) Tincture of iodine



**14.** What are biodegradable and non-biodegradable detergents? What are the consequences of using latter class of detergents?



- 15. Give one example for each of the following:
- (a) An artificial sweetner whose use is limited to cold drinks.
- (b) A non ionic detergent.
- (c) A pain reliever used for relief from severe

pain like post-operative pain or pain due to terminal cancer.



# **View Text Solution**

16. What are fillers and what role do they play in soap?



# **View Text Solution**

**17.** What are the functions performed by histamine in the body?



**18.** Classify synthetic detergents giving an example in each case.



**19.** What is the advantage of using antihistamines over antacids in the treatment of acidity?



#### 20. Account for the following:

- (a) Aspirin drug helps in the prevention of heart attack.
- (b) Diabetic patients are advised to take artificial sweeteners instead of natural sweeteners.
- (c) Detergents are non-biodegradable while soaps are biodegradable.



21. Why are certain drugs called enzyme inhibitors?

