

CHEMISTRY

BOOKS - CHHAYA CHEMISTRY (BENGALI ENGLISH)

CHEMISTRY IN EVERYDAY LIFE

Warm Up Exercise

1. What do you mean by chemotherapy?



2. How does an enzyme work as a catalyst?



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3. What is the function of a receptor protein?



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4. What are chemical messengers? Give two examples.



5. What do you mean by antagonist and agonist drugs?



6. What is the role of antacids? Explain why aspirin should not be ingested in empty stomach and an antacid should be taken along with it.

7. What are antihistamines? Do antihistamines work as antacids? Give proper explanation in support of your answer.



8. Give the differences between tranquilizers and analgesics.



9. Which drug is obtained when morphine undergoes acetylation?



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10. What is Dettol? Give its components.



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11. Name a drug which is both an analgesic and antipyretic.



12. Give an example of a sulpha drug.



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13. Give examples of a β -lactam & broad spectrum antibiotic.



14. What is the composition of commonly used birth control pills?



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15. What do you mean by food additives?



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16. Why artificial sweeteners are necessary? Give two examples.

17. What is sucralose? How many times it is sweeter than ordinary sugar or sucrose? What is the structural difference between sucrose and sucralose.



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18. Write the name and structure of the compound which is 2 lac times sweeter than

sugar.



19. Among D- and L-glucose, which is more beneficial for obese people?



20. Why antioxidants are added to food containing unsaturated oils and fats?



21. What do you mean by BHA and BHT? Give their structures.



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22. ortho-sulphobenzimide is commonly known as which compound? What is its calorific value?



23. Aspartame is methyl ester of a dipeptide. Write down the names and structures of the two amino acids which form this dipeptide.



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24. Write the structure of sucralose.



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25. What do you mean by surfactants?



26. Why soaps are not used in hard water?



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27. What are soft and hard detergents?



28. Give example of anionic, cationic and nonionic detergents.



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29. How do non-ionic detergents dissolve in water?



30. Why cleansing capacity of a detergent is better than a soap?



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31. Which detergents cause environmental pollution and why?



32. What is the advantage of using enzyme based detergents?



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Question Answer Zone For Board Examination

1. Name two alkaloids which are used as analgesics.



2. Name the antibiotics used for the treatment of tuberculosis and typhoid.



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3. Name a drug which is both an analgesic & antipyretic



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4. What type of drug is chloramphenicol?



5. Why is bithional added to cosmetic soaps?



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6. Name a broad spectrum antibiotic and two diseases on which it is effective.



7. Name a drug used in the treatment of mental disorders.



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8. Give an example of an antihistamine drug.



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9. Name an estrogen derivative which is a part of an oral contraceptive.



10. Name an analgesic used toprevent heart attacks.



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11. Give an example of a sulpha drug.



12. Why BHA is added to butter?



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13. Why are detergents called 'soapless soaps'?



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14. Due to which structural feature, detergents become non-biodegradable



15. Why non-biodegradable detergents is not used?



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



17. The methyl ester of a dipeptide is 100 times sweeter than cane sugar. What are the constituents α -amino acids of this dipeptide?



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18. Hair shampoos belong to which class of synthetic detergents?



19. Which analgesics called opiates?



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20. Classify the following as artificial sweeteners, preservatives, soaps and detergents:

sodium palmitate, sucralose, salt of sorbic acid, cetyltrimethylammonium bromide.



21. What structural unit makes detergents non-biodegradable?



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22. Pickles have a long shelf life and do not get spolled for months-why?



23. What is the advantage of using antihistamines over antacids?



24. Why is paracetamol preferred over aspirin as an antipyretic?



25. What are sulpha drugs? Give examples.



26. Write the chemical names of BHA and BHT.

Name a natural antioxidant present in edible oil.



27. Boric acid is added to talcum powder (for babies) and chlorine is added to water in swimming pools. Why?



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28. (1) Name the artificial sweetener which is

550 times sweeter than cane sugar.

recommended to diabetic patients.

(2) Why are the artificial sweeteners

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29. Mention the use of Willow bark as a medicine.



30. Why are detergents preferred over soaps?



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1. Mention one use of borax and oil of wintergreen.



2. What is the chemical nature of common antacids?



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3. What will form aspirin on heating to about $55^{\circ}C$ with acetic anhydride in the presence of little conc. H_2SO_4 ? Write the structure of aspirin.



4. Among the following which is artificial sweetening agent-

A. sucrose

B. lactose

C. sucralose

D. cellulose

Answer: C



5. For which of the following purposes sodium benzoate is used

A. an antioxidant

B. an analgesic

C. a tranquilizer

D. a food preservative

Answer: D



6. Give an example of a soap and indicate its polar and nonpolar parts.



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7. Which of the following is a constituent of soap-

A. sodium stearate

B. sodium salicylate

C. sodium butyrate

D. sodium benzenesulphonate

Answer: A



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- 8. Which of the following is an antibiotic-
 - A. aspirin
 - B. chloramphenicol
 - C. veronal
 - D. foristal

Answer: B



9. By what type of reaction do the common antacids destroy the excess acid of the stomach?



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10. Which of the following is not a preservative-

A. common salt

- B. sucrose
- C. sodium benzoate
- D. sucralose

Answer: D



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11. A compound X is used as antiseptic in 0.2% solution and as a disinfectant in 1% solution. Which of the following is X?

A. phenol

B. soframycln

C. benzil

D. iodoform

Answer: A



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12. Mark the hydrophobic and hydrophilic parts of the following synthetic detergent.



13. Which of the following can be used as an antacid-

A. ranitidlne

B. histamine

C. equanil

D. aspirin

Answer: A



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14. Which of the following artificial sweeteners is methyl ester of a dipeptide-

A. aspertame

B. sucralose

C. saccharine

D. alitame

Answer: A



15. What is the purpose of adding food preservative to packeged food?



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1. What are the following substances? Give one example of each one of them: (i) Tranquilizers,

(ii) Food preservatives, (iii) Synthetic detergents.



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2. On the occasion of World Health day, Dr. Satpal organized a 'health camp' for the poor farmers living in a nearby village. After checkup, he was shocked to see that most of the farmers suffered from cancer due to regular exposure to pesticides and many were diabetic. They distributed free medicines to

them. Dr. Satpal immediately reported the matter to the National Human Rights Commission (NHRC). On the suggestions of NHRC, the government' decided to provide medical care, financial assistance, setting up of super-speciality hospitals for treatment and prevention of the deadly disease in the affected villages all over India.

Write the values shown by (a) Dr. Satpal (b) NHRC.



3. On the occasion of World Health day, Dr. Satpal organized a 'health camp' for the poor farmers living in a nearby village. After checkup, he was shocked to see that most of the farmers suffered from cancer due to regular exposure to pesticides and many were diabetic. They distributed free medicines to them. Dr. Satpal immediately reported the matter to the National Human Rights Commission (NHRC). On the suggestions of NHRC, the government' decided to provide medical care, financial assistance, setting up of super-speciality hospitals for treatment and prevention of the deadly disease in the affected villages all over India.

What type of analgesics are chiefly used for the relief of pains of terminal cancer?



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4. On the occasion of World Health day, Dr. Satpal organized a 'health camp' for the poor farmers living in a nearby village. After checkup, he was shocked to see that most of the farmers suffered from cancer due to regular exposure to pesticides and many were diabetic. They distributed free medicines to them. Dr. Satpal immediately reported the matter to the National Human Rights Commission (NHRC). On the suggestions of NHRC, the government' decided to provide medical care, financial assistance, setting up of super-speciality hospitals for treatment and prevention of the deadly disease in the affected villages all over India. Give an example of artificial sweetener that

could have been recommended to diabetic patients.

5. Ramesh went to a departmental store to purchase groceries. On one of shelves he noticed sugar-free tablets. He decided to buy them for his grandfather who was a diabetic. There were three types of sugar-free tablets. Ramesh decided to buy sucralose which was good for his grandfather's health.

Name another sugar free table which Ramesh did not buy.



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Was it right to purchase such medicines without doctor's prescription?



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8. Neeraj went to the departmental store to purchase groceries. On one of the shelves he noticed sugar free tablets. He decided to buy them for his grandfather who was a diabetic. There were three types of sugar free tablets. He decided to buy sucralose which was good for his grandfather's health.

Name another sugar free tablet which Neeraj did not purchase.



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What quality of Neeraj is reflected above?



11. Due to hectic and busy schedule, Mr. Angad made his life full of tensions and anxiety. He started taking sleeping pills to overcome the depression without consulting the doctor. Mr. Deepak, a close friend of Mr. Angad, advised him to stop taking sleeping pills and suggested to change his lifestyle by doing yoga, meditation and some physical exercise. Mr. Angad followed his friend's advice and after few days he started feeling better.

What are the values (atleast two) displayed by

Mr. Deepak?

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Why is it not advisable to take sleeping pills without consulting doctor?



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Mr. Angad followed his friend's advice and after few days he started feeling better.

What are tranquilizers? Give two examples.



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14. Due to hectic and busy schedule, Mr. Singh started taking Junk food in the lunch break and slowly became habitual of eating food irregularly to excel in his field. One day, during a meeting he felt severe chest pain and fell

down. Mr. Khanna, a close friend of Mr. Singh took him to doctor immediately. The doctor diagnosed that Mr. Singh was suffering from acidity and prescribed some medicines. Mr. Khanna advised him to eat homemade food and change his lifestyle by doing yoga, meditation and some physical exercise. Mr. Singh followed his friend's advice and after few days he started feeling better. What are the values (atleast two) displayed by

Mr. Khanna?What are antacids? Give one Example. Would it be advisable to take

antacids for a long period of time? Give reason.



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What are antacids? Give one example.



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Would it be advisable to take antacids for a long period of time? Give reason.



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17. Define : Anionic detergents



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18. Define: Broad spectrum antibiotics



19. Define : Antiseptic



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20. Define: Cationic detergents



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21. Define: Narrow spectrum antibiotics



22. Define: Disinfectant



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23. Define: Limited spectrum antibiotic



Watch Video Solution

24. Define: Tranquilizers



25. Define : Anionic detergents



Watch Video Solution

26. Define: Limited spectrum antibiotic



Watch Video Solution

27. Define : Antiseptic



28. Why is bithional added to soap?



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29. What is tincture of iodine? Write its one use.



30. Among the following which one is used as a food preservatives?

Aspartame, aspirin, sodium benzoate and paracetamol



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Solved Ncert Textbook Problems

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?



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



3. Why do we require artificial sweetening agents?



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4. Write the chemical equation for preparing sodium soap from glyceryl oleate and glyceryl palmitate. Structural formulae of these compounds are given below.

 $(C_{15}H_{31}COO)_3C_3H_5$ - Glyceryl palmitate



5. Write the chemical equation for preparing sodium soap from glyceryl oleate and glyceryl palmitate. Structural formulae of these compounds as well.



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6. 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 Exercise Questions

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.



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



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



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5. Define the term chemotherapy.



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

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



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8. Low level of noradrenaline is the cause of depression. What type of drugs are needed to

cure this problem? Name two drugs. **Watch Video Solution** 9. What is meant by 'broad spectrum antibiotics. **Watch Video Solution** How do antiseptics differ from 10. disinfectants? Give one example of each. **Watch Video Solution**

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



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



13. What arethe main constituents of dettol?

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



15. What are food preservatives?



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



Watch Video Solution

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



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



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19. What problem arises in using alitarne as artificial sweetener?



20. How are synthetic detergents better than soaps?



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21. Explain the following terms with suitable examples: (1)cationic detergents (2) anionic detergents and (3) non-ionic detergents.



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



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23. Why do soaps not work in hard water?



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



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25. Explain the cleansing action of soaps.



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26. Label the hydrophilic and hydrophobic parts of $CH_3(CH_2)_{10}CH_2OSO_3^{\, {
m e}}\,Na^{\, \oplus}$



27. Label the hydrophilic and hydrophobic parts of $CH_3{(CH_2)}_{15}\overset{\oplus}{N}{(CH_3)}_3Br^{\, \Theta}$



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28. Label the hydrophilic and hydrophobic of parts $CH_3(CH_2)_{16}COO(CH_2CH_2O)_nCH_2CH_2OH$



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



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Higher Order Thinking Skill Questions

1. What are β -lactam antibiotics? Give two examples of such antibiotics.

2. Serine, aspartic acid and phenylalanine are present at active site of an enzyme. What are the forces responsible for binding of these amino acids to active site?



3. How aspirin helps in preventing heart attacks?



4. Which of the following compound is not a detergent?

$$CH_{3}(CH_{2})_{16}CH_{2}OSO_{2}^{-}Na^{+}$$

$$CH_{3}(CH_{2})_{15}N^{+}(CH_{3})_{3}Br^{-}$$

$$CH_3(CH_2)_{14}CH_2NH_2$$



5. Why sulpha drugs are not true antibiotics?



6. Differentiate between antioxidants and preservatives.



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7. What are alkaloids? Give two examples of alkaloids which are used as analgesics.



8. How can saccharin, an important artificial sweetener, be prepared from toluene?



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9. Sodium laurylsulphate $\left[CH_3(CH_2)_{11}OSO_3Na\right]$ is the more effective detergent than sodium propyl sulphate $\left[CH_3CH_2CH_2OSO_3Na\right]$ in hard water. Why?



10. How does aspirin act as an analgesic?



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11. What type of drugs can be prepared by the condensation of urea with malonic acid derivatives? Give examples.



12. Write structures of the artificial sweeteners aspartame and alitame with R, S-designations of their assymmetric carbon atsoms.



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13. What are called sulpha drugs? What type of drug are these? Give two examples of sulpha drugs and mention their uses.



14. Identify the compound case : A trichloro derivative of sucrose which is 600 times sweeter than sucrose.



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15. Identify the compound case : A diacetyl derivative of morphine which is a powerful analgesic and extremely addictive.



16. Identify the compound case: A derivative of phenol which is used as an antioxidant



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17. Identify the compound case : An alkylbenzenesulphonate which acts as biodegradable detergent.



18. Identify the compound case: A non-narcotic analgesic which can be prepared from salicylic acid.



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19. Identify the compound case : A cationic detergent which is used in hair conditioners.



20. Identify the compound case: An antioxidant used in wine and beers.



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21. Give example of a derivative of barbituric acid which can act as a tranquilizer. How can it be prepared?



22. write the side effects of aspirin.



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23. How can heroin be prepared from morphine? Give the reaction.



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Entrance Question Bank

- 1. Paracetamol is-
 - A. methyl salicylate
 - B. phenyl salicylate
 - C. N-acetyl-p-aminopheno
 - D. acetylsalicylic acid

Answer: C



2. Correct structure of the drug paracetamol is-





Answer: B



3. Aspirin is known as-

A. acetylsalicylic acid

B. phenyl salicylate

C. acetyl salicylate

D. methyle salicylic acid

Answer: A



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4. Which is not an antacid-

- A. aluminium hydroxide
- B. cimetidine
- C. phenelzine
- D. ranitidine

Answer: C



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5. Which of the following is an anionic detergent-

- A. sodium stearate
- B. sodium lauryl sulphate
- C. cetyltrimethyl ammonium bromide
- D. glyceryl oleate

Answer: B



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6. Which of the following is employed as antihistamine-

- A. omeprazole
- B. chloramphenicol
- C. diphenylhydramine
- D. norethindrone

Answer: C



- 7. Chloramphenicol is an-
 - A. antihistaminie

- B. antiseptic & disinfectant
- C. antibiotic-broad spectrum
- D. antifertility drug

Answer: C



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8. Antiseptics and disinfectants kill microbes or prevent their growth. Which one of the following statements related to them is not true-

A. disinfectants are harmful to living tissues

B. a 0.2% solution of phenol is an antiseptic

C. chlorine and iodine are used as a strong disinfectant

D. dilute solution of boric acid & H_2O_2 is an antiseptic

Answer: C



9. Artificial sweetener which is stable under cold conditions only is-

A. saccharine

B. sucralose

C. aspartame

D. alitame

Answer: C



10. Which of the following is an analgesic-

- A. chloromycetin
- B. novalgin
- C. penicillin
- D. streptomycin

Answer: B



11.	Mixture	of o	chlord	oxylen	ol a	nd t	erpir	neol	acts
as-	-								

- A. antiseptic
- B. antipyretic
- C. antibiotic
- D. analgesic

Answer: A



12. Which one of the following is not employed as antihistamine-

A. dimetane

B. chloramphenicol

C. seldane

D. both A and B

Answer: B



13. Which is a bactericidal antibiotics-

A. penicillin

B. erythromycin

C. tetracycline

D. chloramphenicol

Answer: A



14. Tincture of iodine is-

A. aqueous solution of I_2

B. solution of I_2 in aqueous KI

C. alcohol-water solution of I_2

D. aqueous soluition of KI

Answer: C



15. Arsenic drugs are mainly used in the treatment of-

A. jaundice

B. typhoid

C. syphilis

D. cholera

Answer: C



16. Which is incorrect-

A. novestrol-antifertility

B. serotonine-tranquilizer

C. narrow spectrum-chloramphenicol

D. rantac-antacid

Answer: C



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Solved Ncert Exemplar Problems

1. Which of the following statements is not correct-

A. some antiseptics can be added to soaps

B. dilute solutions of some disinfectants can be used as antiseptic

C. disinfectants are antimicrobial drugs

D. antiseptic medicines can be ingested

Answer: D



- 2. What is correct about birth control pills
 - A. contain estrogen only
 - B. contain progesterone only
 - C. contain a mixture of estrogen and progesterone derivatives
 - D. progesterone enhances ovulation

Answer: C



3. Which statement about aspirin is not true-

A. aspirin belongs to narcotic analgesics

B. it is effective in relieving pain

C. it has antiblood clotting action

D. it is a neurologically active drug

Answer: A



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

A. on the basis of chemical structure

B. on the basis of drug action

C. on the basis of molecular targets

D. on the basis of pharmacological effect

Answer: C



- **5.** Which of the following statements is correct-
 - A. some tranquilizers function by inhibiting the enzymes which catalyse the degradation of noradrenaline
 - B. tranquilizers are narcotic drugs
 - C. tranquilizers are chemical compounds that do not affect the message transfer from nerve to receptor

D. tranquilizers are chemical compounds that can relieve pain and fever

Answer: A



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6. Salvarsan is arsenic containing drug which was first used for the treatment of ___

A. syphilis

B. typhoid

- C. meningitis
- D. dysentery

Answer: A



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7. A narrow spectrum antibiotic is active against

- A. gram-positive or Gram-negative bacteria.
- B. gram-negative bacteria only.

C. single organism or one disease.

D. both Gram-positive and Gram-negative hacteria.

Answer: A



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

A. analgesics

B. tranquilizers

C. narcotic analgesics

D. antihistamines

Answer: B



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

A. sodium laurylsulphate B. sodium dodecylbenzenesulphonate C. rosin D. bithional

Answer: D



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10. Equanil is _____

A. artificial sweetener

- B. tranquilizer
- C. antihistamine
- D. artifertility drug

Answer: B



- 11. Which enhances lathering property of soap-
 - A. sodium carbonate
 - B. sodium rosinate

- C. sodium stearate
- D. trisodium phosphate

Answer: B



- **12.** Glycerol is added to soap. It functions ___
 - A. as a filler.
 - B. to increase lathering.
 - C. to prevent rapid drying.

D. to make soap granules

Answer: C



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

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

В. 🗾

C. 🖳

D.
$$\left[CH_3(CH_2)_{15}-N(CH_3)_3
ight]^+Br^-$$

Answer: B



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

A. cationic detergents

B. anionic detergents

C. non-ionic detergents

D. soaps

Answer: C



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

A. carbohydrates

B. lipids

C. vitamins

D. proteins

Answer: C



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16. Which is not true about enzyme inhibitors-

A. inhibit the catalytic activity of the enzyme

B. prevent the binding of substrate

C. generally a strong covalent bond is formed between an inhibitor and an enzyme

D. inhibitors can be competitive or noncompetitive

Answer: C



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

- A. sucrose
- B. glucose
- C. aspartame
- D. sucralose

Answer: D



18. Which	will not	enhance	nutritional	value	of
food-					

A. minerals

B. artificial sweeteners

C. vitamins

D. amino acids

Answer: B



- **19.** Which of the following statements are incorrect about receptor proteins-
 - A. majority of receptor proteins are embedded in the cell membranes
 - B. the active site of receptor proteins opens on the inside region of the cell
 - C. chemical messengers are received at the
 - binding sites of receptor proteins
 - D. shape of receptor doesn't change during attachment of messenger

Answer: B::D



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- 20. Which are not used as food preservatives-
 - A. table salt
 - B. sodium hydrogencarbonate
 - C. cane sugar
 - D. benzoic acid

Answer: B::D



21. Compounds with antiseptic properties are

A. $CHCl_3$

B. CHI_3

C. boric acid

D. 0.3 ppm solution of Cl_2

Answer: B::C



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22. Which are correct about barbiturates-

A. hypnotics or sleep producing agents

B. these are tranquilizers

C. non-narcotic analgesics

D. pain reducing without disturbing the nervous system

Answer: A::B



23. Which of the following are sulpha drugs-

A. sulphapyridine

B. prontosil

C. salvarsan

D. nardil

Answer: A::B



24. Which of the following are antidepressants-

A. iproniazid

B. phenelzine

C. equanil

D. salvarsan

Answer: A::B::C



25. Which of the following are incorrect about penicillin-

A. an antibacterial fungus

B. ampicillin is its synthetic modification

C. it has bacteriostatic effect

D. it is a broad spectrum antibiotic

Answer: C::D



26. Which of the following are administered as antacids-

A. sodium carbonate

B. sodium hydrogencarbonate

C. aluminium carbonate

D. magnesium hydroxide

Answer: B:C:D



27. Amongst given antihistamines, which are antacids-

A. ranitidine

B. brompheniramine

C. terfenadine

D. cimetidine

Answer: A::D



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

A. tranquilizers

B. non-narcotic analgesic

C. antiallergic drugs

D. neurologically active drugs

Answer: A::D



29. Which of the following are anionic detergents-

A. sodium salts of sulphonated long chain alcohol

B. ester of stearic acid and polyethylene glycol.

C. quarternary ammonium salt of amine with acetate ion.

D. sodium salts of sulphonated long chain hydrocarbons.

Answer: A::D



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30. Which of the following statements are correct-

A. cationic detergents have germicidal properties

- B. bacteria can degrade the detergents containing highly branched chains.
- C. some synthetic detergents can give foam even in ice cold water.
- D. synthetic detergents are not soaps.

Answer: A::C::D



31. What is the average molecular mass of drugs?



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32. Write the uses of medicines.



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33. What are antiseptics?



34. Which type of drugs come under antimicrobial drugs?



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35. Where are receptors located?



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36. What is the harmful effect of hyperacidity?



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



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



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



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



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



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



43. What is a soft soap?



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



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



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



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



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



49. Draw the diagram showing micelle formation by the following detergent. $CH_3(CH_2)_{10}CH_2OSO_3^-Na^+$



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



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



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52. What are analgesics?



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



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



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



56. Which analgesics are called opiates?



57. What is the medicinal use of narcotic drugs?



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58. What are antagonistic drugs?



59. What is the mode of action of antimicrobial drugs?



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60. What is the side product of soap industry? Give reactions showing soap formation.



61. What is the difference between bathing soap and washing soaps?



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62. How are transparent soaps manufactured?



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63. What is the advantage of using antihistamines over antacids in the treatment

of acidity?



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64. What are the functions performed by histamine in the body?



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65. With the help of an example explain how do tranquilizers control the feeling of depression?



66. Why are certain drugs called enzyme inhibitors?



67. What are fillers and what role these fillers play in soap?



68. Sugar is the main source of energy as it produces energy on metabolic decomposition. But these days low calorie drinks are more popular, why?



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69. Pickles have a long shelf life and do not get spoiled for months, why?



70. What Is the difference between saccharin and saccharic acid?



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71. Name an artificial sweetener which is derivative of sucrose.



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72. Name two α -amino acids which form a dlpeptide which is 100 times more sweet than

cane sugar?



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73. Aspartame is unstable at cooking temperature, where would you suggest aspartame to be used for sweetening?



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

acids.

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75. Explain the role of allosteric site in enzyme inhibition?



76. How are receptor proteins located in the cell membrane?



77. What happens when the bond formed between an enzyme and an inhibitor is a strong covalent bond?



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78. Assertion (A): Penicillin (G) is an antihistamine.

Reason (R): Penicillin (G) is effective against

Gram-positive as well as Gram-negative bacteria.

A. (A) and (R) both are correct statement but reason does not explain (A)

and (R) explains the (A)

C. Both (A) and (R) are wrong statement

B. (A) and (R) both are correct statements

D. (A) is correct statement and (R) is wrong statement

Answer: C

79. Assertion (A): Sulpha drug contain sulphonamide group.

Reason (R): Salvarsan is a sulpha drug.

A. (A) and (R) both are correct statement but reason does not explain (A)

B. (A) and (R) both are correct statements and (R) explains the (A)

C. Both (A) and (R) are wrong statement

D. (A) is correct statement and (R) is wrong statement

Answer: D



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80. Assertion (A): Receptors are crucial to body's communication process.

Reason (R): Receptors are proteins.

- A. (A) and (R) both are correct statement but reason does not explain (A)
- B. (A) and (R) both are correct statements and (R) explains the (A)
- C. Both (A) and (R) are wrong statement
- D. (A) is correct statement and (R) is wrong statement

Answer: A



81. Assertion (A): Enzymes have active sites that hold substrate molecule for a chemical reaction .

Reason (R): Drugs compete with natural substrate by attaching covalently to active site of enzyme.

- A. (A) and (R) both are correct statement but reason does not explain (A)
- B. (A) and (R) both are correct statements and (R) explains the (A)

- C. Both (A) and (R) are wrong statement
- D. (A) is correct statement and (R) is wrong statement

Answer: D



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82. Assertion (A): Chemical messengers are chemicals that enable communication of message between two neurons or between neurons and muscles.

Reason (R): Chemicals enter the cell through receptor.

A. (A) and (R) both are correct statement but reason does not explain (A)

B. (A) and (R) both are correct statements

and (R) explains the (A)

C. Both (A) and (R) are wrong statement

D. (A) is correct statement and (R) is wrong statement

Answer: D

83. Assertion (A): Transparent soaps are made by dissolving soaps in ethanol.

Reason (R): Ethanol makes things invisible.

A. (A) and (R) both are correct statement but reason does not explain (A)

B. (A) and (R) both are correct statements and (R) explains the (A)

C. Both (A) and (R) are wrong statement

D. (A) is correct statement and (R) is wrong statement

Answer: D



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84. Assertion (A): Sodium chloride is added to precipitate soap after saponification.

Reason (R): Hydrolysis of esters of long chain fatty acids by the alkali produces soap in colloidal form.

- A. (A) and (R) both are correct statement but reason does not explain (A)
- B. (A) and (R) both are correct statements and (R) explains the (A)
- C. Both (A) and (R) are wrong statement
- D. (A) is correct statement and (R) is wrong statement

Answer: B



- **85.** Assertion (A): Competitive inhibitors compete with natural substrate for their attachment on the active sites of enzymes.

 Reason (R): In competitive inhibition, inhibitor binds to the allosteric site of the enzyme.
 - A. (A) and (R) both are correct statement but reason does not explain (A)
 - B. (A) and (R) both are correct statements and (R) explains the (A)
 - C. Both (A) and (R) are wrong statement

D. (A) is correct statement and (R) is wrong statement

Answer: D



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86. Assertion (A): Non-competitive inhibitor inhibits the catalytic activity of enzyme by binding with its active site.

Reason (R): Non-competitive inhibitor changes

the shape of the active site in such a way that substrate can't recognise it

A. (A) and (R) both are correct statement but reason does not explain (A)

B. (A) and (R) both are correct statements and (R) explains the (A)

C. Both (A) and (R) are wrong statement

D. (A) is wrong statement and (R) is correct statement

Answer: D

87. Assertion (A): Chemical messenger gives message to the cell without entering the cell.

Reason (R): Chemical messenger is received at the binding site of receptor proteins.

- A. (A) and (R) both are correct statement but reason does not explain (A)
- B. (A) and (R) both are correct statements and (R) explains the (A)

- C. Both (A) and (R) are wrong statement
- D. (A) is correct statement and (R) is wrong statement

Answer: B



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88. Assertion (A): Receptor proteins show selectivity for one chemical messenger over the other.

Reason (R): Chemical messenger binds to the receptor site and inhibits its natural function.

A. (A) and (R) both are correct statement but reason does not explain (A)

B. (A) and (R) both are correct statements and (R) explains the (A)

C. Both (A) and (R) are wrong statement

D. (A) is correct statement and (R) is wrong statement

Answer: D

89. Assertion (A): All chemicals added to food items are called food preservatives.

Reason (R): All these chemicals increase the nutritive value of the food.

A. (A) and (R) both are correct statement but reason does not explain (A)

B. (A) and (R) both are correct statements and (R) explains the (A)

C. Both (A) and (R) are wrong statement

D. (A) is correct statement and (R) is wrong statement

Answer: C



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90. Assertion (A): Preservative are added to food items.

Reason (R): Preservatives inhibit the growth of microorganisms.

- A. (A) and (R) both are correct statement but reason does not explain (A)
- B. (A) and (R) both are correct statements and (R) explains the (A)
- C. Both (A) and (R) are wrong statement
- D. (A) is correct statement and (R) is wrong statement

Answer: B



91. Assertion (A): Artificial sweeteners are added to the food to control the intake of calories.

Reason (R): Most of the artificial sweeteners are inert and do not metabolise in the body.

- A. (A) and (R) both are correct statement but reason does not explain (A)
- B. (A) and (R) both are correct statements and (R) explains the (A)
- C. Both (A) and (R) are wrong statement

D. (A) is correct statement and (R) is wrong statement

Answer: B



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92. In what respect do prontosil and salvarsan resemble. Is there any resemblance between azodye and prontosil?



93. How do enzymes catalyse a chemical reaction in the living system? Explain drugtarget interaction taking the example of enzyme as target.



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94. Synthetic detergents have advantage over usual soaps as far as cleansing power is concerned. But use of synthetic detergents over a long time creates environmental

pollution. How can the pollution caused by synthetic detergents be minimised? Classify the detergents according to their chemical nature.



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Mcq Hotspot

1. Which of the following is used for treating malaria-

B. penicillin
C. chloroquin
D. paracetamol
Answer: c
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2. Which of the following is an analgesic-
A. seldane

A. aspirin

- B. paludrin
- C. analgin
- D. iodex

Answer: c



- **3.** Chemical name of aspirin is-
 - A. methyl benzoate
 - B. ethyl salicylate

- C. acetylsalicylic acid
- D. hydroxybenzoic acid

Answer: c



- **4.** Phenacitin is used as an-
 - A. antipyretic
 - B. antiseptic
 - C. analgesic

D. antimalarial

Answer: a



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5. Aluminium salt used to stop bleeding is-

A. aluminium sulphate

B. potash alum

C. aluminium chloride

D. aluminium fluoride

Answer: b



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- 6. Which of the following is an antioxidant
 - A. sucralose
 - B. butylated hydroxyanisole
 - C. sorbic acid
 - D. none of these

Answer: b

- 7. Artificial sweetener used in cold drinks is-
 - A. lactose
 - B. aspartame
 - C. glycerol
 - D. fructose

Answer: b



8. Which of the following must be present in a biodegradable detergent-

A. simple alkyl chain

B. branched alkyl chain

C. phenyl side chain

D. cyclohexyl side chain

Answer: a



9. Compound responsible for antiseptic effect of Dettol-

A. chlorobenzene

B. chloroxylenol

C. terpineol

D. both (B) and (C)

Answer: d



10. Which of the following is a synthetic detergent-

A.
$$C_{15}H_{31}COOK$$

B.
$$CH_3(CH_2)_6COO^-Na^+$$

D. none of these

Answer: c



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11. Which compounds are used as antihistamines

- A. aspirin
- B. dimetapp
- C. promethazine
- D. seldane

Answer: b,c,d



12. Which regarding barbiturates are correct-

A. these are hypnotic or sleep inducing agents

B. these are tranquilizers.

C. these are non-narcotic analgesics.

D. these are pain killers but does not affect the nervous system.

Answer: a,b



13. Which of the following are sulpha drugs-

A. sulphapyridine

B. prontosil

C. salvarsan

D. nardil

Answer: a,b



14. Which of the following pairs are bactericidal antibiotics-

A. penicillin, streptomycin

B. erythromycin, chloramphenicol

C. ofloxacin, aminoglycoside

D. tetracyclin, chloramphenicol

Answer: a,c



15. Which of the following compounds are used to cure mental depression-

A. iproniazid

B. phenelzine

C. equanil

D. salvarsan

Answer: a,b,c



Exercise

1. Mention one important use of meprobamate.



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2. Name a drug which is both an analgesic and an antipyretic.



3. Choose the odd one out from the following list of compounds on the basis of medicinal use. Chloroxylenol, phenol, chloramphenicol, bithional.



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4. The first antibiotic was prepared from which compound?



5. Omeprazole is used to cure which disease of the human body?



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6. What is added to a soap to impart antiseptic properties in it?



7. Give an example of a hormone and a neurotransmitter.



8. Give the common name and use of morphine diacetate.



9. Give an example of a bacteriostatic drug.



10. Give an example of an antifertility drug.



11. Name a drug which is used for curing depression.



12. Give the name of a carbohydrate antibiotic.



13. Give an example of a narrow spectrum antibiotic.



14. Can chloramphenicol be termed as a broad spectrum antibiotic?



15. Which heterocyclic ring is present in sulphapyridine?



16. How many types of antibacterial drug is present? What are those?



17. Give the chemical name of ibuprofen along with its use.



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18. Give an example of an antihistamine drug.



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19. What are tranquilizers? Give example.



20. Name the iodine-based antiseptic obtained from the reaction between ethanol, I_2 and NaOH.



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21. How many halogen atoms are present in sucralose?



22. How many times alitame is sweeter than cane sugar?



23. Name an artificial sweetener that have a ring containing sulphur



24. Give an example of an antioxidant.



25. Mention the use of potassium sorbate.



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26. Name a gas used in preservation of fruits and vegetables.



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27. Name a preservative used for dry fruits.



28. Mention the use of sodium metabisulphate.



29. Give an example of a soft soap.



30. Cosmetic soaps are prepared by saponification of which oils?



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31. How many types of soaps will be obtained from glyceryl oleate palmitate stearate?



32. Indicate the hydrophilic and hydrophobic parts of a soap.



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33. Give an example of a cationic detergent.



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34. What is added during preparation of shaving soaps?



35. Give an example of a non-biodegradable detergent.



36. Drug prepared by acetylation of paminophenol which is both an analgesic and an antipyretic is _____



37. A powerful narcotic analgesic prepared by acetylation of morphine is



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38. ___ is a limited spectrum antibiotic.



39. Dettol is a mixture of chloroxylenol and
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40. Ortho-sulphobenzimide, an artificial
sweetener is commonly known as
Watch Video Solution

41. Artificial sweetener used in calorie-free
drinks is
Watch Video Solution
42. is a natural antioxidant.
Watch Video Solution
43. Sodium dodecylbenzenesulphonate is adetergent.



44. Non-ionic detergent dissolve in water by form



45. Drugs are classified on the basis of which factors?



46. What do you understand by the term 'antibiotics'? What are bactericidal and bacteriostatic antibiotics? Give example.



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47. Explain with suitable diagram in how many ways a drug can bind to the active site of an enzyme thereby preventing a substrate to bind with that enzyme.



48. What do you mean by chemotherapy?



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49. What do you understand by narcotic analgesics and nonnarcotic analgesics. Give examples.



50. Differentiate between: broad spectrum antibiotics & narrow spectrum antibiotics



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51. Differentiate between : hormones & neurotransmitters.



52. Describe the process by which receptors transfer message to the cells. What do you mean by antagonist and agonist drugs?



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53. Mention the differences between antiseptics and disinfectants and give an example of each.



54. Give one use of each of the following-(i) chloramphenicol, (ii) streptomycin, (iii) paracetamol, (iv) bithional



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55. Why penicillin is called a β -lactam antibiotic? Write the names and structures of five naturally occurring penicillin.



56. What are antifertility drugs? What are the components of an ordinary birth-control pill? Write down their specific functions.



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57. What do you mean by the term 'food additives'? Give example.



58. What are artificial sweeteners and why are they used?



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59. What is the relation between D-glucose and L-glucose? Among D-glucose & L-glucose, which one provides energy to the body?



60. What are food preservatives and why they should be used in small quantities?



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61. What do you understand by the term 'antioxidants'? How do they preserve food containing oils and fats?



62. Give the chemical identity of oil or fat and soap. How soap is prepared from oil or fat



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63. How the following soaps are prepared? (i) toilet soap (ii) medicated soap (iii) shaving soap and (iv) floating soap.



64. Give two disadvantages of soaps as cleansing agents.



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65. What are anionic, cationic and non-ionic detergents? Give an example for each category.



66. What are the advantages of using detergents as cleansing agents over soaps?



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67. What are biodegradable and non-biodegradable detergents and why are they called so? Which one is responsible for causing environmental pollution?



68. Describe the cleansing action of a soap and a detergent.



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Practice Set 15

1. Which will not enhance nutritional value of food-

A. minerals

B. artificial sweeteners

- C. vitamins
- D. amino acids

Answer: B



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2. Equanil is _____

- A. artificial sweeteners
- B. tranquilizer
- C. antihistamine

D. antifertility drug

Answer: B



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3. Salvarsan is arsenic containing drug which was first used for the treatment of ____

A. syphilis

B. typhoid

C. meningitis

D. dysentery

Answer: A



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4. Which of the following is used for treating malaria-

A. aspirin

B. penicillin

C. chloroquin

D. paracetamol

Answer: C



- **5.** Chemical name of aspirin is ___
 - A. methyl benzoate
 - B. ethyl salicylate
 - C. acetylsalicylic acid
 - D. hydroxybenzoic acid

Answer: C



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- 6. Which of the following is an analgesic-
 - A. seldane
 - B. paludrin
 - C. analgin
 - D. iodex

Answer: C

7. Compound responsible for antiseptic effect of dettol-

A. chlorobenzene

B. chloroxylenol

C. terpineol

D. both (B) and (C)

Answer: D



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8. Artificial sweetener used in cold drinks is

A. lactose

B. aspartame

C. glycerol

D. fructose

Answer: B



9. Which of the following is an antioxidant-

A. sucralose

B. butylated hydroxyanisole

C. sorbic acid

D. none of these

Answer: B



10. Which of the following compoud is added to soap to impart antiseptic properties-

- A. sodium laurylsulphate
- B. sodium dodecylbenzenesulphonate
- C. rosin
- D. bithional

Answer: D



11. What type of drug is chloramphenicol?



12. Give an example of antihistamine drug.



13. Name a drug used in the treatment of mental disorders.



14. Why BHA is added to butter?



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15. Name an estrogen derivative which is a part of an oral contraceptive.



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