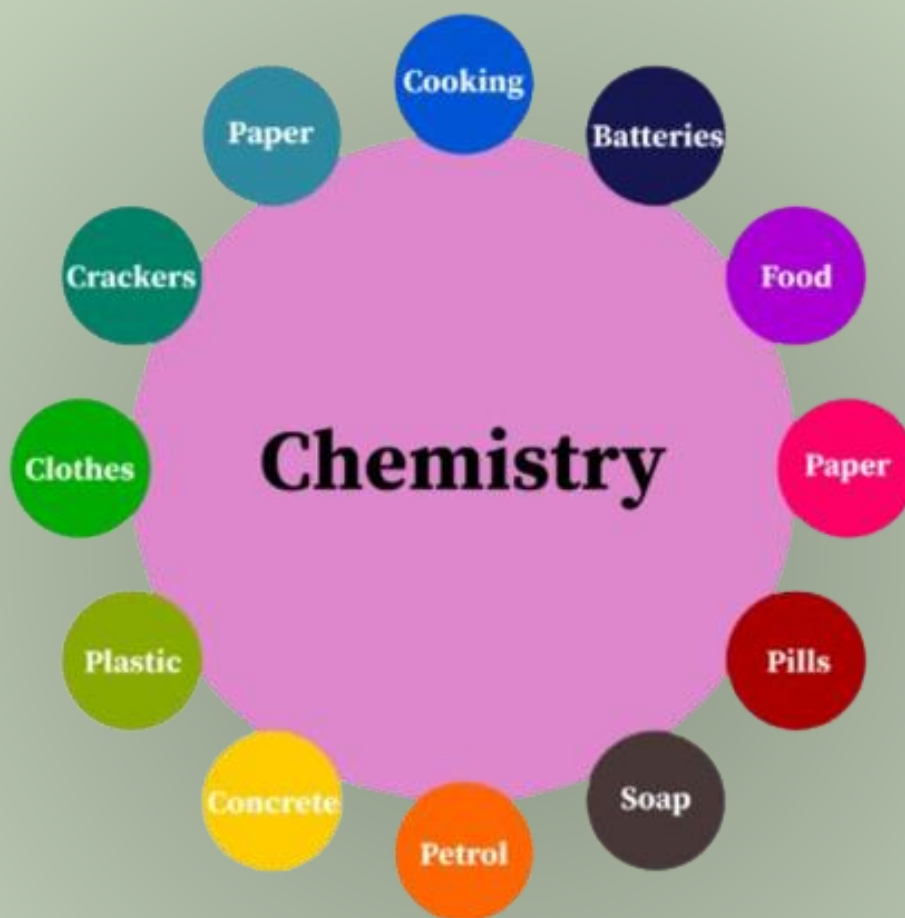


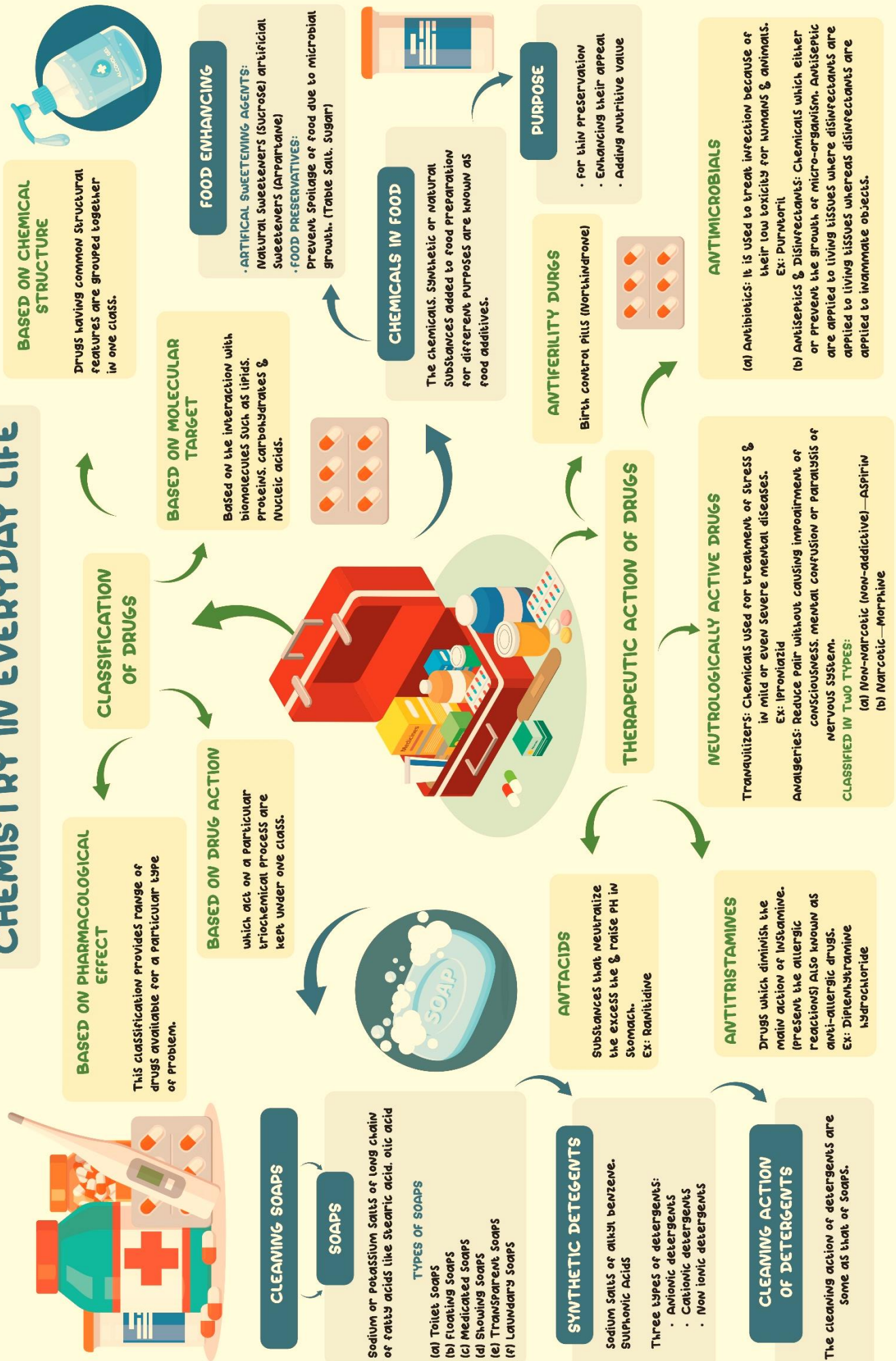
16. CHEMISTRY IN EVERYDAY LIFE



Chemistry Smart Booklet

Theory + NCERT MCQs + Topic Wise Practice
MCQs + NEET PYQs

CHEMISTRY IN EVERYDAY LIFE



CHEMISTRY IN EVERYDAY LIFE

Introduction:

In this Unit, we shall learn the application of Chemistry in three important and interesting areas, namely-medicines, food materials and cleansing agents. For cleanliness, we use soaps, detergents, toothpastes, bleaches etc., which all are made up of chemical compounds.

Similarly, Clothes (Cotton, Wool, Silk, Terylene), Food materials (Carbohydrates, Proteins, Oil, Fats), Medicines (Antibiotics, Antimalarials etc.), Explosives, Fuels, Rocket propellants, Building materials etc. are all chemical compounds or derived from them.

Drugs and their Classification:

Drugs are chemicals of low molecular masses (~100-500u). They produce biological response by interacting with macromolecular targets. If the biological response is therapeutic and useful, these chemicals are called medicines. They are used in diagnosis, prevention and treatment of diseases.

Classification of Drugs

Drugs can be classified mainly on the basis of following criteria:

(i) On the basis of pharmacological effect

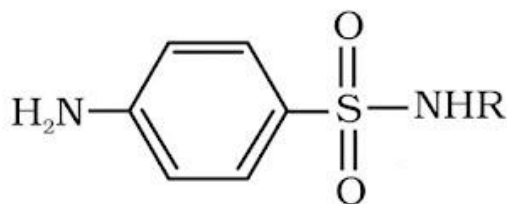
It is useful for doctors because it provides them whole range of drugs available for treatment of particular type of problem. Eg.- Analgesic - Shows pain killing effect. Antiseptic - Kill or arrest the growth of microorganisms.

(ii) On the basis of drug action

It is based on action of drug on a particular biochemical process. Eg.- Histamines causes inflammation in the body and there are various ways in which action of histamines can be blocked. All antihistamines inhibit the action of the histamines.

(iii) On the basis of chemical structure

It is based on chemical structure of the drug. Often drugs with common structural features, have similar pharmacological activity. Sulphonamides have common structural feature as shown above. Eg.



(iv) On the basis of molecular targets

Drug possessing some common structural features, may have same mechanism of action on targets. These target molecules or drug targets are usually biomolecules such as carbohydrates, lipids, proteins and nucleic acids.

Drug-Target Interaction:

Macromolecules of biological origin perform various functions in the body. **For example,** Proteins which perform the role of biological catalyst in the body are called enzymes,

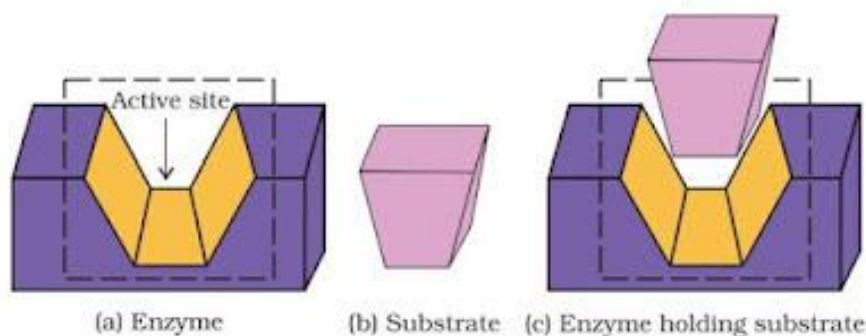
those which are crucial to communication system in the body are called **receptors**. Carrier proteins carry polar molecules across the cell membrane. Nucleic acids have coded genetic information for the cell.

Enzymes as Drug Targets

(i) Catalytic action of enzymes

Enzymes perform two major functions :

- a) The first function of enzyme is to hold the substrate for chemical reaction. Enzymes have active sites, which hold the substrate molecule in a suitable position. The substrate can bind through enzyme by interactions such as ionic bonding, hydrogen bonding, van der Waals interaction or dipole-dipole interaction.

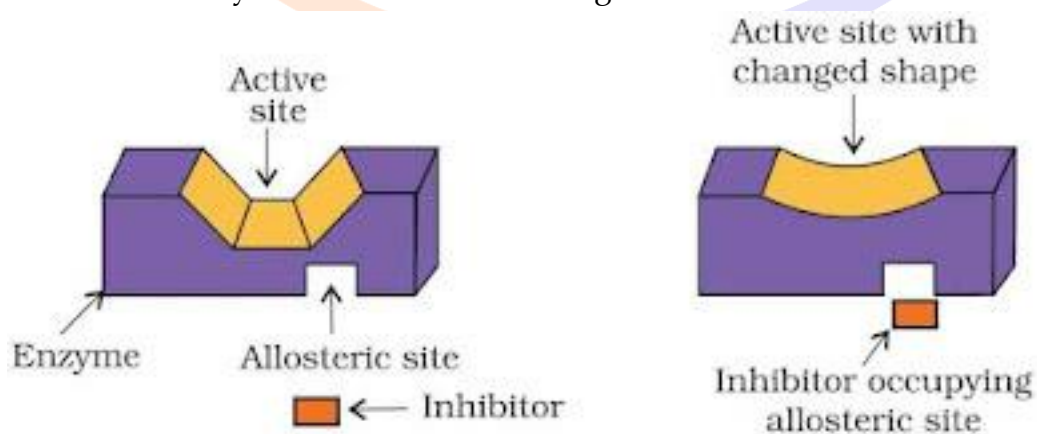


- b) The second function of enzyme is to provide functional groups that will attack the substrate and carry out chemical reaction.

(ii) Drug-enzyme interaction

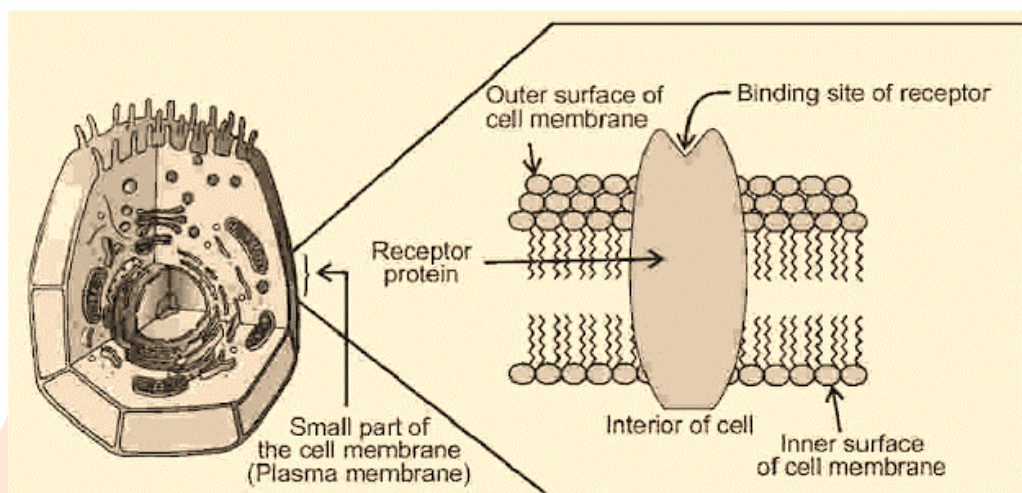
Enzyme inhibitors- Drugs can inhibit the activities of enzymes. They can block the binding site of the enzyme, thus prevent the binding of substrate or they can inhibit the catalytic activity of the enzyme. Drug can inhibit the attachment of substrate on active site of enzymes in following two ways :

- a) **Competitive inhibitors :** These are drugs which compete with natural substrate for their attachment on the active site of enzymes.
- b) **Non-competitive inhibitors :** These drugs do not bind to the enzyme's active site, rather bind to a different site of enzyme called Allosteric site and changes the shape of active site in such a way that substrate can't recognise it.

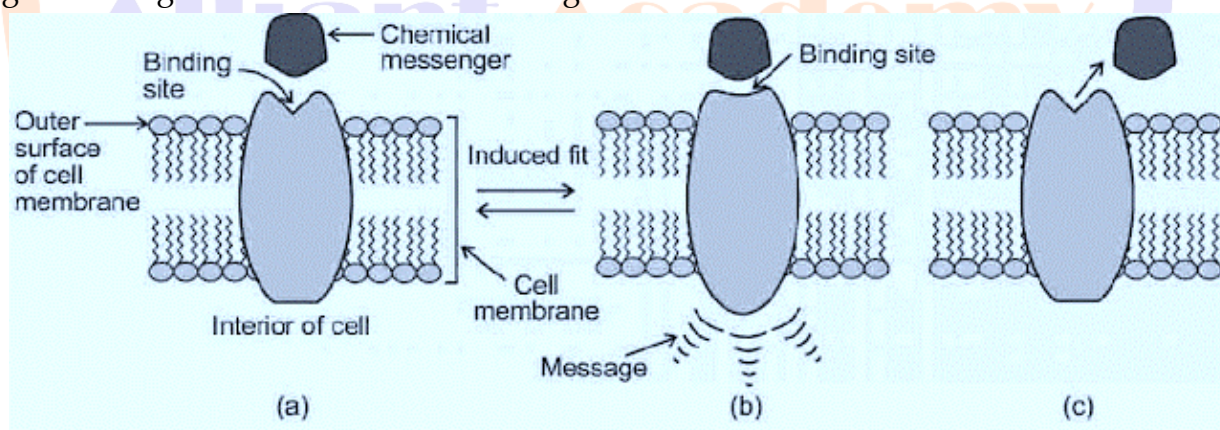


Receptors as Drug Targets

Receptors are proteins that are crucial to body's communication process. Receptor proteins are embedded in cell membranes in such a way that their small part possessing active site projects out of the surface of the membrane and opens on the outside region of the cell membrane.



Chemical Messengers are the chemicals in the body, through which message between two neurons or that between neurons to muscles is communicated. They are received at binding sites of receptor proteins. To accommodate a messenger, shape of receptor site changes and brings about the transfer of message into the cell. Thus, chemical messenger give message to the cell without entering the cell.



Drugs that bind to the receptor site and inhibit its natural function are called **antagonists**.

These are useful when blocking of message is required. There are other types of drugs that mimic the natural messenger by switching on the receptor, these are called **agonists**. These are useful when there is lack of natural chemical messenger.

Therapeutic Action of Different Classes of Drugs:

Few important classes of drugs are :

1. Antacids

Over production of acid in stomach causes pain and irritation and in severe cases ulcers are developed. Antacids such as sodium hydrogen carbonate or mixture of aluminium and magnesium hydroxide was used. But taking excess hydrogen carbonate makes the stomach alkaline and trigger the production of even more acid. Metal hydroxides are better antacids, as they are insoluble and do not increase the pH above neutrality.

2. Antihistamines

Histamine is a potent vasodilator. It has various functions, like contraction of smooth muscles in the bronchi and gut and relaxing other muscles such as those in walls of fine blood vessels. Histamines are also responsible for nasal congestion associated with common cold and allergic response to pollen. Synthetic drug brompheniramine (Dimetapp) and terfenadine (Seldane) act as antihistamines.

3. Neurologically Active Drugs

- (i) **Tranquilizers** : They affect the message transfer mechanism from nerve to receptor. They are class of chemical compounds used for treatment of stress, mild or even severe mental diseases. They form essential component of sleeping pills. They relieve anxiety, stress, irritability or excitement by including sense of well being. Examples, Chlordiazepoxide, meprobamate are mild tranquilizers suitable for relieving tension.
- (ii) **Analgesics** : They reduce or abolish pain without causing impairment of consciousness, mental confusion, incoordination or paralysis or some other disturbances of nervous system. They are classified as :
 - a) Non-narcotic (non-addictive) analgesics : Example- Aspirin, Paracetamol.
 - b) Narcotic analgesics : Example- Morphine and its homologues like Heroin, Codeine etc.

4. Antimicrobials

They destroy or prevent development or inhibit the pathogenic action of microbes such as bacteria (by antibacterial drug), fungi (by antifungal agents), virus (by antiviral agents) or other parasites (antiparasitic drugs) selectively.

Antibiotics : These are drugs used to cure infections because of low toxicity for humans and animals. Initially, they were classified as chemical substances produced by microorganisms, that inhibit the growth or even destroy other microorganisms.

5. Antiseptic and Disinfectants

They are chemicals which either kill or prevent growth of microorganisms.

Antiseptics

They are applied to living tissues such as wounds, cuts, ulcers and diseased skin surfaces. They are not ingested like antibiotics. Examples are :

- i. Furacine, Soframycin.
- ii. Dettol, which is a mixture of chloroxylenol and terpineol.
- iii. Bithionol, which is added to soaps to impart antiseptic properties.
- iv. Iodine, which a powerful antiseptic, is a 2-3% solution in alcohol-water mixture, also known as tincture of iodine.
- v. Iodoform, which is also used as antiseptic for wounds.

Disinfectants

They are applied to inanimate objects such as floors, instruments, drainage system etc. Same substance can act as antiseptic as well as disinfectant by varying its concentration. For example, 0.2% solution of phenol is an antiseptic but 1% solution of phenol is disinfectant.

6. Antifertility Drugs

They are used in direction of birth control and in family planning. Birth control pills essentially contains a mixture of synthetic estrogen and progesterone derivatives. Both of these compounds are hormones. Progesterone suppresses ovulation. Synthetic

progesterone derivatives are more potent than progesterone. Example, Norethindrone a synthetic progesterone derivative, has antifertility action.

Chemicals in Food:

Chemicals are added to food for (i) their preservation, (ii) enhancing their appeal, and (iii) adding nutritive value in them. Main categories of food additives are as follows:

- Food colours
- Flavours and sweeteners
- Fat emulsifiers and stabilising agents
- Flour improvers- antistalling agents and bleaches
- Antioxidants Preservatives
- Nutritional supplements like minerals, vitamins and amino acids.

1. Artificial Sweetening Agents

They are as sweet as sugar, but have no or less calories, whereas natural sweeteners e.g., sucrose add to calorie intake. It is used by a diabetic person and those who want to control their intake of calories. Ortho-sulphobenzimide, called saccharin is the first popular artificial sweetening agent, which is about 550 times as sweet as cane sugar. It is excreted from the body in urine unchanged. It is harmless and appears to be entirely inert.

Other examples are :

- (i) **Aspartame:** It is the most successful and widely used sweetener. It is roughly 100 times as sweet as cane sugar. It is methyl ester of dipeptide formed from aspartic acid and phenylalanine. As it is unstable at cooking temperature, its use is limited to cold foods and soft drinks.
- (ii) **Alitame :** It is a high potency sweetener, more stable than aspartame. But control of sweetness of food is difficult while using it.
- (iii) **Sucralose :** It is a trichloro derivative of sucrose. Its appearance and taste are like sugar. It is stable at cooking temperature and does not provide calories.

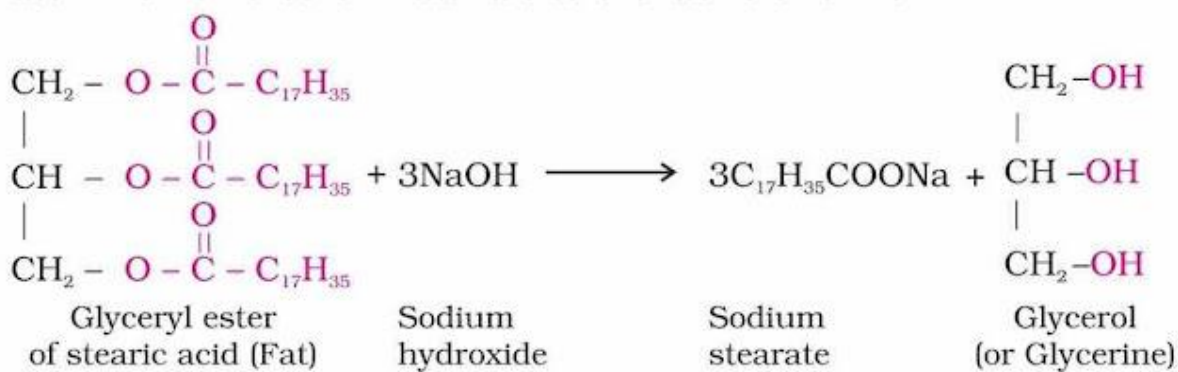
Food Preservatives

They prevent spoilage of food due to microbial growth. Commonly used preservatives are table salt, sugar, vegetable oils, sodium benzoate ($\text{C}_6\text{H}_5\text{COONa}$), salts of sorbic acid and propanoic acid. Sodium benzoate is used in limited quantities and is metabolised in the body.

Cleansing Agents

They improve cleansing properties of water and help in removal of fats which bind other materials to the fabric or skin. They include-

Soaps: Soaps used for cleaning purpose are sodium or potassium salts of long chain fatty acids e.g., stearic, oleic and palmitic acids. Soaps containing sodium salts are formed by heating fat (i.e., glyceryl ester of fatty acid) with aqueous sodium hydroxide solution. This reaction is known as saponification.



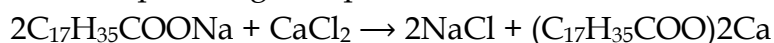
In this reaction, esters of fatty acids are hydrolysed and soap obtained remains in colloidal form. It is precipitated from solution by adding sodium chloride. The solution left after removing soap contains glycerol and can be recovered by fractional distillation.

Types of Soaps

- (i) **Toilet Soaps** : They are prepared by using better grades of fats and oils and excess of alkali is removed. Colour and perfumes are added to make these more attractive.
- (ii) **Transparent Soaps** : They are made by dissolving the soap in ethanol and then evaporating the excess solvent.
- (iii) **Medicated Soaps** : Substances of medicinal values are added.
- (iv) **Shaving Soaps** : Contain glycerol to prevent rapid drying. A gum called, rosin is added while making, it forms sodium rosinate which lathers well.
- (v) **Laundry Soaps** : These contains fillers like sodium rosinate, sodium silicate, borax and sodium carbonate.

Why soaps do not work in hard water?

As we know that hard water contains calcium and magnesium ions which forms insoluble salts with soaps, that gets separated as scum in water.



In fact, the scum so separated offers hinderance to soap action as the precipitate adheres onto the fabric as gummy mass. Also, the hair washed with hard water looks dull because of this sticky precipitate. Similarly, dyes do not absorb evenly on cloth washed with soap using hard water.

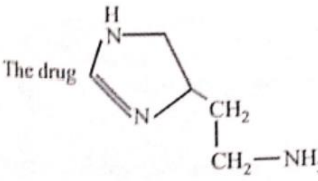
Limitations of Detergents

The problem of using detergents is that if their hydrocarbon chain is highly branched, then bacteria cannot degrade this easily and their slow degradation leads to their accumulation. Effluents containing such detergents reach rivers, ponds etc. and persist in water even after sewage treatment. This cause foaming in rivers, ponds and streams which pollutes the water.

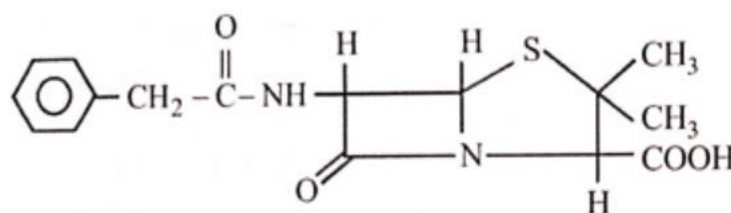
Now a days, the branching of hydrocarbon chain is controlled and kept to the minimum. Unbranched chains can be biodegraded more easily and hence pollution is prevented.

NCERT LINE BY LINE QUESTIONS

NCERT BASED LINE BY LINE QUESTIONS

1. The use of chemicals for treatment of diseases is called as [NCERT Pg.445]
 (a) isothermotherapy (b) angiotherapy
 (c) physiotherapy (d) chemotherapy
2. Which of the following method of classification of drugs is useful for medicinal chemists? [NCERT Pg.446]
 (a) On the basis of molecular targets.
 (b) On the basis of chemical structure.
 (c) On the basis of drug action.
 (d) All of these.
3. The drug  is an [NCERT Pg.451]
 (a) Antacid (b) Analgesic
 (c) Antimicrobial (d) Antiseptic
4. Which one of the following is employed as a tranquilizer? [NCERT Pg.452]
 (a) Naproxen (b) Tetracycline
 (c) Chlorpheniramine (d) Equanil
5. Terfenadine is commonly used as a/an [NCERT Pg-452]
 (a) tranquilizer (b) antihistamine
 (c) antimicrobial (d) antibiotic
6. Tranquilizers are substances used for the treatment of [NCERT Pg-452]
 (a) cancer (b) AIDS
 (c) mental diseases (d) physical disorders
7. The drug used as an antidepressant is [NCERT Pg-452]
 (a) Luminol (b) Tofranil
 (c) Mescaline (d) Sulphadiazine
8. Barbituric acid and its derivatives are well known [NCERT Pg-453]
 (a) antipyretics (b) analgesics
 (c) antiseptics (d) tranquillizers
9. Aspirin is [NCERT Pg-453]
 (a) antiseptics (b) disinfectants
 (c) analgesics (d) antipyretics
10. Sulpha drugs are used for [NCERT Pg-455]
 (a) precipitating bacteria (b) removing bacteria
 (c) decreasing the size of bacteria (d) stopping the growth of bacteria
11. Which one among the following is not an analgesic? [NCERT Pg-453]
 (a) Ibuprofen (b) Naproxen (c) Aspirin (d) Valium
12. Salol can be used as [NCERT Pg-456]
 (a) antiseptic (b) antipyretic (c) analgesic (d) None of these

13. Various phenol derivatives, tincture of iodine (2-3%) I_2 in (water/alcohol) and some dyes like methylene blue are [NCERT Pg-456]
 (a) antiseptics (b) disinfectants (c) analgesics (d) antipyretics
14. Streptomycin is effective in the treatment of [NCERT Pg-455]
 (a) tuberculosis (b) malaria
 (c) typhoid (d) cholera
15. An antibiotic with a broad spectrum [NCERT Pg-455]
 (a) kills the antibodies
 (b) acts on a specific antigen
 (c) acts on different antigens
 (d) acts on both the antigens and antibodies
16. Which of the following is not an antiseptic drug? [NCERT Pg-456]
 (a) Iodoform (b) Dettol
 (c) Gammexene (d) Genatian violet
17. Veronal, a barbiturate drug is used as [NCERT Pg-453]
 (a) anaesthetic (b) sedative
 (c) antiseptic (d) None of these
18. A drug effective in the in the treatment of pneumonia, bronchitis, etc, is [NCERT Pg-454 & 455]
 (a) streptomycin (b) chloramphenicol
 (c) penicillin (d) sulphaguanidine
19. Commonly used antiseptic 'Dettol' is a mixture of [NCERT Pg-456]
 (a) o-chlorophenoxylenol + terpeneol
 (b) o-cresol + terpeneol
 (c) phenol + terpeneol
 (d) chloroxylenol + terpeneol
20. Chloroamphenicol is an. [NCERT Pg-455]
 (a) antifertility drug (b) antihistaminic
 (c) antiseptic and disinfectant (d) antibiotic - broad spectrum
21. The structure given below is known as [NCERT Pg-455]



- (a) Penicillin F (b) Penicillin G
 (c) Penicillin K (d) Ampicillin
22. Bithional is an example of [NCERT Pg-456]
 (a) disinfectant (b) antiseptic
 (c) antibiotic (d) analgesic
23. Antiseptics and disinfectants either kill or prevent growth of microorganisms. Identify which of the following statements is not true: [NCERT Pg-456]
 (a) Chlorine and iodine are used as strong disinfectants.
 (b) Dilute solutions of boric acid and hydrogen peroxide are strong antiseptics.
 (c) Disinfectants harm the living tissues.

- (d) A 0.2% solution of phenol is an antiseptic while 1 % solution acts as a disinfectant.
24. Which of the following is an essential component of sleeping pills?
[NCERT Pg-452]
- (a) Analgesics (b) Tranquilizers
(c) Antihistamines (d) Both (b) and (c)
25. Which of the following was the first effective treatment discovered for syphilis?
[NCERT Pg-454]
- (a) Penicillin (h) Arsphenamine
(c) Chloramphenicol (d) Sulphanilamide
26. Among the following antihistamines, which are antacids
[NCERT Pg-451]
- (i) Ranitidine (ii) Brompheniramine
(iii) Terfenadine (iv) Cimetidine
(a) (i) and (iii) (b) (i), (ii) and (iv)
(c) (i) and (iv) (d) (ii) and (iii)
27. Select the incorrect statement.
[NCERT Pg-452]
- (a) Equanil is used to control depression and hypertension.
(b) Mifepristone is a synthetic steroid used as "morning after pill".
(c) 0.2 percent solution of phenol is an antiseptic while its 1.0 percent solution is a disinfectant.
(d) A drug which kills the organism in the body is called bacteriostatic.
28. Bactericidal antibiotics are those which
[NCERT Pg-455]
- (a) have inhibitory effect on microbes.
(b) have killing effect on microbes.
(c) have both inhibitory and killing effect on microbes.
(d) intervene in metabolic process of microorganism.
29. Which is correct about saccharin?
-
- (a) It is
(b) It is 600 times sweeter than sugar
(c) It is used as sweetening agent
(d) All of these
30. Arrange the following artificial sweeteners in increasing order of their sweetness value?
[NCERT Pg-458]
- (a) Sucralose < Saccharin < Alitame < Aspartame
(b) Aspartame < Saccharin < Sucralose < Alitame
(c) Aspartame < Sucralose < Saccharine < Alitame
(d) Saccharine < Aspartame < Sucralose < Alitame
31. Which of the following enhances the lathering property of soap?
- (a) Sodium stearate (b) Sodium carbonate
(c) Sodium rosinate (d) Trisodium phosphate
32. Which of the following statements is correct?
[NCERT Pg-452]
- (a) Some tranquilizers function by inhibiting the enzymes which catalyse the degradation of noradrenaline

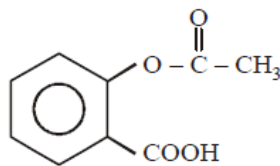
- (b) Tranquilizers are narcotic drugs
 (c) Tranquilizers are chemical compounds that do not affect the message transfer from nerve to receptor
 (d) Tranquilizer are chemical compounds that can relieve pain and fever.
33. Sodium alkyl benzene sulphonate is used as [NCERT Pg-460]
 Classification of drugs is useful for medicinal chemists
 (a) soap (b) fertilizer
 (c) pesticides (d) determents
34. Polyethyleneglycols are used in the preparation of which type of detergent ?
 (a) Cationic detergents (b) Anionic detergents
 (c) Non-ionic detergents (d) soaps [NCERT Pg-460]

TOPIC WISE PRACTICE QUESTIONS

TOPIC 1: Drugs and Medicines

- An antipyretic is
 1) Quinine 2) paracetamol 3) luminal 4) piperazine
- Salol can be used as
 1) Antiseptic 2) antipyretic 3) analgesic 4) none of these
- An antibiotic contains nitro group attached to aromatic nucleus. It is
 1) Penicillin 2) streptomycin 3) tetracycline 4) chloramphenicol
- Terfenadine is commonly used as a/an
 1) Tranquilizer 2) antihistamine 3) antimicrobial 4) antibiotic
- Tranquillizers are substances used for the treatment of
 1) Cancer 2) AIDS 3) mental diseases 4) physical disorders
- Which of the following is used for inducing sleep?
 1) Paracetamol 2) Chloroquine 3) Bithional 4) Barbituric acid derivatives
- Chloramine-T is a/an
 1) disinfectant 2) antiseptic 3) analgesic 4) antipyretic
- Penicillin was first discovered by
 1) A. Fleming 2) Tence and Salke 3) S.A. Waksna 4) Lewis Pasteur
- Which of the following term means pain killer?
 1) Antibiotic 2) Analgesic 3) Antipyretic 4) Penicillin
- Which of the following hormones is produced under the condition of stress which stimulates glycogenolysis in the liver of human beings?
 1) Thyroxine 2) Insulin 3) Adrenaline 4) Estradiol
- Arsenic containing medicine used for the treatment of syphilis is:
 1) Tetracycline 2) Ofloxacin 3) Erythromycin 4) Salvarsan
- Which of the following is an insecticide?
 1) Bakelite 2) TNT 3) BHC 4) Aspirin
- Which of the following statements about aspirin is not true?
 1) It is effective in relieving pain. 2) It is a neurologically active drug.
 3) It has antiblood clotting action. 4) It belongs to narcotic analgesics.
- Chemically heroin is
 1) Morphine monoacetate 2) morphine dibenzoate
 3) Morphine diacetate 4) morphine monobenzoate
- Sulphonamides act as
 1) Antiseptic 2) Analgesic 3) Antimicrobials 4) Antipyretic
- Substances used for bringing down temperature in high fever are called
 1) pyretics 2) antipyretics 3) antibiotics 4) antiseptics

17. Various phenol derivatives, tincture of iodine (2 – 3%) I₂ in (water / alcohol) and some dyes like methylene blue are
 1) antiseptics 2) disinfectants 3) analgesics 4) antipyretics
18. The insecticide containing 99% γ – isomer of benzene hexachloride is known as
 1) lindane 2) TNT 3) malathion 4) methoxychlor
19. The following compound is used as



- 1) an anti-inflammatory compound 2) analgesic
 3) hypnotic 4) antiseptic
20. Amoxycillin is semi-synthetic modification of
 1) penicillin (2) streptomycin 3) tetracyclin 4) chloroamphenicol
21. Which of these is a hypnotic?
 1) metaldehyde 2) acetaldehyde 3) paraldehyde 4) none of these
22. Which of the following is used as an antibiotic?
 1) ciprofloxacin 2) paracetamol 3) ibuprofen 4) tocopherol
23. Barbituric acid and its derivatives are well known
 1) antipyretics 2) analgesics 3) antiseptics 4) tranquillizers
24. The drug used for prevention of heart attacks is
 1) aspirin 2) valium 3) chloramphenicol 4) cephalosporin
25. Omeprazole and lansoprazole are used as –
 1) antifertility 2) antiallergic 3) antibiotic 4) antacid
26. Sulpha drugs are used for
 1) precipitating bacteria 2) removing bacteria
 3) decreasing the size of bacteria 4) stopping the growth of bacteria
27. Streptomycin is effective in the treatment of
 1) tuberculosis 2) malaria 3) typhoid 4) cholera
28. An antibiotic with a broad spectrum
 1) kills the antibodies 2) acts on a specific antigen
 3) acts on different antigens 4) acts on both the antigens and antibodies
29. Which of the following is not an antiseptic drug?
 1) Iodoform 2) Dettol 3) Gammexane 4) Genation violet
30. Sulphaguanidine is used for
 1) dysentery 2) urinary infections 3) antiseptic 4) antipyretic
31. Veronal, a barbiturate drug is used as
 1) anaesthetic 2) sedative 3) antiseptic 4) None of these
32. A drug effective in the treatment of pneumonia, bronchitis, etc, is
 1) streptomycin 2) chloramphenicol 3) penicillin 4) sulphaguanidine
33. An ester used as medicine is
 1) ethyl acetate 2) methyl acetate 3) methyl salicylate 4) ethyl benzoate
34. Phenacetin is used as
 1) antipyretic 2) antiseptic 3) antimalarial 4) antibiotic
35. Which of the following acts as an antioxidant in edible oils ?
 1) Vitamin B 2) Vitamin C 3) Vitamin D 4) Vitamin E
36. Which of the following is used as an antioxidant in food?
 1) BTX 2) BHT 3) BHC 4) All the three
37. Which one of the following compounds is an anti-fertility drug?
 1) Aspirin 2) Chloromycetin 3) Saheli 4) Penicillin
38. Which is used for sterilization of water in water supply system of cities?
 1) Chlorine 2) Sulphurdioxide 3) Potassium permanganate 4) DDT

39. The drug which is effective in curing malaria is
 1) quinine 2) aspirin 3) analgin 4) equanil
40. Heroin is a derivative of
 1) cocaine 2) morphine 3) caffeine 4) nicotine
41. The formulation of dettol contains
 1) chloroxylenol 2) terpineol 3) alcohol 4) All of these
42. Which of the following is an alkaloid?
 1) Nicotine 2) Piperine 3) Cocaine 4) All of these
43. Morphine is
 1) an alkaloid 2) an enzyme 3) a carbohydrate 4) a protein
44. Which of the following is an antidiabetic drug?
 1) Insulin 2) Penicillin 3) Chloroquine 4) Aspirin
45. Further growth of cancerous cells in the body is arrested by
 1) physiotherapy 2) chemotherapy 3) electrotherapy 4) psychotherapy

TOPIC 2: Food Preservatives and Cleansing Agents

46. Structurally biodegradable detergents, should contain
 1) normal alkyl chain 2) branched alkyl chain
 3) phenyl side chain 4) cyclohexyl side chain
47. Detergents are prepared by the action of H_2SO_4 on which of the following?
 1) Cholesterol 2) Lauryl alcohol 3) Cyclohexanol 4) *p*-Nitrophenol
48. Substance used for the preservation of coloured fruit juices is
 1) benzene 2) benzoic acid 3) phenol 4) sodium meta bisulphite
49. Which of the following represents a synthetic detergent?
 1) $C_{15}H_{31}COOK$ 2) $CH_3[CH_2]_{16}COONa$



- 3) 4) none
50. Match the chemicals in Column I with their uses in Column II.
- | Column I | Column II |
|-----------------------------------|-----------------------------------|
| 1) Sodium perborate | (I) Disinfectant |
| 2) Chlorine | (II) Antiseptic |
| 3) Bithional | (III) Milk bleaching agent |
| 4) Potassium stearate | (IV) Soap |
| 1) A - I, B - II, C - III, D - IV | 2) A - II, B - III, C - IV, D - I |
| 3) A - III, B - I, C - II, D - IV | 4) A - IV, B - I, C - II, D - III |

NEET PREVIOUS YEARS QUESTIONS

1. Mixture of chloroxylenol and terpineol acts as: [2017]
 1) antiseptic 2) antipyretic 3) antibiotic 4) analgesic
2. Which of the following is an analgesic? [2016]
 1) Novalgin 2) Penicillin 3) Streptomycin 4) Chloromycetin
3. Bithional is generally added to the soaps as an additive to function as a/an: [2015]
 1) Dryer 2) Buffering agent 3) Antiseptic 4) Softner
4. Artificial sweetner which is stable under cold conditions only is:- [2014]
 1) Saccharine 2) Sucralose 3) Aspartame 4) Alitame
5. Among the following, the narrow spectrum antibiotic is :- [2019]
 (1) penicillin G (2) ampicillin
 (3) amoxycillin (4) chloramphenicol
6. The artificial sweetener stable at cooking temperature and does not provide calories is [2019-ODISSA]

- (1) Saccharin (2) Aspartame (3) Sucralose (4) Alitame
7. Which of the following is not true about chloramphenicol? **[2020-COVID-19]**
 (1) It inhibits the growth of only grampositive bacteria. (2) It is a broad spectrum antibiotic.
 (3) It is not bactericidal. (4) It is bacteriostatic.
8. Which of the following is a cationic detergent? **[2020]**
 1) Sodium dodecylbenzene sulphonate 2) Sodium lauryl sulphate
 3) Sodium stearate 4) Cetyltrimethylammonium bromide
9. Given below are two statements : **[NEET-2021]**
 Statement I : Aspirin and Paracetamol belong to the class of narcotic analgesics
 Statement II : Morphine and Heroin are non-narcotic analgesics. In the light of the above statements, choose the correct answer from the options given below.
 1. Both Statement I and Statement II are false.
 2. Statement I is correct but Statement II is false.
 3. Statement I is incorrect but Statement I is true.
 4. Both Statement I and Statement II are true.
10. **Match List - I with List - II.** **[NEET-2022]**
 List - I List - II
 (Drug class) (Drug molecule)
 (a) Antacids (i) Salvarsan
 (b) Antihistamines (ii) Morphine
 (c) Analgesics (iii) Cimetidine
 (d) Antimicrobials (iv) Seldane
 Choose the correct answer from the options given below:
 (1) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i)
 (2) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)
 (3) (a) - (i), (b) - (iv), (c) - (ii), (d) - (iii)
 (4) (a) - (iv), (b) - (iii), (c) - (i), (d) - (ii)

NCERT LINE BY LINE QUESTIONS – ANSWERS

1) d	2) a	3) a	4) d	5) b	6) c	7) b	8) d	9) b	10) d
11) d	12) a	13) a	14) a	15) c	16) c	17) b	18) c	19) d	20) b
21) b	22) b	23) b	24) b	25) b	26) c	27) d	28) b	29) d	30) b
31) c	32) a	33) d	34) c						

TOPIC WISE PRACTICE QUESTIONS - ANSWERS

1) 2	2) 1	3) 4	4) 2	5) 3	6) 4	7) 2	8) 1	9) 2	10) 3
11) 4	12) 3	13) 4	14) 3	15) 3	16) 2	17) 1	18) 1	19) 2	20) 1
21) 3	22) 1	23) 4	24) 1	25) 4	26) 4	27) 1	28) 3	29) 3	30) 1
31) 2	32) 3	33) 3	34) 1	35) 4	36) 2	37) 3	38) 1	39) 1	40) 2
41) 4	42) 4	43) 1	44) 1	45) 2	46) 2	47) 2	48) 2	49) 3	50) 3

NEET PREVIOUS YEARS QUESTIONS-ANSWERS

1) 1	2) 1	3) 3	4) 3	5) 1	6) 3	7) 1	8) 4	9) 1	10) 2
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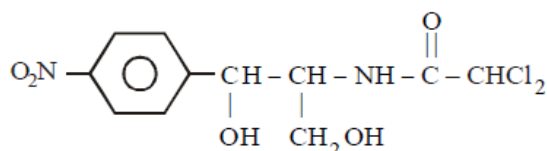
NCERT LINE BY LINE QUESTIONS – SOLUTIONS

- (d) Chemotherapy involves use of chemical for treatment of diseases.
- (a) Chemotherapy involves use of chemical for medicinal chemists on the basis of molecular targets.
- (a) Given drug is used as antacid.
- (d) Equanil is an important medicine used in depression and hypertension.
- (b) Terfenadine is commonly used as antihistamine.
- (c) Tranquilizers is a neurologically active drug which is used for the treatment of mental disease.
- (b) Tofranil is used for the treatment of antidepressant.
- (d) Barbituric acid and its derivatives are well known tranquilizers.
- (b) Aspirin is antipyretic i.e., a drug which is responsible for lowering the temperature of feverish organism to normal, other antipyretic drugs are paracetamol, phenacetin.
- (d) Sulpha drugs (antibacterial and antibiotic) are group of drugs which are derivative of sulphanilamides.
- (d) Valium is a tranquilizer and not an analgesic. It is used for treatment of stress, fatigue, mild and severe mental diseases.
- (a) Salol is phenyl salicylate used as antiseptic
- (a) Antiseptic drugs cause destruction of micro-organism that produce septic disease e.g. dettol, savlon, boric acid, Phenol, iodoform, KMnO_4 and some dye such as methylene blue, gentian violet.
- (a) It is the very effective antibiotic for tuberculosis
- (c) Broad spectrum antibiotics act on different antigens.
- (c) It is an insecticide.
- (b) Barbiturate drug is used as a sleep producing agent.
- (c) Penicillin is an effective medicine for pneumonia disease.
- (d) The mixture of chloroxylenol and terpenol is dettol which is used as antiseptic.
- (d) Chloroamphenicol is a broad spectrum antibiotic.
- (b) It is the known structure of penicillin G

22. (b) Bithional is a well known antiseptic, added in soaps to reduce odours produced by bacterial decomposition of organic matter of skin.
23. (b) Dilute solutions of boric acid and hydrogen peroxide are weak antiseptics.
24. (b) Tranquilizers is an essential component of sleeping pills.
25. (b) Arsphenamine also known as Salvarsan was the first effective treatment discovered for syphilis.
26. (c)
27. (d) Bacteriostatic drugs inhibit the growth of organism while bactericidal drugs kill the microorganisms.
28. (b) Bactericidals have killing effect on microbes, while bacteriostatic have inhibitory effect on microbes.
29. (d) All are characteristics of Saccharin.
30. (b) **Artificial sweetener**
- | | Sweetness value |
|-----------|-----------------|
| Aspartame | 100 |
| Saccharin | 550 |
| Sucralose | 600 |
| Alitame | 2000 |
31. (c) Rosin is added to soaps which forms sodium rosinate.
32. (a) Due to the low level of noradrenaline in the body the message transfer process becomes slow and the person suffers from depression. In such cases, tranquilizers are used. These drugs inhibits the enzymes which catalyse the degradation of noradrenaline.
If the enzyme is inhibited, then the neurotransmitter noradrenaline is slowly metabolised and can thus activate the receptor for longer periods thereby counteracting the effect of depression
33. (d) It is used as detergent.
34. (c) Polyethylene glycols are used in the preparation of non-ionic type of detergents.

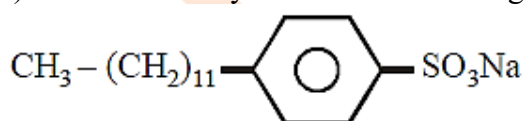
TOPIC WISE PRACTICE QUESTIONS - SOLUTIONS

1. (2) Paracetamol is an antipyretic
2. (1) Salol is phenyl salicylate used as antiseptic.
3. (4) Chloramphenicol is



4. 2) Terfenadine is commonly used as antihistamine.
5. 3) mental diseases
6. 4) Barbituric acid derivatives
7. 2) antiseptic
8. 1) A. Fleming
9. 2) Analgesic means pain killer.
10. 3) Adrenaline
11. 4) Salvarsan
12. 3) BHC
13. 4) Aspirin is an non-narcotics analgesic.
14. 3) Morphine diacetate
15. 3) Sulphonamides act as antimicrobials.
16. 2) antipyretics
17. 1) Antiseptic drugs cause destruction of micro-organism that produce septic diseases e.g. Dettol, savlon, boric acid, phenol, iodoform, KMnO₄ and some dyes such as methylene blue, genatian violet.
18. 1) Lindane or gammexane is g isomer of BHC.

19. 2) It is acetyl salicylic acid i.e., aspirin which is used as analgesic and antipyretic.
20. 1) Amoxycillin is semisynthetic modification of penicillin
21. 3) Paraldehyde is a hypnotic.
22. 1) Ciprofloxacin is used as an antibiotic, while paracetamol, ibuprofen and tocopherol are respectively antipyretic, pain killer and vitamin E.
23. 4) antipyretics
24. 1) Due to anti-blood clotting action of aspirin, it is used to prevent heart attack.
25. 4) Antacids decrease acidity in stomach.
26. 4) Sulpha drugs (antibacterials and antibiotics) are group of drugs which are derivatives of sulphanilamide.
27. 1) tuberculosis
28. 3) Broad spectrum antibiotics act on different antigens.
29. 3) Gammexane is an insecticide.
30. 1) dysentery
31. 2) sedative
32. 3) penicillin
33. 3) Oil of winter green or methyl salicylate is used as medicine.
34. 1) antipyretic
35. 4) Vitamin E is an antioxidant present in edible oils.
36. 2) BHT
37. 3) Saheli
38. 1) Chlorine
39. 1) Substances used for the treatment of malaria are antimalarials, e.g. quinine, chloroquine.
40. 2) Heroin is acyl derivative of morphine.
41. 4) Dettol (antiseptic) is a mixture of 4.8% chloroxylenol + 9.9% terpineol and absolute alcohol.
42. 4) All of these
43. 1) It is an alkaloid, a class of organic compounds which is basic in nature and of plant origin containing at least one nitrogen atom in a ring structure of molecule.
44. 1) Insulin
45. 2) Paul Ehrlich, the father of chemotherapy defined it to injure or destroy infection caused by microorganism by the use of drugs without causing any injury to the host.
46. 2) Structurally, biodegradable detergents should contain branched alkyl chain.
47. 2) Lauryl alcohol
48. 2) Benzoic acid is used as preservative as sodium benzoate.
49. 3) The most widely used domestic detergent is the sodium dodecyl benzene sulphonate (SDS).

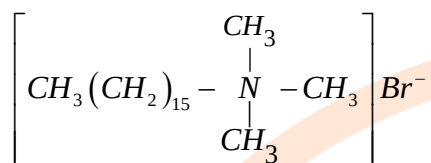


50. 3) The correct matching is as follows :
- | Column I | Column II |
|-----------------------|----------------------|
| 1) Sodium perborate | Milk bleaching agent |
| 2) Chlorine | Disinfectant |
| 3) Bithional | Antiseptic |
| 4) Potassium stearate | Soap |

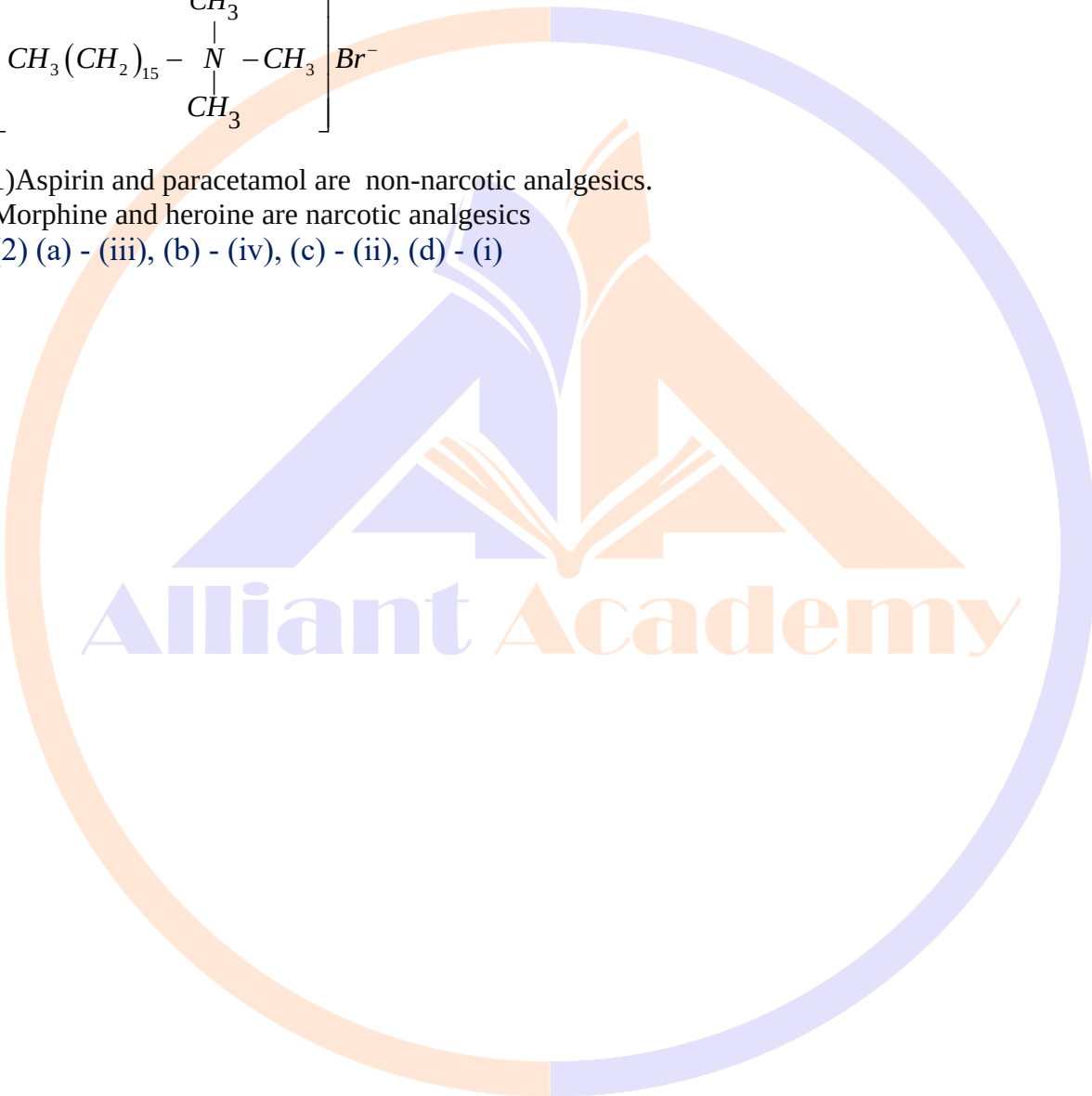
NEET PREVIOUS YEARS QUESTIONS-EXPLANATIONS

1. (1) Dettol is a mixture of chloroxylenol and terpineol which is very commonly known as antiseptic.
2. (1) Novalgin is most widely used as analgesic. Analgesics are pain relieving drugs.
3. (3) Bithionol is added to soaps to impart antiseptic properties.
4. (3) Aspartame is stable under cold conditions.

5. 1) The antibiotics which are effective mainly against Gram-positive or Gram-negative bacteria are narrow spectrum antibiotics. Penicillin G has a narrow spectrum. ampicillin, amoxycillin, chloramphenicol are broad spectrum antibiotics.
6. 3) Sucralose is stable at cooking temperature and does not provide calories.
7. 1) Chloramphenicol is a broad spectrum antibiotic which can inhibit the growth of gram positive bacteria and gram negative bacteria.
8. 4) Cetyltrimethyl ammonium Bromide is a cationic detergent



9. 1) Aspirin and paracetamol are non-narcotic analgesics.
Morphine and heroine are narcotic analgesics
10. (2) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)



Alliant Academy