CHEMISTRY IN EVERYDAY LIFE

PART A : ANALGESIC DRUGS

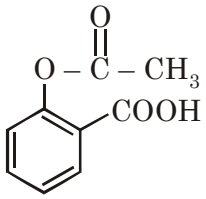
ANALGESIC DRUGS

(a) Non Narcotic Analgesic

(b) Narcotic Analgesic

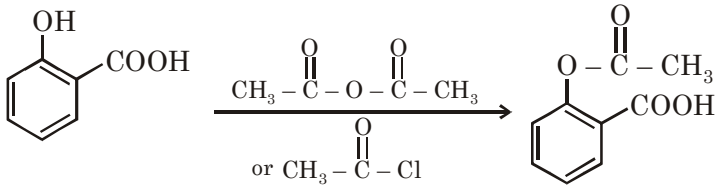
(a) NON NARCOTIC ANALGESIC

1. ASPIRIN (IUPAC Name : 2-Ethanoyloxybenzoic acid)



I. Medical use : Analgesic (Non narcotic / Non addictive) & Antipyretic.

II. Prepration : Aspirin is prepared by acetylation of salicylic acid



Salicylic acid (SNAE) Aspirin

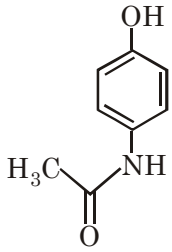
III. Functional group : Acid and ester

IV. Test of Functional group : All +ve tests for carboxylic acids

V. Aromaticity : Aromatic (Homocyclic)

VI. DOU : 6

2. PARACETAMOL (IUPAC Name : N-(4-Hydroxyphenyl)ethanamide



I. Medical use : Analgesic (Non-narcotic / non-addictive) & Antipyretic.

II. Hybridisation state :

$sp^2C \rightarrow 7C$

$sp^3C \rightarrow 1C$

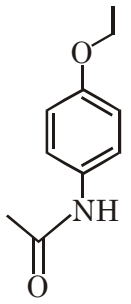
III. Functional group : Phenolic OH, secondary amide

IV. Test of Functional group : +ve test with neutral $FeCl_3$

V. Aromaticity : Aromatic (Homocyclic)

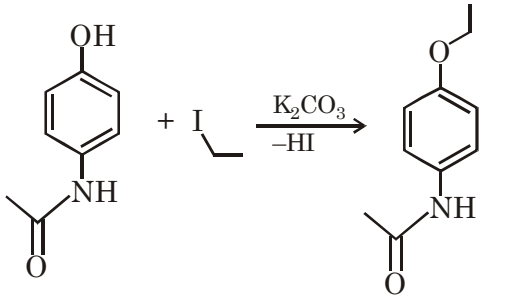
VI. DOU : 5

3. PHENACITIN (IUPAC Name : N-(4-Ethoxyphenyl)ethanamide



I. Medical use : Analgesic (Non-narcotic / non-addictive) & Antipyretic.

II. Prepration :



Paracetamol Phenacitin

III. Hybridisation state

$sp^2C \rightarrow 7C$

$sp^3C \rightarrow 3C$

IV. Functional group / test : Ether and 2° amide / –ve test with neutral $FeCl_3$

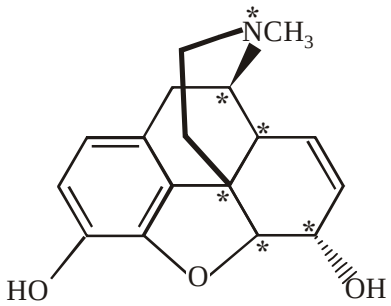
V. Aromaticity : Aromatic (Homocyclic)

VI. DOU : 5

NOTE : Quinine, Chloroquine, Paraquine and Primaquine are used as antimalaria.

(b) NARCOTIC ANALGESIC

1. MORPHINE



I. Medical use : Morphine is used for reliefe a post-operative pain, cardiac pan, child birth and pains of terminal cancer

II. Number of chiral centre : 6

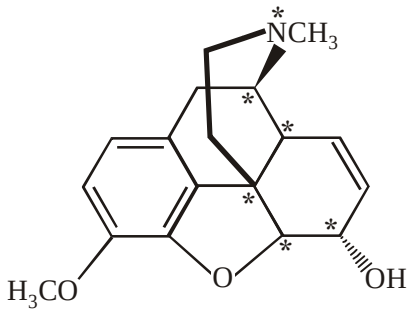
III. Number of chiral carbon : 5

IV. Functional group : Morphin narcotics are also called opiates.

V. Aromaticity : Aromatic (Heterocyclic)

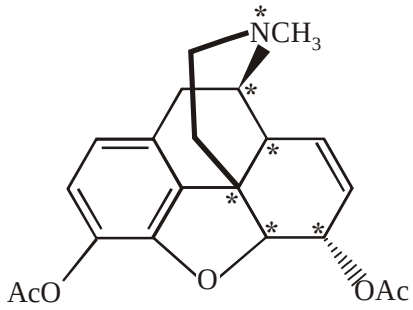
VI. DOU : 9

2. CODEINE



I. DOU : 9

3. HEROIN



I. DOU : 11

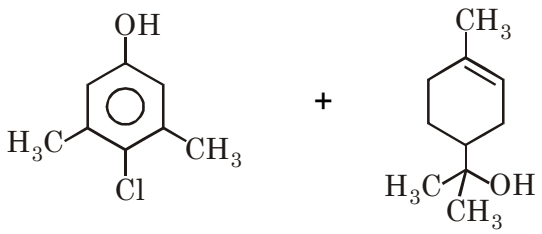
	Phenolic OH	Alcohol
Morphine	+	+
Codeine	–	+
Heroin	–	–

Acidic strength order : Morphine > Codeine > Heroin

PART B : ANTISEPTIC, DISINFECTANTS & ANTI-FERTILITY DRUG

1. ANTISEPTIC

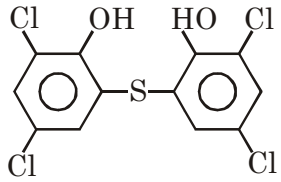
I. Dettol (Chloroxylenol + Terpineol)



Chloroxylenol **Terpineol**

Medical use : Dettol, Soframicin are used as anticeptic

II. Bithionol

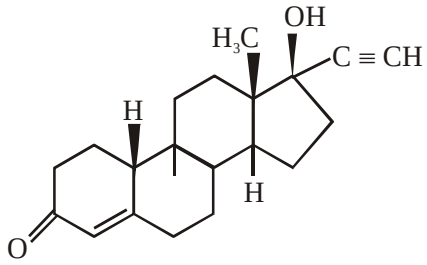


Medical use : Bithionol is added to soaps for anticeptic properties.

2. NOTE : 1% solution of phenol in disinfectant while 0.2% solution of phenol is antiseptic.

3. ANTI-FERTILITY DRUGS

I



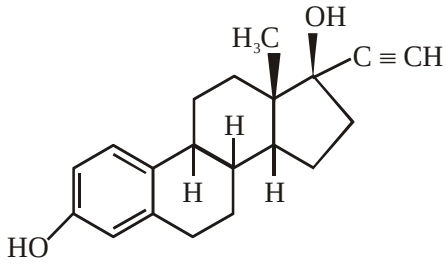
Norethindorne

Medical Use : It is present in birth control pils for family planning.

Number of Chiral carbons : 6

Functional groups : Ketone, Alcoholic-OH and terminal alkyine

II



Ethynylestradiol (novestrol)

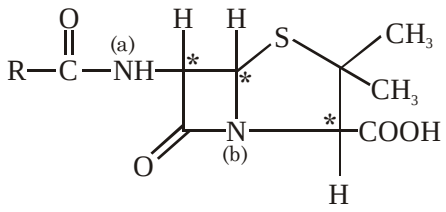
Medical Use : It is present in birth control pils for family planning.

Number of Chiral carbons : 5

Functional groups : Phenolic-OH, Alcoholic-OH and terminal alkyine

PART C : ANTIBIOTICS

1. PENICILLIN



I. Medical use : Bactericidal Antibacterial (Killing effect on bacteria)

NOTE : Ampicllin and Amoxycillin are synthetic modifications of Penicilline

II. Number of chiral carbon centre : 3

III. Functional group :

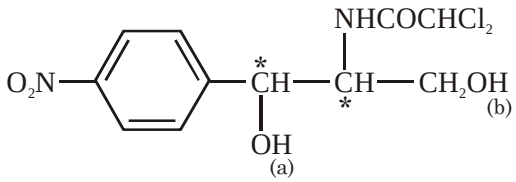
(i) Carboxylic Acid (ii) 2°Amide (iii) 3° Amide (iv) Thioether

IV. Aromaticity : Non-aromatic (Heterocyclic)

V. DOU : 5

VI. Basicity : b > a

2. CHLORAMPHENICOL



I. Medical use :

(i) Bacteriostatic antibiotic (Static / inhibitory effect on microbes)

(ii) Broad spectrum antibiotic (Covers wide range of diseases like typhoid, dysentery, acute fever, certain form of urinary infections, meningitis and pneumonia)

II. Number of chiral carbon atoms : 2

III. TSI : 4 (OA)

IV. Functional group :

(i) Alcohol (ii) Nitro (iii) 2° amide (iv) Chloro

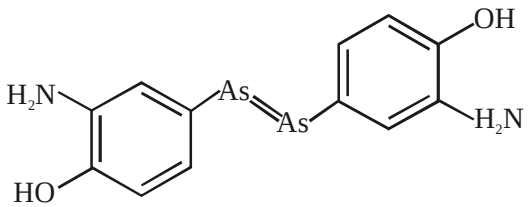
V. Aromaticity : Aromatic (Heterocyclic)

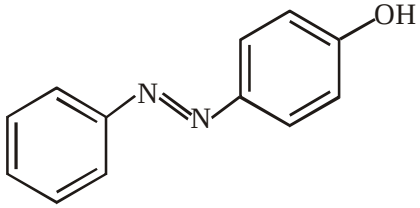
VI. DOU : 6

VII. Acidic strength : a > b

NOTE : DYSIDAZIRINE antibiotic is toxic towards certain strains of cancer cells.

3. SALVARSAN **Structure similar to azodye**





I. Medical use :

(i) Effective for treatment against spirocheti (bacteria that causes syphilis)

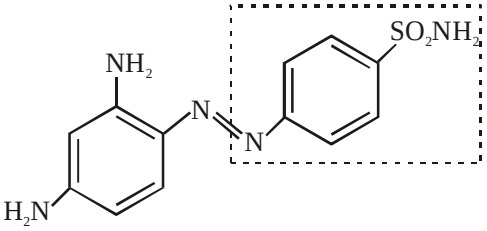
(ii) Toxic to human beings

II. Test of Functional group : Phenolic OH (+ve test with neutral $FeCl_3$), azodye test

III. Aromaticity : Aromatic (Homocyclic)

IV. DOU : 9

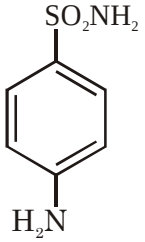
4. PRONTOSIL



I. Medical use :

(i) First effective antibacterial agent

(ii) Converted to sulphanilamide in body which is the real active compound

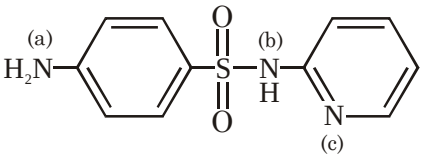


(Sulphanilamide)

II. Aromaticity : Aromatic (Homocyclic)

III. DOU : 11

5. SULPHAPYRIDINE



I. Medical use : Sulphadrug

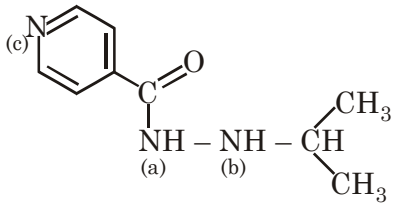
II. Aromaticity : Aromatic (Heterocyclic)

III. DOU : 10

IV. Most Basic site : N_C

PART D : ANTIDEPRESSANT & TRANSQUILIZERS

1. IPRONIAZID



I. Medical use :

(i) Mood elevators (Antidepressant drugs)

(ii) Catalyse the degradation of noradrenaline

II. Number of chiral centre : 1

III. Hybridisation state

$sp^2C \rightarrow 6C$

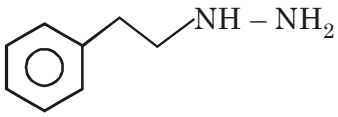
$sp^3C \rightarrow 3C$

IV. Aromaticity : Aromatic (Heterocyclic)

V. DOU : 5

VI. Basicity : b > c > a

2. PHENELZINE (Nardil)



I. Medical use :

(i) Mood elevators (Antidepressants)

(ii) Catalyse the degradation of noradrenaline

II. Number of chiral centre : 1

III. Hybridisation state

$sp^2C \rightarrow 6$

$sp^3C \rightarrow 2$

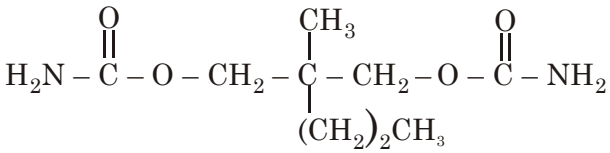
IV. Functional group : Amine

V. Test of Functional group : Diazotization (NH_2)

VI. Aromaticity : Aromatic (Homocyclic)

VII. DOU : 4

3. MEPROBAMATE



I. Medical use : Mild tranquilizer

II. Number of chiral centre : 0

III. Hybridisation state :

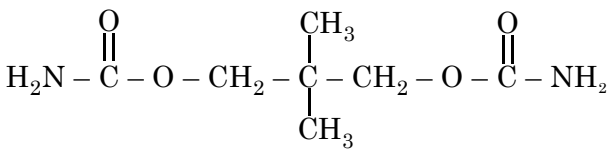
$sp^2C \rightarrow 2$

$sp^3C \rightarrow 7$

IV. Aromaticity : Non aromatic

V. DOU : 2

4. EQUANIL



I. Medical use : Controlling depression and hypertension

II. Number of chiral centre : 0

III. Hybridisation state :

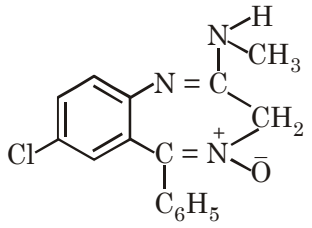
$sp^2C \rightarrow 2$

$sp^3C \rightarrow 5$

IV. Aromaticity : Non aromatic

V. DOU : 2

5. CHLORDIAZEPOXIDE



I. Medical use : Mild tranquilizer

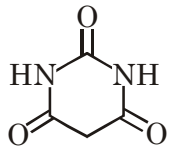
II. Hybridisation state

$sp^2C \rightarrow 14$ $sp^3C \rightarrow 2$

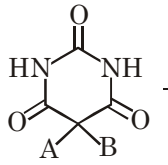
III. Aromaticity : Aromatic (Heterocyclic)

IV. DOU : 11

6. BARBITURIC ACID



7. BARBITURATES

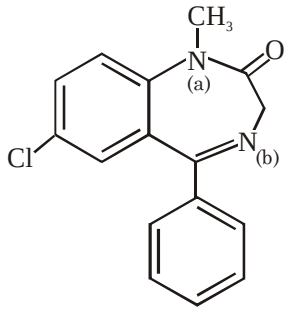


		A	B
1	Veronal	Ethyl	Ethyl
2	Luminal	Ethyl	Phenyl
3	Amytal	Ethyl	Isopentyl
4	Nembutal	Ethyl	Secondary active amyl
5	Seconal	Allyl	Secondary active amyl

They are derivatives of barbituric acid which are used as hypnotic (Sleep producing agents)

Tautomerism : Shows Tautomerism

8. VALIUM



I. Medical use : Tranquilizer

II. Hybridisation state :

$sp^2C \rightarrow 14$

$sp^3C \rightarrow 2$

III. Test of Functional group :

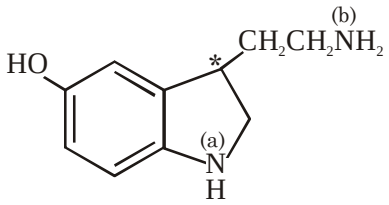
–ve test with $AgNO_3$ (aq.)

IV. Aromaticity : Aromatic (Heterocyclic)

V. DOU : 11

VI. Basicity : b > a

9. SEROTONIN



I. Medical use : Tranquilizer

II. Number of chiral centre : 1

III. TSI : 2 (OA)

IV. Hybridisation state :

$sp^2C \rightarrow 6$

$sp^3C \rightarrow$ **4**

V. Functional group :

1° Amine

2° Amine

Phenolic OH

VI. Test of Functional group :

+ve isocyanide test

+ve test with neutral $FeCl_3$

Yellow dye with benzene diazonium chloride

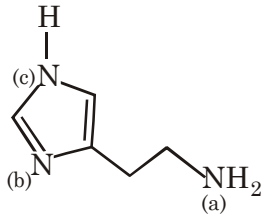
VII. Aromaticity : Aromatic (Heterocyclic)

VIII. DOU : 5

IX. Basicity : b > a

PART E : HISTAMINE, ANTI-HISTAMINE & ANTACIDS

a) HISTAMINE



I. Medical use:

(i) Stimulates secretion of pepsin and HCl in stomach

(ii) Contracts the muscles in bronchi and gut

(iii) Relaxes blood vesscls (Vasodilator)

(iv) Nasal congestion and allergic reaction to pollen

II. Number of chiral centre : 0

III. Hybridisation state:

$sp^2C \rightarrow 3C$

$sp^3C \rightarrow 2C$

IV. Functional group : Amine

V. Test of Functional group : Isocyanide test

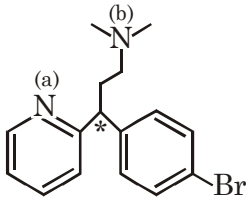
VI. Aromaticity : Aromatic (Heterocyclic)

VII. DOU : 3

VIII. Basicity b > a > c

(b) ANTI HISTAMINE

1. BROMPHENIRAMINE (Dimetapp, Dimetane)



I. Medical use : Antihistamine

II. Number of chiral centre : 1

III. TSI : 2 (OA)

IV. Hybridisation state :

$sp^2C \rightarrow 11C$

$sp^3C \rightarrow 5C$

V. Functional group : 3° amine, aryl bromide

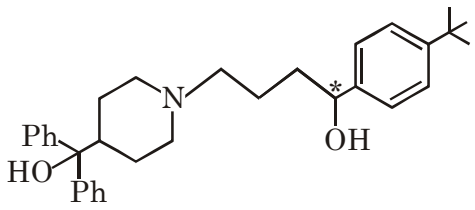
VI. Test of Functional group : –ve test with $AgNO_3$ (aq.)

VII. Aromaticity : Aromatic (Heterocyclic)

VIII. DOU : 8

IX. Basicity : $N_b > N_a$

2. TERFENADINE (Seldane)



I. Medical use : Antihistamine

II. Number of chiral centre : 1

III. TSI : 2

IV. Hybridisation state :

$sp^2C \rightarrow 18\, sp^3C \rightarrow 14$

V. Functional group : 3° amine, alcohol

VI. Test of Functional group :

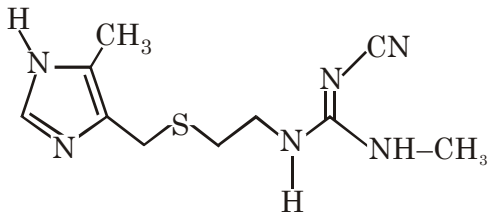
(i) Positive test of alcoholic OH (Including Lucas test)

VII. Aromaticity : Aromatic (Heterocyclic)

VIII. DOU : 13

(c) ANTACIDS

1. CIMETIDINE (Tegamet)



I. Medical use :

(i) Antacid (against acidity)

II. Number of chiral centre : 0

III. TSI : 2 (GI)

IV. Hybridisation state :

$spC \rightarrow 1C$

$sp^2C \rightarrow 4C$

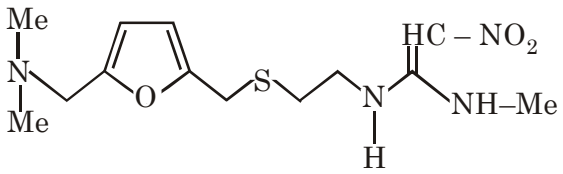
$sp^3C \rightarrow 5C$

V. Functional group : Thioether, Cyanide etc.

VI. Aromaticity : Aromatic (Heterocyclic)

VII. DOU : 6

2. RANITIDINE (Zantac)



I. Medical use : Antacid

II. Number of chiral centre : 0

III. TSI : 2 (GI)

IV. Hybridisation state :

$sp^2C \rightarrow 6C$

$sp^3C \rightarrow 7C$

V. Functional group : Amines, Thiol, nitro etc.

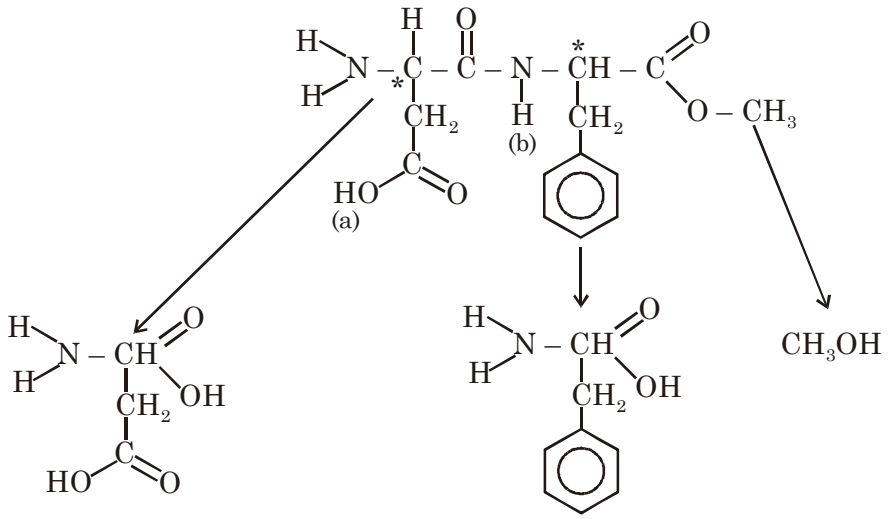
VI. DOU : 5

VII. Aromaticity : Aromatic (Heterocyclic)

NOTE : $Al(OH)_3$, $Mg(OH)_2$ are also used as antacids

PART F : ARTIFICIAL SWEETNERS

1. ASPARTAME



I. Use :

(i) Used as an artificial sweetener (100 times sweeter than cane sugar)

(ii) Methyl ester of dipeptide formed from aspartic acid and phenylalanine

(iii) Use of aspartame is limited to cold food and soft drinks because it is unstable at cooking temperature

II. Number of chiral centre: 2

III. TSI : 4

IV. Hybridisation state :

$sp^2C \rightarrow 9$

$sp^3C \rightarrow 5$

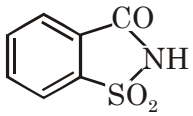
V. Functional group : Acid, Ester, Amide

VI. Aromaticity : Aromatic (Homocyclic)

VII. DOU : 7

VIII. Acidic strength : a > b

2. SACCHARIN (Ortho-sulphobenzimide)



I. Use :

(i) Used as an artificial sweetener (550 times sweeter than cane sugar)

(ii) Excreted from the body in urine unchanged.

II. Number of chiral centre : 0

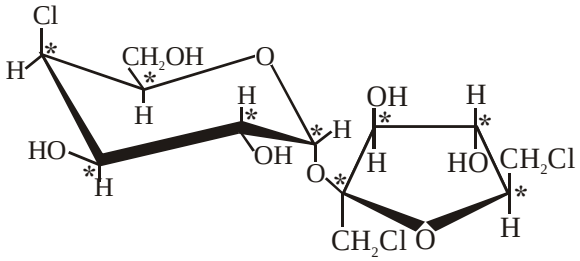
III. Hybridisation state :

$sp^2C \rightarrow 7$

IV. Aromaticity : Aromatic (Heterocyclic)

V. DOU : 8

3. SUCRALOSE



I. Use :

(i) Used as an artificial sweetener (600 times sweeter than cane sugar)

(ii) Appearance and taste like sugar

(iii) Stable at cooking temperature

(iv) Does not provide calories

(v) Trichloro derivative of sucrose

II. Number of chiral centre : 9

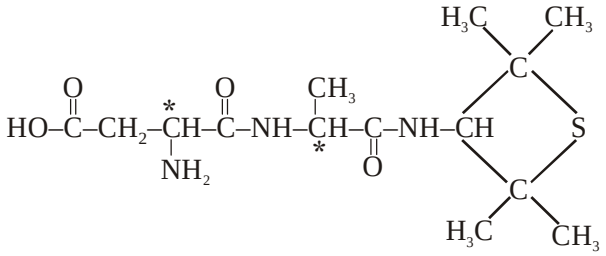
III. Functional group : Alcohol, ether, alkyl halide

IV. Aromaticity : Non aromatic (Heterocyclic)

V. DOU : 2

VI. Hybridisation : $sp^3C \rightarrow 12C$

4. ALITAME



I. Use :

(i) High potency sweetener (2000 times sweeter than cane sugar)

(ii) Although it is more stable than aspartame, the control of sweetness of food is difficult while using it.

II. Number of chiral centre : 2

III. Hybridisation state :

$sp^2C \rightarrow 3$

$sp^3C \rightarrow 11$

IV. Functional group : Acid, amide, amine

V. Aromaticity : Non-aromatic (Heterocyclic)

VI. DOU : 4

PART G : SOAP, DETERGENT & PRESERVATIVES

(a) SOAPS

Sodium salt of

1. Stearic acid

$nC_{17}H_{35}CO_2H$

2. Oleic acid

$nC_{17}H_{33}CO_2H$

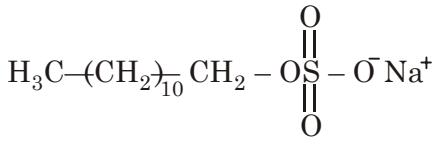
3. Palmitic acid

$nC_{15}H_{31}CO_2H$

(b) SYNTHETIC DETERGENTS

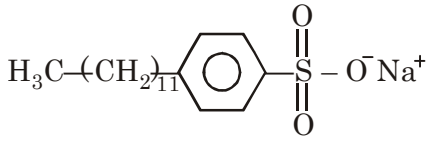
1. Anionic

i.



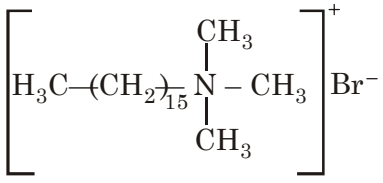
Sodium laurylsulphate

ii.



Sodium dodecylbenzenesulphonate

2. Cationic



Cetyltrimethylammonium bromide

i Non ionic

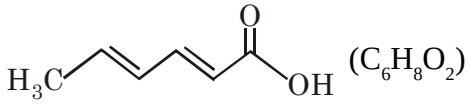
$CH_3(CH_2)_{16}COO(CH_2CH_2O)_nCH_2CH_2OH$

(non-ionic detergent), it is dishwashing detergent

Note : Synthetic detergents are better than soaps because synthesis detergents gives foam in both soft and hard water while soap do not give foam in hard water.

(c) FOOD PRESERVATIVES

1. SORBIC ACID



I. Use :

Salts of sorbic acid and propanoic acid are used as food preservatives (prevent microbial growth on food)

II. Number of chiral centre : 0

III. TSI : 4 (GI)

IV. Hybridisation state :

$sp^2C \rightarrow 5$

$sp^3C \rightarrow 1$

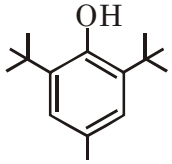
V. Functional group : Carboxylic acid

VI. Aromaticity : Non-aromatic

VII. DOU : 3

2. Butylatedhydroxytoluene (BHT)

(IUPAC Name : 2,6-Bis(1,1-dimethylethyl)-4-methylphenol)



I. Use :

(i) Used as antioxidants (Help in food preservation by retarding the action of oxygen on food)

(ii) Sometimes citric acid added along BHT to produce more effect

II. Number of chiral centre : 0

III. Hybridisation state :

$sp^2C \rightarrow 6$

$sp^3C \rightarrow 9$

IV. Functional group : Phenolic OH (SIR)

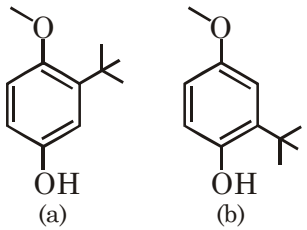
V. Aromaticity : Aromatic (Homocyclic)

VI. DOU : 4

3. Butylated hydroxy anisole (BHA)

(IUPAC Name : (a) 3-(1,1-Dimethylethyl)-4-methoxyphenol

(b) 2-(1,1-Dimethylethyl)-4-methoxyphenol)



I. Use :

(i) Used as antioxidants (Help in food preservation by retarding the action of oxygen on food)

(ii) Sometimes citric acid added along BHA to produce more effect

II. Number of chiral centre : 0

III. Hybridisation state :

$sp^2C \rightarrow 6$

$sp^3C \rightarrow 5$

IV. Functional group : Phenolic OH, ether

V. Aromaticity : Aromatic (Homocyclic)

VI. DOU : 4

EXERCISE # O-1

1. An antipyretic is –
(A) Seldane (B) Paracetamol (C) Luminal (D) Aspartame

2. Medicine which is an antibiotic is –
(A) Ampicillin (B) Aspirin (C) Dimetapp (D) None of these

3. Paracetamol is –
(A) Both antipyretic and analgesic (B) Analgesic
(C) Antipyretic (D) Antimalarial

4. Sulpha drugs are derivatives of –
(A) Benzene sulphonic acid (B) Sulphanillic acid
(C) Sulphanilamide (D) p - aminobenzoic acid

5. Aspirin is called –
(A) Pyretic (B) Antiseptic (C) Antibiotic (D) Antipyretic

6. Which of the following is an antidiabetic drug –
(A) Insulin (B) Penicillin (C) Sucralose (D) Aspirin

7. 2-Acetoxybenzoic acid is called –
(A) Antiseptic (B) Aspirin (C) Antibiotic (D) Mordant dye

8. Arsenic drugs are mainly used in the treatment of–
(A) Jaundice (B) Typhoid (C) Syphilis (D) Cholera

9. Aspirin is an acetylation product of –
(A) p-dihyroxybenzene (B) o-hydroxybenzoic acid
(C) o-dihydroxy benzene (D) m-hydroxybenzoic acid

10. Chloramphenicol is an –
(A) Analgesic (B) Anaesthetic (C) Antibiotic (D) Antiseptic

11. Substances which bring body temperature down are known as –
(A) Antipyretics (B) Analagin (C) Antibiotics (D) Hypnotics

12. The drug given during hypertension is –
(A) Salvarsan (B) Chloroxylenol (C) Equanil (D) Aspirin

13. Which of the following is known as narrow spectrum antibiotic –
(A) Ofloxacin (B) Ampicillin (C) Chloramphenicol (D) Penicillin

14. Phenol is used as –
(A) An antiseptic (B) A disinfectant (C) Both (A) and (B) (D) None of these

15. Mixture or chloroxylenol and terpineol acts as
(A) antiseptic (B) antipyretic (C) antibiotic (D) analgesic

16. Bithional is generally added to the soaps as an additive to function as a/an
(A) buffering agent (B) antiseptic (C) softener (D) dryer.

17. Artificial sweetner which is stable under only cold conditions is
(A) saccharine (B) sucralose (C) aspartame (D) alitame.

18. Antiseptics and disinfectants either kill or prevent growth of mierorganisms. Identify which of the following statements is not true.
(A) Dilute solution of boric acid is strong antiseptic.
(B) Disinfectants harm the living tissues.
(C) A 0.2% solution of phenol is an antiseptic while 1% solution acts as a disinfectant.
(D) Chlorine and iodine are used as strong disinfectants.

19. Dettol is the mixture of
(A) chloroxylenol and bithional (B) chloroxylenol and terpineol
(C) phenol and iodine (D) terpineol and bithional

20. Chloramphenicol is an
(A) antifertility drug (B) antihistamine
(C) antiseptic and disinfectant (D) antibiotic-broad spectrum

21. Which of the following forms cationic micelles above certain concentration?
(A) Sodium dodecyl sulphate (B) Sodium acetate
(C) Urea (D) Cetyltrimethylammonium bromide.

22. Aspirin is an acetylation product of
(A) m-Hydroxybenzoic acid (B) o-Dihydroxybenzene
(C) o-Hydroxybenzoic acid (D) p-Dihydroxybenzene

23. Which of the following can possibly be used as analgesic without causing addiction and mood modification?
(A) Codeine (B) Heroin
(C) Morphine (D) N-Acetyl-para-aminophenol.

24. Diazo coupling is useful to prepare some
(A) pesticides (B) dyes (C) proteins (D) vitamins.

25. Which one of the following statements is not true?
(A) Penicillin is a natural antibiotic
(B) Aspirin is both analgesic and antipyretic
(C) Sulphadiazine is a synthetic antibacterial drug
(D) Some disinfectants can be used as antiseptics.

26. Which of the following is a correct match?
(A) Anionic detergent : Glyceryl ester of stearic acid
(B) Fat : Sodium stearate
(C) Soap : Sodium salt of oleic acid
(D) Soap : Sodium Lauryl Sulphate

27. Which of the following compounds is not a food preservative?
(A) Table salt (B) Sugar (C) Vegetable oil (D) Sodium oleate

28. What is the normal range of molecular masses of drugs?
(A) (~0–100) u (B) (~100–500) u (C) (~500-1000) u (D) > 1000 u

29. Which of the following is not used as an anti-oxidant?
(A) Butylated Hydroxy Toluene (BHT)
(B) Sulphur Dioxide
(C) Sulphite
(D) Sodium Palmate

30. Abrasive is a :
(A) Scouring agent (B) Drug to reduce fever
(C) Drug to kill bacteria (D) Gum

EXERCISE # O-2

1. Which of the following are used as analgesics?

(A) Aspirin (B) Heroin (C) Promethazine (D) Serotonin

2. Select the correct statements :

(A) Drugs are chemicals of low molecular mass.

(B) Drugs produce biological response.

(C) Drugs which are used in diagnosis, prevention and treatment of diseases are called medicines.

(D) Chemotherapy is the use of chemical for therapeutic effect.

3. Which of the following pairs are bacteriostatic antibiotics?

(A) Penicillin, tetracycline (B) Erythromycin chloramphenicol

(C) Ofloxacin, aminoglycosides (D) Tetracycline, chloramphenicol

4. Which of the following can be used as artificial sweetners?

(A) Aspartame (B) Alitame (C) Sucralose (D) Saccharin

5. Which of the following is known as broad spectrum antibiotic –

(A) Streptomycin (B) Ampicillin (C) Chloramphenicol (D) Penicillin

6. Medicine which is an antibiotic is –

(A) Ampicillin (B) Ofloxacin (C) Aminoglycoside (D) Penicillin

7. Bactericidal antibiotics are -

(A) Penicilline (B) Ofloxacin (C) Aminoglycosides (D) Only (B) and (C)

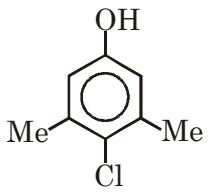
8. Bacteristatic antibiotics are -

(A) Chloramphenicol (B) Tetracydine (C) Penicillin (D) Erythromycin

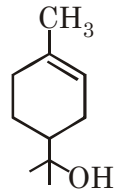
9. Which one drugs have one or more then one chiral atom -

(A) Penicillin (B) Chloramphenicol (C) Terpineol (D) Phenelzine (Nardil)

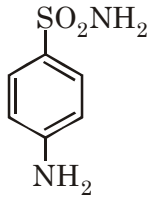
10. How many drugs have even number of degree of unsaturation -

(A) 

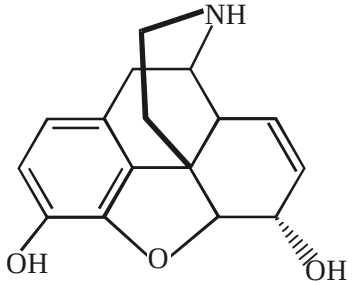
Chloroxylenol

(B) 

Terpineol

(C) 

Sulphanilaimide

(D) 

Morphine

11. Which pair is combination of non narcotic and narcotic drug?

(A) Paracetamol, Aspirin (B) Paracetamol, Herion

(C) Aspirin, Morphine (D) Morphine, Codeine

12. Which one is/are used as food preservative?

(A) Sodium benzoate (B) Vegetable oil (C) Sorbic acid (D) Propanoic acid

13. Choose the incorrect statement?

(A) Saccharin is 650 times sweeter than cane sugar.

(B) Alitame is 2000 times sweeter than cane sugar

(C) Sucralose is 160 times sweeter than cane sugar.

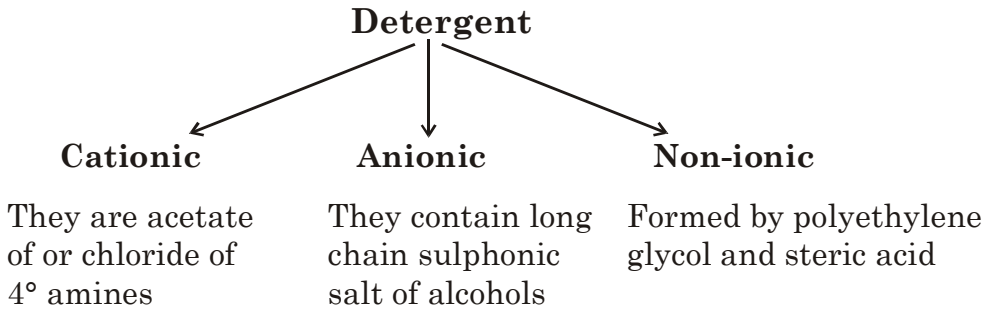
(D) Aspartame is 550 times sweeter than cane sugar.

14. Antiseptic chloroxylenol is :

(A) 4-chloro-3,5-dimethyl phenol (B) 3-chloro-4, 5-dimethyl phenol

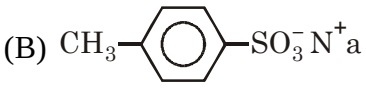
(C) 4-chloro-2, 5-dimethyl phenol (D) 5-chloro-3,4-dimethyl phenol

Paragraph for Question No. 15 to 17

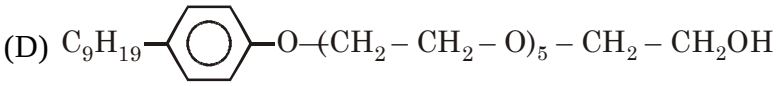


15. Used in liquid dishwashing detergent?

(A) $CH_3(-CH_2)_{15}-\overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{\overset{+}{N}}}}}-CH_3Br^-$

(B) 

(C) $CH_3(CH_2)_{10}CH_2OSO_3^-\overset{+}{N}a$

(D) 

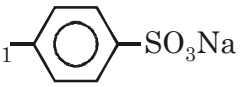
16. Which is not used in synthetic detergent?

(A) $(C_{17}H_{35}COO)_2Ca$ (B) $CH_3(CH_2)_{16}CH_2OSO_3^-\overset{+}{N}a$

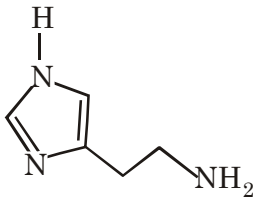
(C) $Me-(CH_2)_{15}\overset{+}{N}MeCl^-$ (D) 

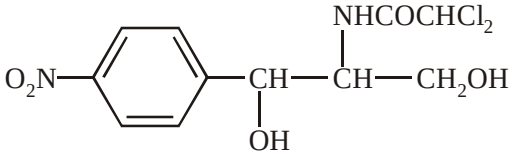
17. Which of the following is non-ionic detergent?

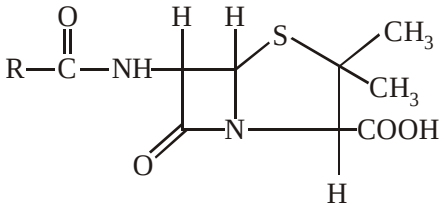
(A) $Me(CH_2)_{16}COO(CH_2CH_2O)_3 - CH_2CH_2OH$ (B) $Me(CH_2)_{16}CH_2SO_3Na$

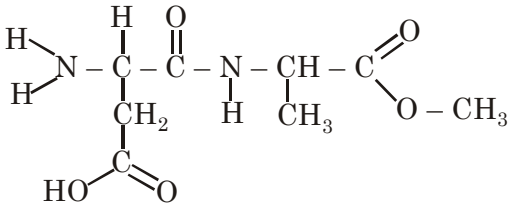
(C) $Me(CH_2)_{15} - NMe_3Br$ (D) 

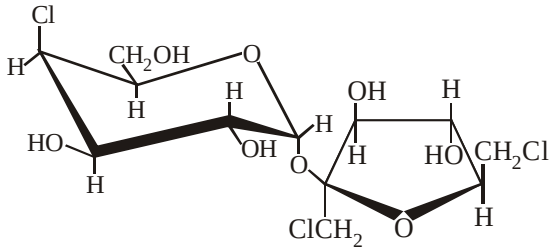
18. How many organic compound(s) is/are correctly matched with number of chiral carbon(s) present in it's structure :

(i)  Histamine = 0

(ii)  Chloramphenicol = 2

(iii)  Penicillin = 3

(iv)  Aspartame = 4

(v)  Sucralose = 9

Matrix match :

19.

Column-I	Column-II
(A) Asprin	(P) Antiseptic and Disinfectant
(B) Paracetamol	(Q) Analgesic
(C) Soframycin	(R) Antibiotic
(D) Pencillin	(S) Antipyretic

20. Match list-I and list-II and select the correct answer using the codes given below the list?

Column-I	Column-II
(A) Penicillin	(P) Antiseptic
(B) Chloramphenicol	(Q) Antibiotic
(C) 0.2 % solution of phenol	(R) Bacteriocidal
(D) 1 % solution of phenol	(S) Disinfectant

EXERCISE # JEE MAIN'S & ADVANCE

1. Which one of the following types of drugs reduces fever- **[AIEEE-2005]**

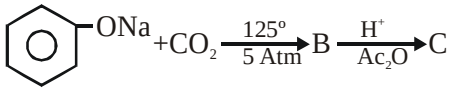
(1) Tranquilizer (2) Antibiotic (3) Antipyretic (4) Analgesic

2. Aspirin is known as :- **[AIEEE-2012]**

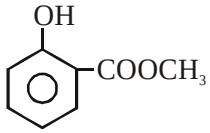
(1) Methyl salicylic acid (2) Acetyl salicylic acid

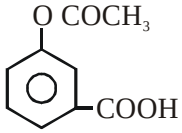
(3) Phenyl salicylate (4) Acetyl salicylate

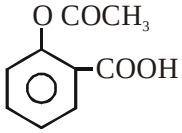
3. Sodium phenoxide when heated with CO_2 under pressure at 125°C yields a product which on acetylation produces C. **[J-Main- 2014]**

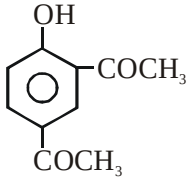


The major product C would be :

(1) 

(2) 

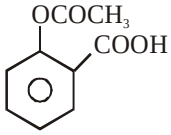
(3) 

(4) 

4. Which of the following compounds is not an antacid? **[J-Main- 2015]**

(1) Phenelzine (2) Ranitidine

(3) Aluminium hydroxide (4) Cimetidine

5. 

is used as : **[J-Main-2015]**

(1) Insecticide (2) Antacid (3) Antihistamine (4) Analgesic

6. Which of the following is an anionic detergent ? **[J-Main-2016]**

(1) Glyceryl oleate

(2) Sodium stearate

(3) Sodium lauryl sulphate

(4) Cetyltrimethyl ammonium bromide

7. The artificial sweetener that has the highest sweetness value in comparison to cane sugar is:

(1) Saccharin (2) Alitame **[J-Main-2016]**

(3) Aspartane (4) Sucralose

8. The correct match between Item(I) and Item(II) is : **[JEE-MAIN-(Jan)-2019]**

Item-I	**Item-II**
(A) Norethindrone	(P) Anti-biotic
(B) Ofloxacin	(Q) Anti-fertility
(C) Equanil	(R) Hypertension
	(S) Analgesics

(1) A-R, B-P, C-S (2) A-Q, B-P, C-R (3) A-R, B-P, C-R (4) A-Q, B-R, C-S

9. The correct match between Item -I and Item-II is : **[JEE-MAIN-(Jan)-2019]**

Item – I (drug)		**Item – II (test)**	
(A)	Chloroxylenol	**(P)**	Carbylamine Test
(B)	Norethindrone	**(Q)**	Sodium Hydrogen carbonateTest
(C)	Sulphapyridine	**(R)**	Ferric chloride test
(D)	Penicillin	**(S)**	Bayer's test

(1) A→Q ; B→P ; C→S ; D→R (2) A→R ; B→P ; C→S ; D→Q

(3) A→R ; B→S ; C→P ; D→Q (4) A→Q ; B→S ; C→P ; D→R

10. Noradrenaline is a /an **[JEE-MAIN-(April)-2019]**

(1) Neurotransmitter (2) Antidepressant (3) Antihistamine (4) Antacid

11. The number of sp^2 hybridised carbons present in "Aspartame" is _____. **[JEE-MAIN-(Jan)-2020]**

12. The number of chiral carbons in chloramphenicol is _____ . **[JEE-MAIN-(Jan)-2020]**

13. The number of chiral centres in penicillin is _____. **[JEE-MAIN-(Jan)-2020]**

14. The mass percentage of nitrogen in histamine is _____. **[JEE-MAIN-(Jan)-2020]**

ANSWER KEY

EXERCISE # O-1

1.	**Ans. B**	**2.**	**Ans. A**	**3.**	**Ans. A**	**4.**	**Ans. C**
5.	**Ans. D**	**6.**	**Ans. A**	**7.**	**Ans. B**	**8.**	**Ans. C**
9.	**Ans. B**	**10.**	**Ans. C**	**11.**	**Ans. A**	**12.**	**Ans. C**
13.	**Ans. D**	**14.**	**Ans. C**	**15.**	**Ans. A**	**16.**	**Ans. B**
17.	**Ans. C**	**18.**	**Ans. A**	**19.**	**Ans. B**	**20.**	**Ans. D**
21.	**Ans. B**	**22.**	**Ans. C**	**23.**	**Ans. D**	**24.**	**Ans. B**
25.	**Ans. A**	**26.**	**Ans.(C)**	**27.**	**Ans.(D)**	**28.**	**Ans.(B)**
29.	**Ans.(D)**	**30.**	**Ans.(A)**				

EXERCISE # O-2

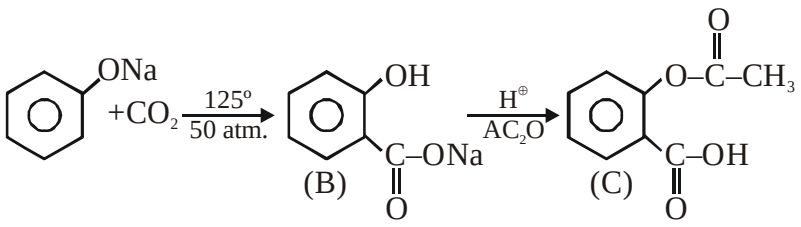
1.	**Ans. (A,B)**	**2.**	**Ans.(A,B,C,D)**	**3.**	**Ans. (B,D)**	**4.**	**Ans.(A,B,C,D)**
5.	**Ans.(B,C)**	**6.**	**Ans.(A,B,C,D)**	**7.**	**Ans.(A,B,C)**	**8.**	**Ans.(A,B,D)**
9.	**Ans. (A,B)**	**10.**	**Ans.(A,B,C)**	**11.**	**Ans.(B,C)**	**12.**	**Ans.(A,B,C,D)**
13.	**Ans.(A,C,D)**	**14.**	**Ans.(A)**	**15.**	**Ans. (D)**	**16.**	**Ans.(A)**
17.	**Ans.(A)**	**18.**	**Ans. (4)**	**19.**	**Ans. A→Q ; B→S ; C→P ; D→R**		
20.	**Ans. (A) A→Q,R; B→Q; C→P; D→S**						

EXERCISE # JEE MAIN'S & ADVANCE

1. **Ans.(3)** **2.** **Ans.(2)**

3. **Ans. (3)**

Sol. First step is carboxylation (Kolbe schmidt reaction) & second step is acetylation of sodium salt of aspirin (B).

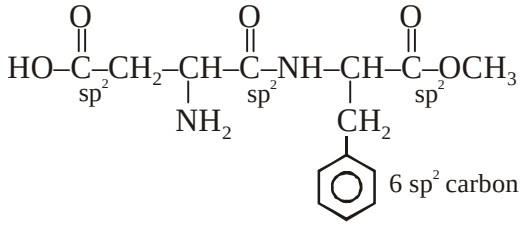


4. **Ans. (1)** **5** **Ans. (4)** **6** **Ans. (3)** **7.** **Ans. (2)**

8. **Ans. (2)** **9.** **Ans. (3)** **10.** **Ans. (1)**

11. **Ans. (9.00)**

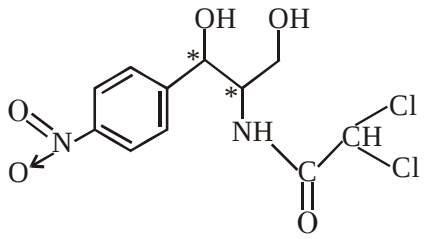
Sol.



no. of sp^2–carbon → 9

12. Ans. (2.00)

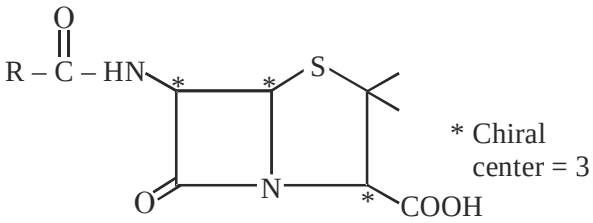
Sol.



Chloramphenicol

13. Ans.(3.00)

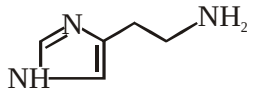
Sol. The structure of penicillin is



* Chiral center = 3

14. Ans.(37.80 to 38.20)

Sol.



M.F. of Histamine is $C_5H_9N_3$

Molecular mass of Histamine is 111

Now, mass % of nitrogen = $\left(\frac{42}{111}\right)\times 100$ = 37.84%