

**B.Sc III Year (Semester-V)**  
**Organic Chemistry**  
**Chapter 1 : Heterocyclic Compounds**

- 1) Cyclic compound containing at least one hetero atom other than carbon, such compounds are called as ----  
a) Aromatic      **b) Heterocyclic**      c) Alicyclic      d) None of these
- 2) Which of the following is an example of five member heterocyclic compound containing one hetero atom ?  
**a) Furan**      b) Pyridine      c) Pyrimidine      d) Thiazole
- 3) Which of the following is an example of five member heterocyclic compound containing two hetero atoms ?  
a) Furan      b) Pyridine      c) Pyrimidine      **d) Thiazole**
- 4) Which of the following is an example of six member heterocyclic compound containing one hetero atom ?  
a) Furan      **b) Pyridine**      c) Pyrimidine      d) Thiazole
- 5) Which of the following is an example of six member heterocyclic compound containing two hetero atoms ?  
a) Furan      b) Pyridine      **c) Pyrimidine**      d) Thiazole
- 6) Which of the following heterocyclic compound is not aromatic ?  
a) Pyrrole      b) Pyridine      c) Pyrimidine      **d) Piperidine**
- 7) The IUPAC name of furan is ----  
**a) oxole**      b) thiole      c) azole      d) azine
- 8) The IUPAC name of thiophene is ----  
a) oxole      **b) thiole**      c) azole      d) azine
- 9) The IUPAC name of pyrrole is ----  
a) oxole      b) thiole      **c) azole**      d) azine
- 10) The IUPAC name of pyridine is ----  
a) oxole      b) thiole      c) azole      **d) azine**
- 11) Furan containing one oxygen and four carbon atoms are ----  
a) SP hybridized      **b) SP<sup>2</sup> hybridized**      c) SP<sup>3</sup> hybridized      d) None of these
- 12) Pyrrole containing one nitrogen and four carbon atoms are ----  
a) SP hybridized      **b) SP<sup>2</sup> hybridized**      c) SP<sup>3</sup> hybridized      d) None of these
- 13) Pyridine containing one nitrogen and five carbon atoms are ----  
a) SP hybridized      **b) SP<sup>2</sup> hybridized**      c) SP<sup>3</sup> hybridized      d) None of these
- 14) In furan, carbon-carbon  $\sigma$ -bond is formed by ----- overlapping.  
**a) SP<sup>2</sup> - SP<sup>2</sup>**      b) SP<sup>2</sup> - S      c) SP<sup>2</sup> - SP<sup>3</sup>      d) None of these

- 15) In furan, carbon-hydrogen  $\sigma$ -bond is formed by ----- overlapping.  
a)  $SP^2 - SP^2$       **b)  $SP^2 - S$**       c)  $SP^2 - SP^3$       d) None of these
- 16) In furan, carbon-oxygen  $\sigma$ -bond is formed by ----- overlapping.  
**a)  $SP^2 - SP^2$**       b)  $SP^2 - S$       c)  $SP^2 - SP^3$       d) None of these
- 17) Mucic acid on dry distillation gives -----  
a) Pyrrole      b) Thiophene      **c) Furan**      d) None of these
- 18) Succinaldehyde on heating with  $P_2O_5$  or  $ZnCl_2$  gives -----  
a) Pyrrole      b) Thiophene      **c) Furan**      d) None of these
- 19) Furan on nitration with nitric acid in the presence of acetic anhydride gives -----  
**a) 2-nitro furan**      b) 3-nitro furan      c) 1-nitro furan      d) None of these
- 20) Furan on sulfonation with  $SO_3$  in the presence of pyridine gives -----  
a) 2-nitro furan      **b) furan 2-sulphonic acid**  
c) furan 3-sulphonic acid      d) None of these
- 21) Furan reacts with chlorine at  $0^\circ C$  temp. gives ----  
a) 1-chloro furan      b) 3-chloro furan      **c) 2-chloro furan**      d) None of these
- 22) Furan react with acetyl chloride or acetic anhydride in the presence of anhy.  $AlCl_3$  catalyst gives ---- 2-acetyl furan  
**a) 2-acetyl furan**      b) 1-acetyl furan      c) 3-acetyl furan      d) None of these
- 23) Furan react with CO & HCl in the presence of Anhy.  $AlCl_3$  gives ----  
a) 2-acetyl furan      b) 3-acetyl furan      **c) furfural**      d) None of these
- 24) Furan react with benzene diazonium chloride in the presence of NaOH gives ----  
a) 2-acetyl furan      b) 3-acetyl furan      c) 3-phenyl furan      **d) 2-phenyl furan**
- 25) Furan reduced with  $H_2$  in the presence of Ni catalyst gives ----  
a) 2-acetyl furan      **b) tetrahydrofuran**      c) 3-phenyl furan      d) 2-phenyl furan
- 26) Furan react with n-butyl lithium in the presence of ether gives ----  
**a) 2-lithium furan**      b) tetrahydrofuran      c) 2-acetyl furan      d) 2-phenyl furan
- 27) Mixture of acetylene & ammonia passes through red hot tube gives ----  
a) furan      b) thiophene      c) pyridine      **d) pyrrole**
- 28) Furan on heated with  $NH_3$  in the presence of  $Al_2O_3$  gives ----  
**a) pyrrole**      b) thiophene      c) pyridine      d) furan
- 29) Succinimide on distillation with Zn dust gives -----  
a) furan      **b) pyrrole**      c) pyridine      d) thiophene
- 30) Pyrrole on nitration with conc. nitric acid in presence of acetic anhydride gives ---  
**a) 2-nitro pyrrole**      b) 3-nitro pyrrole      c) 1-nitro pyrrole      d) None of these
- 31) Pyrrole on sulphonation with  $SO_3$  in the presence of pyridine gives -----  
a) 2-nitro pyrrole      b) 3-nitro pyrrole      **c) pyrrole 2-sulphonic acid**      d) None of these



give ----

- a) 1-acetyl thiophene                      b) 2-acetyl thiophene  
c) 2-chloro methyl thiophene              **d) 2-mercurichloride thiophene**

46) Thiophene react with n-butyl lithium in the presence of ether gives ----

- a) 2-lithium thiophene**                      b) 2-acetyl thiophene  
c) 2-chloro methyl thiophene              d) 2-mercurichloride thiophene

47) Mixture of acetylene and HCN passes through red hot tube gives ----

- a) thiophene              b) furan              **c) pyridine**              d) pyrrole

48) Pentamethylene diamine hydrochloride heated to give piperidine which on oxidation with conc.  $H_2SO_4$  at  $300^\circ C$  gives ----

- a) thiophene              b) furan              **c) pyridine**              d) pyrrole

49) Oxidation of  $\beta$ - picoline with potassium dichromate and  $H_2SO_4$  gives nicotinic acid.

Which on decarboxylation with CaO gives ----

- a) thiophene              b) furan              **c) pyridine**              d) pyrrole

50) Pyridine on heating with nitrating mixture at  $300^\circ C$  gives -----

- a) 2-nitro pyridine    **b) 3-nitro pyridine**    c) 1-nitro pyridine    d) None of these

51) Pyridine undergoes sulphonation with fuming  $H_2SO_4$  in the presence of mercuric sulphate at  $230^\circ C$  gives -----

- a) pyridine 2-sulphonic acid              b) 3-nitro pyridine  
**c) pyridine 3-sulphonic acid**              d) None of these

52) Pyridine on amination reaction with sodamide in N, N- dimethyl aniline gives ----

- a) 2-amino pyridine**                      b) 3-amino pyridine  
c) 1-amino pyridine                      d) None of these

53) Pyridine on heating with KOH gives ----

- a) thiophene              **b) pyridone**              c) pyrrole              d) None of these

54) Pyridine heated with n-butyl lithium gives ----

- a) thiophene              b) pyrrole              **c) 2-n-butyl pyridine**              d) None of these

55) Pyridine on reduction with  $H_2/Ni$  or  $Na/C_2H_5OH$  gives ----

- a) piperidine**              b) thiophene              c) pyrrole              d) None of these

56) Pyridine on oxidation with peracetic acid gives ----

- a) piperidine              **b) pyridine oxide**              c) pyrrole              d) None of these

57) Phenyl hydrazine heated with acetaldehyde and fused  $ZnCl_2$  or  $H_2SO_4$  in ethanol gives -----

- a) pyridine              b) thiophene              c) pyrrole              **d) indole**

58) Mixture of aniline, glycerol, nitrobenzene is heated in the presence of conc.  $H_2SO_4$  and ferrous sulphate for 6 hours to give ----

a) **quinoline**      b) thiophene      c) pyrrole      d) indole

59) O-amino benzaldehyde on condensation with acetaldehyde in the presence of NaOH solution gives ----

a) pyrrole      b) thiophene      **c) quinoline**      d) indole

## Chapter 2 : Synthetic Drugs & Dyes

1) The word drug is derived from the French word -----

a) Doxin      b) Doxy      **c) Drogue**      d) None of these

2) The Greek physician ----- laid the foundation of modern medicine.

**a) Hipocrates**      b) Paul Ehrlich      c) F. Magendie      d) None of these

3) Who is the father of Chemotherapy ?

a) Hipocrates      **b) Paul Ehrlich**      c) F. Magendie      d) None of these

4) A chemical substance which is used in the treatment, diagnosis, prevention or cure of disease is called as -----

a) Dyes      **b) Drugs**      c) Both a & b      d) None of these

5) The drugs which are used in the treatment and cure of specific diseases is called as :

**a) Chemotherapeutic drugs**      b) Functional drugs

6) The drugs which are used to provide some relief to body without curing of disease by depression or stimulate the CNS is called as -----

a) Chemotherapeutic drugs      **b) Functional drugs**

7) An ideal drug is -----

a) It should be non toxic      b) It should have minimum side effect  
c) It should be efficient      **d) All of these**

8) A chemical substance produced from one micro-organism which inhibit the growth of other infectious micro-organisms are called as

a) Antimalerials      **b) Antibiotics**      c) Antipyretic      d) Analgesic

9) A drug which is used to cure the infection developed by bacteria is called as

a) Antimalerial      b) Antibiotic      **c) Antibacterial**      d) Analgesic

10) A drug which is used to cure malaria disease is called as

**a) Antimalerial**      b) Antibiotic      c) Antibacterial      d) Analgesic

11) A drug which is used to prevent the growth of infectious microorganisms is called as

a) Antimalerial      **b) Antiseptic**      c) Antibacterial      d) Analgesic

12) A drug which is used to cure the fungal infection is called as

a) Antimalarial    b) Antiseptic    c) Antibacterial    **d) Antifungal**

13) The drugs which are used to reduce the elevated body temperature are called as

**a) Antipyretics**    b) Antiseptics    c) Antibacterial    d) Analgesics

14) The drugs which are used to reduce the body pain are called as

a) Antipyretics    b) Antiseptics    c) Antibacterial    **d) Analgesics**

15) The drugs which are used to produce sleep are called as ----

a) Antipyretics    b) Antiseptics    **c) Sedatives**    d) Analgesics

16) The drugs which are used to produce temporary insensibility to human being or animals are called as ----

**a) Anaesthetic**    b) Antiseptics    c) Antibacterial    d) Analgesics

17) The drugs which are used to produce unconsciousness & depression in CNS are called as ----

a) Local anaesthetic    **b) General anaesthetic**

18) The drugs which are used to produce an anaesthetic effect to a limited area of the body are called as

**a) Local anaesthetic**    b) General anaesthetic

19) Which of the following is an antibiotic drug ?

a) Chloroquine    b) Paracetamol    c) Aspirin    **d) Penicilline**

20) Which of the following is an antibacterial drug ?

**a) Sulphanilamide**    b) Paracetamol    c) Aspirin    d) Penicilline

21) Which of the following is an antiseptic drug ?

a) Sulphanilamide    **b) Dettol**    c) Aspirin    d) Penicilline

22) Which of the following is an antifungal drug ?

a) Sulphanilamide    b) Paracetamol    **c) Salicylic acid**    d) Penicilline

23) Which of the following is an analgesic drug ?

a) Sulphanilamide    **b) Aspirin**    c) Paracetamol    d) Penicilline

24) Which of the following is an antipyretic drug ?

a) Sulphanilamide    b) Aspirin    **c) Paracetamol**    d) Penicilline

25) Which of the following is sedative drug ?

**a) Veronal**    b) Aspirin    c) Paracetamol    d) Penicilline

26) Which of the following is an anaesthetic drug ?

a) Veronal    b) Aspirin    c) Paracetamol    **d) Chloroform**

- 27) Acetylation of salicylic acid with acetic anhydride in the presence of conc.  $H_2SO_4$   
Gives -----
- a) Paracetamol                      **b) Aspirin**                      c) Sulphadiazine    d) Chloroquine
- 28) Nitration of phenol with conc.  $HNO_3$  followed by reduction with Fe/HCl & acetylation with acetic anhydride gives
- a) Paracetamol**                      b) Aspirin                      c) Sulphadiazine    d) Chloroquine
- 29) Reaction of 4,7-dichloroquinoline with N,N-diethyl pentane diamine gives
- a) Paracetamol                      b) Aspirin                      c) Sulphadiazine    **d) Chloroquine**
- 30) Identification, selection, preservation, standardization, formulation & dispensing of medical substance is called as -----
- a) Chemotherapy                      b) Pharmacology    **c) Pharmacy**                      d) Metabolites
- 31) ----- provide the scientific data for the rational treatment of disease.
- a) Chemotherapy                      **b) Pharmacology**    c) Pharmacy                      d) Metabolites
- 32) The specific treatment of a disease by the administration of chemical compounds is known as -----
- a) Chemotherapy**                      b) Pharmacology    c) Pharmacy                      d) Metabolites
- 33) A chemical substance which takes part in cellular metabolic reactions is known as -
- a) Chemotherapy                      b) Pharmacology    c) Pharmacy                      **d) Metabolites**
- 34) A chemical substance which block the metabolism is known as -----
- a) Chemotherapy                      b) Pharmacology    **c) Antimetabolites**    d) Metabolites
- 35) Bacteria belongs to the class of plants called -----
- a) Schizomycetes**                      b) Schimycetes    c) Both a & b                      d) None of these
- 36) Bacteria which retain the violet stain of Gram's reagent is called ----- bacteria.
- a) Gram positive**                      b) Gram negative    c) Both a & b                      d) None of these
- 37) Bacteria which do not retain the violet stain of Gram's reagent is called ----- bacteria.
- a) Gram positive                      **b) Gram negative**    c) Both a & b                      d) None of these
- 38) Certain groups which produces the colour are called as -----
- a) Auxochrome                      **b) Chromophore**    c) Both a & b                      d) None of these
- 39) Certain groups which are not produces the colour themselves but are able to intensify the colour when present with chromophore is called as -----
- a) Auxochrome**                      b) Chromophore    c) Both a & b                      d) None of these
- 40) Which of the following is an chromophore ?
- a)  $-N=O$                       b)  $-NO_2$                       c)  $-N=N-$                       **d) All of these**

- 41) Which of the following is an auxochrome ?  
 a) -OH                      b) -NH<sub>2</sub>                      c) -NHR                      **d) All of these**
- 42) Which of the following is an chromophore ?  
**a) -NO<sub>2</sub>**                      b) -SO<sub>3</sub>H                      c) -OH                      d) -COOH
- 43) Which of the following is an auxochrome ?  
 a) -N=O                      b) -NO<sub>2</sub>                      c) -N=N-                      **d) -OH**
- 44) A coloured compound that can be firmly fixed to all the fabrics by chemical or physical bonding is called as -----  
**a) Dye**                      b) Drug                      c) Colour                      d) None of these
- 45) The water solubility of dyes can be increased by introducing  
 a) SO<sub>3</sub>Na group    b) -COOH group    c) -OH group                      **d) All of these**
- 46) Which dyes become linked to the fiber by chemical reaction ?  
**a) Acid dyes**                      b) Direct dyes                      c) Disperse dyes                      d) None of these

## Chapter – 3 Alkaloids, Pesticides and Vitamins

### Alkaloids

- 1) Alkaloids are plant produced ----- compounds.  
 a) acidic                      **b) basic**                      c) phenolic                      d) neutral
- 2) Alkaloids are -----  
 a) amines containing an aromatic ring  
 b) amines derived from alkanes  
 c) natural products, found in animals  
**d) physiologically active nitrogenous compound usually found in plants**
- 3) Quinoline is obtained from the bark of which tree ?  
**a) Cinchona**                      b) Redwood                      c) Bunyan                      d) Eucalyptus
- 4) Nicotine causes which of these changes in the body ?  
 a) Lowers body temperature                      b) Increase heart rate  
 c) Increases blood pressure                      **d) b & c**
- 5) The molecular formula of ephedrine is :  
 a) C<sub>10</sub>H<sub>18</sub>NO                      **b) C<sub>10</sub>H<sub>15</sub>NO**                      c) C<sub>10</sub>H<sub>14</sub>N<sub>2</sub>                      d) None of these
- 6) The molecular formula of nicotine is :



a)  $C_{10}H_{18}NO$       b)  $C_{10}H_{15}NO$       **c)  $C_{10}H_{14}N_2$**       d) None of these

7) Ephedrine on oxidation gives

**a) Benzoic acid**      b) Phthalic acid      c) Citric acid      d) None of these

8) How many asymmetric carbon atoms in Ephedrine ?

a) 1      **b) 2**      c) 3      d) 4

9) Nicotine on oxidation with chromic acid gives

a) Benzoic acid      b) Phthalic acid      **c) Nicotinic acid**      d) None of these

10) Which of the following is an example of alkaloid ?

a) Pyridine      **b) Papaverine**      c) Pyrrole      d) None of these

### Pesticides

1) 2,4-D is an -----

**a) Herbicide**      b) Fungicide      **c) Rodenticide**      d) Insecticide

2) A chemical substance used to kill the insect are called as -----

a) Herbicides      b) Fungicides      c) Rodenticides      **d) Insecticides**

3) A chemical substance used to kill the weeds are called as -----

**a) Herbicides**      b) Fungicides      c) Rodenticides      d) Insecticides

4) A chemical substance used to kill the rats are called as -----

a) Herbicides      b) Fungicides      **c) Rodenticides**      d) Insecticides

5) A chemical substance used to destroy the fungi are called as -----

a) Herbicides      **b) Fungicides**      c) Rodenticides      d) Insecticides

6) Which of the following is an example of insecticide ?

a) 2,4-D      **b) DDT**      c)  $CuSO_4$       d) None of these

7) Which of the following is an example of herbicide ?

**a) 2,4-D**      b) DDT      c) BHC      d) None of these

8) Which of the following is an example of rodenticide ?

a) DDT      b) 2,4-D      **c) Zinc phosphite**      d) None of these

9) Which of the following is an example of fungicide ?

a) DDT      b) 2,4-D      c) BHC      **d)  $CuSO_4$**

- 10) Condensation of chlorobenzene with chloral in the presence of conc.  $H_2SO_4$  gives ----
- a) BHC                      **b) DDT**                      c) 2,4-D                      d) Methoxychlor
- 11) Chlorination of benzene in the presence of UV light gives ----
- a) BHC**                      b) DDT                      c) 2,4-D                      d) Methoxychlor
- 12) Condensation of 2,4-dichloro phenol with chloro acetic acid gives :
- a) BHC                      b) DDT                      **c) 2,4-D**                      d) Methoxychlor
- 13) Condensation of anisole with chloral in the presence of conc.  $H_2SO_4$  gives :
- a) BHC                      b) DDT                      c) 2,4-D                      **d) Methoxychlor**
- 14) 2-isopropoxy phenol react with methyl carbamoyl chloride gives
- a) DDT                      **b) Baygon**                      c) 2,4-D                      d) Methoxychlor
- 15) BHC is -----
- a) Benzene hexachloride                      b) Gammexane
- c) Both a & b**                      d) None of these

### Vitamins

- 1) Vitamins are ----
- a) only necessary when one is ill.
- b) essential organic substances needed in minute amounts by the body to perform, a highly specific metabolic function**
- c) metallic elements found in enzymes and hormones
- d) None of these
- 2) How many known vitamins are there ?
- a) 6                      **b) 13**                      c) 19                      d) None of these
- 3) Fat soluble vitamins are ----
- a) A,D,E and K**                      b) A,C and E                      c) A,B,C and D                      d) None of these
- 4) Water soluble vitamins are ----
- a) A,D,E and K                      b) A,D and E                      **c) B<sub>1</sub>,B<sub>2</sub>,B<sub>6</sub> and B<sub>12</sub>**                      d) None of these
- 5) Which of the following is not a water soluble vitamin ?
- a) Vitamin A**                      b) Vitamin C                      c) Vitamin B<sub>6</sub>                      d) Vitamin B<sub>12</sub>

- 6) Which of the following is not a fat soluble vitamin ?  
a) Vitamin A      b) Vitamin D      c) Vitamin E      **d) Vitamin B<sub>12</sub>**
- 7) Which of the following is an example of water soluble vitamin ?  
a) Vitamin A      b) Vitamin C      c) Vitamin B<sub>6</sub>      **d) Vitamin B<sub>12</sub>**
- 8) Which of the following is an example of fat soluble vitamin ?  
**a) Vitamin A**      b) Vitamin C      c) Vitamin B<sub>6</sub>      d) Vitamin B<sub>12</sub>
- 9) The vitamin, riboflavin is also known as :  
a) Vitamin B<sub>1</sub>      **b) Vitamin B<sub>2</sub>**      c) Vitamin B<sub>6</sub>      d) Vitamin B<sub>12</sub>
- 10) The vitamin, thiamine is also known as :  
**a) Vitamin B<sub>1</sub>**      b) Vitamin B<sub>2</sub>      c) Vitamin B<sub>6</sub>      d) Vitamin B<sub>12</sub>
- 11) The vitamin, pyridoxine is also known as :  
a) Vitamin B<sub>1</sub>      b) Vitamin B<sub>2</sub>      **c) Vitamin B<sub>6</sub>**      d) Vitamin B<sub>12</sub>
- 12) The vitamin, cyanocobalamin is also known as  
a) Vitamin B<sub>1</sub>      b) Vitamin B<sub>2</sub>      c) Vitamin B<sub>6</sub>      **d) Vitamin B<sub>12</sub>**
- 13) The vitamin E is also known as  
**a) tocopherol**      b) riboflavin      c) retinol      d) calciferol
- 14) The vitamin A is also known as  
a) tocopherol      b) riboflavin      **c) retinol**      d) calciferol
- 15) The vitamin C is also known as  
a) tocopherol      b) riboflavin      c) retinol      **d) ascorbic acid**
- 16) The deficiency of vitamin D causes  
a) Beri-Beri      b) Night blindness      c) Pellagra      **d) Rickets**
- 17) The deficiency of vitamin C causes  
a) Beri-Beri      **b) Scurvy**      c) Pellagra      d) Rickets
- 18) The deficiency of vitamin A causes  
a) Beri-Beri      b) Scurvy      **c) Night blindness**      d) Rickets
- 19) The deficiency of vitamin B<sub>1</sub> causes  
**a) Beri-Beri**      b) Scurvy      c) Pellagra      d) Rickets
- 20) The deficiency of vitamin E causes  
a) Beri-Beri      b) Night blindness      **c) Sterility**      d) Rickets