# VEER NARMADA SOUTH GUJARAT UNIVERSITY

## Third Year B. Sc.

## Chemistry

## 'DRUGS' as course of applied nature (CAN)

(Effective from July 2002 – Revised in B O S dated 23/10/2002)

70 Marks (External) Total 60 Hrs
30 Marks(Internal) Time 3 Hrs.
(Uni. Exam)

# UNIT – I

Topic –1: 7 Hrs

Definition of the term 'Drugs' , drugs obtained from plants , classification of drugs based on their therapeutic uses,

Explanation of the following terms:

Agonist , antagonist , receptors, pharmacophore, prodrug, soft drug , CNS-depressants , CNS-stimulants, Quantitative structural activity relation ship , mode of action ,

Brief account of the following agents giving the names and structures of two important drugs , in each case:

(i) Antifungel agents: (ii) Antiviral agents. (iii) Anticancer or cytotoxic drugs

(iv) Non steroidal anti-inflammatory drugs (NSAID)

Topic –2:Microorganism and Diseases: 5 Hrs

Brief account of the following pathogenic microbes:

Bacteria, fungi, viruses, protazoa,

Classification of bacteria based on their shape and their staining property , particularly Gram –

staining and Ichl-Neelson (I.N.) staining.

Names of atleast two disease in case of each of the following types of infection and also the name of microbes responsible for the same.

(i) Respiratory tract infections
(ii) Gastro intenstinal tract infections
(iii) Urinary tract infections
(iv) Urethritis and Sexually transmitted diseases .
(v) Skin and soft tissue infections
(vi) cardiovascular system infections
(vii) Central Nervous system inflections.

Names of important drugs for each of the following diseases.

(i) Typhoid (ii) Dysentry (iii) Pneumonia (iv) Meningitis (v) Gastroenteritis (vi) Actinomycosis

# UNIT – II

## Topic –1:Antibiotic: 6 Hrs

Definition , history of discovery of penicillin by Alexander Flaming , structural variations in penicillins, broad spectrum penicillins and their therapeutic uses , sources , structural formulae and therapeutic uses of streptomycin, tetracyclines and cycloserine, synthesis of chloramphenicol.

## Topic –2:Sulfonamides (Sulfa drugs): 6 Hrs

History discovery and development of sulfa drugs , structural variations among sulfonamides , mode of action of sulfonamides , therapeutic uses and antimicrobial activity of sulfonamides.,

Synthesis and uses of : sulfadimidine, sulfaguanidine sulfisoxazole ( Sulfafurazol), sulfacetamide, succinyl sulfathiazole, sulfanilamide .

# UNIT – III

## Topic –1:Antimalarials: 4 Hrs

Plasmodia responsible for human malaria and their mode of transition , life cycle of plasmodia classification of antimalarials, structural variations among antimalarials.

Synthesis and uses of : chloroquine , camoquine (amidoquine) , Pyrimethamine.

## Topic –2:Anaesthetics: 4 Hrs

Definition of general and local anaesthetics. Names and structure of general anaesthetics , classification and structural variations among local anaesthetics.

Synthesis and uses of : Alpha –Eucaine, Procaine, Benzocaine.

## Topic –3:Sedatives and Hypnotics: 4 Hrs

Definition , classification and structural variations among sedatives and hypnotics . brief accounts of antianxiety drugs.

Synthesis and uses of: Luminal (Phenobarbital) , Diazepam , meprobamate, amylobarbitone , imipramine.

# UNIT – IV

## Topic –1:Antihistamines or antiallergenic drugs: 4 Hrs

General account of histamine and antiallergenic agents , classification and structural variations among antihistaminics.

Synthesis and uses of : Benadryl (Diphenylhydramine), Mepyramine, Promethazine (Phenargan).

## Topic –2:Analgesic and Antipyretics: 4 Hrs

Definition , classification and structural variations among Analgesic and antipyretics,

Synthesis and uses of : Novalgin, Mefenamic acid, phenacetine, paracetamol, oxyphenbutazone

(Tandearil)

## Topic –3:Anatiseptics and Disinfectants: 4 Hrs

Introduction classification and structural variations among drugs used as antiseptics and disinfectants .

Synthesis and uses of : mercurocrome (merbromine) , n-Hexylresorcinol , Halozones , dichloramine-T , Acriflavine .

# UNIT – V

## Topic –1:Antitubercular and Antileprotic: 4 Hrs

General accounts of Tuberculosis and Leprosy, structural variations among drugs used for Tuberculosis and Leprosy ,

Synthesis and uses of : Isoniazid , ethamubutol, dapsone, (DDS) Ethionamide.

## Topic –2:Antidiabetic or Hypoglycemic agents: 4 Hrs

Role of Insulin in diabetes , oral hypoglycemic agents , structural variations among biguanides and sylfonylureas showing hypoglycemic activity.

Synthesis and uses of : Phenformin (DBI) , Tolbutamide, (Orinase) , Chlorpropamide (Diabinese) .

## Topic –3:Coagulants (hemostatics) and Anticoagulants : 4 Hrs

Definition , Water-Fall mechanism of blood clotting, classification and structural variations among blood antocoagulants , Vitamin K group, as blood coagulants.

Synthesis and uses of : Warfarin , Dicoumarol, Bromindione.

**Reference Books:**


(1) Burger's Medicinal chemistry (4/e) Part I, II, III by Manfre W Wolff (Ed) –John Wiley & Sons , 1981

(2) Principles of Medicinal chemistry by Willam O. Foye Lea and Febiger, Philadelphia, 1974

(3) Text book of organic medicinal and pharmaceutical chemistry (7/e, 1977) by Wilson, Gisvold and Doerge-J.P Lippincott company Tokyo.

(4) Medicinal chemistry by Ashutoshkar (1993, Wiley Eastern ltd. , New Delhi)

(5) Medicinal Bactriology by N. C. Dey and T. RR. Dey (3/e, 1975) Allied Agency – Calcutta 700 014

(6) Principles of Medicinal chemistry Vol. I & II by S. S. Kadam , K. R Mahadik & K. G. Bothara – Nirali prakashan.