Swami Ramanand Teerth Marathwada University, Nanded

B. O. S. In Chemistry

B. Sc. Second Year Semester-I & II
Dyes and Drugs

In force from June - 2010

B. Sc. Second Year (Semester I & II)
DYES AND DRUGS

Syllabus

Semester	Paper	Course No.	Course	Periods /week	Total Periods	Marks
I	VI	CHDD-201	Synthesis and Application of azo, and azoic Dyes	3	45	50
	VII	CHDD-202	Synthesis and Application of Drugs action on CNS	3	45	50
II	VIII	CHDD-203	Synthesis and Application of methane, anthraquinone, xanthenes and Heterocyclic Dyes.	3	45	50
	IX	CHDD-204	Synthesis and Application of Chemotherapeutic Drugs	3	45	50
	X	CHDD-205	Laboratory Course-II	4	120	50
	XI	CHDD-206	Laboratory Course-III	4	120	50

DYES AND DRUGS
Semester – III
Paper: VI
Synthesis, Application fastness properties of azo and Azoic Dyes (CHDD-201)

Marks:60 **Periods:45**

UNIT I
I. Action of light on dyes and dyed fibres **10 periods**

1. Factors affecting fastness of dyed fibres
   a. General consideration
   b. fluorescence, phototropy, mechanism of fading
2. Constitution of dyes and light fastness with respect to Nitro dyes, Azo dyes, basic dyes, sulphur dyes, Indigo dyes, anthraquinones.
3. Light fastness of pigments

UNIT II
I. Azo-Dyes – Synthesis and applications : **10 periods**

(i) Methyl orange (ii) Methyl red (iii) Orange I (iv) Orange II
(v) Orange IV (vi) Fast red A (vii) Metanil yellow (viii) Aniline yellow
(ix) Butter yellow (x) Congo red (xi) Diamond black F
(xii) Chromotrope 2B (xiii) Erichrome black T

UNIT III

I. Dyeing and fastness properties of azo dyes **10 periods**

1) General consideration
2) Dyeing and fastness properties of
   a) Azodyes for wool
   b) Azodyes for silk
   c) Azodyes for leather
   d) Direct cotton dyes
   e) Acid colours on cotton

UNIT IV

I. Azoic Dyes : **15 periods**

1) Introduction, Chemical constitution of napthols.
2) Preparation of Napthols, Napthols for yellow shade, azoic shades.
3) Steps involved in azoic dyeing.
4) Application of azoic dyes on fibres other than cotton (wool, silk, cellulose, acetate)
5) Fastness properties of azoic shades top light, chlorine, rubbing, alkali.
6) Azoic colours in printing, printing composition. Types of azoic colours in printing.

DYES AND DRUGS
Semester – III
Paper: VII
Synthesis and Application of Drugs acting on CNS (CHDD-202)

Marks:60 **Periods:45**

UNIT I

I. Anaesthetics **15 periods**

1) Introduction and Classification of anesthetics.
2) Characteristics of ideal anesthetics.
3) Study of volatile general anesthetics
   i) Diethyl ether ii) methyl-n-propyl ether iii) divinyl ether
   iv) ethylene v) cyclopropane vi) nitrous oxide vii) chloroform
   viii) fluothane, ix) trilene x) viadril
4) Study of non-volatile general anesthetics
   i) Avertin and ii) pentothal Sodium
5) Study of local anaesthetics
   i) α - Eucatine, ii) orthocaine, iii) Benzocaine, iv) procaine v) xylocaine

UNIT II

I. Study of sedatives and hypnotics and Anticonvulsants **10 periods**

1) Introduction and Classification of sedatives and hypnotics and Anticonvulsants
2) Synthesis and applications of
   i) Ethchlorvynol ii) chloral iii) Paraldehyde, iv) Sulphonal,
   v) Trional vi) tetronal vii) Novonal, viii) persedon
   ix) trichloroethyl x) urethene, xi) phenobarbitone, xii) Pentabarbitone

UNIT III

I. Study of Tranquillizer (selective Modifiers of CNS) **10 periods**

1) Introduction and Classification of Tranquillizer (selective Modifiers of CNS)
2) Synthesis and applications of
   i) Chlorpromazine ii) Prochlorperazine iii) Chlorprothixene iv) Thiothixene
   v) Haldol vi) Diazepam vii) Oxazepam viii) Chlordiazepoxide.

UNIT IV

I. Study of analgesics, antipyretics and anti-inflammatory **10 periods**

1) Introduction and classification of analgesics, antipyretics and anti-inflammatory.
2) Mechanism of action of analgesics
3) Mechanism of action of antipyretics
4) Synthesis and applications of
   i) antipyrine ii) Novalgine iii) acetanilide iv) Phenacetin
   v) paracetamol vi) Aspirin, vii) salol, viii) Irgaphyrin,
   ix) Ibuprofen, x) Oxyphenylbutazone xi) phenylbutazone xii) ketoprofen

DYES AND DRUGS
Semester – IV
Paper: VIII
Synthesis and Application of Methane, Anthraquinone, Xanthenes and Heterocyclic Dyes (CHDD-203)

Marks:60 **Periods:45**

UNIT I

I. Diphenyl and triphenyl methane dyes : **15 periods**

1. Diphenyl methane dyes : Introduction, synthesis and application of
   i). Auramine O and ii) Auramine G
2. Triphenyl methane dyes : Introduction. Classification, General properties, constitution of Triphenyl methane dyes (w.r.t. pararosaniline)
3. Synthesis and applications of following triphenyl methane dyes
   i) Malachite green ii) Rosaniline iii) Pararosaniline iv) aniline blue
   v) Methyl violet vi) crystal violet
4. Phenolphthalein – Synthesis, properties and application.

UNIT II

I. Anthraquinone Dyes : **10 periods**

1) Introduction and classification of Anthraquinone Dyes
2) Synthesis and applications of dyes
   i) Alizarin ii) Alizarin Red S iii) Alizarin orange iv) Alizarin blue
   v) Alizarin cyanine green vi) Indanthrene blue vii) Flavanthrene viii) Pyranthrene

UNIT III

I. Xanthene Dyes: **10 periods**

1) Introduction, classification and General properties of Xanthene Dyes
2) Synthesis and applications of dyes
   i) Fluorescein ii) Eosin iii) Erythrosine
   iv) Rhodamine G v) Rhodamine B vi) Pyronine G.

UNIT IV

I. Heterocyclic Dyes : **10 periods**

1) Introduction and Classification of heterocyclic dyes
2) Synthesis and applications of
   i) Indophenol blue ii) Phenylene blue iii) Methylene blue iv) Primuline
   v) Gallocyanine vi) Acridine yellow vii)Sensitol red viii) Quinolin blue
   ix) Sensitol red x) Ethyl Red xi) Safranine T.

DYES AND DRUGS
Semester – IV
Paper: IX
Synthesis and Application of Chemotherapeutic Drugs (CHDD-204)

Marks:60 **Periods:45**

UNIT I

I. Sulphonamides: **10 periods**

1) Introduction and discovery of sulphonamides.
2) Classification of sulphonamides.
3) Mechanism of action of sulpha drug.
4) Synthesis and applications of following sulphonamides

i) Sulphacetamide ii) Sulphapyridine, iii) sulphadiazine
iv) Sulphamerazine v) Sulphamezathine, vi) Sulphamethoxazole
vii) Succinyl Sulphathiazole, viii) Sulphaceamide ix) suphamylon

UNIT II

II. Antimalerials **10 periods**

1) Introduction and historical background of antimalerials Classification
2) Classification of antimalerials
3) Pathogenecity and Chemotherapy of malarial parasite
4) Study of the following antimalerials with uses :

i) Camaquine ii) Mepacrine iii) Azacrine iv) Paludrine

UNIT III

I. Antiseptics: **10 periods**

1) Introduction and classification of antiseptics,
2) standardization of disinfactant (Phenol coefficient)
3) Study of following antispetics,

i) Alcohols ii) Formaldehyde iii) Urotropine iv) merbromin
v) Thiomersal vi) chlorine and dakin's solution vii) ChloramineT
viii) Dichloroamine T ix) Halazone x) Chlorazodin xi) Iodoform
xii) Vioform xiii)Thymol xiv) Dettol xv) Nitrofurazone

UNIT IV

I. Antibiotics: **15 periods**

1) Introduction, history of discovery of antibiotic.
2) classification of antibiotics
3) Study of following antibiotics with an introduction, production, isolation, properties, clinical uses and mechanism of action.

i) Penicillin ii) Chloramphinicol

4) Structure, activity, relationship of chloramphenicol and penicillin

B.Sc. IIyear

DYES AND DRUGS

Paper: X

LABORATORY COURSE III (CHDD-205)

Marks: 100 **Periods: 120**

(Any sixteen experiments are to be covered)

1. **Preparation of dye intermediates**

   a. Anthraquinone b. Aniline c. P-Bromo acetanalide

   d. Succinic anhydride e. Sulphanillic acid f. P-Benzoquinone

2. Preparation of dyes :

   a. Fluorescein b. Eosin c. Methyl orange II

   d. Congo red e. Fast green O

3. Estimation of following Aryl amines by using $NaNO_2$ solution

   a. Aniline b. P-Nitroaniline c. P-chloro aniline

4. Dyeing methods

a. Direct dyeing of wool and silk with Orange II

b. Direct dyeing of wool and silk with Eosin

c. Direct dyeing of wool and silk with Malachite green

d. Direct dyeing of wool and silk with Crystal violet

e. Direct dyeing of cotton with congo red

f. Dyeing of cotton with Malachite green by Mordant dyeing method

g. Acid dyeing or wool with Orange II

h. Dyeing of cotton by vat dyeing method

B.Sc. IIyear

DYES AND DRUGS

Paper: XI

LABORATORY COURSE IV (CHDD-206)

Marks: 100 **Periods: 120**

(Any sixteen experiments are to be covered)

1. Preparation of Drug Intermediates

a. Pyrazolone b. Hydantoin c. Thiazole

2. Preparation of Drugs

a. Antipyrine b. Methyl salicylate c. sulphonamide

d. Aspirin e. Benzocaine

3. Assay of Drugs

a. Aspirin b. Sulphonamide C. Paracetamol

4. Tests for Identity and purity of Drugs

Analgin, Aspirin, Vitamin C, Pencillin G, Chlorocresol, Chloroform, Chloroquine phosphate, Cresol, Erythromycin, Isoniazide, sulphadiazine

5. Limit tests for chloride and sulphate for three drug samples

6. Qualitative Tests

a. Ephidrine b. Belladona c. Nicotine

d. Glucose e. sucrose f. Starch

g. Protein