

Swami Ramanand Teerth Marathwada University, Nanded



B. O. S. In Chemistry

B. Sc. Third Year (Dyes and Drugs)

Revised Syllabus

In force from June - 2010

B. Sc. Third Year DYES AND DRUGS

Revised Syllabus

Paper	Course No.	Course	Periods /week	Total Periods	Marks
VIII	CHDD-301	Dyes	3	80	100
IX	CHDD-302	Drugs	3	80	100
X	CHDD-303	Laboratory Course-II	4	120	100
XI	CHDD-304	Laboratory Course-III	4	120	100

**B. Sc. Third Year
DYES AND DRUGS
Paper: VIII
Dyes (CHDD-301)**

Marks:100

Periods:80

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

II. Fluorescent brightening agents

10 periods

- a. Introduction
- b. Fluorescence, mechanism of fluorescence
- c. Characteristic properties of fluorescent brightening agents.
- d. Fluorescent brighteners for
 - i) cellulosic fibers
 - ii) acrylic fibers
- e. Toxicity of fluorescent brightener.

UNIT II

I. Sulfur dyes

12 periods

- a. Introduction
- b. Classification of sulphur dyes on the basis of colour and application
- c. Condition of thionation
- d. General properties and application of sulphur dyes.
- e. Fastness properties of sulphur dyes
- f. Sulphur side chain in sulphur dyes
- g. Carbon-carbon linkage in sulphur dyes

II. Mordant Dyes

08 periods

- a. Introduction
- b. Natural mordant dyes
- c. Synthetic mordant dyes
- d. Methods of application (brief study)
 - i) Chrome mordant process
 - ii) After chrome process
 - iii) Metachrome process.

UNIT III

I. Reactive dyes

08 periods

- a. Introduction
- b. Constitutional aspects of reactive dyes (flexibility through chromogen, reactive group)
- c. Study of vinyl sulfone dyes, sulphatoethyl sulfone dyes, acryl amide dyes
- d. Reactive mordants
- e. Cross linkage agents
- f. Dyers requirement

c. Disperse dyes:

12 periods

- a. Introduction
- b. Ionamines, disperse acetate dyes and solacet dyes
- c. Chemical structure of disperse dyes
- d. Dispersion process
- e. Function of dispersing agents
- f. Disperse dyeing process
- g. Fiber swelling in dyeing
- h. Use of carriers in dyeing
- i. Use of heat energy in dyeing

UNIT IV

I. Evaluation of dyes by chromatography:

20 periods

- 1) Identification and purification of commercial dyes
- 2) Concept of chromatography
- 3) Types of chromatography
 - a) Adsorption chromatography
 - b) Partition chromatography
 - i) Paper chromatography
 - ii) Thin layer chromatography
- 4) Chromatography of dyes
- 5) Separation of azo, basic and vat dyes
- 6) Evaluation of dyes by
 - a) chemical analysis
 - b) colorimetry,
 - c) Experimental dyeing.

**B.Sc. Third Year
DYES AND DRUGS
Paper: IX
Drugs (CHDD-302)**

Marks:100

Periods:80

UNIT I

I. Pharmaceutical dosage forms:

20 Periods

- a. Principal pharmaceutical ingredients used in drug formulation, general consideration in drug product formulation.
- b. Solvents for oral preparation,
Preparation of
 - i) Potassium iodide solution
 - ii) Strong Iodine solution
 - iii) Magnesium citrate and citric acid oral solution
- c. **Syrups**: components of syrups, different methods of preparation of syrups: acacia, cocoa, simple syrup, ferrous sulphate.
- d. **Elixirs**: Introduction, preparation of medicated and non-medicated elixiers.
- e. **Suspensions**: Preparation of antacid, antihelminthic antibacetiral suspension.
- f. **Emulsions** : Methods of prepration of emulsion. Examples.....
- g. **Tablets**: Methods of preparation of tablets. Examples.....

UNIT II

I. Unit operation

20 Periods

- a. Introduction, need for preparation of drugs on large scale
- b. Concept of unit operation, basis of study of unit operation.
- c. Fluid flow properties, mechanism of fluid flow by Reynold's experiment
Significance of Reynold's number, distribution of velocities of fluid across a tube, boundary layers.
- d. **Heat transfer**: properties of steam, use of steam on heating medium
- e. **Distillation** : Principles of simple fractional distillation, molecular distillation types of fractionating column.
- f. Size reduction: objectives of size reduction and significance of particle size factors affecting size reduction, mechanism size reduction, methods of size reduction.
- g. **Crystallization**: Introduction, types of crystallizers
- h. **Mixing** : concept, objectives of mixing types of mixing.
- i. **Drying** : Types of dryers, dryers for dilute solution and suspension, construction, working advantages disadvantages of drum and spray dryers.

UNIT III

I. Materials used for pharmaceutical plant construction **06 Periods**

- a. Factors affecting the selection of material for pharmaceutical plant construction
- b. Metals and non metallic material used for construction of pharmaceuticals plant

II. Cardiovascular drugs : **10 Periods**

- a. Introduction, classification
- b. Vasodilators : synthesis and application of
(I) Amyl Nitrate (ii) Glyceryl trinitrate
- c. Antihypertensive agents: synthesis and applications of
 - i) Hydralazine
 - ii) Minogdasil
 - iii) Lidocaine
 - iv) Methyl dopa
- d. Anti arrhythmic agents: Synthesis and applications of
 - i) Propranolol
 - ii) Procaine

III. Antineoplastic drugs: **04 Periods**

Introduction, cancer causing agents, cancer chemotherapy

UNIT IV

I. Anti AIDS Agent **06 Periods**

- a. Introduction
- b. Symptoms of AIDS, Causes,
- c. Application of Drugs and their effect

II. Anti tubercular **08 Periods**

- 1) Introduction
- 2) Characteristics of antitubercular drugs
- 3) Synthesis and application of the following
 - i) p-amino salicylic acid (PAS)
 - ii) Isoniazide
 - iii) Ethambutol
 - iv) Pyrazinamide

III. Antileprosy drugs: **06 Periods**

Introduction, synthesis and application of the following drugs

- i) Dapsone
- ii) Solapsone
- iii) DADDS

B.Sc. IIIyear
DYES AND DRUGS
Paper: X
LABORATORY COURSE V (CHDD-303)

Marks: 100

Periods: 120

(Any sixteen experiments are to be covered)

1. Preparation of Dyes (any three)
 - a. Phenyazo- β -naphthol
 - b. Magneson II
 - c. Chrysoidine
2. Estmation of Dyes by reduction method using Titanu chloride (any Five)
 - a. Indigo carmine
 - b. Amarnath
 - c. Crystal Voilet
 - d. Eosine
 - e. Methylene Blue
 - f. Malachite Green
3. Estmation of coupling component by Diazonium salt solution (any Four)
 - a. R-Acid
 - b. B-Naphthol
 - c. Resorcinol
 - d. J-acid
4. Chomatography
 - a. Separation of given mixture by Thin layer Chromatography (Two Mixture)
 - b. Separation of given mixture by Paper Chromatography (Two Mixture)
 - c. Separation of given mixture by Column Chromatography (Two Mixture)
5. Separation of Azo, Basic and Vat dyes by chemical method (Two Mixture)

B.Sc. Iyear
DYES AND DRUGS
Paper: XI
LABORATORY COURSE IV (CHDD-304)

Marks: 100

Periods: 120

(Any sixteen experiments are to be covered)

1. To determine percentage purity of calcium gluconate in a given drug by complexometric titration
2. Assay of ascorbic acid as a given drug.
3. Assay of isoniazide in a given drug.
4. Assay of Chloroquine in a given drug
5. Assay of Riboflavin in a given drug
6. Formulations
Preparation of representative examples of drugs in the following forms (Any seven)
 - i) Glycerines - Borax glycerine, Phenol
 - ii) Syrups - Simple syrup by IPS USP. Lemon syrup
 - iii) Oral solution - Sodium citrate and citric acid solution, KI oral solution .strong iodine solution
 - iv) Emulsion - Cod liver oil emulsion, Turpentine Emulsion, Castor oil emulsion, Acacion emulsion.
 - v) Lotions - Calamine lotion, Zinc sulphate lotion
 - vi) Ointments - Simple ointment, Sulphur ointment
 - vii) Elixirs - Simple elixir
 - viii) Ear Drops - H₂O₂ ear drops, sodium bicarbonate ear drops
7. Preparation of granules of different powder drugs (Two drugs).
8. Determination of refractive index of following drugs by refractometer
 - a. Methyl salicylate
 - b. Eugenol
 - c. Cinnamon Oil