

Semester V
Generic Elective (GE) Course - I (4 Credits)
(for B.Sc. Non Chemistry/B.A/B.Com Students)
Chemistry of Cosmetics, Food Processing, Drugs and Pharmaceuticals **60Hrs**

Unit-I: Chemistry of Cosmetics and Perfumes **15 Hrs**

A general study including preparation and uses of the following: Hair dye, hair spray, shampoo, sunscreen lotions, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), antiperspirants and artificial flavours. Essential oils and their importance in cosmetic industries with reference to eugenol, geraniol, sandalwood oil, eucalyptus, 2-phenyl ethyl alcohol.

Demonstration experiments or illustration of experimental procedures through charts for the preparation of talcum powder, shampoo and vanishing cream. Chemistry and Applications of deodorants and antiperspirant - Aluminum, Zinc, Boric acid, Chloride and Sulphide.

Unit-II: Food Processing and Food Adulteration **15 Hrs**

Food processing: Introduction, methods for food processing, additives and preservatives. Food processing- impact on nutrition,

Food adulteration: Adulterants in some common food items and their identification: Pulses, chilli powder, turmeric powder, milk, honey, spices, food grains and wheat flour, coffee powder, tea leaves, vegetable oil, ghee, ice creams, tomato sauce.

Food Packaging: Definition and function of packaging-Classification of packaging materials-different types of packaging materials such as glass, wood, metal, paper, wood, plastic etc., - advantages and disadvantages of each packaging material. Packaging materials and systems: corrugated fibre board boxes, shrink bundles and reusable packages. Effect of packaging materials on nutritive values of food.

Food labelling: Introduction, need and importance.

Unit – III: General Characteristics of Drugs **15Hrs**

Introduction: Diseases – causes of diseases, Drug – definition and sources.

ADME of drugs (brief) – Absorption, distribution, drug metabolism (in liver), elimination (brief). Toxicity.

Examples (i) Zintac (Ranitidine, antacid) (ii) Paracetamol (antipyretic) (iii) Benadryl (Cough syrup). Characteristics of an ideal drug.

Nomenclature of Drugs: chemical name – generic name – trade name. Trade names for the given generic names – (i) Aspirin (ii) Amoxycillin (iii) Ciprofloxacin (iv) Paracetamol (v) Mebendazole

Drug formulations: Definition – need for conversion of drug into pharmaceutical (drug formulations) – Additives – diluents, binders, lubricants, antioxidants, flavourants, sweeteners, colourants, coating agents. Classification of Drug formulations: oral, parenterals and topical dosage forms – advantages and disadvantages.

(i) Oral Dosage forms: Tablets (Aspirin – analgesic; Ciprofloxacin - antibacterial). Capsules (Amoxycillin – antibiotic; Omeprazole-antacid). Syrups (B-complex syrup; Benadryl- Cough syrup).

- (ii) **Parenterals (Injection forms):** Propranolol (antihypertensive), Heparin (anticoagulant)
- (iii) **Topical dosage forms:** Creams and Ointments
- (iv) **Antiallergic:** Aclometasone (Aclovate), Betamethasone valerate(2%) Multiple purposes,
- (v) **Anti-itching:** Doxepin Zonalon), Antifungal: Miconazole (Dactarin, Neomicol), Ketoconazole, (Nizoral Cream), Fluconazole, Anesthetic- Lidocaine, (Lidocaine ointment) and Antiseptic: Boro Plus Cream, For burns -Iodine ointment

Unit – IV: Classification of Drugs

15Hrs

Classification of drugs based on therapeutic action-Chemotherapeutic agents, Pharmacodynamic agents and drugs acting on metabolic processes.

Brief explanation for the following:

(i) **Chemotherapeutic agents:** Antimalarials – Chloroquine; Antibiotic – Amoxicillin; Antitubercular drugs – isoniazide; Antiprotozoals – metronidazole.

(ii) Pharmacodynamic agents

- (a) Drugs acting on CNS: Diazepam (CNS depressant), General anesthetic (thiopental sodium), antipyretic and analgesic (Ibuprofen)
- (b) Drugs acting on PNS: local anaesthetics (Benzocaine)
- (c) Drugs acting on cardiovascular system: Metoprolol (antihypertensive agents), Nefidipine antianginal and antihypertensive agent)
- (d) Drugs acting on renal system: Diuretics (Acetazolamide)

(iii) Drugs acting on metabolic processes

- (a) Vitamins: Common name, source, deficiency, vitamin A, B2, B6, C, D, E and K – remedy
- (b) Hormones: Function (brief) - deficiency of hormones (Insulin, Testosterone and Oestrogen)

Recommended Text Books and Reference Books

1. Industrial Chemistry, Vol -I, E. Stocchi, Ellis Horwood Ltd. UK.
2. Engineering Chemistry, P.C. Jain, M. Jain, Dhanpat Rai & Sons, Delhi.
3. Industrial Chemistry, Sharma, B.K. & Gaur, H. , Goel Publishing House, Meerut (1996).
4. Food Processing and Impact on Nutrition, Rameen Devi, Sc J Agric Vet Sci., Aug-Sep 2015; 2(4A):304-311.
5. Perfumes, Cosmetics and Soaps , W.A. Poucher, (1993).
6. A first course in food analysis by A Y Sathe
7. Food Science by N.Potter, CBS publishers
8. Food chemistry, Lillian Hoagland Meyer, (2008).
9. A Handbook of food packaging by F. A. Paine and H.Y. Paine.
10. Fundamental concepts of applied chemistry J.C Ghosh, S. Chand and Co, Ltd, New Delhi.
11. Applied Chemistry K .Bhagavathi Sundhar, MJP publishers.
12. Drugs by G.L.David Krupadanam, D.Vijaya Prasad, K.Varaprasad Rao, K.L.N.Reddy, C.Sudhakar , Universities Press (India) Limited 2007.
13. An Introduction to Medicinal Chemistry by Graham L. Patrick, Oxford University Press, New York. 1995

