

**ANNEXURE - I**  
**ER-2020 (AS PER PHARMACY COUNCIL OF INDIA)**  
**PHARMACY**

**SECTION III**

**PHARMACOGNOSY:**

**1. Quality control of crude drugs:**

Different methods of adulteration of crude drugs, Evaluation of crude drugs

- 2. Brief outline** of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins. **Laxatives:** Aloe, Castor oil, Ispaghula, Senna, **Cardiotonic:** Digitalis, Arjuna, **Carminatives and G.I. regulators:** Coriander, Fennel, Cardamom, Ginger, Clove, Black Pepper, Asafoetida, Nutmeg, Cinnamon, **Astringents:** Myrobalan, Black Catechu, Pale Catechu

**Drugs acting on nervous system:** Hyoscyamus, Belladonna, Ephedra, Opium, Tea leaves, Coffee seeds, Coca

**Anti-hypertensive:** Rauwolfia, **Anti-tussive:** Vasaka, Tolu Balsam

**Anti-rheumatics:** Colchicum seed, **Anti-tumour:** Vinca, Podophyllum

**Antidiabetics:** Pterocarpus, Gymnema, **Diuretics:** Gokhru, Punarnava

**Anti-dysenteric:** Ipecacuanha, **Antiseptics and disinfectants:** Benzoin, Myrrh, Neem, Turmeric, **Antimalarials:** Cinchona, Artemisia **Oxytotic:** Ergot,

**Vitamins:** Cod liver oil, Shark liver oil

**Enzymes:** Papaya, Diastase, Pancreatin, Yeast, **Pharmaceutical Aids:** Kaolin, Lanolin, Beeswax, Acacia, Tragacanth, Sodium alginate, Agar, Guar gum, Gelatine

**Miscellaneous:** Squill, Galls, Ashwagandha, Tulsi, Guggul

- 3. Plant fibres used as surgical dressings:** Cotton, silk, wool and regenerated fibres

Sutures – Surgical Catgut and Ligatures

- 4. Basic principles involved in the traditional systems of medicine like:** Ayurveda, Siddha, Unani and Homeopathy

**Method of preparation of Ayurvedic formulations like:**

Arista, Asava, Gutika, Taila, Churna, Lehya and Bhasma

- 5. Herbal cosmetics:**

Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Aloe vera gel, Almond oil, Lavender oil, Olive oil, Rosemary oil, Sandal Wood oil

- 6. Phytochemical investigation of drugs**

**SOCIAL PHARMACY**

- 1. Preventive healthcare – Role of Pharmacists in the following**

- Demography and Family Planning
- Mother and child health, importance of breastfeeding, ill effects of infant milk substitutes

and bottle feeding

- Overview of Vaccines, types of immunity and immunization Effect of Environment on Health – Water pollution, importance of safe drinking water, waterborne diseases, air pollution, noise pollution, sewage and solid waste disposal, occupational illnesses, Environmental pollution due to pharmaceuticals
- Psychosocial Pharmacy: Drugs of misuse and abuse – psychotropics, narcotics, alcohol, tobacco products. Social Impact of these habits on social health and productivity and suicidal behaviours

## 2. Nutrition and Health

- Basics of nutrition – Macronutrients and Micronutrients
- Importance of water and fibres in diet
- Balanced diet, Malnutrition, nutrition deficiency diseases, ill effects of junk foods, calorific and nutritive values of various foods, fortification of food
- Introduction to food safety, adulteration of foods, effects of artificial ripening, use of pesticides, genetically modified foods
- Dietary supplements, nutraceuticals, food supplements  
– indications, benefits, Drug-Food Interactions

## 3. Epidemiology: Introduction to epidemiology, and its applications. Understanding of terms such as epidemic, pandemic, endemic, mode of transmission, outbreak, quarantine, isolation, incubation period, contact tracing, morbidity, mortality.

Causative agents, epidemiology and clinical presentations and Role of Pharmacists in educating the public in prevention of the following communicable diseases:

- **Respiratory infections** – chickenpox, measles, rubella, mumps, influenza (including Avian-Flu, H1N1, SARS, MERS, COVID-19), diphtheria, whooping cough, meningococcal meningitis, acute respiratory infections, tuberculosis, Ebola
- **Intestinal infections** – poliomyelitis, viral hepatitis, cholera, acute diarrheal diseases, typhoid, amebiasis, worm infestations, food poisoning
- **Arthropod-borne infections** - dengue, malaria, filariasis and, chikungunya
- **Surface infections** – trachoma, tetanus, leprosy, STDs, HIV/AIDS

## COMMUNITY PHARMACY & MANAGEMENT

### 1. Introduction to the concept of Good Pharmacy Practice and SOPs.

### 2. Prescription and prescription handling

- Definition, parts of prescriptions, legality of prescriptions, prescription handling, labelling of dispensed medications (Main label, ancillary label, pictograms), brief

instructions on medication usage

Dispensing process, Good Dispensing Practices, dispensing errors and strategies to minimize them

### 3. **Patient counselling**

- Definition and benefits of patient counselling
- **Stages of patient counselling** - Introduction, counselling content, counselling process, and closing the counselling session
- **Barriers to effective counseling** - Types and strategies to overcome the barriers
- **Patient counselling points for chronic diseases/disorders** - Hypertension, Diabetes, Asthma, Tuberculosis, Chronic obstructive pulmonary disease, and AIDS
- **Patient Package Inserts** - Definition, importance and benefits, Scenarios of PPI use in India and other countries
- **Patient Information leaflets** - Definition and uses

### 4. **Over The Counter (OTC) Medications**

- Definition, need and role of Pharmacists in OTC medication dispensing
- OTC medications in India, counseling for OTC products
- Self-medication and role of pharmacists in promoting the safe practices during self-medication  
Responding to symptoms, minor ailments, and advice for self-care in conditions such as - Pain management, Cough, Cold, Diarrhea, Constipation, Vomiting, Fever, Sore throat, Skin disorders, Oral health (mouth ulcers, dental pain, gum swelling)

### 5. **Community Pharmacy Management**

- Legal requirements to set up a community pharmacy
- Site selection requirements
- Pharmacy designs and interiors
- Vendor selection and ordering
- Procurement, inventory control methods, and inventory management
- Financial planning and management
- Accountancy in community pharmacy – Day book, Cash book
- Introduction to pharmacy operation softwares – usefulness and availability