

National Curriculum of Pakistan  
2022-23

# TECHNICAL EDUCATION

## DISPENSING TECHNIQUES I-II (Theory)

Grades 11-12



**NATIONAL CURRICULUM COUNCIL SECRETARIAT**  
MINISTRY OF FEDERAL EDUCATION AND  
PROFESSIONAL TRAINING, ISLAMABAD  
GOVERNMENT OF PAKISTAN



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It is with great pride that we, at the National Curriculum Council Secretariat, present the first core curriculum in Pakistan's 75-year history. Consistent with the right to education guaranteed by Article 25-A of our Constitution, the National Curriculum of Pakistan (2022-23) aspires to equip every child with the necessary tools required to thrive in and adapt to an ever-evolving globalized world.

The National Curriculum is in line with international benchmarks, yet sensitive to the economic, religious, and social needs of young scholars across Pakistan. As such, the National Curriculum aims to shift classroom instruction from rote learning to concept-based learning.

Concept-based learning permeates all aspects of the National Curriculum, aligning textbooks, teaching, classroom practice, and assessments to ensure compliance with contemplated student learning outcomes. Drawing on a rich tapestry of critical thinking exercises, students will acquire the confidence to embark on a journey of lifelong learning. They will further be able to acknowledge their weaknesses and develop an eagerness to build upon their strengths.

The National Curriculum was developed through a nationwide consultative process involving a wide range of stakeholders, including curriculum experts from the public, private, and non-governmental sectors. Representatives from provincial education departments, textbook boards, assessment departments, teacher training departments, *deeni madaris*, public and private publishers, private schools, and private school associations all contributed their expertise to ensure that the National Curriculum could meet the needs of all Pakistani students.

The experiences and collective wisdom of these diverse stakeholders enrich the National Curriculum, fostering the core, nation-building values of inclusion, harmony, and peace, making the National Curriculum truly representative of our nation's educational aspirations and diversity.

I take this opportunity to thank all stakeholders, including students, teachers, and parents who contributed to developing the National Curriculum of Pakistan (2022-23)

**Dr. Mariam Chughtai**

Director

National Curriculum Council Secretariat

Ministry of Federal Education and Professional Training

## DISPENSING TECHNIQUES I (THEORY)

### Domain A: Introduction to Dispensing Techniques:

**Standard** The content of Introduction to Dispensing Techniques enables students to learn and apply scientific knowledge and skills related to dispensing techniques.

#### Grade 11

**Benchmark I:** The student will be able to

- Define basic terminologies commonly used in pharmaceutical and healthcare settings
- Explain the responsibilities of a dispenser within a healthcare setting

[SLO: DT-11-A-01]:

Define basic terminologies commonly used in pharmaceutical and healthcare settings.

[SLO: DT-11-A-02]:

Explain the responsibilities of a dispenser within a healthcare setting.

[SLO: DT-11-A-03]:

Describe the structure, challenges, and areas for improvement of the healthcare system in Pakistan.

[SLO: DT-11-A-04]:

Describe the dispensing technique utilized in pharmaceutical setting.

### Domain B: Introduction to Respiratory System

**Standard** The content of Respiratory System enables students to learn and apply scientific knowledge and skills related to respiratory system.

### Grade 11

#### Benchmark I:

- Identify the components and functions of the respiratory system.
- Describe the pathology, symptoms, diagnosis and management of respiratory diseases.

[SLO: DT-11-B-01]:

Identify the components and functions of the respiratory system.

[SLO: DT-11-B-02]:

Explain the etiology, symptoms, and pathology and treatment options for pneumonia.

[SLO: DT-11-B-03]:

Describe the pathophysiology, risk factors, and sign and symptoms for Chronic Obstructive Airway Diseases (COAD).

[SLO: DT-11-B-04]:

Explain the triggers, symptoms, diagnostic methods, and therapeutic management for bronchial asthma.

[SLO: DT-11-B-05]:

Describe the transmission, symptoms, diagnostic criteria, and treatment for pulmonary tuberculosis (TB).

[SLO: DT-11-B-06]:

Explain the mechanisms, clinical manifestations, and treatment option for respiratory failure.

### Domain C: Introduction to Gastrointestinal Systems

**Standard** The content of Gastro intestinal systems enables students to learn and apply scientific knowledge and skills related to Gastro intestinal disorders.

## Grade 11

### Benchmark I:

- Describe the anatomy and physiology of the gastrointestinal system.
- Describe the pathology, symptoms, diagnosis and management of gastro intestinal tract.

[SLO: DT-11-C-01]:

Describe the anatomy and physiology of the gastrointestinal system.

[SLO: DT-11-C-02]:

Explain the pathophysiology, symptoms, and treatment options for gastro esophageal reflux disease (GERD)

[SLO: DT-11-C-03]:

Explain the term ulcer and their etiology, risk factors, clinical presentations, and management strategies.

[SLO: DT-11-C-04]:

Differentiate between peptic ulcer and duodenal ulcer.

[SLO: DT-11-C-05]:

Explain the causes, clinical manifestations, diagnostic approaches, and treatment of gastroenteritis

[SLO: DT-11-C-06]:

Classify hepatitis into its various types, including viral hepatitis (such as hepatitis A, B, and C), discussing their modes of transmission, clinical features, diagnostic tests, and management options.

[SLO: DT-11-C-07]:

Explain the etiology, clinical presentation, diagnostic criteria, and treatment modalities for appendicitis.

[SLO: DT-11-C-08]:

Describe the pathophysiology, clinical manifestations, and treatment approaches for cholecystitis.

[SLO: DT-11-C-09]:

Explain the causes, clinical features, diagnostic methods, and treatment options for intestinal obstruction.

[SLO: DT-11-C-10]:

Identify the etiology, symptoms, and treatment options for hemorrhoids.

[SLO: DT-11-C-11]:

Define hernia, its types, risk factors, clinical presentations, diagnostic methods, and management options.

### **Domain D: Introduction to Central Nervous System**

**Standard** The content of Central Nervous System enables students to learn and apply scientific knowledge and skills related to CNS disorders.

#### **Grade 11**

**Benchmark I:** The student will be able to

- Describe the anatomy and physiology of the Central nervous system.
- Describe the pathology, symptoms, diagnosis and management of Central nervous system diseases.

[SLO: DT-11-D-01]:

Define the central nervous system (CNS) and its components, including the brain and spinal cord,



[SLO: DT-11-D-02]:

Explain the etiology, risk factors, clinical manifestations, and management strategies for cerebrovascular accidents.

[SLO: DT-11-D-03]:

Describe epilepsy, including its pathophysiology, types of seizures, diagnostic criteria, and treatment options.

[SLO: DT-11-D-04]:

Differentiate between meningitis and encephalitis, discussing their causes, clinical features, diagnostic methods, and treatment approaches.

[SLO: DT-11-D-05]:

Explain the etiology, clinical manifestations, and treatment options for Bell's palsy,

[SLO: DT-11-D-06]:

Explain the causes, assessment, management, and potential complications of head injuries.

[SLO: DT-11-D-07]:

Discuss the assessment and management of spinal injuries.

### **Domain E: Introduction to Cardio Vascular System**

**Standard** The content of Cardio Vascular System enables students to learn and apply scientific knowledge and skills related to CVS disorders.

#### **Grade 11**

**Benchmark I:** The student will be able to

- Describe the anatomy and physiology of the Cardio Vascular System

- Describe the pathology, symptoms, diagnosis and management of Cardio Vascular System diseases.

[SLO: DT-11-E-01]:

Define the cardiovascular system and its anatomical components.

[SLO: DT-11-E-02]:

Explain the pathophysiology, risk factors, and clinical manifestations of hypertension.

[SLO: DT-11-E-03]:

Describe ischemic heart disease (IHD), including its subtypes such as angina and myocardial infarction (MI).

[SLO: DT-11-E-04]:

Differentiate between angina and myocardial infarction (MI) based on their clinical presentations, ECG findings, and management.

[SLO: DT-11-E-05]:

Explain the etiology, types, clinical manifestations, and treatment strategies for cardiomyopathy.

### **Domain F: Introduction to Ent/Eye**

**Standard** The content of Ent/Eye enables students to learn and apply scientific knowledge and skills related to Ent/Eye related disorders.

#### **Grade 11**

**Benchmark I:** The student will be able to

- Describe pathogenesis, clinical features, diagnosis and treatment of common ETN related disorders.

- Describe pathogenesis, clinical features, diagnosis and treatment of common ETN related disorders

[SLO: DT-11-F-01]:

Explain the importance of ENT and EYE and their roles in diagnosing and managing disorders related to the ear, nose, throat, and eyes.

[SLO: DT-11-F-02]:

Describe the etiology, clinical manifestations, and treatment options for tonsillitis, laryngitis, and pharyngitis.

[SLO: DT-11-F-03]:

[SLO: DT-11-F-04]:

Explain the pathophysiology, triggers, symptoms, and treatment strategies for allergic rhinitis.

[SLO: DT-11-F-05]:

Discuss the causes, symptoms, and management of deviated nasal septum.

[SLO: DT-11-F-06]:

Explain the pathophysiology, clinical features, and treatment otitis media.

[SLO: DT-11-F-07]:

Identify the causes, presentation, and management of epistaxis.

[SLO: DT-11-F-08]:

Describe the presentation and management of foreign bodies in the ear, nose, throat, and eyes.

[SLO: DT-11-F-09]:

Differentiate between conjunctivitis, ophthalmia, and blepharitis, discussing their etiology, clinical features, and treatment approaches.

[SLO: DT-11-F-10]:

Explain the etiology, risk factors, clinical presentation, and treatment options for corneal ulcer and corneal opacity.

[SLO: DT-11-F-11]:

Discuss the causes, clinical features, and surgical management of cataracts.

[SLO: DT-11-F-12]:

Define glaucoma, its types, risk factors, diagnostic criteria, and treatment options, focusing on intraocular pressure management and pharmacotherapy.

[SLO: DT-11-F-13]:

Describe the presentation, diagnosis, and management of squint (strabismus).

[SLO: DT-11-F-14]:

Explain the causes, types, and management of visual acuity disorders (refractive errors such as myopia, hyperopia, and astigmatism),

### **Domain G: Introduction to Endocrine System**

**Standard:** The content of Endocrine System enables students to learn and apply scientific knowledge and skills related to Endocrine System disorders,

#### **Grade 11**

**Benchmark I:** The student will be able to

- Define the endocrine system and its role in regulating various bodily functions through the secretion of hormones
- Describe pathogenesis, clinical features, diagnosis and treatment of common endocrine disorders.

<p>[SLO: DT-11-G-05]: Define the endocrine system and its role in regulating various bodily functions through the secretion of hormones.</p> <p>[SLO: DT-11-G-05]: Explain the pathophysiology, risk factors, clinical manifestations, and management strategies for diabetes mellitus.</p> <p>[SLO: DT-11-G-05]: Differentiate between hyperthyroidism and hypothyroidism, discussing their etiology, clinical features, diagnostic criteria, and treatments.</p> <p>[SLO: DT-11-G-05]: Describe the etiology, clinical manifestations, diagnostic approach, and management of pancreatitis.</p>

**Domain H: Introduction to Blood**

**Standard** The content of blood enables students to learn and apply scientific knowledge related to Blood and its disorder.

<b>Grade 11</b>
<p><b>Benchmark I:</b> The student will be able to</p> <ul style="list-style-type: none"> <li>● Define blood and its components.</li> <li>● Classify anemia based on etiology, describing the underlying mechanisms and specific diagnostic criteria for each type.</li> </ul>
<p>[SLO: DT-11-H-01]:</p>

Define blood and its components (red blood cells, white blood cells, platelets, and plasma).

[SLO: DT-11-G-03]:

Explain the concept of anemia, including its definition, etiology, and general clinical manifestations.

[SLO: DT-11-G-04]:

Classify anemia based on etiology, describing the underlying mechanisms and specific diagnostic criteria for each type.

[SLO: DT-11-G-05]:

Discuss the signs, symptoms, laboratory findings, and treatment options for different types of anemia.

### **Domain I: Infectious Diseases.**

**Standard** The content of infectious diseases enables students to learn and apply scientific knowledge related to infectious disease.

#### **Grade 11**

**Benchmark I:** The student will be able to

- Describe pathogenesis, clinical features, diagnosis and treatment of common infectious diseases.

[SLO: DT-11-I-01]:

Define infectious diseases and their modes of transmission, emphasizing the importance of infection control measures in preventing their spread.

[SLO: DT-11-I-02]:

Describe the etiology, pathogenesis, clinical manifestations, and treatment options for enteric fever (typhoid fever).

[SLO: DT-11-I-03]:

Explain the causative agent, transmission routes, clinical features, and management strategies for cholera.

[SLO: DT-11-I-04]:

Discuss the etiology, clinical presentation, diagnostic methods, and treatment approaches for dysentery.

[SLO: DT-11-I-05]:

Explain the epidemiology, transmission, clinical features, diagnostic methods, and treatment of malaria.

[SLO: DT-11-I-06]:

Identify the signs, symptoms, complications, and management of measles.

[SLO: DT-11-I-7]:

Describe the clinical features, complications, and management of mumps and chickenpox.

[SLO: DT-11-I-08]:

Explain the etiology, transmission, clinical manifestations, and prevention of polio.

[SLO: DT-11-I-09]:

Discuss the common types of parasitic worm infestations (warm infestation), including their clinical features, diagnostic methods, and treatment options.

[SLO: DT-11-I-10]:

Describe the clinical manifestations, diagnostic approaches, treatment modalities, and preventive measures for COVID-19.

[SLO: DT-11-I-11]:

Describe the transmission, clinical manifestations, diagnostic methods, treatment options for influenza.

[SLO: DT-11-I-12]:

Explain the etiology, transmission, stages of HIV infection, clinical manifestations, diagnostic methods and treatment.

### **Domain J: Introduction to Dermatology.**

**Standard:** The content of Dermatology enables students to learn and apply scientific knowledge and skills related to dermatology.

#### **Grade 11**

**Benchmark I:** The student will be able to

- Describe the pathology, symptoms, diagnosis and management of common skin disorders.

[SLO: DT-11-J-01]:

Define dermatology and its role in the diagnosis and management of skin conditions.

[SLO: DT-11-J-02]:

Describe the etiology, clinical manifestations, and treatment options for dermatitis, including allergic contact dermatitis and atopic dermatitis (eczema).

[SLO: DT-11-J-03]:

Discuss the epidemiology, clinical features, diagnostic methods, and treatment of scabies.

[SLO: DT-11-J-04]:

Explain the pathophysiology, clinical presentation, and management of eczema (atopic dermatitis).



[SLO: DT-11-J-05]:

Identify the characteristics, clinical manifestations, and treatment options for psoriasis.

[SLO: DT-11-J-06]:

Describe the clinical features, diagnostic criteria, and treatment options for vitiligo.

[SLO: DT-11-J-07]:

Discuss the presentation, complications, and management of insect bites.

[SLO: DT-11-J-08]:

Explain the etiology, clinical manifestations, diagnostic methods, and treatment options for herpes simplex virus infections (herpes).

### **Domain K: Introduction to Male and Female Reproductive System**

**Standard:** The content of Male and Female reproductive system enables students to learn and apply scientific knowledge and skills related to Male and Female reproductive system.

#### **Grade 11**

**Benchmark I:** The student will be able to

- Describe the anatomy and physiology of the Male and Female reproductive system
- Describe the pathology, symptoms, diagnosis and management of Male and Female reproductive system

[SLO: DT-11-K-01]:

Describe the male and female reproductive systems and their anatomical structures.

[SLO: DT-11-K-02]:

Explain the menstrual cycle and its hormonal regulation in females, including the phases of the menstrual cycle and the role of hormones.

[SLO: DT-11-K-03]:

Describe common menstrual cycle disorders, their etiology, clinical manifestations, and treatment options.

[SLO: DT-11-K-04]:

Discuss the etiology, risk factors, clinical manifestations, diagnostic methods, and treatment options for pelvic inflammatory disease (PID) in females,

[SLO: DT-11-K-05]:

Explain the impact of reproductive system disorders on fertility, sexual health, and overall quality of life for individuals.

[SLO: DT-11-K-06]:

Explain the importance of comprehensive sexual health education, regular screenings, and preventive measures to promote reproductive health and prevent reproductive system disorders.

### **Domain L: Introduction to the musculoskeletal system**

**Standard:** The content of musculoskeletal system enables students to learn and apply scientific knowledge and skills related to musculoskeletal system

#### **Grade 11**

**Benchmark I:** The student will be able to

- Describe the anatomy and physiology of the Musculoskeletal System.
- Describe the pathology, symptoms, diagnosis and management of Musculoskeletal System diseases.

[SLO: DT-11-L-01]:

Define the musculoskeletal system and its components, outlining their roles in support, movement, and protection of the body.

[SLO: DT-11-L-02]:

Describe the process of bone fracture, including the types of fractures such as open (compound) fractures, closed (simple) fractures, greenstick fractures, and comminuted fractures, and their etiology, clinical manifestations, and treatment modalities.

[SLO: DT-11-L-03]:

Explain the concept of dislocation, including its causes, clinical features, and management approaches, focusing on reduction techniques and rehabilitation to restore joint function and stability.

[SLO: DT-11-L-04]:

Discuss common joint disorders (osteoarthritis, rheumatoid arthritis, and gout), explain their etiology, pathophysiology, clinical manifestations, and treatment options.

[SLO: DT-11-L-05]:

Explain the principles of fracture healing and joint rehabilitation (the stages of bone healing, factors influencing the process, and therapeutic interventions to promote recovery and prevent complications).

## DISPENSING TECHNIQUE – II (Theory)

### Domain A: Pharmacy and Pharmacology

**Standard** The content empowers students to acquire and effectively apply scientific knowledge and skills in the fields of Pharmacy and Pharmacology.

#### Grade 12

**Benchmark I:** The student will be able to

- Define drugs and describe their nomenclature, sources, dosage forms, and preparations.
- Identify the classification of drugs based on their pharmacological properties, therapeutic uses, and mechanisms of action
- Describe the process of proper storage conditions for medicines, equipment, and instruments

[SLO: DT-12-A-01]:

Define drugs and describe their nomenclature, sources, dosage forms, and preparations.

[SLO: DT-12-A-02]:

Explain drug incompatibilities, including physical, chemical, and therapeutic incompatibilities.

[SLO: DT-12-A-03]:

Explain the fundamental units of measurement in both the Metric and Imperial Systems.

[SLO: DT-12-A-04]:

Describe the principles and techniques involved in compounding and dispensing pharmaceutical.

[SLO: DT-12-A-05]:

Perform calculations related to percentage solutions.

[SLO: DT-12-A-06]:

Explain the method of reading and writing drug prescriptions.

[SLO: DT-12-A-07]:

Identify the classification of drugs based on their pharmacological properties, therapeutic uses, and mechanisms of action.

[SLO: DT-12-A-08]:

Classify commonly used drugs based on their pharmacological classification.

[SLO: DT-12-A-09]:

Explain the purpose and scope of drug acts and regulations in ensuring the safety, efficacy, and quality of pharmaceutical products.

[SLO: DT-12-A-10]:

Explain the provisions of the Medical Dental Ordinance.

[SLO: DT-12-A-11]:

Describe the regulations outlined in the Prohibition of Medical Practice Ordinance.

[SLO: DT-12-A-12]:

Describe the process of proper storage conditions for medicines, equipment, and instruments.

### **Domain B: Drug use in different diseases**

**Standard** The content on drug uses empowers students to acquire and apply scientific knowledge and skills relevant to utilizing drugs in the treatment of various diseases.

#### **Grade 12**

##### **Benchmark I:**

- Explain the basic concepts of the Autonomic Nervous System (ANS).
- Identify the classes of antibiotics and chemotherapeutic agents
- Describe the pharmacological properties and therapeutic uses of drugs acting on various body system

[SLO: DT-12-B-01]:

Explain the basic concepts of the Autonomic Nervous System (ANS).

[SLO: DT-12-B-02]:

Describe the pharmacological actions, therapeutic uses, and adverse effects of drugs acting on the ANS.

[SLO: DT-12-B-03]:

Identify the classes of drugs used in the treatment of glaucoma.

[SLO: DT-12-B-04]:

Learn the pharmacological management of angina.

[SLO: DT-12-B-05]:

Explain the pharmacological treatment of hypertension.

[SLO: DT-12-B-06]:

Describe the pharmacological properties and therapeutic uses of drugs acting on the respiratory system.

[SLO: DT-12-B-07]:

Identify the classes of antibiotics and chemotherapeutic agents.

[SLO: DT-12-B-08]:

Describe the pharmacological treatment of tuberculosis, leprosy, amoebiasis, malaria, and helminthic infections.

[SLO: DT-12-B-09]:

Describe the pharmacological management of various blood disorders.

[SLO: DT-12-B-10]:

Explain the pharmacological treatment of gastrointestinal tract disorders.

[SLO: DT-12-B-11]:

Identify the classes of drugs acting on the central nervous system.

[SLO: DT-12-B-12]:

Explain the management of drug overdoses and poisonings.

**Domain C: Sterilization.**

**Standard** The curriculum on sterilization empowers students to acquire and apply scientific knowledge and skills related to sterilization techniques and practices.

**Grade 12**

**Benchmark I:**

- Explain the principles of sterilization and their application in various healthcare settings
- Explain the principles of temperature measurement and the significance of monitoring body temperature in clinical settings
- Identify the characteristics and classification of viruses, bacteria, and fungi
- Explain the principles of storage, transportation, validity, stock-taking, and labeling of drugs and vaccines

[SLO: DT-12-C-01]:

Explain the principles of sterilization and their application in various healthcare settings.



[SLO: DT-12-C-02]:

Explain the emergency protocols used in various clinical settings (emergency rooms, operating rooms, and intensive care units).

[SLO: DT-12-C-03]:

Explain the principles of temperature measurement and the significance of monitoring body temperature in clinical settings.

[SLO: DT-12-C-04]:

Identify the key components and sections of the Pattern of Treatment Chart and Investigation Forms.

[SLO: DT-12-C-05]:

Explain the purpose and components of a Pattern of Treatment Chart and Investigation Forms.

[SLO: DT-12-C-06]:

Describe the purpose and significance of the Pattern of Treatment Chart and Investigation Forms in clinical practice.

[SLO: DT-12-C-07]:

Identify the characteristics and classification of viruses, bacteria, and fungi.

[SLO: DT-12-C-08]:

Describe the elementary knowledge of sera, vaccines, toxins, and antitoxins.

[SLO: DT-12-C-09]:

Explain the principles of storage, transportation, validity, stock-taking, and labeling of drugs and vaccines.

**Domain D: Record Keeping and Maintenance of the following Registers**

**Standard** The content of Record Keeping and Maintenance of the following Registers enables students to learn and apply scientific knowledge and skills related to Record Keeping and Maintenance of the following Registers.

**Grade 12**

**Benchmark I:** The student will be able to

- Explain the importance of record-keeping in healthcare settings for accurate documentation of patient information and clinical observations.
- Discuss the importance of maintaining a Poisons Register for recording information on the acquisition, storage, use, and disposal of hazardous substances,
- Explain the significance of a Postmortem Register for recording information on autopsies

[SLO: DT-12-D-01]:

Explain the importance of record-keeping in healthcare settings for accurate documentation of patient information and clinical observations.

[SLO: DT-12-D-02]:

Demonstrate proficiency in charting temperature, pulse, and other vital signs.

[SLO: DT-12-D-03]:

Describe the purpose and content of an Outdoor Register.

[SLO: DT-12-D-04]:

Explain the significance of an Abstract Register in summarizing patient demographic data, diagnoses, treatments, and outcomes for statistical analysis and reporting purposes.

[SLO: DT-12-D-05]:

Discuss the importance of maintaining a Poisons Register for recording information on the acquisition, storage, use, and disposal of hazardous substances.

[SLO: DT-12-D-06]:

Identify the components of an Expense Register.

[SLO: DT-12-D-07]:

Describe the purpose and content of a Medico legal, Expense Register.

[SLO: DT-12-D-08]:

Explain the significance of a Postmortem Register for recording information on autopsies



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