

## A Guide for the KAPS Examination

The following is a guide for use by candidates in preparing for the Knowledge Assessment of Pharmaceutical Sciences (KAPS) and outlines the subject areas that will be assessed. KAPS confirms that you have the prerequisite knowledge and understanding of the pharmaceutical sciences required for safe and effective professional practice.

Candidates should assess their own knowledge level. This should then be evaluated as much as is practical against the material on which the examination will be formulated.

APC examinations are set on the latest information available through relevant journals, publications and textbooks. It is up to the candidate to obtain the latest information. APC does not endorse any reference sources.

### Subject Areas for the KAPS Examination

#### Paper 1

Topic: Pharmaceutical Chemistry

You will be expected to show a suitable level of knowledge and understanding of the following topics:

##### Organic Chemistry:

Nomenclature, drug class recognition, reaction types, functional group reactivity, drug stability, acid base reactions.

##### Stereochemistry:

Nomenclature, optical activity, geometric isomerism, conformation.

##### Physical and Inorganic Chemistry:

Kinetics, acid base reactions and phase equilibria.

##### Analytical Chemistry:

Spectroscopy, redox reactions, assay techniques, diagnostic agents.

##### Biochemistry:

Nomenclature, structures, biochemical classes, thermodynamics and biochemical pathways.

##### Structure/Activity Relationships:

The relationship between a chemical or 3D structure and its biological activity.

##### Medicinal chemistry:

Structure activity relationships, drug presentation and delivery, drug formulation and stability, drug metabolism, mechanism of drug action, modern drug development, and absorption, distribution and elimination of drugs.

##### Drug Metabolism:

The breakdown and conversion of medicines through regularly occurring bodily process leading to active ingredients and by-products of the original medicine.

Topic: Pharmacology and Physiology

You will be expected to show a suitable level of knowledge and understanding of the following topics:

**Biochemical Pharmacology:**

Principles of drug action, drug interactions, receptor pharmacology, autonomic transmission, endocrine pharmacology, cardiovascular pharmacology, anti-inflammatory agents and analgesics, antibiotics, diuretics, local and general anaesthetics, vitamins, drugs affecting nutritional and metabolic function, drugs affecting the central nervous system.

**Systemic Pharmacology:**

The mechanism of drug action as it relates to specific organs and disease states

**Chemotherapy:**

Antibacterial, antiviral, antifungal, antiprotozoal, anthelmintic and anticancer drugs.

**Toxicology:**

Common side effects, signs of toxicity and mechanism of toxicity.

**Pathophysiology:**

Alteration of physiological processes by drugs or disease states.

**General Physiology:**

Central nervous, digestive, cardiovascular, lymphatic, nervous, respiratory, urinary, endocrine and reproductive systems and their integration; blood and other body fluids.

## Paper 2

Topic: Pharmaceutics

You will be expected to show a suitable level of knowledge and understanding of the following topics:

**Physical pharmacy:**

Solvents, types of preparation, solutions, suspensions and emulsions.

**Biopharmaceutics:**

Dissolution, drug absorption, bioavailability and bioequivalence, drug interactions with a biopharmaceutical basis.

**Pharmacokinetics and Pharmacodynamics:**

Biological half-life, elimination rate constants, apparent volume of distribution, clearance, steady state considerations, drug protein binding, drug metabolism, drug interactions, pharmacogenetics and relevant calculations.

**Pharmaceutical microbiology:**

Preservation, antimicrobial agents and sterilisation technology.

**Formulation:**

Formulation of drugs for various routes of administration, parenteral dose forms, controlled release preparations, evaluation of particular dose forms.

**Dose Forms including Extemporaneous Preparation:**

Drug products constituent drug substances and any blends or combinations that may be involved when used for products formulated for use via various routes of administration.

Topic: Therapeutics

You will be expected to show a suitable level of knowledge and understanding of the following topics:

**Calculations:**

Dilutions, percentages, densities, sensitivity of balance, proportions, isotonicity, milliequivalents/milliosmoles, buffers, dose calculations from body weight or surface area and stability.

**Posology/Dosage Determination:**

Appropriate dosages and dosage regimens of common medications.

**Medicine Choice:**

The processes involved in choosing for use the most appropriate drug

**Surgical Dressings, Appliances and Associated Drug Delivery Systems:**

Drug choice and the use and choices for surgical dressings.

**Adverse Reactions to Drugs:**

Adverse reactions for drugs and the relevant patient counselling and advice.

**Drug Interactions:**

Drug interactions and the relevant patient counselling and advice.

**Drug Information:**

Using information sources to find drugs and health information relevant to conditions and disease states

**Managing Minor Ailments:**

Non-prescription prescribing, diagnosis of minor illness, rational over-the-counter product selection and over-the-counter drug information.