

QUESTION 1

- a) Explain the medicine management cycle. (10 marks)
- b) List and explain any five (5) importance of establishing a national medicine policy. (10 marks)

QUESTION 2

- a) List and explain any five (5) criteria used in the selection medicines in the essential medicine list. (10 marks)
- b) Explain the principle of Board of Survey in the management of health commodities. (5 marks)
- c) Define the following:
 - i) Visual inspection (2 marks)
 - ii) Quantification (2 marks)
 - iii) Procurement (1 mark)

QUESTION 3

- a) List and explain any five (5) special guidelines for donation of healthcare commodities in according to WHO. (10 marks)
- b) Outline any five (5) rights of Logistics. (5 marks)
- c) Describe the general steps that are involved in quantification of health commodities. (5 marks)

QUESTION 4

- a) Describe the four (4) types of data used for forecasting consumption of health commodities. (8 marks)
- b) Outline the medicines managed under the program and identify if it's a pull or push system:
 - i) ZADS (2 marks)
 - ii) ZEDAP ED-Pull (2 marks)
 - iii) DTTU (2 marks)
 - iv) ZIP-PHCP (2 marks)

- c) List any four (4) activities carried during storage of health commodities in a warehouse. (4 marks)

QUESTION 5

With the aid of a diagram explain the Logistics Cycle. (20 marks)

QUESTION 6

- a) Explain how the following factors influences irrational medicine use:
- | | | |
|------|---------------|-----------|
| i) | Health system | (2 marks) |
| ii) | Prescriber | (2 marks) |
| iii) | Dispenser | (2 marks) |
| iv) | Patient | (2 marks) |
| v) | Community | (2 marks) |
- b) List any five (5) strategies that can be applied to improve medicine use. (5 marks)
- c) Outline any five (5) situations where visual inspection of health commodities is important. (5 marks)

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**HIGHER EDUCATION EXAMINATIONS COUNCIL
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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Human Anatomy and Physiology

PAPER NO: 606/23/M01

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATES

1. Answer any five (5) questions.
2. Each question carries 20 marks.

This paper consists of 3 printed pages.

QUESTION 1

- a) Describe transmission at a synapse. (10 marks)
- b) Compare and contrast the functions of the sympathetic and parasympathetic systems. (10 marks)

QUESTION 2

- a) Explain the anatomy and physiology of the following types of muscular tissues:
- i) Skeletal muscle (5 marks)
 - ii) Smooth muscle (5 marks)
 - iii) Cardiac muscle (5 marks)
- b) State the four (4) types of tissues found in the body. (5 marks)

QUESTION 3

Describe how homeostasis regulates the following parameters in the human body:

- a) Temperature (4 marks)
- b) Glucose (4 marks)
- c) Acid-base (pH) (4 marks)
- d) Fluid electrolyte balance (4 marks)
- e) Blood pressure (4 marks)

QUESTION 4

Describe the following phases of the menstrual cycle, including the hormones involved in each phase:

- a) Menstrual phase (5 marks)
- b) Follicular phase (5 marks)
- c) Ovulatory phase (5 marks)
- d) Luteal phase (5 marks)

QUESTION 5

- a) Compare and contrast steroid hormones and protein hormones. (10 marks)
- b) Explain the mechanical pumping of the heart. (10 marks)

QUESTION 6

- a) Describe the three (3) stages involved in urine formation by the kidneys. (15 marks)
- b) State one (1) hormone involved in the following physiological functions:
- | | | |
|------|---------------|----------|
| i) | Menstruation | (1 mark) |
| ii) | Pregnancy | (1 mark) |
| iii) | Birth | (1 mark) |
| iv) | Breastfeeding | (1 mark) |
| v) | Ovulation | (1 mark) |

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Pharmacology

PAPER NO: 606/23/M02

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Blue/black pen

INSTRUCTIONS TO CANDIDATE

- 1) This question paper comprises of six (6) questions. Each carries twenty (20) marks. Answer any five (5) questions.
- 2) Do not write anything on the question paper.
- 3) Do not write your name on the answer booklet.

This paper consists of 3 printed pages.

PAPER NO: 606/23/M02-PHARMACOLOGY

QUESTION 1

- a) Explain the difference between competitive antagonist and irreversible antagonist. (2 marks)
- b) State and explain four (4) types of adverse drug reactions. (8 marks)
- c) Drugs can be classified according to the target organ, outline any five (5) classification of drugs according to their target organs. (5 marks)
- d) Classify drugs according to their mode of action. (5 marks)

QUESTION 2

- a) List five (5) diagnostic tests that can be used for diabetes mellitus. (5 marks)
- b) Explain the mechanism that leads to insulin resistance in type 2 diabetes mellitus. (5 marks)
- c) Differentiate between type one (1) diabetes and type (2) diabetes, include explanations on their pathogenesis. (5 marks)
- d) Outline the mechanism of action of metformin. (5 marks)

QUESTION 3

- a) Describe the mechanism of action of the following:
 - i) Cyclophosphamide (5 marks)
 - ii) Prednisolone (5 marks)
- b) Describe the metabolic pathway resulting in the production of uric acid. (10 marks)

QUESTION 4

Discuss on the following types of diuretics:

- a) Osmotic diuretics (5 marks)
- b) Loop diuretics (5 marks)
- c) Thiazide diuretics (5 marks)
- d) Potassium sparing diuretics (5 marks)

QUESTION 5

For the following conditions, elaborate on the:

Signs and symptoms

Drugs used to treat each condition or disease (State at least 2 and their MOA)

Side effects of the chosen drugs

- | | | |
|----|-----------------------|-----------|
| a) | Heart failure | (7 marks) |
| b) | Myocardial infarction | (7 marks) |
| c) | Hypertension | (6 marks) |

QUESTION 6

- | | | |
|----|--|------------|
| a) | List signs and symptoms of Parkinson's disease. | (5 marks) |
| b) | Levodopa is always given as a combination with carbidopa in the treatment of Parkinson's disease. Explain the mechanism of action of the drug levodopa in the treatment of this condition and give a reason why its combined with Carbidopa. | (10 marks) |
| c) | With the aid of examples explain the mechanism of action of dopamine agonist and their side effects. | (5 marks) |

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Supply Chain Management

PAPER NO:606/23/M07

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

- 1. Answer any five (5) questions.**
- 2. Start each question on a new page.**
- 3. Do not write your name on the answer script.**
- 4. Each question carries 20 marks.**

This paper consists of 3 printed pages.

QUESTION 1

- a) Discuss the essential medicines concept citing the Zimbabwean context. (20 marks)

QUESTION 2

Discuss any five (5) factors which can be used to reduce irrational use of medicine in Zimbabwe. (20 marks)

QUESTION 3

- a) Define the following terms as they are used in supply chain.
- i) Lead time (2 marks)
 - ii) Safety stock level (2 marks)
 - iii) Emergency order point (2 marks)
 - iv) Minimum stock quantity (2 marks)
 - v) Maximum stock quantity (2 marks)
- b) Discuss data types used in forecasting of health care Commodities. (10 marks)

QUESTION 4

- a) With the aid of diagram explain the steps of the medicine management cycle highlighting the importance of each and every step in the management of medicine. (15 marks)
- b) Outline the advantages of using generic names in essential medicine list and in prescribing. (5 marks)

QUESTION 5

- a) Describe the procurement cycle. (10 marks)
- b) Differentiate rationale medicine use from irrational medicine use. (10 marks)

QUESTION 6

You are working as a pharmacy technician at Chimamanda District Hospital. You aid an emergency order to Nat pharm of 500 units of ceftriaxone (IV) on 1 June 2025 and you received all of them In stock you have 50 units left as your balance.

Draw a sample of the stock card and record all the information below as they are supposed to be recorded in their correct section on stock card.

- i) 50 units left in warehouse as balance
- ii) 500 units received from Nat Pharm on 1 January.
- iii) You supplied 50 units to Mahmudullah Clinic on 5 January 2025. (20 marks)

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Clinical Pharmacy

PAPER NO: 606/23/M08

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

- 1) Answer any five (5) questions.
- 2) Each question carries 20 marks.

This paper consists of 3 printed pages.

QUESTION 1

Define the following terms in full:

- | | | |
|----|---------------------------|-----------|
| a) | Side effects | (2 marks) |
| b) | Adverse drug reaction ADR | (2 marks) |
| c) | Carcinogenic | (2 marks) |
| d) | Drug abuse | (2 marks) |
| e) | Pharmacokinetics | (2 marks) |
| f) | Pharmacodynamics | (2 marks) |
| g) | Protein binding | (2 marks) |
| h) | Therapeutic index | (2 marks) |
| i) | Pharmacovigilance | (2 marks) |
| j) | Toxicity | (2 marks) |

QUESTION 2

- a) Write short notes on pharmacodynamic drug interaction under the following headings:
- | | | |
|------|----------------------|-----------|
| i) | Antagonistic effects | (5 marks) |
| ii) | Additive effects | (5 marks) |
| iii) | Synergistic effects | (5 marks) |
- b) List any five (5) factors affecting half life of a drug. (5 marks)

QUESTION 3

Describe the processes involved in:

- | | | |
|----|----------------------------------|-----------|
| a) | Absorption of drug in the body | (5 marks) |
| b) | Distribution of drug in the body | (5 marks) |
| c) | Metabolism of drug in the body | (5 marks) |
| d) | Excretion of drug in the body | (5 marks) |

QUESTION 4

- a) Discuss the classes of adverse drug reaction (ADR) in full giving examples. (15 marks)
- b) Write short notes on non competitive and inverse antagonism as used in clinical pharmacy. (5 marks)

QUESTION 5

- a) Explain factors affecting ADR under the following headings:
- i) Renal function (5 marks)
 - ii) Hepatic function (5 marks)
 - iii) Geriatrics (5 marks)
- b) Describe teratogenicity with reference to the thalidomide scare. (5 marks)

QUESTION 6

- a) Identify and describe three (3) signs and symptoms associated with the following types of poisoning or overdose:
- i) Opioid overdose (3 marks)
 - ii) Acetaminophen toxicity (3 marks)
 - iii) Organophosphate poisoning (3 marks)
- b) For each type mentioned above, provide details on the specific antidotes available and their mechanism of action. (6 marks)
- c) Discuss the importance of timely administration of antidotes in managing poisoning emergencies effectively. (5 marks)

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Pharmaceutics I

PAPER NO: 606/25/M04/1

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. Answer any five (5) questions.
2. Each question carries 20 marks.
3. Start each answer on a fresh page.

This paper consists of 4 printed pages.

QUESTION 1

- (a) Classify dosage forms according to the following criteria, providing one appropriate example for each
- (i) Physical state (2 marks)
 - (ii) Route of administration (2 marks)
 - (iii) Dispersion system (2 marks)
- (b) Discuss the advantages and disadvantages of administering medicines as oral solutions. (6 marks)
- (c) With the aid of a diagram, describe the procedure you would follow to determine the density of a syrup. (10 marks)

QUESTION 2

A doctor has prescribed a phenobarbitone elixir for a paediatric patient. As the compounding pharmacy technician, you are tasked with its preparation.

- (a) Explain the importance of using alcohol (ethanol) in the formulation of an elixir. (4 marks)
- (b) Describe the correct procedure for dissolving soluble raw materials when preparing an elixir. (4 marks)
- (c) Explain the advantages of formulating a drug as an elixir rather than a syrup. (6 marks)
- (d) State the ideal packaging, labelling and storage conditions for an elixir. (6 marks)

QUESTION 3

(a) Define a pharmacopoeia and explain its importance in pharmacy practice. (5 marks)

(b) match the following reference texts with their primary description

Reference text	Description	
Martindale	A. Encyclopaedia of chemical with synthesis data	(1 mark)
Merch Index	B. Guide for prescribing and administering medicines	(1 mark)
BNF	C. Focuses on WHO Essential Medicine	(1 mark)
International pharmacopoeia	D. Official compendium of the USA	(1 mark)
USP-NF	E. Comprehensive global drug reference	(1 mark)

(c) Define a pharmaceutical solution and list three (3) different types of solvents used in their preparation. (6 marks)

(d) Your pharmacy receives a prescription for a saturated solution of potassium iodide. Explain the meaning of saturated solution and provide a hint on how you would prepare it efficiently. (4 marks)

QUESTION 4

Compare and contrast mouthwashes and gargles in term of: -

- (a) Their intended use and site of action in the body. (8 marks)
- (b) The special precautions to be followed during their preparation and use including why they should not be swallowed. (8 marks)
- (c) Their idea packaging and storage conditions. (4 marks)

QUESTION 5

You are required to prepare 200ml of a simple linctus for a paediatric ward.

The formula for simple linctus BP

- Citric acid 2.5g
- Conc Anise water :0,5ml
- Chloroform spirit : 2.5ml

- Syrup to 100ml
- (a) Calculate the quantity of each ingredient needed to prepare 200ml.
(8 marks)
- (b) Describe in a step by step manner how you would prepare this linctus in the pharmacy laboratory
(6 marks)
- (c) Explain how a linctus differs from an expectorant.
(4 marks)
- (d) State the ideal packaging and storage conditions for this preparation.
(2 marks)

QUESTION 6

While preparing tincture of iodine a pharmacy technician attempts to weigh iodine crystals using metal spatula. The supervising pharmacist stops the procedure and instructs the technician to use a wooden spatula instead.

- (a) Explain the proper handling procedures for corrosive or reactive raw materials during tincture preparation.
(8 marks)
- (b) Discuss the importance of keeping tinctures diluted to their standard strength.
(6 marks)
- (c) Outline the possible skin reaction associated with tinctures using tincture of iodine as an example.
(6 marks)

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

SUBJECT: Analytical Chemistry II

PAPER NO: 606/18/S26

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

Non programmable calculator

INSTRUCTIONS TO CANDIDATE

- 1. Answer any five (5) questions.**
- 2. Each question carries a total of twenty (2) marks.**

This paper consists of 3 printed pages.

QUESTION 1

- a) Draw a labelled schematic diagram of a High Performance Liquid Chromatography (HPLC) system and describe the specific function of the guard column. (10 marks)
- b) Compare and contrast Reversed – Phase and Normal – Phase HPLC packings, identifying the stationary phases used for each. (10 marks)

QUESTION 2

- a)
 - i) State Beer – Lambert's law and define all variables in the equation. (4 marks)
 - ii) List and briefly explain any three (3) limitations that cause deviations from Beer – Lambert's law. (6 marks)
- b) Describe the principles of the Flame Ionisation Detector (FID) and justify why it is considered a “universal” detector for organic molecules in gas chromatography (GC). (10 marks)

QUESTION 3

- a) Outline the major components of a UV/Visible Spectrophotometer and explain the function of the Monochromator. (10 marks)
- b) Outline the basic principles of spectrofluorimetry. (10 marks)

QUESTION 4

- a) Discuss the criteria for a successful colorimetric analysis of carbohydrates / proteins in a clinical sample. (10 marks)
- b) Describe the principle and application of electrophoresis in determining the relative molecular mass (M_r) of a protein. (10 marks)

QUESTION 5

- a) Describe the characteristics of Alpha, Beta and Gamma decay and explain which type of emission is most commonly detected using a Geiger - Muller (GM) tube. (10 marks)
- b) A radioactive isotope used in metabolic study has a half life ($t_{1/2}$) of 6 hours. If the initial activity is 800 counts / min, calculate the remaining activity after 24 hours. (10 marks)

QUESTION 6

Outline the principles, instrumentation and applications of gas chromatography. (20 marks)

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

SUBJECT: Pharmacology II

PAPER NO: 606/18/S27

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of six (6) questions.
2. Choose any five (5) questions of your choice.
3. Each question carries 20 marks.

This paper consists of 3 printed pages.

QUESTION 1

- a) Heart failure can result from systolic dysfunction and diastolic dysfunction. Explain the difference between the two. (2 marks)
- b) Explain the rationale of using Angiotensin converting enzyme inhibitor (ACE) inhibitors in the treatment of heart failure. (5 marks)
- c) Explain the mechanism of action of digoxin in the treatment of heart failure. (5 marks)
- d) Explain the difference between Rheumatoid Arthritis and Gout in terms of their origin. (4 marks)
- e) List any four drugs used for the treatment and management of Gout. (4 marks)

QUESTION 2

- a) Explain the difference between Probenecid and Febuxostat in terms of their mechanism of Action. (4 marks)
- b) With the aid of at least two (2) examples, explain the mechanism of Action of Beta 2 (B2) agonist in the treatment of Asthma. (6 marks)
- c)
 - i) List any three (3) functions of incretin hormones in human's body. (3 marks)
 - ii) Explain the mechanism of action of vidagliptin and its effects on incretin hormones (GLP-1 and GIP). (5 marks)
- d) Outline the mechanism of action of Dapagliflozin (foxiga) in the treatment of Diabetes mellitus. (2 marks)

QUESTION 3

- a)
 - i) State any five (5) signs and symptoms of schizophrenia. (5 marks)
 - ii) List any five Atypical Antipsychotic drugs. (5 marks)
- b)
 - i) Justify the reason for combining Levodopa and Carbidopa in the treatment of Parkinson's Disease. (3 marks)
 - ii) Outline any four (4) classes of drugs used in the treatment of Parkinson's Disease (PK). (4 marks)
- c) Give a clear differentiation between Grand Mal and Petit Mal seizures. (3 marks)

QUESTION 4

List any five (5) classes of drugs used for the treatment of Hypertension. From the list choose any three (3) and explain their mechanism of action and side effect. (20 marks)

QUESTION 5

- a) i) Describe the pathogenesis of Myasthenia Gravis. (5 marks)
- ii) With the aid of examples, describe the mechanism of Action Anticholinesterase. (5 marks)
- b) List five (5) classes of diuretics with examples and explain the mechanism of action of any two (2) classes. (10 marks)

QUESTION 6

A 65 year old man Mr. Jack was prescribed warfarin for the prevention of stroke due to arterial fibrillation. After two (2) weeks of therapy, he reports increased bruising and occasional nose bleeding. He also started cimetidine for treatment of stomach ulcers three (3) days ago.

- a) In which class does warfarin fall. (1 marks)
- b) What is the primary mechanism of warfarin (4 marks)
- c) Explain why Mr. Jack exhibits increased bruising and nose bleeding. (5 marks)
- d) Giving at least one (1) example, outline (types) of drugs used for treatment of Mr. Jack's condition other than warfarin. (6 marks)
- e) Explain how low dose Aspirin works to treat coagulation and what are the side effects of using Aspirin. (4 marks)



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NATIONAL DIPLOMA

**IN
PHARMACEUTICAL TECHNOLOGY**

SUBJECT: Herbal Formulations

PAPER NO: 606/23/M03

DURATION: 3 Hours

JUNE 2026 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATES

1. This question paper comprises of six (6) questions; answer any five (5).
2. Each questions carries twenty (20) marks.
3. Do not write anything on this question paper.
4. Do not write your name on the answer booklet

This paper consists of 3 printed pages.

QUESTION 1

- a) Describe the use of the rotary evaporator (5 marks)
- b) State and explain the equipments used in the following
 - i) Maceration (5 marks)
 - ii) Distillation (5 marks)
 - iii) Microwave assisted extraction (5 marks)

QUESTION 2

For the following plant metabolites, provide the identification test for each and give a brief explanation on each test

- a) Anthraquinones (5 marks)
- b) Flavonoids (5 marks)
- c) Saponins (3 marks)
- d) Cardiac glycosides (5 marks)
- e) Resins (2 marks)

QUESTION 3

- a) Describe how adulteration can affect complementary medicine (5 marks)
- b) Discuss the limitations of the UV-Vis spectroscopy in analysing organic compounds. State at least five (5) limitations (10 marks)
- c) State five (5) types of packaging materials used for herbal medicines (5 marks)

QUESTION 4

- a) Explain the present roles of natural products in pharmacy and medicine. State at least five (5) (10 marks)
- b) Define the term biological nomenclature (2 marks)
- c) List the four (4) sources of natural medicine (4 marks)
- d) Distinguish between plant morphology and plant anatomy (4 marks)

QUESTION 5

- a) Using a specific example of choice, explain on the preparation of surgical dressings (10 marks)
- b) Outline five (5) past and five (5) present day natural medicine extraction methods used in a pharmacy (10 marks)

QUESTION 6

- a) Discuss on the disposal of used up solvents used in the extraction of herbal active ingredients (10 marks)
- b) List at least five (5) common solvents that are used in the extraction of herbal ingredients (5 marks)
- c) Outline at least five (5) dosage forms available for herbal medicines (5 marks)

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**HIGHER EDUCATION EXAMINATIONS COUNCIL
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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

**SUBJECT: Health Policies and Supply
Chain Management**

PAPER NO:606/18/S25

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

Answer ALL questions.

This paper consists of 2 printed pages.

QUESTION 1

Define the following terms as they apply to pharmaceutical services.

- (a) Cost - benefit analysis (CBA) (5 marks)
- (b) Cost - effective - analysis (CEA) (5 marks)
- (c) Essential medicines (EM) (5 marks)
- (d) Cost - effective - ratio (CER) (5 marks)
- (e) Emergency Order Point (EOP) (5 marks)

QUESTION 2

Discuss any five (5) components considered on the donations of drugs in Zimbabwe (according to guidelines for medicines donations). (25 marks)

QUESTION 3

Discuss any five (5) components of the Zimbabwe National Medicines Policy (ZNMP). (25 marks)

QUESTION 4

- (a) Outline the four (4) basic methods of quantification. (4 marks)
- (b) Explain the facets of commodity security. (4 marks)
- (c) Outline sources of logistics data for commodity management (inventory management). (6 marks)
- (d) List the information found on the stock card. (11 marks)

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IN

PHARMACEUTICAL TECHNOLOGY

SUBJECT: Management

PAPER NO: 606/23/M06

DURATION: 3 Hours

NOVEMBER/ DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. Answer any five (5) questions
2. Each question carries 20 marks

This paper consists of 2 printed pages.

QUESTION 1

Describe the main functions of management and how each function contributes to the overall effectiveness of a retail pharmacy. (20 marks)

QUESTION 2

- a) Describe the main management theories and explain how these theories evolved over time. (10 marks)
- b) Discuss the effects of positive management on subordinates. What are the potential impacts of negative management on team dynamics? (10 marks)

QUESTION 3

- a) Identify and explain relevant resources required to perform various tasks in pharmaceutical setting. (10 marks)
- b) Describe various types of disputes that can occur in the workplace and how they can be resolved. (10 marks)

QUESTION 4

Discuss the impact of good organizational culture on employee performance and organizational success. (20 marks)

QUESTION 5

- a) Explain five (5) good characteristics of a good management team. (10 marks)
- b) Describe the process of resolving disputes among subordinates according to the code of conduct. (10 marks)

QUESTION 6

- a) Explain how to appraise personnel according to organizational key result areas (KRA). (10 marks)
- b) Discuss the importance of producing reports on task performance (10 marks)

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Pharmacy Regulations

PAPER NO: 606/23/M09

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

- 1) Answer any five (5) questions.
- 2) Do not write anything on the question paper.
- 3) Do not write your name on any part of the script.

This paper consists of 3 printed pages.

QUESTION 1

- a) Define the terms:
- i) Medicines (2 marks)
 - ii) Clinical trial (2 marks)
 - iii) Manufacture (2 marks)
 - iv) Prescription (2 marks)
 - v) Dangerous drugs register (2 marks)
- b) State the information required to be on the package insert, any ten (10). (10 marks)

QUESTION 2

- a) List six (6) persons authorised to be in possession of any dangerous drugs in the course of their duties. (6 marks)
- b) Outline the seven (7) information that the Dangerous Drugs Act DDA (Chapter 15:02) provides for. (14 marks)

QUESTION 3

- a) Highlight information that must appear on a prescription. (10 marks)
- b) For the following categories of medicines distribution, state what they stand for and one (1) example for each:
- i) N (2 marks)
 - ii) PP (2 marks)
 - iii) PM (2marks)
 - iv) P (2 marks)
 - v) PP vet (2 marks)

QUESTION 4

- a) As part of good dispensing practice outline ten (10 important things to remember. (10 marks)
- b) Examine the functions/roles of Health Professions Authority of Zimbabwe. (10 marks)

QUESTION 5

- a) List any seven (7) members that comprise the medicines Authority of Zimbabwe (MCAZ). (7 marks)
- b) What are the five (5) minimum requirements for premises licencing. (10 marks)
- c) List any three (3) persons who can be issued with licence by MCAZ. (3 marks)

QUESTION 6

- a) Highlight the six (6) aims of good dispensing practice. (12 marks)
- b) Indicate any four (4) importance piece of advice given to patient before dispensing medication. (8 marks)

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**HIGHER EDUCATION EXAMINATIONS COUNCIL
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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Clinical Pharmacy

PAPER NO: 606/23/M08

DURATION: 3 Hours

NOVEMBER/ DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

Answer any five (5) questions each question carries 20 marks

This paper consists of 3 printed pages.

QUESTION 1

- a) State any five (5) important information for the ADR report form. (5 marks)
- b) Outline any five (5) risk factors of drug interaction. (5 marks)
- c) Explain factors affecting ADR reactions under the following headings:
- i) Renal function (5 marks)
 - ii) Hepatic function (5 marks)

QUESTION 2

- a) Discuss the classes of ADR. (10 marks)
- b) Outline factors affecting bioavailability (5 marks)
- c) i) State and explain one objective of clinical pharmacy. (1 mark)
- ii) Fill the table below with an appropriate answer.

Severity of ADR

Stage	Description
Lethal	 (1)
..... (1)	No antidote or therapy required
Severe	 (1)
..... (1)	Requires change of drug

QUESTION 3

a) Give the precise definitions of the following terms:

- | | | |
|------|----------------------|-----------|
| i) | Biological half-life | (3 marks) |
| ii) | Therapeutic Index | (3 marks) |
| iii) | Clinical pharmacy | (3 marks) |
| iv) | Teratogenicity | (3 marks) |
| v) | Pharmacovigilance | (3 marks) |

b) State any five (5) factors affecting half-life. (5 marks)

QUESTION 4

a) Describe how organophosphate poisoning is managed (10 marks)

b) Define the following terms:

- | | | |
|------|------------------|-----------|
| i) | Bioequivalence | (2 marks) |
| ii) | Bioavailability | (2 marks) |
| iii) | Pharmacokinetics | (2 marks) |
| iv) | Pharmacodynamics | (2 marks) |
| v) | Hypersensitivity | (2 marks) |

QUESTION 5

a) Explain Pharmacodynamic drug interactions under the following headings:

- | | | |
|------|----------------------|-----------|
| i) | Additive effects | (5 marks) |
| ii) | Synergistic effects | (5 marks) |
| iii) | Antagonistic effects | (5 marks) |

b) Explain the differences between non-competitive and inverse antagonist inhibitors. (5 marks)

QUESTION 6

Explain the steps taken to combat drug and substance abuse in Zimbabwe. (20 marks)

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NATIONAL DIPLOMA

**IN
PHARMACEUTICAL TECHNOLOGY**

MODULE: Human Anatomy And Physiology PAPER NO: 606/23/M01

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. Answer any five (5) questions.
2. Each question carries 20 marks.
3. Do not write anything on the question paper.
4. Do not write your name on the answer booklet.

This paper consists of 3 printed pages.

PAPER NO: 606/23/M01- HUMAN ANATOMY AND PHYSIOLOGY

QUESTION 1 ✓

- a) Describe the structure of the human body in terms of the six (6) levels of organisation. (12 marks)
- b) Identify and explain four (4) types of tissues that make up the human body. (8 marks)

QUESTION 2 ✓

- a) Describe any five (5) functions of the liver. (10 marks)
- b) Describe the functional and structural differences between an artery and a vein. (10 marks)

QUESTION 3 ✓

- a) Outline how any five (5) harmful mothers' actions may affect development of the foetus. (20 marks)

QUESTION 4

- a) Briefly describe the etiology of the common digestive disorders mentioned below:
 - i) peptic ulcers (3 marks)
 - ii) Ulcerative colitis (3 marks)
 - iii) constipation (3 marks)
 - iv) Acute pancreatitis (3 marks)
 - v) Stomatitis (3 marks)
- b) Explain why the pituitary gland is called a master gland (5 marks)

QUESTION 5

- a) Describe how the skin's structure relates to its functions. State any five (5) characteristics. (10 marks)
- b) Describe the histological structure of the dermis and subcutaneous tissues. (10 marks)

QUESTION 6 ✓

- a) Describe the circulatory system of the heart. (10 marks)
- b) State any five (5) endocrine glands and give one example of their secretions. (10 marks)

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NATIONAL DIPLOMA

IN

PHARMACEUTICAL TECHNOLOGY

SUBJECT: Supply Chain Management PAPER NO: 606/23/M07

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

- 1) Answer any five (5) questions.
- 2) Do not write anything on the question paper.
- 3) Do not write your name on the answer booklet.

This paper consists of 3 printed pages.

QUESTION 1

- a) Define essential medicines according to WHO. (3 marks)
- b) With the aid of clear diagram, describe the drug management cycle. (8 marks)
- c) State any five (5) components of the national medicines policy. (5 marks)
- d) Outline the meaning of the VEN classification of medicines and state where each class of medicines is considered for use. (4 marks)

QUESTION 2

- a) Explain how the following factors affect use of medicines:
 - i) Prescribers (3 marks)
 - ii) Patients (3 marks)
 - iii) Medicines supply system (3 marks)
- b) State any five (5) Zimbabwe medicine donation guidelines. (5 marks)
- c) Discuss the steps taken for the disposal of expired medicines. (6 marks)

QUESTION 3

- a) In relation to maintenance of stock levels, briefly describe what the following mean:
 - i) Minimum stock (2 marks)
 - ii) Maximum stock (2 marks)
 - iii) Emergency order point (2 marks)
 - iv) Out of stock (2 marks)
 - v) Losses and adjustments (2 marks)
- b) Differentiate essential medicines lists and hospital formularies. (4 marks)
- c) Write any six (6) factors that influence medicine selection in the essential medicine list. (6 marks)

QUESTION 4

- a) With the aid of a clear diagram, describe the procurement cycle. (10 marks)
- b) Define the following terms:
 - i) Pooled procurement (2 marks)
 - ii) Ethical procurement (2 marks)
- c) Define quantification and state the members of the quantification team. (6 marks)

QUESTION 5

- a) Differentiate the push from pull medicine distribution system. (4 marks)
- b) Define warehousing and state the section of a good warehouse. (6 marks)
- c) Write the following abbreviations in full:
 - i) ZAPS (2 marks)
 - ii) VMMS (2 marks)
 - iii) PRAZ (2 marks)
 - iv) EDLIZ (2 marks)
 - v) MCAZ (2 marks)

QUESTION 6

- a) Outline the logistics cycle with the aid of a diagram. (10 marks)
- b) List any five (5) data collection methods for LMIS data. (5 marks)
- c) Describe the use of KPI in assessing supply chain performance. (5 marks)

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IN

PHARMACEUTICAL TECHNOLOGY

SUBJECT: Forensic Pharmacy

PAPER NO: 606/18/S23

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

- 1) Answer all questions in section A.
- 2) Answer question three (3) and any other two (2) questions in section B.

This paper consists of 3 printed pages.

SECTION A: ANSWER ALL QUESTIONS

QUESTION 1

- a) Outline the roles of Health Profession Authority of Zimbabwe.
(12 marks)
- b) What are the functions of MCAZ in pharmacy and the Ministry of Health.
(8 marks)

QUESTION 2

- a) List eight (8) different categories of distribution of medicines.
(8 marks)
- b) Who is licensed under Pharmacist of Zimbabwe.
(5 marks)
- c) What are the minimum requirements for premises to be licensed.
(7 marks)

SECTION B: ANSWER QUESTION THREE (3) AND ANY OTHER TWO (2)

QUESTION 3

- a) Define a dangerous drug register and list the information recorded in the dangerous drugs register.
(5 marks)
- b) Part iv drugs of the Dangerous Drugs Act (DDA) have a medical value. List any five (5) drugs from the section.
(5 marks)
- c) Name any three (3) personnel who can handle dangerous drugs.
(3 marks)
- d) How is an error handled when made in the dangerous Drugs register.
(3 marks)
- e) What are the storage and handling requirements of dangerous drugs.
(4 marks)

QUESTION 4

- a) What is the information that should appear on a package insert of a medicine?
(10 marks)
- b) What information must be included on a prescription from a prescriber.
(10 marks)



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IN

PHARMACEUTICAL TECHNOLOGY

SUBJECT: Management

PAPER NO: 606/18/S07

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. Answer ANY FOUR (4) questions.
2. Each question carries 25 marks.

This paper consists of 2 printed pages.

QUESTION 1

- (a) Highlight the differences between the following
- (i) Heuristic and rational decisions (4 marks)
 - (ii) Power and authority (4 marks)
 - (iii) A manager and a leader (4 marks)
 - (iv) Coordination and cooperation (4 marks)
- (b) Some people argue that leaders are born. Describe in detail a leadership theory that supports this school of thought. (9 marks)

QUESTION 2

Outline the steps you would take in planning the launch of a new drug, including relevant tools you would use. (25 marks)

QUESTION 3

- (a) Distinguish between batch process and continuous process production. (8 marks)
- (b) State and explain a motivational theory that you find the most applicable and practical. (12 marks)
- (c) Explain why market research is crucial for an organisation. (5 marks)

QUESTION 4

Poor/ lax ethics have become the norm in modern day African organisations. Discuss why this is so and highlight how as a manager you would ensure good ethics at kept in your organization. (25 marks)

QUESTION 5

- (a) Describe the steps you would take for the purchase of a Tablet compression machine via tender. (15 marks)
- (b) Explain the steps involved in strategic planning. (10 marks)

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IN

PHARMACEUTICAL TECHNOLOGY

MODULE: Infectious Disease Management

PAPER NO: 606/23/M10

DURATION: 3 Hours

NOVEMBER/ DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer Booklet

INSTRUCTIONS TO CANDIDATE

- 1. Answer any five (5) questions.**
- 2. Do not write anything on the question paper.**
- 3. Do not write your name on the Answer Booklet.**

This paper consists of 3 printed pages.

QUESTION 1

- a) Define the following terms giving relevant examples.
- i) Endemic (3 marks)
 - ii) Epidemic (3 marks)
 - iii) Pandemic (3 marks)
- b) State any two (2) diseases caused by the following:
- i) Pyrogenic cocci (2 marks)
 - ii) Gram negative bacilli (2 marks)
 - iii) Gram positive bacilli (2 marks)
- c) Discuss the social and economic impact of Tuberculosis. (5 marks)

QUESTION 2

- a) Describe the treatment of the following infectious diseases.
- i) Cholera (4 marks)
 - ii) Amoebiasis (3 marks)
 - iii) Rabies (3 marks)
- b) Describe the life cycle of bilharzias. (10 marks)

QUESTION 3

- a) Describe the mechanism of action of the following antibacterial agents.
- i) Sulphonamides (3 marks)
 - ii) Aminoglycosides (3 marks)
 - iii) Cephalosporins (3 marks)
- b) For the above stated antibacterial agents, give two (2) examples that fall under each. (6 marks)
- c) Explain the use, adverse effects and contraindication of chloramphenicol. (5 marks)

QUESTION 4

- a) Outline the different forms of bacterial resistance to drugs. (6 marks)
- b) Indicate the signs and symptoms of the following parasitic infections. (5 marks)
- i) Malaria (4 marks)
 - ii) Trypanosomiasis (4 marks)
 - iii) Entamoeba histolytica (4 marks)

QUESTION 5

- a) Explain how the following methods are used to measure bacterial growth.
- i) Membrane filter method (4 marks)
 - ii) Plate counts (4 marks)
- b) Describe how the following factors affect microbial growth:
- i) Osmotic pressure (4 marks)
 - ii) Temperature (4 marks)
- c) Explore the principle of ionising radiation during sterilisation. (5 marks)

QUESTION 6

- a) Describe the following host-defence systems:
- i) Interferons (4 marks)
 - ii) Complement system (4 marks)
- b) State any five (5) sources of contamination. (5 marks)
- c) Define the following terms:
- i) Pathogenicity (3 marks)
 - ii) Phagocytosis (2 marks)
 - iii) Virulence (2 marks)

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IN

PHARMACEUTICAL TECHNOLOGY

SUBJECT: Statistics

PAPER NO: 606/18/S16

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

1. Calculator
2. Statistical tables

INSTRUCTIONS TO CANDIDATE

1. Section A - Answer all questions.
2. Section B - Answer any three (3) questions.

This paper consists of 3 printed pages.

SECTION A - Answer all questions.

QUESTION 1

Given the following data set

10; 11; 10; 12; 10; 13; 14

- a) Calculate Mean, Mode and Median (5 marks)
- b) Calculate Standard deviation (5 marks)

QUESTION 2

Given $X \sim Po(1,3)$

Calculate:

- a) Standard deviation (2 marks)
- b) $P(x < 2)$ (4 marks)
- c) $P(x \geq 3)$ (4 marks)

QUESTION 3

- a) Outline steps to be followed when doing a hypothesis testing (7 marks)
- b) Explain how you perform Binomial approximation using Normal distribution (7 marks)

QUESTION 4

Define the following terms

- a) Sample (3 marks)
- b) Population (3 marks)

SECTION B - Answer any three questions

QUESTION 5

Given

x	1-5	6-10	11-20	21-30	31-40
f	5	7	8	4	3

- a) Calculate Standard deviation (12 marks)
b) Draw a histogram and frequency polygon. (8 marks)

QUESTION 6

Given $x \sim N(100, 16)$

Calculate:

- a) $P(X < 93)$ (5 marks)
b) $P(X > 102)$ (5 marks)
c) $P(96 < X < 107)$ (10 marks)

QUESTION 7

A bag contains 5 red balls and 4 blue balls, calculate variance of picking red balls and blue balls if 3 balls were picked without replacement, (20 marks)

QUESTION 8

Given the following out come

x	10	20	30	40	50
f	100	80	64	53	24

- a) Calculate correlation coefficient and comment (10 marks)
b) Fit the regression and comment. (10 marks)

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NATIONAL DIPLOMA

IN

PHARMACETICAL TECHNOLOGY

SUBJECT: Clinical Pharmacy

PAPER NO: 606/18/S24

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

Answer all questions

This paper consists of 2 printed pages.

QUESTION 1

- a) Outline the general measures used in the treatment of poisoning under the following:
- i) Prevention of further absorption (10 marks)
 - ii) Elimination of poison (10 marks)
- b) Explain the effects of liver disease in drug metabolism. (5 marks)

QUESTION 2

Explain the following terms:

- a) Teratogenicity (5 marks)
- b) Liver failure (5 marks)
- c) Adverse drug reaction (5 marks)
- d) Therapeutic index (5 marks)
- e) Side effects (5 marks)

QUESTION 3

- a) Discuss the factors affecting adverse drug reactions, use examples. (20 marks)
- b) Outline the effects of drug abuse (5 marks)

QUESTION 4

- a) Explain the processes involved in pharmacokinetics. (20 marks)
- b) Discuss the role of pharmacogenetics in pharmacotherapy (medical therapy). (5 marks)

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