



UNIVERSITI KUALA LUMPUR  
INSTITUTE OF MEDICAL SCIENCE TECHNOLOGY

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**FINAL EXAMINATION**  
**MARCH 2025 SEMESTER**

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COURSE CODE : HDD20503  
COURSE TITLE : HUMAN PHARMACOLOGY  
PROGRAMME NAME : DIPLOMA OF MEDICAL LABORATORY TECHNOLOGY  
DATE : 04 JULY 2025  
TIME : 9:00AM - 12:00PM  
DURATION : 3 HOURS



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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Section A consist 25 MCQ or EMQ questions. Answer ALL questions.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet.  *Tick if applicable*
9. Refer to the attached Formula/ Appendies.  *Tick if applicable*

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THERE ARE 12 PAGES OF QUESTIONS INCLUDING THIS PAGE

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SECTION A (Total: 25 marks)

Answer ALL questions.

Please use the objective answer sheet provided.

1. Determine the drug class commonly used as the first-line therapy for Type 2 Diabetes.
  - A. Atenolol
  - B. Sulfonylureas
  - C. Biguanides (Metformin)
  - D. Insulin
  
2. Which of the following antifungal agents act by binding to sterols consequently altering its membrane permeability?
  - A. Griseofulvin
  - B. Amphotericin B
  - C. Fluconazole
  - D. Loratadine
  
3. Which of the following antiviral agents is meant for HIV therapy?
  - A. Interferon
  - B. Neuraminidase inhibitor
  - C. Protease inhibitor
  - D. Acyclovir

4. Organic nitrates are drugs that are used to treat angina pectoris by \_\_\_\_\_.
- A. relaxation of the smooth muscle of blood vessels
  - B. increasing myocardial oxygen demand
  - C. constriction of the smooth muscle of blood vessels
  - D. increasing cardiac workload
5. Determine the condition for which methimazole is primarily used for.
- A. Diabetes mellitus
  - B. Hypothyroidism
  - C. Hyperthyroidism
  - D. Cushing's syndrome
6. Zileuton's mechanism of action in treating asthma is by \_\_\_\_\_.
- A. blocking leukotriene production
  - B. inhibiting cyclooxygenase activity
  - C. inhibiting mast cell degranulation
  - D. antagonizing leukotriene receptors
7. Antitussives are generally given with caution to patients with \_\_\_\_\_.
- A. hypertension
  - B. chronic cough
  - C. rhinitis
  - D. asthma

8. A long-distance truck driver complains of serious allergic rhinitis. Which of the following would be the best antihistamines to be prescribed?
- A. Cimetidine
  - B. Loratadine
  - C. Dramamine
  - D. Ranitidine
9. A 75-year-old woman with hypertension is being treated with thiazide. Her blood pressure responds and reads at 120/76 mm Hg. After several months on the medication, she complains of being tired and weak. Analysis of the blood may indicate low values for \_\_\_\_\_.
- A. potassium
  - B. calcium
  - C. uric acid
  - D. sodium
10. Drugs may lower the blood pressure by the following mechanism **EXCEPT**
- A. Promote  $\text{Na}^+$  depletion.
  - B. Lower serum cholesterol levels.
  - C. Stimulate angiotensin converting enzyme (ACE).
  - D. Block peripheral sympathetic nerve endings.
11. Which of the following pair of anticancer drug and its mechanism is **CORRECT**.
- A. Mercaptopurine – enhance immune system
  - B. Tamoxifen – inhibit estrogen's binding site
  - C. Cisplatin – inhibit DNA synthesis
  - D. Iodine – exert radioactive materials

12. Chloroquine's mode of action as an antimalarial drug results in \_\_\_\_\_.
- A. killing of the mosquito that carries the parasite
  - B. parasite cell damage and autodigestion
  - C. interfering with the electron transport in the parasite
  - D. increase of body's natural immune response
13. Which of the following substances is **NOT** a stimulant of the central nervous system?
- A. Ecstasy
  - B. Nicotine
  - C. Heroin
  - D. Cocaine
14. Antiepileptic or anticonvulsant drugs act by \_\_\_\_\_.
- A. causing the release of acetylcholine in pre-synaptic neuron
  - B. activating  $\alpha$  and  $\beta$  receptors
  - C. causing the release of norepinephrine in pre-synaptic neuron
  - D. reducing electrical excitability and enhance GABA transmission
15. Identify the statement that best describes heroin's action.
- A. It suppresses the central nervous system.
  - B. It increases blood pressure.
  - C. It causes hallucination.
  - D. It causes sleeplessness.

16. The inclusion of \_\_\_\_\_ in oral contraceptives inhibits GnRH releasing factors.
- A. progesterone
  - B. androgen
  - C. estradiol
  - D. premarin
17. Which of the following is the correct mechanism of action of thiazolidinediones (TZDs) used for Type 2 Diabetes Mellitus?
- A. Enhancing incretin hormone action.
  - B. Increasing insulin sensitivity in peripheral tissues.
  - C. Stimulating pancreatic beta cells to secrete insulin.
  - D. Inhibiting glucose absorption in the intestines.
18. Which statement(s) describe(s) the actions of adrenergic or cholinergic agonists on the gastrointestinal tract?
- i. Cholinergic agonists increase GI motility and secretions.
  - ii. Adrenergic agonists decrease GI motility and secretions.
  - iii. Adrenergic agonists have little effect on motility and secretions.
- A. iii only
  - B. i only
  - C. ii only
  - D. i and ii only
19. What is the primary action of atropine on the autonomic nervous system?
- A. Activates beta-2 adrenergic receptors.
  - B. Blocks cholinergic receptors.
  - C. Stimulates cholinergic receptors.
  - D. Inhibits norepinephrine reuptake.

20. Which of the following is **NOT** a characteristic of sympathetic stimulation?
- A. Relaxation of the bronchi.
  - B. Contraction of urinary bladder sphincter.
  - C. Decreased intestinal motility.
  - D. Stimulation of salivation.
21. Which of the following is a short-acting barbiturate hypnotics which is used as intravenous anesthetics?
- A. Flurazepam
  - B. Phenobarbital
  - C. Thiopental
  - D. Diazepam
22. Which of the following drugs, when administered intravenously, can decrease blood flow to the skin, increase blood flow to skeletal muscle, and increase the force and rate of cardiac contraction?
- A. Acetylcholine
  - B. Pilocarpine
  - C. Epinephrine
  - D. Carbachol
23. Which of the following substances will increase the absorption of inorganic iron for treatment of anemia?
- A. Vitamin C
  - B. Iodine
  - C. Vitamin K
  - D. Para-amino benzoic acid (PABA)

24. The following are antithrombotic drugs used to prevent or treat abnormal blood clotting **EXCEPT**
- A. Warfarin
  - B. Vitamin K
  - C. Aspirin
  - D. Streptokinase
25. Which of the following describes the action of allopurinol in the treatment of gout?
- A. Inhibits prostaglandin biosynthesis.
  - B. Interferes with cytokine production.
  - C. Inhibits uric acid reabsorption.
  - D. Inhibits formation of uric acid from purines.

SECTION B (Total: 75 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

Birth control methods are essential in family planning and reproductive health. They can be classified into pharmacological and non-pharmacological methods.

- (a) Define birth control and explain the importance of contraception in reproductive health.  
(5 marks)
  
- (b) Describe the two main types of oral contraceptive pills and explain their mechanisms of action.  
(6 marks)
  
- (c) Compare the advantages and disadvantages of oral contraceptives with non-pharmacological interventions, including intrauterine devices (IUDs) and barrier methods.  
(10 marks)
  
- (d) Identify two probable side effects or complications that may arise from long-term use of hormonal contraceptives.  
(4 marks)

**Question 2**

Autonomic drugs are essential in managing various conditions by influencing the sympathetic and parasympathetic nervous systems.

- (a) Define the autonomic nervous system (ANS) and distinguish between the sympathetic and parasympathetic divisions in terms of their general functions and neurotransmitters.

(9 marks)

- (b) Classify autonomic drugs into sympathetic (adrenergic) and parasympathetic (cholinergic) agents. Provide two examples from each group and state their clinical uses.

(10 marks)

- (c) Explain the effects of beta-blockers and anticholinergic drugs on the body, with one example of each.

(6 marks)

Question 3

Substance abuse affecting the central nervous system pose a significant concern in clinical and community health.

- (a) Define substance abuse. Briefly describe the difference between drug tolerance, dependence, and withdrawal symptoms.

(8 marks)

- (b) Identify one commonly abused CNS stimulant and one CNS depressant, then compare their pharmacological effects and the potential health consequences associated with their abuse.

(10 marks)

- (c) Describe two general strategies used in the medical management of substance abuse.

(7 marks)

Question 4

Antibiotics are essential in treating bacterial infections, but their effectiveness is increasingly threatened by resistance.

- (a) Define antibiotics and describe their general roles in the treatment of bacterial infections.  
(3 marks)
  
- (b) With examples, classify antibiotics based on the spectrum of activity and mechanism of action.  
(10 marks)
  
- (c) What is meant by antibiotic resistance and how do they develop?  
(9 marks)
  
- (d) Suggest three good practices in healthcare or laboratory settings to reduce the development and spread of antibiotic resistance.  
(3 marks)

END OF EXAMINATION PAPER

