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UNIVERSITY EXAMINATIONS 2024/2025

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN CLINICAL MEDICINE AND COMMUNITY HEALTH DEVELOPMENT

CCM 3321: CLINICAL PHARMACOLOGY AND THERAPEUTICS II

DATE: JANUARY 2025

TIME: 3 HOURS

INSTRUCTIONS: *Answer all questions in the booklet provided*

Ensure that all your answers are properly numbered

Section A: Multiple Choice Questions (MCQs)

Section B: Short Answer Questions

Section C: Long Answer Questions

SECTION A: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. Activation of the sympathetic nervous system leads to:
 - A. Stimulation of peristalsis in the gut
 - B. Vasoconstriction in arterioles containing α 1-adrenoceptors
 - C. Release of adrenaline from sympathetic nerve terminals
 - D. A positive chronotropic effect in the heart
 - E. Constriction of bronchioles in the lungs
2. Which of the following secretions is not stimulated by acetylcholine?
 - A. Tear
 - B. Bile



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- C. Pancreatic juice
 - D. Sweat
 - E. Mucus
3. A woman who is 24-weeks pregnant presents with a productive cough. On examination crackles can be heard in the left base and a decision is made to give an antibiotic. Which one of the following is least suitable to prescribe?
 - A. Ciprofloxacin
 - B. Erythromycin
 - C. Co-amoxiclav
 - D. Cefalexin
 - E. Cefaclor
 4. The organophosphates produce irreversible inhibition of cholinesterase because:
 - A. They bind to an allosteric site of the enzyme resulting in unfavorable on formation of esteratic site to bind acetylcholine
 - B. Regeneration time of the phosphorylated enzyme is longer than the turnover time of the enzyme molecules
 - C. Phosphorylation results in rapid degradation of enzyme molecules
 - D. They are neither metabolized nor excreted from the body
 - E. inhibition of carboxyl ester hydrolases, particularly acetylcholinesterase (AChE). Is suitably attained
 5. The NSAID ibuprofen:
 - A. Interferes with the prostaglandins involved in pain
 - B. Inhibits synthesis of prostaglandins peripherally and possibly centrally
 - C. Activates neurotransmitter acetylcholine
 - D. Inhibits prostaglandin synthesis and release during inflammation
 - E. It is neuromuscular junction blocker
 6. Autacoids differ from hormones in that:
 - A. Autacoids are involved only in the causation of pathological states
 - B. Autacoids do not have a specific cell/tissue of origin
 - C. Autacoids generally act locally at the site of generation and release
 - D. Autacoids are chemical mediators
 - E. Autacoids are also neurotransmitters
 7. The following types of drugs are used to improve cardiovascular function:
 - A. inotropic drugs
 - B. cholinergic agonists
 - C. antiar-rhythmic drugs
 - D. Anticholinesterase drugs
 - E. diuretics (See Chapter 8 for a full discussion.)
 8. Codeine is used clinically as:



- A. Analgesic
 - B. Antitussive
 - C. Antidiarrheal
 - D. Antispasmodic
 - E. Diaphoretic
9. In the following drugs identify loop diuretics
- A. Torsemide
 - B. Bendroflumethiazide
 - C. Hydrochlorothiazide
 - D. Ethacrynic Acid
 - E. Indapamide
10. Actions of growth hormone include the following except:
- A. Increased protein synthesis
 - B. Increased fat utilization
 - C. Increased carbohydrate utilization
 - D. Glucose intolerance
 - E. To stimulate production of insulin-like growth factors
11. The following classes of drugs are used to improve Gastro intestinal function
- A. Antiemetics
 - B. Obesity drugs
 - C. Lipostatins
 - D. Decongestants
 - E. Antidiarrheal and laxative drugs
12. The prominent actions of bromocriptine include:
- A. Dopamine D2 agonism
 - B. Dopamine D2 antagonism
 - C. Dopamine D1 antagonism
 - D. α adrenergic antagonism
 - E. treatment of hyperprolactinemia
13. Which of the following drugs are a nondepolarizing neuromuscular blockers?
- A. Succinylcholine
 - B. Vecuronium
 - C. Decamethonium
 - D. Pancuronium
 - E. Dantrolene sodium
14. The following classes of drugs are used in management of convulsive disorders
- A. Carboxylic Acid Derivatives
 - B. 1-(Aminomethyl) Cyclohexane Acetic Acid
 - C. 5-HT agonists



- D. Hydantoins
E. Barbiturates
15. The primary mechanism by which general anaesthetics produce their action is:
- Affecting receptor operated ion channels in cerebral neurons
 - Blocking voltage sensitive Na⁺ channels in neuronal membrane
 - Depressing metabolic activity of cerebral neurones
 - Blocking production of high energy phosphates in the brain
 - B & C above
16. Match the following drugs to their indications
- | | | |
|---------------------------------------|-------|---------------------------------|
| A. Cardiac glycosides | (i) | Atrial fibrillation and flutter |
| B. Phosphodiesterase (PDE) Inhibitors | (ii) | Heart failure |
| C. Nitrates | (iii) | Arrhythmias. |
| D. Calcium channel blockers | (iv) | Prevent angina |
| E. Angiotensin II receptor blockers | (v) | Tachycardia |
17. Under physiological conditions the rate limiting enzyme in the generation of angiotensin II is:
- Renin
 - Angiotensin converting enzyme
 - Aminopeptidase
 - Angiotensinase
 - Protease enzyme.
18. The following statements are true about topical non-steroidal anti-inflammatory drugs (NSAIDS) except:
- They can be used for osteoarthritis
 - Used for soft tissues rheumatism
 - The drug penetrates to the sub-adjacent tissues attaining high concentration in the affected muscles
 - They are marketed in the form of gels
 - They can also be applied on broken skin to relief pain
19. What is the mechanism of action of heparin?
- Activates antithrombin III
 - Vitamin K antagonist
 - Activates tissue plasminogen activator
 - Inhibits antithrombin III
 - Inhibits protein C
20. Absorption of oral iron preparations can be facilitated by co-administering:
- Antacids
 - Tetracyclines
 - Phosphates
 - Ascorbic acid



E. Caffeine

SECTION B: SHORT ANSWER QUESTIONS (40 MARKS)

1. Explain three advantages of the inhalational route of drug administration (6 Marks)
2. Outline the four pharmacokinetic processes that affecting drug response (4 Marks)
3. With examples mention four classes of anesthetic drugs (4 Marks)
4. Describe two routes of drug administration that by pass first-pass metabolism (4 Marks)
5. Give three benefits of using β -adrenergic blockers in management of chronic heart failure (CHF) (4 Marks)
6. Name the class and give two examples of antibiotics that inhibit enzymes required for bacterial DNA synthesis (6 Marks)
7. Explain two gastro intestinal factors that can affect drug bioavailability (4 Marks)
8. Name one general-purpose antidote used for various types of acute oral poisoning (4 Marks)
9. Explain the mechanism of action of Naloxone (2 Marks)
10. Mention two drugs used in Latent Tuberculosis (LTB) prevention (2 Marks)

SECTION C: LONG ANSWER QUESTIONS (40 MARKS)

1. Discuss the responses of antihistamines on the following effector organs / body systems (20 Marks)
 - Skin
 - Stomach
 - Upper respiratory system
 - Eye
2. With examples in each group classify antipsychotics. (20 Marks)

