

Time: 3 Hours

Total Marks: 75

Q I. Choose the ONE best answer and write it down

20 Marks

1. Which of the following drugs is a leukotriene receptor antagonist commonly used to treat asthma?

- A) Albuterol
- B) Montelukast
- C) Prednisone
- D) Theophylline

2. Sucralfate acts by:

- A) Inhibiting proton pumps in the stomach
- B) Antagonizing H<sub>2</sub> receptors on parietal cells
- C) Forming a protective barrier over the ulcer site
- D) Antisecretory mechanism

3. Ondansetron prevents nausea and vomiting by:

- A) Antagonizing serotonin's action on 5-HT<sub>3</sub> receptors
- B) Antagonizing central and peripheral D<sub>2</sub> receptors in the medullary chemoreceptor trigger zone
- C) Antagonizing cholinergic M<sub>3</sub> receptors in the stomach
- D) blocking dopamine receptors in the gut

4. Which of the following drugs is a non-opioid antitussive that suppresses cough reflex sensitivity?

- A) Acetylcysteine
- B) Bromhexine
- C) Guaifenesin
- D) Dextromethorphan

5. What is the primary advantage of combining sulfonamides with trimethoprim in cotrimoxazole therapy?

- A) Enhanced bactericidal activity
- B) Broader spectrum of activity
- C) Reduced risk of resistance development
- D) Reduced risk of adverse effects

6. Quinolone resistance in bacteria can occur due to mutations in genes encoding:

- A) Beta-lactamases
- B) Ribosomal RNA
- C) DNA gyrase and topoisomerase IV
- D) Efflux pumps

7. Which antibiotic class is typically avoided in children under the age of 8 due to its potential to cause tooth discolouration?

- A) Penicillins
- B) Tetracyclines
- C) Macrolides
- D) Aminoglycosides

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8. Oxazolidinones, such as linezolid, exert their antibacterial effect by:
- A) Inhibition of DNA gyrase
  - B) Inhibition of RNA polymerase
  - C) Inhibition of cell wall synthesis
  - D) Inhibition of bacterial protein synthesis at the initiation complex
9. What is the mechanism of action of metronidazole in the treatment of amoebiasis?
- A) Inhibition of DNA synthesis
  - B) Inhibition of RNA synthesis
  - C) Inhibition of protein synthesis
  - D) Disruption of cell wall synthesis
10. Which of the following is a common side effect of rifampicin?
- A) Peripheral neuropathy
  - B) Hepatotoxicity
  - C) Renal toxicity
  - D) QT prolongation
11. Which antimalarial drug acts by inhibiting heme polymerase in the malaria parasite?
- A) Chloroquine
  - B) Quinine
  - C) Mefloquine
  - D) Artemisinin
12. Which point in the replication cycle appears most easily blocked by antivirals?
- A) Virus penetration
  - B) Virus absorption
  - C) Nucleic acid replication
  - D) Exit of viruses from the cell
13. Which class of chemotherapy drugs primarily targets rapidly dividing cells by inhibiting DNA synthesis?
- A) Alkylating agents
  - B) Antimetabolites
  - C) Anthracyclines
  - D) Vinca alkaloids
14. What is the primary symptom of syphilis in its early stage?
- A) Painful urination
  - B) Vaginal discharge
  - C) Genital ulcers
  - D) Scrotal swelling
15. The immunosuppressant drug cyclosporine:
- A. Binds to the immunophilin FKBP1A, followed by the binding of the complex to calcineurin
  - B) Binds to FKBP1A to inhibit the protein mTOR
  - C) Inhibits inosine monophosphate dehydrogenase involved in de novo synthesis of purines
  - D) Inhibits IL-1 and TNF gene expression and synthesis
16. Biosimilars are:
- A) Generic versions of small molecule drugs
  - B) Synthetic drugs

- C) Vaccines  
D) Highly similar biological products with no clinically significant differences from approved reference products
17. Chronic toxicity typically manifests as:  
A) Immediate and severe symptoms after a single exposure  
B) Gradual and irreversible adverse effects after repeated exposure over months or years  
C) Mild symptoms that resolve quickly after exposure  
D) Symptoms that only occur after accidental exposure
18. What is the mechanism of action of organophosphorus compounds?  
A) Inhibition of acetylcholinesterase  
B) Blockade of opioid receptors  
C) Activation of NMDA receptors  
D) Inhibition of monoamine oxidase
19. The term "chronotherapy" refers to:  
A) Treatment of chronic diseases with medications over extended periods  
B) Use of drugs in emergencies to stabilize patients' conditions  
C) Administration of drugs at specific times to optimize therapeutic outcomes and minimize side effects  
D) Development of new drugs based on molecular rhythms
20. Chronotherapy of antiulcer drugs involves:  
A) Taking proton pump inhibitors only in the morning to reduce gastric acid secretion during the day  
B) Using antacids sporadically throughout the day to neutralize stomach acid  
C) Avoiding antiulcer drugs altogether to allow the stomach to heal naturally  
D) Administering H<sub>2</sub> receptor antagonists primarily during the night to suppress nocturnal acid secretion

**Q. II. Answer any TWO of the following: 20 Marks**

1. Classify antiulcer agents. Write the mechanism of action, adverse reactions, and therapeutic uses of proton pump inhibitors and antihistaminic drugs.
2. Write a note on the mechanism of action of beta-lactam antibiotics. How do bacteria acquire resistance to beta-lactam antibiotics? Classify penicillin antibiotics with examples.
3. Classify antiretroviral drugs with examples. Describe Protease Inhibitors in detail.

**Q. III. Answer any SEVEN of the following questions: 35 marks**

1. Classify laxatives and purgatives with examples. Give a brief account of bulk-forming agents.
2. Classify drugs used for the treatment of asthma with examples. Elaborate on mast cell stabilizers.
3. Discuss various mechanisms by which bacteria acquire resistance against antibiotics.
4. Classify azole antifungal drugs with examples. Give their mechanism of action, adverse effects and clinical use.

5. Classify first and second-line anti-tubercular drugs and give the mechanism of action, adverse effects

and therapeutic uses of rifampin.

6. Classify immunosuppressant drugs with examples of each class. Add a note on Calcineurin inhibitors

7. Classify anticancer agents. Describe the pharmacology of alkylating agents.

8. Compare and contrast Acute Toxicity and Chronic Toxicity.

9. Discuss about chronotherapy for peptic ulcers and antiasthmatic drugs.

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