

Cology-III

Duration: 3-hour

Total Marks: (75)

20 Marks

Q 1. Choose the ONE best answer and write it down

1. Which class of drugs is primarily used as a long-term control medication for asthma?
 - a) Short-acting beta agonists
 - b) Inhaled corticosteroids
 - c) Anticholinergics
 - d) Leukotriene modifiers
2. Which of the following nasal decongestants works primarily as a sympathomimetic agent?
 - a) Phenylephrine
 - b) Saline nasal spray
 - c) Budesonide
 - d) Guafenesin
3. What is the primary mechanism of action of loperamide in the treatment of diarrhea?
 - a) Binding to bile acids
 - b) Increasing gut motility
 - c) Decreasing gut motility
 - d) Enhancing electrolyte absorption
4. What is the mechanism of action of ondansetron, an anti-emetic?
 - a) Stimulation of gastric motility
 - b) Antagonism of dopamine receptors
 - c) Inhibition of histamine receptors
 - d) Antagonism of serotonin receptors
5. Which of the following terms describes the lowest concentration of an antibiotic that prevents visible growth of a microorganism?
 - a) Minimum bactericidal concentration (MBC)
 - b) Minimum inhibitory concentration (MIC)
 - c) Therapeutic index (TI)
 - d) Breakpoint
6. Sulfonamides act primarily by inhibiting which enzyme in bacterial folate synthesis?
 - a) Dihydropteroate synthase
 - b) Dihydrofolate reductase
 - c) Thymidylate synthase
 - d) Aminoacyl-tRNA synthetase
7. The combination of beta-lactam antibiotics with beta-lactamase inhibitors is used to:
 - a) Increase the spectrum of activity
 - b) Enhance renal clearance
 - c) Overcome resistance
 - d) Reduce toxicity
8. Which antibiotic is known to inhibit the enzyme DNA gyrase?
 - a) Erythromycin
 - b) Amoxicillin
 - c) Clindamycin
 - d) Ciprofloxacin
9. What is the mechanism of action of isoniazid?
 - a) Inhibition of RNA synthesis
 - b) Inhibition of mycolic acid synthesis
 - c) Disruption of cell membrane integrity
 - d) Inhibition of folate synthesis

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10. Metronidazole is primarily used to treat infections caused by:

- a) Bacteria
- b) Fungi
- c) Protozoa
- d) Helminths

11. Which of the following antifungal agents works by inhibiting the synthesis of ergosterol?

- a) Fluconazole
- b) Griseofulvin
- c) Nystatin
- d) Clotrimazole

12. Which of the following is the first-line treatment for uncomplicated malaria caused by Plasmodium falciparum?

- a) Chloroquine
- b) Quinine
- c) Mefloquine
- d) Artemisinin-based combination therapy (ACT)

13. What is the mechanism of action of doxorubicin?

- a) Inhibition of topoisomerase II
- b) Alkylation of DNA
- c) Inhibition of microtubule formation
- d) Antimetabolite activity

14. Which of the following therapies is indicated for the treatment of genital herpes?

- a) Griseofulvin
- b) Amoxicillin
- c) Metronidazole
- d) Acyclovir

15. What is the mechanism of action of azathioprine?

- a) Inhibition of interleukin-2
- b) Inhibition of tumor necrosis factor-alpha
- c) Inhibition of purine synthesis
- d) Inhibition of T-cell receptor signaling

16. Biosimilars are characterized by which of the following features?

- a) Identical to the original biologic
- b) Highly similar but not identical to the original biologic
- c) Cannot be substituted for the original biologic without a prescription
- d) Always more expensive than the original biologic

17. Chronic toxicity refers to:

- a) Rapid onset of symptoms
- b) Long-term exposure leading to cumulative effects
- c) Symptoms that resolve quickly
- d) Toxicity that occurs only in children

18. Which of the following symptoms is associated with barbiturate overdose?

- a) Tachycardia
- b) Increased alertness
- c) Respiratory depression
- d) Dilated pupils

19. Which hormone's secretion is influenced by the biological clock and is important for sleep regulation?
- Cortisol
 - Insulin
 - Adrenaline
 - Melatonin

20. For patients with Type 2 diabetes, what is a common strategy involving meal timing and medication?
- Skipping meals to enhance medication effect
 - Taking oral hypoglycemics in the morning to coincide with increased insulin sensitivity
 - Taking all medications before bed for convenience
 - Ignoring meal timing entirely

20 Marks

Q. II. Answer any TWO of the following:

- Classify drugs used in the management of COPD with examples. Discuss the pharmacology of mast cell stabilizers.
- Write a short note on the quinolone class of antibiotics mentioning examples, mechanism of action, adverse effects, and clinical uses.
- Classify antimalarial drugs with examples. Elaborate on the mechanism of action, adverse effects and uses of 4-aminoquinoline drugs

35 marks

Q. III. Answer any SEVEN of the following questions:

- Classify antiemetics with examples and add a note on and pharmacology of dopamine receptor antagonists
- Classify drugs used against acidity with examples. Discuss the mechanism of action, uses and side effects of proton pump inhibitors.
- Write a short note on the mechanism of action, uses and side effects of tetracyclines.
- Classify antifungal drugs with examples. Write a short note on the mechanism of action and uses of polyene antibiotics.
- Classify antitubercular drugs with examples. Write a short note on the first-line drugs with their mechanisms and side effects.
- Classify immunosuppressants with examples. Elaborate on the drugs acting on calcineurin and mTOR.
- Classify anticancer drugs with examples.
- Write a short note on Acute Toxicity studies.
- Discuss chronotherapy for diabetes mellitus.
