

Time:3 Hours

Marks: 75

Note: All questions are compulsory.

Figures to the right indicate full marks.

Q 1. Choose the correct answer and write it down

20 M

1. Insulin is a polypeptide hence _____

- Alternative 1 It is resistant to destruction by gastric juice
- Alternative 2 It is destroyed by gastric juice
- Alternative 3 It is not a polypeptide
- Alternative 4 It is metabolized immediately by cellular enzymes

2. _____ is used as an endocrine drug and is a steroidal derivative

- Alternative 1 Gonadorelin
- Alternative 2 Insulin
- Alternative 3 Levothyroxine
- Alternative 4 Hydrocortisone

3. Progesterone is secreted by:

- Alternative 1 Ovarian follicles
- Alternative 2 Corpus luteum
- Alternative 3 Granulosa cells
- Alternative 4 Theca cells

4. The primary action of parathormone is

- Alternative 1 To increase intestinal calcium absorption
- Alternative 2 To increase calcium reabsorption in kidney tubules
- Alternative 3 To promote calcium deposition in extraosseus tissues
- Alternative 4 To increase resorption of calcium from bone

5. Carbimazole acts by inhibiting _____

- Alternative 1 Iodide trapping
- Alternative 2 Oxidation of iodide
- Alternative 3 Proteolysis of thyroglobulin
- Alternative 4 Synthesis of thyroglobulin protein

6. Resistance to beta-lactam antibiotics mediated by alteration of target proteins is commonly observed in which bacterial species?

- Alternative 1 Escherichia coli
- Alternative 2 Pseudomonas aeruginosa
- Alternative 3 Streptococcus pneumoniae
- Alternative 4 Acinetobacter baumannii

7. Which antitubercular drug is often used as a second-line treatment for MDR-TB but is associated with adverse effects such as ototoxicity and nephrotoxicity?

- Alternative 1 Ethambutol
- Alternative 2 Streptomycin
- Alternative 3 Linezolid
- Alternative 4 Amikacin

54371

Page 1 of 4

8. Resistance to acyclovir, is often associated with mutations in the viral:

- Alternative 1 DNA polymerase
- Alternative 2 RNA polymerase
- Alternative 3 Protease
- Alternative 4 Neuraminidase

9. Rifampicin resistance in Mycobacterium tuberculosis is commonly associated with mutations in the:

- Alternative 1 rpoB gene
- Alternative 2 katG gene
- Alternative 3 inhA gene
- Alternative 4 embB gene

10. What is the primary mechanism of resistance development against azole antifungal drugs?

- Alternative 1 Mutation of fungal cytoskeletal proteins
- Alternative 2 Increased drug uptake
- Alternative 3 Alteration of the target enzyme
- Alternative 4 Activation of drug efflux pumps

11. _____ inhibits oxidative phosphorylation in some species of helminthes:

- Alternative 1 Niclosamide
- Alternative 2 Piperazine
- Alternative 3 Praziquantel
- Alternative 4 Mebendazole

12. Mechanism of action of alkylating agents is

- Alternative 1 via alteration of protein structure
- Alternative 2 via cross-linking of DNA strands
- Alternative 3 structural antagonism against purine and pyrimidine
- Alternative 4 inhibition of DNA-dependent RNA synthesis

13. _____ is a mast cell stabilizer used in asthma treatment.

- Alternative 1 Zileutin
- Alternative 2 Sodium cromoglycate
- Alternative 3 Zafirlucast
- Alternative 4 Montelukast

14. Mechanism of action of tacrolimus is:

- Alternative 1 Anti-idiotypic antibodies against autoantibodies
- Alternative 2 Modulation of CD3 receptor from the cell surface
- Alternative 3 Inhibits calcineurin
- Alternative 4 ADCC towards T lymphocytes

15. Sucralfate, acts by:

- Alternative 1 Forming a protective barrier over the ulcer crater
- Alternative 2 Inhibiting gastric acid secretion
- Alternative 3 Eradicating H. pylori infection
- Alternative 4 Neutralizing gastric acid

16. Which antiemetic drug is commonly used for the prevention of motion sickness?

- Alternative 1 Ondansetron
- Alternative 2 Metoclopramide
- Alternative 3 Dimenhydrinate
- Alternative 4 Prochlorperazine

17. Chronopharmacological considerations in hypertension management may take into account the timing of drug administration to minimize the risk of:

- Alternative 1 Nocturnal hypoglycemia
- Alternative 2 Nocturnal hypertension
- Alternative 3 Morning surge in blood pressure
- Alternative 4 Hyperkalemia

18. Metoclopramide exerts its antiemetic effect by blocking which type of receptors?

- Alternative 1 Dopamine D2 receptors
- Alternative 2 Serotonin (5-HT₃) receptors
- Alternative 3 Muscarinic receptors
- Alternative 4 Cannabinoid receptors

19. The enzyme catalase primarily functions to:

- Alternative 1 Break down hydrogen peroxide into water and oxygen
- Alternative 2 Convert superoxide radicals into hydrogen peroxide
- Alternative 3 Detoxify nitric oxide
- Alternative 4 Neutralize hydroxyl radicals

20. SOD is known to catalyze the dismutation of _____ to hydrogen peroxide and O₂.

- Alternative 1 Catalase
- Alternative 2 hydrogen superoxide
- Alternative 3 superoxide
- Alternative 4 peroxidase

Q 2. Answer any two out of three

20 M

1. Classify anti-asthmatic drugs with examples. Discuss their mechanism of action and adverse effects.

2. Classify antiulcer drugs and discuss in detail mechanism of action of each class.

3. Discuss the role of oxidative stress in the development and progression of Cancer and Alzheimer's disease.

Q 3. Answer any seven out of nine

35 M

1. Discuss mechanism of action of estrogens and testosterone.
 2. Elaborate on mechanism of action and adverse effects anti-thyroid drugs.
 3. Compare and contrast the mechanisms of resistance to nucleoside analogs and non-nucleoside inhibitors in antiviral therapy. Discuss how these mechanisms differ and their implications for treatment strategies.
 4. Explain the concept of Beta-lactamase-mediated resistance in bacteria against Beta-lactam antibiotics and strategies to overcome this resistance mechanism.
 5. Discuss mechanism of action, adverse effects and uses of albendazole.
 6. Discuss immunosuppressants and their therapeutic uses.
 7. Describe the concept of chronotherapy in asthma management. Provide examples of asthma medications and interventions that are timed to optimize efficacy and minimize nocturnal symptoms.
 8. Write a note on antiemetics used for treatment of vomiting due to cancer chemotherapy.
 9. Discuss how various cellular antioxidants neutralize free radicals and maintain cellular redox balance to prevent oxidative damage.
-