

All questions: Select the single, most appropriate answer.

1. Deficiency of which one of the following vitamins may result in a degenerative neuropathy characterized by general neuritis, paralysis, and atrophy of the muscle:
 - A. Vitamin B₁ (thiamine)
 - B. Vitamin B₂ (riboflavin)
 - C. Vitamin B₃ (nicotinic acid)
 - D. Vitamin B₆ (pyridoxine)
 - Ⓔ E. Vitamin B₁₂

2. A 22 year old female patient is being treated with azathioprine for lupus. Which of the following best describes this drug?
 - Ⓐ A. It selectively inhibits proinflammatory cytokine expression by blocking IL-2 expression.
 - B. It selectively blocks T cell activity and is also effective for the prevention of renal allograft rejection.
 - C. It is an antimetabolite which blocks nucleic acid metabolism and inhibits both cell-mediated immunity and antibody responses.
 - Ⓓ D. Hepatotoxicity is the most common adverse reaction.
 - E. Is frequently administered with prednisone in order to activate the complement system.

3. Which of the following antianginal drugs is most likely to cause throbbing headache, orthostatic hypotension and reflex tachycardia?
 - Ⓐ A. Nitroglycerin
 - B. Diltiazem
 - C. Propranolol
 - D. Nadolol
 - E. Atenolol

4. Adrenal chromaffin cells are modified ganglion cells that secrete the following substance into the circulation:
 - A. Growth hormone releasing hormone
 - Ⓓ B. Epinephrine
 - C. Acetylcholine
 - D. Thyrotrophin releasing hormone
 - E. Glycine

5. Rapamycin is an immunosuppressive drug, which can be employed for the prevention of organ graft rejection. While it is often used in conjunction with other immunosuppressive drugs, it is still possible to employ this drug on its own. Which of the following statements describes this drug?
- A. Is an Imidazolyl derivative of mercaptopurine, and functions as an antimetabolite.
 - B. Is a selective inhibitor of RNA synthesis, and is commonly employed as an anti-cancer therapeutic
 - C. Is activated by xanthine oxidase and selectively inhibits antibody responses.
 - ☒ D. Binds to FKBP and inhibits signaling through the IL-2 receptor.
 - E. Is a metabolite of penicillin, and works by trapping free radicals
6. A patient presents with anemia resulting from a malabsorption of iron. Which of the following agents would be most useful in treating the anemia?
- A Cyanocobalamin
 - ☒ B Deferoxamine
 - ☒ C Ferrous sulfate
 - D Ferrous gluconate
 - E Iron Dextran
7. Which one of the following compounds is not an antibiotic but is used to enhance the activity of certain antibiotics?
- A Bacitracin
 - ☒ B Clavulanic acid
 - C Imipenem
 - D Nalidixic acid
 - E Trimethoprim

For questions 8-9

A dental patient is being treated prophylactically with an antibiotic during extensive dental work. After a week of therapy the patient complains of severe and bloody diarrhea.

8. Which of the following antibiotics was most likely responsible?
- ☒ A Clindamycin
 - B Erythromycin
 - C Metronidazole
 - D Sulfamethoxazole
 - E Tetracycline

9. The dentist prescribes another drug to treat the diarrhea, which will be given orally. Which of the following drugs is most likely to be prescribed?
- A Clindamycin
 - B Erythromycin
 - ☒ C Vancomycin
 - D Sulfamethoxazole
 - E Tetracycline
10. Which of the following antibiotics is associated with enhanced clearance of estrogen and other drugs?
- A Amoxicillin
 - B Chloramphenical
 - C Clindamycin
 - ☒ D Rifampin
 - E Tetracycline
11. Which of the following best describes the mechanism of action of valacyclovir?
- A. Is a viral protease inhibitor
 - B. Inhibits viral uncoating
 - C. Is a neuraminidase inhibitor
 - D. Inhibits reverse transcriptase
 - ☒ E. Inhibits viral DNA polymerase
12. Which of the following antibiotics disrupts the membrane of gram negative bacteria?
- A Clindamycin
 - B Erythromycin
 - ☒ C Polymyxin
 - D Streptomycin
 - E Tetracycline
13. An 8-year-old girl is brought in by her mother for evaluation of allergies. Each year in the spring the child develops a runny nose; itchy, watery eyes; and sneezing. She has been treated in the past with diphenhydramine, but the child's teacher says that she is very drowsy during school. Which one of the following drugs would you suggest?
- A. Flutamide
 - B. Chlorpheniramine
 - ☒ C Fexofenadine
 - D. Promethazine
 - E. Diphenhydramine

14. The chief disadvantage of nitrous oxide as a general anesthetic is
- A. Prolonged recovery time due to retention in fat
 - B. Poor analgesia
 - C. Excessive relaxation of skeletal muscles
 - D. Slow induction
 - ☒ E. Low potency (high MAC)
15. Which of the following is a toxic side effect associated with the use of doxorubicin during cancer chemotherapy?
- A. Endometriosis
 - ☒ B. Cardiotoxicity
 - C. Hepatotoxicity
 - D. Impotence
 - E. Hyperglycemia
16. Which of the following agents is a DNA alkylating drug?
- A. Imatinib
 - B. Cetuximab
 - ☒ C. Ifosfamide
 - D. Aminoglutethimide
 - E. Gefitinib
17. Which of the following tumors can be induced during chemotherapy as a common treatment-induced tumor?
- A. Prostate cancer
 - B. Breast cancer
 - ☒ C. Brain tumor
 - D. Skin cancer
 - ☒ E. Acute myelogenous leukemia
18. Night blindness is a result of deficiency in:
- A. Vitamin C
 - ☒ B. Vitamin A
 - C. Vitamin D
 - D. Vitamin E
 - E. Vitamin K

19. Warfarin is an anticoagulant because:
- A. It raises the plasma level of factor IX
 - ☒ B. It directly inhibits thrombin
 - ☐ C. It interferes with vitamin K
 - D. It binds calcium ions
 - E. It inhibits platelet activation
20. Which of the following is true for the drug aspirin?
- A. It acetylates the fibrinogen receptor in order to render it inactive.
 - ☒ B. It is most readily absorbed through the buccal route.
 - C. It is a direct thrombin inhibitor and works by modification of the active site of thrombin.
 - ☐ D. It is a competitive antagonist of the platelet thromboxane receptor.
 - E. It inactivates the alpha subunit of Gq
21. A 48-year-old woman with type 2 diabetes mellitus has been stabilized on a sulfonylurea for the past 10 years. When she has a sudden elevation in her blood sugar, her physician adds a second drug, which stimulates the GLP-1 receptor to enhance insulin secretion. Which drug was added to her treatment?
- A. Acarbose
 - ☐ B. Glyburide
 - C. Metformin
 - ☒ D. Exenatide
 - E. Rosiglitazone
22. Which of the following is an enzyme?
- A. The Muscarinic receptor
 - ☐ B. The G $\beta\gamma$ subunit
 - C. The inositol 1,4,5P₃ (IP₃) receptor
 - ☒ D. The nitric oxide receptor
 - E. The nicotinic acetylcholine receptor
23. Which one of the following drugs inhibits HMG-CoA reductase?
- ☐ A. Atorvastatin
 - B. Gemfibrozil
 - C. Niacin
 - D. Ezetimibe
 - E. Colestipol

24. Uses of atropine and related muscarinic antagonists are most likely to include treatment or prevention of
- ~~A.~~ Tachycardia
 - ~~B.~~ Alzheimer's disease
 - ☒ C. Motion Sickness
 - ~~D.~~ Constipation
 - ~~E.~~ Glaucoma
25. Which one of the following anti-arrhythmic drugs is most likely to cause xerostomia as a major side effect?
- ☒ A. Lidocaine
 - ~~B.~~ Disopyramide
 - C. Amiodarone
 - D. Verapamil
 - E. Propranolol
26. Which of the following best describes the mechanism of action of general anesthetic gases.
- A. They make nerve cells membranes more fluid, disrupting axonal conduction
 - ☒ B. They inhibit the opening of chloride gating ion channels (i.e. GABA_A)
 - ~~C.~~ They inhibit the opening of Na⁺/Ca²⁺ gating ion channels (i. e. NMDA)
 - D. They are competitive antagonists at receptor-operated ion channels.
 - E. They make nerve cells membranes more rigid, disrupting axonal conduction
27. Which of the following drugs is most useful for the treatment of chronic hepatitis C?
- A. Rimantadine
 - B. Zanamivir
 - C. Lamivudine
 - D. Nelfinavir
 - ☒ E. Interferon
28. Effects of estrogens in hormone replacement therapy are most likely to include
- A. Reduction in breast cancer
 - B. Reduction in body temperature
 - C. Reduction in HDLs
 - D. Increased risk of osteoporosis
 - ☒ E. Increased risk of thromboembolic disorders

29. Which of the following antibiotic combinations is indicated for treatment of *Pneumocystis carinii* pneumonia?
- A Rifampin + Isoniazid
 - B Rifampin + Erythromycin
 - C Penicillin + Aminoglycoside
 - D Penicillin + Tetracycline
 - ☒ E Trimethoprim + Sulfamethoxazole
30. Which of the following statements regarding lidocaine is true?
- ☒ A Lidocaine produces a local anesthetic effect by blocking voltage-sensitive potassium channels
 - ☐ B Lidocaine is metabolized by the same enzymes as tetracaine
 - ☒ C The purpose of adding epinephrine to lidocaine preparations is to reduce absorption into the systemic circulation
 - D When the extracellular fluid has a pH in the physiological range, the neutral form of lidocaine is the predominant form
 - E The neutral form of lidocaine is its most active form at the binding site
31. A characteristic feature of antimetabolites used in cancer chemotherapy is that they:
- ☒ A Do not exhibit acute toxicity
 - B Are cell cycle non-specific agents
 - C Act primarily by damaging DNA
 - D Do not require cell metabolism
 - E Are used as single agents during treatment
32. Vincristine is an effective cancer chemotherapeutic agent because it:
- A Is a substrate analogue for thymidylate synthetase
 - B Binds with high affinity to dihydrofolate reductase
 - ☒ C Blocks cells in mitosis
 - D Produces strand breaks in DNA
 - E Competes for the estrogen receptor
33. Which one of the following neurotransmitters is most important for the pathogenesis of Parkinson's disease?
- A Serotonin
 - B Norepinephrine
 - C Glutamate
 - ☒ D Dopamine
 - E Glycine

34. A second-year dental student is playing basketball when he steps on a nail, which penetrates his foot. He soon develops a painful gram-negative *Pseudomonas aeruginosa* bone infection. With the Pharmacology final just weeks away he asks his physician to prescribe an antibiotic, which he knows is conveniently orally available. Which of the following drugs did he ask for?
- A. Cefaclor
 - ☒ B. Ciprofloxacin
 - C. Clindamycin
 - D. Doxycycline
 - E. Gentamicin
35. Which one of the following drugs you would not combine with a benzodiazepine?
- A. Aspirin
 - B. Alcohol
 - ☒ C. Glucocorticoids
 - D. Oral contraceptives
 - E. Antibiotics
36. Which one of the following drugs is indicated in recovering alcoholics to help diminish alcohol-seeking behavior?
- A. Carbidopa
 - B. Tolbutamide
 - ☒ C. Naltrexone
 - D. Phenobarbital
 - E. Fomepizole
37. Use of bethanechol is most likely to produce
- A. Pupillary dilatation
 - B. Bronchodilation
 - ☒ C. Increased frequency of urination
 - D. Tachycardia
 - E. Dry mouth
38. Toxicity of Fluorides: All of the following statements are correct EXCEPT:
- ☒ A. Fluoride treatment has wide margin of safety
 - ☒ B. Enamel fluorosis can occur if water contains more than twice optimum concentration.
 - ☒ C. Osteosclerosis of spine & pelvis if water contains 18 PPM fluoride
 - ☒ D. Acute toxicity (from accidental ingestion)
 - ☒ E. Lethal dose: children 3-5 grams

39. Which of the following best describes the mechanism of action of terbinafine?
- ☐ A. Binds to ergosterol in fungal cells to disrupt cell membranes
 - ☐ B. Inhibits thymidylate synthetase
 - ☐ C. Inhibits spindle formation in fungal cell mitosis
 - ☐ D. Inhibits metabolism of lanosterol
 - ☒ E. Inhibits squalene epoxidase in ergosterol synthesis
40. Oral administration of which of the following drugs is most useful for the treatment of oropharyngeal candidiasis in an immunocompromised patient?
- ☐ A. Caspofungin
 - ☐ B. Terbinafine
 - ☐ C. Natamycin
 - ☒ D. Fluconazole
 - ☐ E. Griseofulvin
41. Which one of the following mechanisms describes the killing action of Isoniazid on *Mycobacterium tuberculosis*?
- ☐ A. Interfering with pyridoxine-dependent reactions
 - ☒ B. Interfering with bacterial cell-wall synthesis
 - ☐ C. Inhibiting DNA-dependent RNA polymerase
 - ☐ D. Altering membrane permeability
 - ☐ E. Inhibiting 30S ribosome function.
42. Use of which of the following drugs is most associated with nephrotoxicity?
- ☒ A. Amphotericin B
 - ☐ B. Flucytosine
 - ☐ C. Voriconazole
 - ☐ D. Tolnaftate
 - ☐ E. Griseofulvin
43. Which of the following describes mechanisms by which sucralfate alleviates the symptoms of peptic ulcer disease ?
- ☐ A. Preventing the secretion of gastric acid
 - ☒ B. Forming a viscous gel that coats and protects gastric epithelial cells
 - ☐ C. Enhancing the production of H. pylori-directed antibodies
 - ☒ D. Preventing the secretion of gastrin
 - ☐ E. Neutralizing gastric acid

44. Which of the following antiviral drugs is most useful in the treatment of cytomegaloviral infections?
- A. Trifluridine
 - ☒ B. Ganciclovir
 - C. Acyclovir
 - D. Zidovudine
 - E. Amantadine
45. An asthma patient, who regularly takes theophylline, contracts Traveler's diarrhea while on vacation. He is treated with an antibiotic and develops seizures. Which of the following drugs is most likely responsible?
- A. Chloramphenicol
 - ☒ B. Ciprofloxacin
 - C. Clindamycin
 - D. Dicloxacillin
 - E. Sulfamethoxazole
46. Which of the following drugs stimulates insulin secretion and is most likely to produce hypoglycemia in a type-2 diabetic patient?
- A. Metformin
 - ☒ B. Glipizide
 - C. Acarbose
 - D. Rosiglitazone
 - E. Propranolol
47. Which of the following best describes the mechanism of action of thyroid hormones (thyroxine)?
- A. Binds to an ion channel receptor, to increase sodium influx
 - ☒ B. Binds to an intracellular receptor, to alter protein synthesis
 - C. Binds to a tyrosine kinase-linked receptor
 - D. Binds to a G-protein-linked receptor, to increase cAMP
 - E. Binds to a G-protein-linked receptor, to increase protein kinase C
48. A patient has been treated with high doses of levothyroxine for the past 6 months. Which of the following adverse reactions is most likely to occur?
- A. Bradycardia
 - B. Hypotension
 - ☒ C. Hyperglycemia
 - D. Hypothermia
 - E. Hypercholesterolemia

49. Toxic effects of long term administration of prednisolone are most likely to include
- A. A "lupus-like" syndrome
 - B. Hepatotoxicity
 - ☒ C. Osteoporosis
 - D. Renal impairment
 - E. Weight loss
50. A 30-year-old woman presents to her physician with insomnia and cardiac palpitations. Following blood work, the physician starts the patient on methimazole. What disease does the patient most likely have?
- A. Type 2 diabetes mellitus
 - B. Hypertension
 - ☒ C. Hyperthyroidism
 - D. Addison's disease
 - E. Osteoporosis
51. A major ADVANTAGE of cancer chemotherapy is:
- A. Their specificity comparable to that observed for anti-bacterial antibiotics
 - B. The ability to primarily target non-cycling cells
 - ☒ C. The ability to use multiple drugs simultaneously to destroy cancer cells
 - D. The limited nature of their side effects
 - E. Their direct action not requiring cell metabolism
52. Which of the following adverse reactions is most associated with the use of alendronate?
- ☒ A. Gastrointestinal distress and esophagitis
 - B. Hepatotoxicity
 - C. Renal impairment
 - D. Peripheral neuropathy
 - E. Tachycardia
53. A patient is being treated with itraconazole for onychomycosis. The physician performs blood work during therapy. The physician is most concerned about
- A. Metabolic acidosis
 - B. Renal impairment
 - C. Peripheral neuropathy
 - D. Bone marrow suppression
 - ☒ E. Hepatotoxicity

54. Which of the following best describes the mechanism of action of parathyroid hormone?
- A. Binds to an intracellular receptor to enhance protein synthesis
 - B. Binds to a tyrosine kinase-linked receptor
 - C. Binds to the chloride ionophore
 - ☒ D. Binds to a G-protein-linked receptor to increase cAMP
 - E. Binds to a G-protein-linked receptor to increase intracellular calcium
55. Which of the following agents is most useful in the prophylaxis and treatment of rickets and osteomalacia?
- A. Teriparatide
 - ☒ B. Vitamin D
 - C. Calcitonin
 - D. Parathyroid hormone
 - E. Prednisone
56. Which of the following drugs directly binds to hydroxyapatite crystals to reduce resorption of calcium from bone, and reduce bone turnover?
- A. Levothyroxine
 - B. Calcitriol
 - ☒ C. Ibandronate
 - D. Estradiol
 - E. Propylthiouracil
57. Which of the following statements best describes the mechanism of action of insulin?
- A. Binds to an ion channel receptor to increase chloride influx
 - B. Binds to a G-protein-linked receptor to increase cAMP
 - ☒ C. Binds to a tyrosine kinase-linked receptor
 - D. Binds to a nuclear receptor to increase protein synthesis
 - E. Binds to a G-protein-linked receptor to decrease cAMP
58. A 12-year-old boy with Type-1 diabetes mellitus, enters the emergency room in ketoacidosis, coma and a blood sugar of over 600 mg/dL. Which of the following drugs is most useful by the intravenous route for acute treatment of his symptoms?
- ☒ A. Regular insulin
 - B. Glipizide
 - C. Acarbose
 - D. Repaglinide
 - E. NPH insulin

59. Which of the following drugs blocks estrogen receptors in the breast, and is therefore useful in the treatment of breast cancer?
- A. Ethinyl estradiol
 - B. Mestranol
 - C. Levothyroxine
 - D. Nandrolone
 - ☒ E. Tamoxifen
60. Which one of the following describes the mechanism of action of cocaine?
- A. Antagonist at dopamine D1 receptors
 - B. Antagonist at dopamine D2 receptors
 - C. Enhancement of dopamine re-uptake
 - D. Inhibition of dopamine release
 - ☒ E. Inhibition of dopamine re-uptake
61. Which of the following drugs inhibits phosphodiesterase 5 (PDE5) and is therefore useful in the treatment of erectile dysfunction?
- A. Doxazosin
 - B. Nandrolone
 - ☒ C. Sildenafil
 - D. Oxybutynin
 - E. Megestrol
62. Pharmacological effects of exogenous glucocorticoids are most likely to include
- A. Increased muscle mass
 - ☒ B. Hyperglycemia
 - C. Improved wound healing
 - D. Increased excretion of sodium and water
 - E. Bradycardia
63. Which of the following drugs is a reverse transcriptase inhibitor, most likely to produce anemia?
- A. Amantadine
 - B. Indinavir
 - C. Valacyclovir
 - D. Ganciclovir
 - ☒ E. Zidovudine

64. Which of the following drugs is most effective in replacing mineralocorticoid activity in a patient with severe acute adrenal insufficiency?
- A. Metyrapone
 - ☒ B. Fludrocortisone
 - C. Dexamethasone
 - D. Dehydroepiandrosterone
 - E. Triamcinolone
65. Which of the following best describes the adverse reaction profile of propylthiouracil?
- ☒ A. Hypertension and tachycardia
 - B. Hyperglycemia and ketoacidosis
 - ☒ C. Hepatotoxicity
 - ☒ D. Maculopapular rash and gastrointestinal upset
 - E. Weight loss and insomnia
66. All of the following are attributes of digoxin when used in the treatment of congestive heart failure EXCEPT:
- A. Increase in cardiac automaticity
 - B. Prolongation of the PR-interval of the ECG
 - C. Increased cardiac output
 - ☒ D. Increased salivation
 - E. Visual disturbances with higher doses
67. Which of the following drugs may often cause prolongation of the P-R interval of the electrocardiogram?
- A. Hydralazine
 - B. Clonidine
 - ☒ C. Digoxin
 - D. Nitroglycerin
 - E. Guanethidine
68. The competition between an active and an inactive drug for a common receptor (e.g., phentolamine and norepinephrine on vascular smooth muscle) represents a drug interaction termed
- ☒ A. Pharmacological antagonism
 - B. Functional antagonism
 - C. Chemical antagonism
 - D. Synergism
 - E. Additivity

69. A 50-year-old male requires treatment for severe pain following a dental procedure. Which of the following would be most appropriate to prescribe for pain relief for this patient?
- ☐ A. Acetaminophen and codeine
 - ☒ B. Acetaminophen and oxycodone
 - ☐ C. Fentanyl
 - ☐ D. Nalbuphine
 - ☐ E. Dihydrocodeine
70. All of the following are symptoms of an overdose of an opioid agonist analgesic **EXCEPT**:
- ☐ A. Stupor
 - ☐ B. Hypotension
 - ☐ C. Miosis
 - ☐ D. Respiratory depression
 - ☒ E. Tachycardia
71. An elderly man develops acute urinary retention and blurred vision after taking an antidepressant for 3 days. Which of the following medications is most likely to cause these effects?
- ☐ A. Venlafaxine
 - ☐ B. Paroxetine
 - ☒ C. Amitriptyline
 - ☐ D. St. John's wort
 - ☐ E. Fluoxetine
72. All of the following statements are correct **EXCEPT**:
- ☐ A. In the fasting state, pH of plaque on surfaces is about 6.5
 - ☐ B. Acid is formed soon after intake of glucose
 - ☐ C. The lowest pH may occur in 5-15 minutes after eating
 - ☐ D. At a pH of 5.5 or less, enamel and dentin begin to demineralize
 - ☒ E. There is an inverse relationship between consumption of glucose and the activity of caries producing bacteria.

73. A young girl who has been treated for epilepsy is referred to a periodontist for evaluation and probable treatment of massive overgrowth of her gingival tissues. Some teeth are almost completely covered with hyperplastic tissue. Which one of the following drugs was the most likely cause of the oral pathology?
- A. Valproic acid
 - B. Phenobarbital
 - C. Carbamazepine
 - D. Lamotrigene
 - ☒ E. Phenytoin
74. All of the following statements about fluoride are true **EXCEPT**:
- A. Five parts per million fluoride concentration in drinking water gives more anticaries protection than one part per million
 - B. There is a direct relationship between fluoride concentration in drinking water and the occurrence of enamel fluorosis
 - C. There is a direct relationship between fluoride concentration in drinking water and protection against caries
 - D. There is a direct relationship between fluoride concentration in drinking water and the risk of development of hypocalcemia
 - ☒ E. The mechanism of fluoride action for the prevention of caries involves the formation of more soluble fluorapatite, than the less soluble hydroxyapatite
75. The clinical condition known as scurvy is due to deficiency of which vitamin?
- A. Vitamin A
 - B. Vitamin B
 - ☒ C. Vitamin C
 - D. Vitamin D
 - E. Vitamin E
76. Many antacids are marketed as combinations of magnesium and aluminum hydroxides because:
- A. Magnesium minimizes the absorption of aluminum
 - ☒ B. The laxative effect of magnesium is counteracted by the constipating effect of aluminum
 - C. The "acid rebound" induced by aluminum hydroxide can be minimized
 - D. Aluminum hydroxide alone tastes very bad
 - E. Magnesium hydroxide alone neutralizes gastric acid too slowly

77. Which one of the following drugs is most likely to prevent NSAID-induced ulcers by stimulating secretion of mucus by the gastric mucosa?
- A. Sodium bicarbonate
 - ☒ B. Misoprostol
 - C. Esomeprazole
 - D. Ranitidine
 - E. Bismuth subsalicylate
78. An individual undergoing withdrawal from Drug X displays the following symptoms: runny nose, mydriasis, diarrhea, gooseflesh and vomiting. Drug X is most likely:
- A. Aripiprazole
 - B. Phenobarbital
 - C. Methamphetamine
 - D. Cocaine
 - ☒ E. Heroin
79. Which of the following will most likely result from stimulation of beta-2 adrenoceptors?
- A. Decrease in mental cognition
 - B. Decrease in heart rate
 - C. Constriction of blood vessels
 - ☒ D. Bronchial smooth muscle relaxation
 - E. Secretion from sweat glands
80. Which one of the following drugs is a cardioselective (beta-1) adrenergic receptor blocker?
- A. Timolol
 - B. Methoxamine
 - C. Dobutamine
 - ☒ D. Pseudoephedrine
 - ☒ E. Metoprolol
81. Which one of the following is characteristic of captopril
- ☒ A. Competitively blocks angiotensin II at its receptor
 - B. Inhibits angiotensin converting enzyme activity
 - C. Decreases rennin concentration in the blood
 - D. Increases sodium and decrease potassium in the blood
 - E. Decreases sodium and increase potassium in the urine

82. Which side effect is most likely to occur as a result of therapy with modern loop diuretics ?

- A. Hyponatremia
- B. Hypoglycemia
- C. Hyperkalemia
- D. Hyperuricemia
- E. Hypercalcemia

83. Which of the following is not correctly matched with its proposed mechanism or site of action?

- A. Acetazolamide – carbonic anhydrase inhibition
- B. Ethacrynic acid – potassium-chloride cotransporter and chloride channel in descending limb of Loop of Henle
- C. Furosemide – sodium-potassium-chloride co transporter in ascending limb of Loop of Henle
- D. Hydrochlorothiazide – sodium-chloride cotransporter in early distal tubule
- E. Spironolactone – competitive mineralocorticoid antagonism

84. Which of the following is an adrenergic agonist that is effective bronchodilator with little cardiac stimulation and can cause tremor when taken orally?

- A. Zafirlukast
- B. Theophylline
- C. Zileuton
- D. Albuterol
- E. Epinephrine

85. One of your dental patients who is an asthmatic tells you that she is receiving cromolyn as part of her regimen. How does cromolyn produce its therapeutic effect?

- A. By blocking muscarinic receptors in smooth muscle
- B. By decreasing histamine release from mast cells
- C. By blocking pulmonary H₁ receptors
- D. By producing bronchial smooth muscle relaxation
- E. All of the above

86. Which of the following may have an antidiarrheal effect?

- ~~A.~~ Magnesium citrate
- ~~B.~~ Mineral Oil
- ~~C.~~ Lactulose
- ~~D.~~ Castor Oil
- ☒ E. Loperamide

87. Which of the following drugs is useful in the treatment of prostate cancer because it blocks androgen receptors?

- A. Levonorgestrel
- B. Mestranol
- C. Oxybutynin
- ☒ D. Flutamide
- ~~E.~~ Leuprolide

88. Cyclosporine is a commonly employed anti-inflammatory drug. Which of the following statements correctly describes this drug?

- A. Is a strong immunosuppressant, which acts to inhibit TNF receptor expression.
- ☒ B. Possesses a variety of potential adverse reactions, including nephrotoxicity, hepatotoxicity, and hypertension.
- ~~C.~~ Is likely to inhibit the expression of most pro-inflammatory mediators such as IL-1.
- D. Is a highly selective inhibitors of IL-2 receptor expression.
- E. Is an effective inhibitor of TNF activity..

89. During an initially routine procedure in the clinic, you find it necessary to use an ampoule labeled "Ephinephrine 1:1000". You administer 0.3 ml of the contents. How much epinephrine did you inject?

- A. 3.0 mg
- ☒ B. 0.3 mg
- C. 0.03 mg
- D. 0.003 mg
- E. 0.0003 mg

90. Which of the following statements about dental caries is correct?
- A. There is currently an increasing prevalence of caries in the U.S.
 - ☒ B. In areas without fluoridation there is a higher incidence of caries
 - C. The incidence of dental caries seems to be unrelated to the amount of fluoride in water.
 - D. One part per billion of fluoride gives protection against caries.
 - E. Five parts per-million fluoride shows less protection against caries than lesser amounts
91. Prednisone is a very effective immunosuppressive drug, which can be used in combination with other drugs to prevent organ transplant rejection. The mechanism of action of this drug is based on its ability to:
- A. Inhibit calmodulin activity, which leads to suppression of TNF receptor expression.
 - B. Inhibit cyclophilin function, which leads to over-expression of TNF.
 - C. Bind to the IL-2 receptor and induces IL-1 expression.
 - ☒ D. Inhibit IL-2 expression.
 - ☒ E. Inhibit TNF α expression.
92. Which one of the following antiseptics/disinfectants is not correctly paired with its accompanying action?
- A. Iodine compound – antiprotozoal, antifungal, antibacterial, antiviral
 - B. Sodium hypochlorite – release of chlorine
 - C. An oxidizing agent – may alter the subgingival environment
 - D. A surface active agent – effective against gram positive organisms
 - ☒ E. An iodophor – rapidly releases iodine.
93. All of the following statements about alcohols are correct EXCEPT:
- A. Alcohols denature proteins
 - B. Alcohols are the most widely-used local anti-infectives
 - ☒ C. Alcohols are anti-viral, anti-fungal
 - D. Alcohols are caustic to human cells
 - E. Alcohol are bactericidal, rapidly-acting, highly volatile

94. All of the following statements regarding the administration of drugs to pregnant or lactating women are true EXCEPT
- A. Most drugs are detectable in breast milk, however, the concentrations achieved are usually low.
 - B. A single intrauterine exposure to a drug can affect the fetal structures undergoing rapid development at the time of exposure.
 - C. Fetal therapeutics is an emerging area in perinatal pharmacology which involves drug administration to the pregnant woman with the fetus as the target of the drug.
 - ☒ D. Very few maternal drugs will cross the placenta to reach the fetus.
 - E. The molecular weight of a drug influences the rate of transfer and the amount of drug transferred across the placenta.
95. A drug possessing which of the following pharmacokinetic parameters is LEAST likely to diffuse across the placenta
- A. A drug that is highly lipophilic
 - B. A drug with a low molecular weight
 - C. A drug which binds with high affinity to plasma proteins
 - ☒ D. A drug that is highly ionized
 - E. A drug that is prescribed after dental surgery
96. Iatrogenic exposure during pregnancy to which of the following drugs has been shown to be teratogenic to offspring of patients.
- A. Methotrexate
 - ☒ B. Thalidomide
 - C. Naproxen
 - D. Verapamil
 - E. Diazepam
97. Acetaminophen is frequently used to treat patients following minor oral surgery. The adverse reactions for this drug include:
- A. Inhibition of the blood clotting response
 - ☒ B. Hepatic necrosis in cases of overdose
 - C. Myocardial infarction
 - D. Gastrointestinal bleeding.
 - E. Reactivation of Hepatitis B

98. Which of the following antipsychotic medications can best ameliorate negative symptoms of schizophrenia?
- A. Chlorpromazine
 - B. Fluphenazine
 - C. Risperidone
 - D. Thioridazine
 - Ⓔ E. Haloperidol
99. A hospitalized patient develops an infection caused by methicillin-resistant *Staphylococcus aureus*. The infection is also resistant to vancomycin. Which of the following antibiotics is most likely to be a suitable agent for treating the infection?
- A. Azithromycin
 - B. Erythromycin
 - C. Isoniazid
 - Ⓔ D. Linezolid
 - E. Streptomycin
100. Which of the following is a laxative?
- Ⓔ A. Magnesium citrate
 - B. Diphenoxylate
 - C. Loperamide-
 - D. Aluminum citrate-
 - E. Morphine -

END OF EXAM