

Questions 1 – 100: Select the single, most appropriate answer.

1. Adverse effects of digoxin include all of the following **EXCEPT**:

- A. Nausea
- B. Visual disturbances
- ☒ C. A-V nodal block
- D. Cardiac arrhythmias
- E. Renal failure

2. All of the following adverse effects result from the administration of an opioid analgesic **EXCEPT**:

- ☒ A. Respiratory depression
- B. Nausea and vomiting
- ☒ C. Diarrhea
- D. Pruritis
- E. Sedation

3. Which of the following statements is true with regard to cocaine?

- ☒ A. Cocaine overdose can result in fatal cardiac arrhythmias
- ☒ B. Cocaine is a dopamine receptor antagonist
- ☒ C. Cocaine does not produce physical dependence
- ☒ D. A cocaine overdose can be effectively treated with naloxone
- E. Cocaine's onset of action is the same following intranasal and intravenous administration

4. Dilated pupils, hot and dry skin, tachycardia and urinary retention are signs of overdose of which of the following drugs?

- A. Pilocarpine
- B. Neostigmine
- ☒ C. Atropine
- D. Dopamine
- E. Propranolol

5. Which of the following vitamins, given in therapeutic doses, is most likely to lower VLDL and LDL?

- ☒ A. Pyridoxine
- ☒ B. Niacin
- C. Thiamine
- ☒ D. Vitamin A
- ☒ E. Vitamin E

6. Which of the following vitamins is used in the treatment of certain skin disorders, such as acne?

- A. Vitamin D
- B. Vitamin E
- ☒ C. Vitamin A
- D. Vitamin C
- E. Vitamin B1

~~X~~ A 50-year-old airline pilot complained of seasonal allergies. Which of the following drugs should you suggest to relieve his symptoms and minimize sedation?

- ~~A.~~ Diphenhydramine
B. Fexofenadine
C. Chlorpheniramine
D. Promethazine
~~E.~~ Flutamide

8. Which of the following agents is most likely to induce DNA damage during cancer chemotherapy?

- A. Asparaginase
B. Leuprolide
C. Flutamide
D. Aminoglutethimide
E. Cyclophosphamide

9. Which of the following cancers is treated with tamoxifen?

- A. Prostate cancer
B. Melanoma
C. Lymphoma
D. Breast cancer
E. Chronic myeloid leukemia

10. A patient with a duodenal ulcer is treated successfully with cimetidine. The basis for cimetidine's inhibition of gastric acid secretion is that it

- A. Blocks H⁺, K⁺-adenosine triphosphatase
B. Enhances the action of acetylcholine on parietal cells
C. Blocks muscarinic receptors on parietal cells
D. Potentiates the release of gastrin
E. Blocks H₂ receptors on parietal cells

11. Antiarrhythmic drugs are divided in four major classes based on their primary effects. A major problem that is common to all of the major classes is

- ~~A.~~ They are equally active as pro-arrhythmic agents
~~B.~~ They equally prolong the QT interval leading to torsade de pointes
C. They have anti-muscarinic activity
D. They have a negative inotropic effect on the heart
E. They broaden the QRS complex

~~X~~ Which of the following drugs directly interferes with fibrinogen binding to platelets?

- ~~A.~~ Amicar (epsilon-amino caproic acid)
B. Clopidogrel
C. Warfarin
D. Aspirin
~~E.~~ Abciximab

13. An elderly patient suffering from loss of renal function becomes anemic. Examination of the patient's red cells shows they are normal in shape and color. Which of the following agents would be most useful in treating the anemia?

B

- A. Folic acid
- ☒ B. Erythropoietin
- C. Ferrous sulfate
- D. Vitamin B12
- E. Deferoxamine

14. Which of the following antibiotics induces P₄₅₀ and is most likely to enhance clearance of warfarin and other drugs?

D

- A. Amoxicillin
- B. Chloramphenicol
- C. Clindamycin
- ☒ D. Rifampin
- E. Tetracycline

For Questions 15 – 16

A dental patient is being treated for the bone infection, purulent osteitis, with an appropriate antibiotic. After a week of therapy the patient complains of severe and bloody diarrhea.

15. Which of the following antibiotics was most likely responsible for the diarrhea?

X

- ☒ A. Clindamycin
- ☒ B. Erythromycin
- ☒ C. Sulfamethoxazole
- ☒ D. Penicillin G
- E. Vancomycin

16. The dentist prescribes another drug to treat the diarrhea. Which of the following drugs was most likely to be prescribed?

E

- A. Clindamycin
- ☒ B. Erythromycin
- ☒ C. Sulfamethoxazole
- ☒ D. Tetracycline
- ☒ E. Vancomycin

17. All of the following statements about erythromycin are true **EXCEPT**:

A

- ☒ A. It is an aminoglycoside antibiotic
- B. It is bacteriostatic
- C. It can be used to treat Mycoplasma infections
- D. It is excreted in the bile
- E. It is an alternative in penicillin-sensitive patients to treat pneumonia

18. Which of the following drugs is not an antibiotic but is used to enhance the activity of penicillins?

- B**
- A. Bacitracin
 - ☒ B. Clavulanic acid
 - C. Imipenem
 - D. Nalidixic acid
 - E. Trimethoprim

~~19~~ Which of the following mechanisms of development of acquired resistance has the most clinical significance?

- B**
- ~~A~~ Spontaneous mutation
 - ☒ B. Conjugation
 - ~~C~~ Transformation
 - ~~D~~ Transduction
 - ☒ E. Transposition

~~20~~ A 16-year-old girl is diagnosed with gram-negative bacterial meningitis. Which of the following antibiotics would be most useful in therapy? CNS

- C**
- ~~A~~ Erythromycin
 - B. First generation cephalosporins
 - ☒ C. Third generation cephalosporins
 - ~~D~~ Penicillinase-resistant penicillins
 - ☒ E. Tetracyclines

21. Which of the following antibiotics is most likely to be used topically?

- D**
- A. Ciprofloxacin
 - B. Erythromycin
 - C. Isoniazid
 - ☒ D. Polymyxin
 - E. Trimethoprim

22. The mu opioid receptors in the gastrointestinal tract are at least partly responsible for the antidiarrheal action of all of the following drugs **EXCEPT**:

- A**
- ☒ A. Atropine
 - B. Codeine
 - C. Diphenoxylate
 - D. Loperamide
 - E. Morphine

23. Of the agents listed, which is the most effective antidiarrheal available over-the-counter?

- E**
- A. Atropine
 - B. Bismuth subcarbonate
 - C. Kaopectate
 - D. Lactulose
 - ☒ E. Loperamide

24. Which of the following would LEAST characterize the process of caries formation?
- A. There is a direct correlation between fluoride concentration in drinking water and anticaries protection
- B. Watery diets seem to cause negligible caries
- C. Fluoridation of drinking water to concentrations higher than two parts per million may cause enamel fluorosis
- ☒ D. Cavitations exist only in the presence of poor nutrition
- E. As little as 1 part per million of fluoride in drinking water leads to anticaries protection
25. Which of the following would LEAST characterize alcohols?
- A. Are bactericidal
- B. Denature protein
- C. Are widely-used local anti-infectives
- D. Are highly volatile
- ☒ E. Are effective against viruses, spores and fungi
26. Methylated derivatives of phenol include all of the following **EXCEPT**:
- A. Cresol
- B. Eugenol
- ☒ C. Hexachlorophene
- D. Guaiacol
- E. Lysol
27. Mechanisms of action of local anti-infectives include
- A. Denaturation of cellular protein
- B. Osmotic disruption of the cell
- C. Interference with a metabolic process
- ☒ D. All of the above
- E. None of the above
28. What is the most reliable way to determine the appropriate dose of a drug to be given to a child of 1-2 years of age?
- A. Ratio of total body weight to that of an "average" adult
- B. Ratio of body weight, corrected for fat content, to that of an "average adult"
- C. Ratio of body surface area to that of a ten-year-old child
- ☒ D. Tables of children's dosages
- E. Ratio of body surface area to that of an "average" adult

~~30~~ According to the classification of controlled substances, all of the following statements would be true EXCEPT:

- ~~A~~ Schedule I drugs have the greatest potential for abuse
~~B~~ Prescriptions for Schedule II drugs must be in the pharmacy before the preparation is dispensed
~~C~~ Prescriptions for Schedule II drugs may not be refilled
☒ D Prescriptions for Schedule III drugs may be telephoned and dispensed, the prescription being subsequently forwarded to the pharmacy
E. Prescriptions for Schedule IV drugs may routinely be refilled up to 5 times within a six-month period

~~30~~ Which of the following is a mucolytic used as an adjunct in antitussive therapy?

- A. Acetylcysteine
B. Codeine
☒ C. Ipecac
D. Potassium iodide
E. Terpin hydrate

31. Of the following drugs, which one has the greatest degree of beta-2 adrenergic receptor selectivity, is an effective bronchodilator, may cause tremor with oral use, and has little cardiac stimulation compared to isoproterenol?

- A. Zafirlukast
B. Norepinephrine
C. Aminophylline
☒ D. Albuterol
E. Beclomethasone

32. A 50-year-old hypertensive patient was started on daily diuretic therapy and was scheduled for complete evaluation in one month. On her return visit, laboratory studies revealed hypokalemia, hyperglycemia, hyperuricemia and hypercalcemia. Which of the following diuretics was most likely prescribed?

- A. Acetazolamide
B. Furosemide
☒ C. Hydrochlorothiazide
D. Spironolactone
E. Theophylline

33. Stimulation of muscarinic receptors is most likely to produce

- ☒ A Miosis - ~~constriction~~
B. Bronchodilation -
C. Constipation -
D. Tachycardia -
E. Sedation

34. Which of the following best describes the mechanism of action of itraconazole?

- ☒ 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 ergosterol synthesis
☐ E. Inhibits squalene epoxidase

☒ 35. A patient is being treated with terbinafine 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

36. Use of which of the following drugs is most associated with nephrotoxicity?

- ☒ A. Amphotericin B
☐ B. Flucytosine
☐ C. Voriconazole
☐ D. Tolnaftate
☐ E. Griseofulvin

37. Which of the following drugs is most useful for the treatment of respiratory syncytial virus and chronic hepatitis C? RSV

- ☐ A. Rimantadine
☐ B. Zanamivir
☐ C. Lamivudine
☒ D. Ribavirin
☐ E. Enfuvirtide

38. Which of the following drugs is a reverse transcriptase inhibitor, useful in the treatment of HIV?

- ☐ A. Amantadine
☐ B. Trifluridine
☐ C. Valacyclovir
☐ D. Ganciclovir
☒ E. Zidovudine

☒ 39. Which of the following best describes the mechanism of action of thyroid hormones?

- ☐ A. Bind to an ion channel receptor, to increase sodium influx
☐ B. Bind to an intracellular receptor, to increase protein synthesis
☐ C. Bind to a tyrosine kinase-linked receptor
☐ D. Bind to a G-protein-linked receptor, to increase cAMP
☒ E. Bind to a G-protein-linked receptor, to increase protein kinase C

~~30~~ Which of the following best describes the mechanism of action of propylthiouracil?

- PTU*
- B*
- ~~A.~~ Blocks thyroid hormone receptors
 - ~~B.~~ Reduces the synthesis of thyroid hormones
 - ☒ C. Stimulates the production of thyroxine
 - ~~D.~~ Blocks beta-adrenoceptors to reduce heart rate
 - E. Competes with iodide for uptake by the thyroid gland

~~41~~ Which of the following adverse reactions is most associated with the use of alendronate?

- A*
- Bisphos.*
- ~~A.~~ Gastrointestinal distress and esophagitis
 - ☒ B. Hepatotoxicity
 - C. Renal impairment
 - ~~D.~~ Peripheral neuropathy
 - E. Tachycardia

42. Which of the following best describes the mechanism of action of parathyroid hormone?

- D*
- 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

43. Which of the following drugs directly binds to hydroxyapatite crystals to reduce resorption of calcium from bone, and reduce bone turnover?

- C*
- ~~A.~~ Levothyroxine
 - B. Calcitriol
 - ☒ C. Ibandronate
 - D. Estradiol
 - ~~E.~~ Propylthiouracil

44. Which of the following statements best describes the mechanism of action of insulin?

- C*
- 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

45. Which of the following drugs is taken at the beginning of a meal by a type-2 diabetic to reduce glucose absorption from the gastrointestinal tract?

- A*
- ☒ A. Acarbose
 - B. Glyburide
 - C. Metformin
 - D. Insulin glargine
 - E. Rosiglitazone

46. Which of the following drugs blocks estrogen receptors in the pituitary to stimulate release of FSH and LH, and induce follicular development?

- C
- A. Ethinyl estradiol
 - B. Mestranol
 - ☒ C. Clomiphene
 - D. Levothyroxine
 - E. Nandrolone

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

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

48. Which of the following drugs inhibits phosphodiesterase (PDE5) and is therefore useful in the treatment of erectile dysfunction?

- C
- A. Doxazosin
 - B. Nandrolone
 - ☒ C. Sildenafil
 - D. Oxybutynin
 - E. Megestrol

~~49.~~ Long-term use of which of the following drugs is most likely to cause tardive dyskinesia?

- D
- ☒ A. Benztropine
 - B. Lorazepam
 - ~~C~~ C. Fluoxetine
 - ~~D~~ D. Levodopa
 - ~~E~~ E. Heroin
- ANTI PSYCHOTIC

~~50.~~ A 65-year-old patient with chronic stable angina and hypertension is treated with nadolol. Which of the following effects is NOT produced by this treatment?

- E
- A. Decreased blood pressure
 - ☒ B. Bronchospasm
 - C. Improved exercise tolerance
 - ☒ D. Decreased cardiac contractility
 - E. Tachycardia
- B BLOCKER

51. A patient with a tumor cell burden of 10^{10} cells is treated by cancer chemotherapy. After the initial treatment, the number of tumor cells remaining is

- E
- A. 10^4
 - B. 10^5
 - C. 10^6
 - D. 10^7
 - ☒ E. 10^8

52. 5-Fluorouracil inhibits the activity of which enzyme?

- ☒ A. Thymidylate synthetase
☐ B. Dihydrofolate reductase
☐ C. Deoxycytidine kinase
☐ D. Uridine phosphorylase
☐ E. Ribonucleotide kinase

53. ~~53.~~ Infliximab is used for the treatment of severe rheumatoid arthritis. This drug has proven very effective for many patients, but there are potential adverse reactions with this drug. The properties of this drug are most likely to include

- ☐ A. Is a highly selective COX-2 inhibitor
☐ B. Is a potent inhibitor of interleukin 2 production
☐ C. Is frequently associated with myocardial infarction
☐ D. Is a humanized monoclonal anti-TNF antibody
☒ E. All of the above

54. Acetaminophen is frequently used to treat minor inflammatory reactions, and is tolerated by a large percentage of the population. The characteristics of this drug include

- ☐ A. Is a highly selective COX-1 inhibitor
☐ B. Is a strong anti-inflammatory drug that prevents the action of TNF
☐ C. Is slowly absorbed and is a strong inhibitor of COX activity
☐ D. The most common adverse reaction is gastrointestinal bleeding
☒ E. For most patients, it has good anti-pyretic activity but poor anti-inflammatory activity

55. Corticosteroids are commonly prescribed immunosuppressant drugs. These drugs are employed for the treatment of a variety of inflammatory diseases, including allergic reactions, most autoimmune disorders, and rheumatoid arthritis. There are several potentially severe adverse reactions to be concerned. All of the following adverse reactions are commonly observed with corticosteroid therapy **EXCEPT**:

- ☐ A. Cushingoid reactions
☐ B. Osteoporosis
☒ C. Decreased appetite and weight loss
☐ D. Glucose intolerance
☐ E. Cataracts

~~56.~~ Tacrolimus (FK506) is an effective immunosuppressive drug that can be used to prevent organ transplant rejection. Which of the following best describes the mechanism of action of this drug?

- ☒ A. Inhibits TNF receptor function
☐ B. Inhibit cyclophilin function which leads to decreased expression of IL-2
☐ C. Is a fusion protein composed of the TNF receptor linked to the immunoglobulin Fc chain
☐ D. Promotes IL-2 receptor activation
☐ E. Acts as an antagonist for the IL-2 receptor

For questions 57 – 58

A young woman is brought to the emergency room having taken 50 maximum strength acetaminophen tablets 4 hours earlier. She has no immediate symptoms.

57. The most serious concern would be development of

- D
- A. Hemolytic anemia
 - B. Renal failure
 - C. Metabolic acidosis
 - ☒ D. Delayed hepatic necrosis
 - E. Methemoglobinemia

58. This drug overdose is best managed by continued administration of

- A
- ☒ A. Acetylcysteine
 - B. Sodium bicarbonate
 - C. Methylene blue
 - D. Vitamin C
 - E. Castor oil

59. All of the following statements are true about drugs used in pregnancy, nursing and pediatric patients **EXCEPT**:

- C
- A. Reduced renal blood flow in newborns may increase the half-life of drugs, compared to adults
 - B. Most phase I liver enzymes are lower in neonates than in adults
 - ☒ C. Water-soluble, ionized drugs readily cross the placenta
 - D. Ethanol ingested by nursing mothers can sedate the infant
 - E. Ethanol, if taken during pregnancy, will cross the placenta

~~60.~~ Iatrogenic exposure during pregnancy to which of the following drugs has been shown to produce tumors in the female offspring of patients?

- B
- ☒ A. Methotrexate
 - B. Diethylstilbestrol
 - ~~C.~~ Naproxen
 - D. Verapamil
 - E. Diazepam

~~61.~~ In the 1970 Controlled Substances Act, morphine was included in which one of the following Federal schedules?

- B
- ☒ A. Schedule I
 - B. Schedule II
 - C. Schedule III
 - D. Schedule IV
 - E. Schedule V

62. An individual diagnosed with schizophrenia is started on a traditional antipsychotic agent that immediately causes facial grimacing and spastic movements of the neck in the patient. Which one of the following drugs should be administered to treat these acute dystonic reactions?

- C
- A. Fluphenazine
 - ~~B.~~ Haloperidol
 - C. Benztropine
 - ☒ D. Dantrolene
 - ~~E.~~ Prolactin

63. Flumazenil reverses the behavioral depressant effects of which one of the following drugs?

- B
- A. Thioridazine
 - B. Chlordiazepoxide
 - C. Haloperidol
 - ☒ D. Phenobarbital
 - E. Morphine

64. Which one of the following drugs would be the best choice for controlling seizures associated with status epilepticus?

- E
- A. Amitriptyline
 - B. Topiramate
 - C. Gabapentin
 - D. Haloperidol
 - ☒ E. Lorazepam

65. All of the following statements apply to propranolol **EXCEPT**:

- C
- ☒ A. Possesses high lipid solubility
 - B. Is contradicted in patients with bronchial asthma
 - C. Is added into local anesthetic solutions to prolong anesthesia
 - D. Is used for the prophylactic management of migraine headache
 - ~~E.~~ Is a competitive antagonist of beta adrenergic receptors
- § BLOCKER

66. Which one of the following drugs is most likely to aid NSAID-induced ulcer healing by stimulating secretion of mucus by the gastric mucosa?

- B
- A. Esomeprazole
 - ☒ B. Misoprostol
 - C. Sucralfate
 - D. Ranitidine
 - E. Bismuth subsalicylate

67. Which one of the following drugs is approved for treating women with irritable bowel syndrome whose main symptom is constipation?

- B
- A. Magnesium hydroxide
 - ☒ B. Tegaserod
 - C. Cascara sagrada
 - D. Castor oil
 - ~~E.~~ Buspirone

68. Which of the following drugs functions as an angiotensin II receptor blocker?

- A. Minoxidil
- B. Propranolol
- C. Losartan
- D. Captopril
- ☒ E. Hydrochlorothiazide

69. Which of the following statements about local anesthetics is true?

- ☒ A. They act on the intracellular end of potassium channels to produce pharmacological effects
- B. Patients with liver cirrhosis have slower metabolism of tetracaine than patients with normal liver function
- ☒ C. Lidocaine is a useful antiarrhythmic
- ☒ D. Mepivacaine causes vasoconstriction
- E. Bupivacaine is less cardiotoxic than other local anesthetics

70. Which of the following drugs is a good analgesic with a high MAC (>100), but is used to induce anesthesia because it is rapid-acting and lowers the MAC of other inhalational anesthetics used in combination with it?

- A. Nitrous oxide
- B. Halothane
- ☒ C. Isoflurane
- ☒ D. Ketamine
- E. Thiopental

71. Which drug has a metabolite that produces CNS excitation, including seizures?

- A. Fentanyl
- B. Morphine
- C. Oxycodone
- ☒ D. Meperidine
- E. Methadone

72. Which of the following vitamins is required for the formation and maintenance of collagen?

- ☒ A. Ascorbic acid
- B. Thiamine
- C. Pyridoxine
- D. Cyanocobalamin
- E. Folic acid

73. Which of the following toxic side effects is most associated with the use of doxorubicin during cancer chemotherapy?

- A. Endometriosis
- ☒ B. Bone marrow suppression
- C. Hepatotoxicity
- D. Cardiotoxicity
- E. Hyperglycemia

~~74~~ Which of the following processes or target molecules is most likely inhibited with imatinib?

- ☐ A. DNA synthesis
☐ B. Bcr-Abl tyrosine kinase
☐ C. Protein translation
☐ D. Intracellular transport
☒ E. Lipid metabolism

75. Which of the following antibiotic combinations is antagonistic?

- ☐ A. Rifampin + Isoniazid
☒ B. Rifampin + Erythromycin
☐ C. Penicillin + Aminoglycoside
☐ D. Penicillin + Tetracycline
☒ E. Trimethoprim + Sulfamethoxazole

~~76~~ All of the following antibiotics act through inhibition of protein synthesis **EXCEPT**:

- ☐ A. Ciprofloxacin
☐ B. Clindamycin
☒ C. Erythromycin
☒ D. Streptomycin AMINOGLYCOSIDE
☒ E. Tetracycline

~~77~~ All of the following statements about sulfonamides are true **EXCEPT**:

- ☐ A. Act by inhibiting dihydrofolate reductase
☒ B. Are bacteriostatic antibiotics
☒ C. Has a synergistic effect with trimethoprim
☒ D. Can be used to treat urinary tract infections
☐ E. Can cause kidney damage

78. Drugs in which of the following classes of antibiotics require a supplement of vitamin K to avoid blood clotting problems caused by the antibiotic?

- ☐ A. Aminoglycosides
☒ B. Cephalosporins
☐ C. Fluoroquinolones
☐ D. Penicillins
☐ E. Tetracyclines

79. Which of the following compounds is characterized by its relatively rapid onset of effect, its laxative action, and its inactivity prior to its hydrolysis in the intestine?

- ☐ A. Bran
☒ B. Castor oil
☐ C. Magnesium citrate
☐ D. Mineral oil
☐ E. Psyllium hydrophilic muciloid

80. All of the following statements about prevention of dental caries are true **EXCEPT**:

- A. If antimicrobials are used, it would be better to use combinations so as to minimize development of resistance
- B. Topical application of a 2% solution of chlorhexidine inhibits growth of human dental plaque
- C. If antimicrobials are used, they should be those which are readily absorbed from the gastrointestinal tract
- ☒ D. Fluoride has a wide margin of safety
- ~~E.~~ Osteosclerosis of the pelvis may be caused by drinking water with very high concentrations of fluoride (18 ppm)

81. Following a dental procedure, a 65-year-old patient was instructed to use a tablespoonful of liquid medication diluted in a glass of water as an oral rinse twice daily for seven days. The total amount of liquid medication used was

- A. 35 mL
- B. 70 mL
- C. 140 mL
- ☒ D. 210 mL
- E. 280 mL

$$\begin{array}{r} 15 \\ \times 2 \\ \hline 30 \\ \times 7 \\ \hline 210 \end{array}$$

82. During a routine dental procedure, your 70-year-old patient experiences a cardiovascular emergency. You quickly reach for an ampoule labeled epinephrine 1:1000 and you administer 0.3 mL. How much epinephrine did you inject?

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

$$.3 \cdot \frac{1 \text{ mg}}{1000 \text{ mL}} = \frac{x}{.3 \text{ mL}}$$

$$\frac{.3}{1000}$$

$$\begin{array}{r} .3 \\ 1000 \overline{) 3000} \\ \underline{3000} \\ 0 \end{array}$$

83. Uses of scopolamine are most likely to include treatment or prevention of

- A. Tachycardia
- B. Alzheimer's disease
- C. Motion sickness
- D. Constipation
- ☒ E. Glaucoma

84. Which of the following drugs is most useful for the treatment of invasive aspergillosis?

- ☒ A. Caspofungin
- B. Terbinafine
- ~~C.~~ Natamycin
- D. Flucytosine
- ~~E.~~ Griseofulvin

85. Which of the following best describes the mechanism of action of acyclovir?

- CE*
- A. Is a viral protease inhibitor
 - B. Inhibits viral uncoating
 - C. Is a neuraminidase inhibitor
 - D. Inhibits reverse transcriptase
 - ☒ E. Inhibits viral DNA polymerase

86. Which of the following antiviral drugs is most likely to produce nephrotoxicity, anemia and seizures?

- B*
- A. Trifluridine
 - ☒ B. Ganciclovir
 - ~~C~~ C. Acyclovir
 - D. Zidovudine
 - ~~E~~ E. Amantadine

87. A patient has been treated with levothyroxine for the past 6 months. Which of the following adverse reactions is most likely to occur?

- C*
- ~~A~~ A. Bradycardia
 - B. Hypotension
 - ☒ C. Hyperglycemia
 - ~~D~~ D. Hypothermia
 - E. Hypercholesterolemia
- HYPOTHYROID → HYPER*

88. Which of the following best describes the adverse reaction profile of methimazole?

- D*
- A. Hypertension and tachycardia
 - B. Hyperglycemia
 - C. Hepatotoxicity
 - ☒ D. Maculopapular rash and gastrointestinal upset
 - E. Weight loss and insomnia

89. Which of the following drugs is most useful in the prophylaxis and treatment of rickets and osteomalacia?

- B*
- A. Teriparatide
 - ☒ B. Calcitriol
 - C. Calcitonin
 - D. Parathyroid hormone
 - E. Prednisone

90. A 12-year-old boy is diagnosed with type-1 diabetes mellitus. Which of the following drug regimens is most useful for long-term therapy?

- F*
- A. Once daily regular insulin
 - B. Once daily chlorpropamide
 - C. Once daily exenatide
 - ~~D~~ D. Twice daily repaglinide
 - ☒ E. Twice daily NPH insulin

91. Which of the following drugs stimulates insulin secretion and is most likely to produce hypoglycemia in a type-2 diabetic patient?

- B
- A. Metformin
 - B. Glipizide
 - C. Acarbose
 - ☒ D. Rosiglitazone
 - E. Propranolol

92. Effects of estrogen therapy are most likely to include

- E
- A. Reduction in breast cancer
 - B. Reduction in body temperature
 - C. Reduction in HDLs
 - ☒ D. Osteoporosis
 - ☒ E. Thromboembolic disorders

93. A child suffering with leukemia undergoes chemotherapeutic treatment. The patient is given an infusion of a synthetic base which is incorporated into DNA. Allopurinol is used as supportive therapy. The drug given to the patient is most likely

- C
- ☒ A. Vincristine
 - ☒ B. Methotrexate
 - ☒ C. 6-Mercaptopurine
 - ☒ D. Carboplatin
 - E. 5-Fluorouracil

94. Bacille Calmette-Guerin (BCG) is a preparation of viable Mycobacterium bovis and is a useful immunomodulating drug. Which of the following statements correctly describes the characteristics of this drug?

- F
- A. Is used to vaccinate against infection with Mycobacterium tuberculosis
 - B. Induces a very strong state of macrophage activation
 - C. Is a true "adjuvant" and promotes the immune response
 - D. Is employed as an immunostimulant for the treatment of certain cancers
 - ☒ E. All of the above

95. Azathioprine is an effective immunosuppressive drug frequently used to inhibit graft rejection responses. Which of the following statements best describes the potential adverse reactions of azathioprine?

- A
- A. Can induce bone marrow depression (leukopenia)
 - B. Causes a temporary hypergammaglobulinemia in about 20% of patients
 - C. Is activated by xanthine oxidase which prevents its use in patients suffering with hemolytic anemia
 - ☒ D. Is commonly combined with prednisone for treatment of renal transplant rejection reactions, and the combination also prevents hepatic dysfunction

96. All of the following statements regarding the administration of drugs to pregnant or lactating women are true **EXCEPT**:

- D*
- A. Most drugs are detectable in breast milk
 - ~~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 that 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

97. All of the following drugs have a latency period of at least one week before the onset of their therapeutic action **EXCEPT**:

- A*
- ☒ A. Diazepam — BENZODIAZEPINE
 - B. Imipramine
 - ~~C.~~ Fluoxetine — SSRI
 - D. Lithium
 - E. Tranylcypromine

98. A new compound is tested in the pharmacology lab. Initial experimentation yields the following observations: it causes contraction of the radial muscle of the iris and constriction of the arterioles of the skin and mucosa. You would classify this compound as a (an)

- B*
- ~~A.~~ Antihistaminic
 - ☒ B. Alpha adrenergic agonist *AA*
 - ~~C.~~ Anticholinergic
 - ~~D.~~ Beta adrenergic blocker
 - E. Muscarinic agonist

99. Which one of the following agents is most likely to cause systemic alkalosis when used orally as an antacid?

- D*
- A. Magnesium hydroxide
 - B. Calcium carbonate
 - C. Aluminum hydroxide
 - ☒ D. Sodium bicarbonate
 - E. Basic aluminum carbonate

~~100.~~ Which of the following drugs, used in the treatment of hypercholesterolemia, is most likely to cause cutaneous flushing or itching?

- E*
- A. Ezetimibe
 - B. Clofibrate
 - ☒ C. Gemfibrozil
 - D. Lovastatin
 - E. Niacin

END OF EXAM