

Questions 1 - 92: Select the single, most appropriate answer.

1. Opioid analgesics produce all of the following effects EXCEPT:

- ~~A.~~ Respiratory depression
- ~~B.~~ Nausea
- ☒ C. Mydriasis
- D. Constipation
- ~~E.~~ Sedation

- miosis, not mydriasis

2. All of the following statements are true with regard to gamma hydroxybutyrate EXCEPT:

- ~~A.~~ Depressant effects are enhanced when taken with ethanol
- ☒ B. Has a high therapeutic index
- C. Increases dopamine release by an indirect mechanism
- ~~D.~~ Effects can include drowsiness, dizziness and vomiting
- ~~E.~~ Chronic use can lead to physical dependence

- low therapeutic index

3. Which of the following prostaglandins has been implicated in causing pain associated with inflammation?

- A. PGF<sub>2</sub>
- B. PGI<sub>2</sub>
- ☒ C. PGE<sub>2</sub>
- D. Prostacyclin
- E. Thromboxane

4. All of the following drugs have anti-inflammatory effects EXCEPT:

- ~~A.~~ Acetylsalicylic acid
- B. Indomethacin
- C. Naproxen
- ☒ D. Ibuprofen
- ~~E.~~ Acetaminophen

SE

5. Which of the following substances is generally used in an emergency room setting to induce vomiting?

- A. Naloxone
- ☒ B. Syrup of ipecac
- C. Sodium bicarbonate
- D. Epinephrine
- E. Charcoal

- used for vomiting  
SE

6. Which of the following vitamins is most likely to be hepatotoxic in man?

- A. Vitamin A *retinol*  
B. Vitamin B<sub>1</sub> *thiamine*  
C. Vitamin B<sub>2</sub> *riboflavin*  
D. Vitamin B<sub>6</sub> *niacin*  
E. Vitamin C *ascorbic*

~~Vitamin A~~ *fat soluble*  
- stored in liver as ester  
- long term damage possible

7. Which of the following drug-drug interactions is the LEAST life threatening?

- A. Monoamine oxidase inhibitors - phenylpropanolamines  
B. MAO inhibitors - Meperidine  
C. Opioids - Salicylates  
D. Cisapride - Erythromycin

A - avoid  
B - very life threatening  
C -  
D - ?

8. Which of the following drugs is most likely to accelerate gastric emptying in a patient with gastroparesis following surgery?

- A. Sucralfate  
B. Magnesium hydroxide  
C. Omeprazole *proton pump inhibitor*  
D. Cimetidine *H<sub>2</sub> antagonist*  
E. Metoclopramide

- prokinetic agent

9. All of the following drugs will decrease the effects of cortisone EXCEPT:

- A. Estrogen  
B. Progesterone  
C. Thyroxine  
D. Cimetidine  
E. Phenytoin

- cimetidine affects everything  
for a list see pg. 10 in  
Histamine lecture

↑ by extending  
their 1/2 lives.

10. All of the following statements about antihistamines are true EXCEPT:

- A. Diphenhydramine blocks H<sub>1</sub>-histamine receptors  
B. Diphenhydramine is effective in treatment of hives caused by a food allergy  
C. Cimetidine blocks H<sub>2</sub>-histamine receptors  
D. Ranitidine is effective in treatment of heartburn *Zantac*  
E. Diphenhydramine has antiandrogenic effects

- diphenhydramine has anti-cholinergic activity

11. Anemia due to iron deficiency is typically

- A. Megaloblastic
- B. Hemolytic
- C. Hypochromic
- D. Aplastic
- ☒ E. All of the above

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12. All of the following drugs can be given orally for effective therapy of systemic infection EXCEPT:

- A. Erythromycin
- B. Clindamycin
- ☒ C. Streptomycin
- D. Tetracycline
- E. Chloramphenicol

- must be given intramuscular injection

13. Superinfections are more likely to result from which of the following classes of antibiotics?

- A. Narrow spectrum
- ☒ B. Broad spectrum
- C. Bactericidal
- D. Those given parenterally
- E. Those excreted through the kidney

SE

14. All of the following statements about penicillins are true EXCEPT:

- A. Penicillin G is most active against gram negative bacteria
- B. Autolytic enzymes may be involved in the antibiotic effect of penicillins
- ☒ C. Benzathine penicillin G is a repository or storage form
- D. Penicillins are excreted unchanged in the urine
- E. Penicillin allergy is the main adverse effect of penicillins

- gram positive

15. Isoniazid acts to kill M. tuberculosis by which of the following mechanisms?

- 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

SE

no 4.5  
20  
900

16. A drug with elimination half-life of 20 hours will be effectively eliminated from the patient in

- A. 10 hrs
- B. 20 hrs
- C. 40 hrs
- D. 60 hrs
- ☒ E. 90 hrs

4.320  
96.0

- multiply by 4.5 to get half-life elimination time

17. In cancer chemotherapy, a great advantage of surgery or radiation is that they

- A. Change the interval between chemotherapeutic treatments
- B. Eliminate the need for intensive chemotherapy
- ☒ C. Reduce tumor cell number thereby facilitating the log-kill hypothesis
- D. Modulate the number of cycling versus non-cycling cells during chemotherapy
- E. Inhibit DNA repair to potentiate DNA damage

- quickest way to reduce tumor size is to surgically remove

18. All of the following are attributes of digoxin EXCEPT:

- ☒ A. Blocks parasympathetic (vagal) outflow
- B. Increases cardiac automaticity
- ☒ C. Prolongs the P-R interval of the electrocardiogram
- ☒ D. Often causes nausea
- E. Increases the cardiac output in the patient with congestive heart failure

- doesn't block vagal outflow ↑ it.

19. Which of the following is the major cellular effect of alkylating agents?

- ☒ A. Inhibition of thymidylate synthase 5FU
- ☒ B. Reduction of dihydrofolate reductase m
- C. Binding to microtubules
- ☒ D. Induction of DNA damage
- E. Inhibition of P-glycoprotein synthesis

- DNA damagers

20. 5-Fluorouracil, through a covalent interaction, inhibits the activity of which enzyme?

- A. DNA polymerase
- ☒ B. Thymidylate synthase
- C. Hypoxanthine-guanine phosphoribosyl transferase
- D. DNA ligase
- E. Ribonucleotide reductase

- major site is thymidylate synthase

21. All of the following conditions have been attributed to excessive alcohol consumption EXCEPT:

- A. Cirrhosis of the liver
- B. Korsakoff's psychosis
- C. Fetal alcohol syndrome
- D. Congestive heart failure
- E. Coronary artery disease

SE

22. D-Tubocurarine acts at the neuromuscular junction by

- A. Releasing excessive amounts of acetylcholine
- B. Preventing glycine release
- C. Binding reversibly to the nicotinic receptor with a 30-60 minute duration
- D. Binding irreversibly to the nicotinic receptor
- E. Blocking acetylcholine release

- reversed lasts 45-60min  
- reversible - anti cholinesterase

23. Parkinsonism is best treated by

- A. Increasing acetylcholine levels in the central nervous system
- B. Increasing acetylcholine levels in the plasma
- C. Increasing dopamine levels in the central nervous system
- D. Increasing dopamine decarboxylase activity in the plasma
- E. Both decreasing dopamine and increasing acetylcholine levels in the central nervous system

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24. Which barbiturate has the most rapid onset and shortest duration of action following a single hypnotic dose?

- A. Pentobarbital
- B. Secobarbital
- C. Phenobarbital
- D. Mephobarbital
- E. Thiopental

- methohexital < thiopental < pentobarbital  
< secobarbital < amobarbital < phenobarbital

25. Immaturity of a number of physiological functions can lead to differing pharmacokinetic characteristics of drugs administered to a newborn infant compared to an adult. Immaturity of which of the following factors would tend to reduce the half-life of a drug in an infant compared to that in an adult?

- A. Glomerular filtration rate
- B. Renal active secretion of acids and bases
- C. Renal passive reabsorption of drugs
- D. Hepatic drug metabolism
- E. Bile secretion

- lower glomerular filtration rate  
- more body water  
- ↑ gastric pH  
- ↓ plasma protein concentration  
- blood brain barrier more permeable  
- lower liver metabolism  
- ↓ fluid reabsorption

26. When administering drugs to elderly patients, all of the following are complicating factors EXCEPT:

- A. Poor nutrition
- B. Polypharmacy
- C. An age-related decrease in the concentration of plasma proteins
- ☒ D. An age-related increase in salivary secretion
- E. An age-related decrease of renal blood flow

SE

27. A weakly-acidic drug enters the urine by glomerular filtration and active transport in the proximal tubule, and can be reabsorbed by passive diffusion. If the pH of the tubular fluid is altered from pH 6 to pH 4 by administration of ammonium chloride, how would you expect the renal clearance of the drug to be affected?

- to clear faster, give Rx a base

- A. Increased
- B. Unchanged
- ☒ C. Decreased

SE

28. Stimulation of which of the following receptors is associated with mydriasis and vasoconstriction?

duh!

- ☒ A. Alpha-1 adrenergic
- B. Beta-1 adrenergic
- C. Beta-2 adrenergic
- D. Muscarinic
- E. Dopaminergic

- also smooth muscle contraction  
- glycogenolysis

29. All of the following statements about pilocarpine are true EXCEPT:

- A. Acts by stimulating muscarinic receptors
- ☒ B. Causes xerostomia
- C. Reduces intraocular pressure in patients with glaucoma
- D. May cause abdominal cramping and diarrhea
- E. Causes miosis and blurring of vision

- used to treat xerostomia

30. Which of the following drugs is most useful as a mouthwash for treatment of a candidal infection of the mouth?

- A. Acyclovir
- B. Tolnaftate
- ☒ C. Nystatin
- D. Terbinafine
- E. Zidovudine

Duh!

31. Which of the following drugs is most likely to produce renal impairment?

- A. Amphotericin B
- B. Flucytosine
- C. Terbinafine
- D. Miconazole
- E. Griseofulvin

nephrotoxic

SE

32. A neuraminidase inhibitor effective in reducing the duration of symptoms from influenza A and B:

- A. Amantadine
- B. Zanamivir
- C. Acyclovir
- D. Trifluridine
- E. Lamivudine

- also good for prevention

33. All of the following statements about zidovudine are true EXCEPT:

- ~~A.~~ Useful in the treatment of HIV
- ~~B.~~ Is a reverse transcriptase inhibitor
- C. Is combined with lamivudine for an enhanced effect
- D. Suppresses the bone marrow, producing anemia
- E. Is combined with interferon for treatment of Hepatitis B

SE - know these 4 things!

- lamivudine is HBV

34. Which of the following statements best describes the mechanism of action of acyclovir?

- A. Metabolized to its triphosphate to inhibit herpes DNA polymerase
- B. Reduces the adsorption and uncoating of influenza A
- C. Is a reverse transcriptase inhibitor
- D. Is a protease inhibitor
- E. Enhances phosphorylation of elongation initiation factor

- effective against HSV, ~~zoster~~ zoster

- acyclogTP inhibits DNA polymerase

35. Effective therapy for chronic treatment of hepatitis C:

- A. Amantadine
- B. Zidovudine + Lamivudine
- C. Nelfinavir
- D. Interferon + Ribavirin
- E. Zanamivir + Oseltamir

- Broad spectrum (Ribavirin) DNA (herpes) & RNA (flu & B) virus.

36. All of the following are true about propylthiouracil EXCEPT:

- antithyroid* - delayed onset 3-4 wks.
- ☒ A. Useful in the treatment of hyperthyroidism
  - ☒ B. Inhibits production of thyroid hormones
  - ☒ C. Causes gastrointestinal upset and skin reactions
  - ☒ D. Crosses the placenta and can be found in breast milk
  - ☒ E. Has an immediate (within 24 hours) onset of therapeutic effectiveness

37. All of the following are true about levothyroxine EXCEPT:

- T<sub>4</sub>* *Ataxia hypoglycemia*  
*- elevates plasma glucose levels*
- ☒ A. Causes hypoglycemia
  - ☐ B. High doses can produce tachycardia
  - ☒ C. Has a thermogenic effect
  - ☐ D. Increases basal metabolic rate
  - ☒ E. Is the preferred treatment of primary hypothyroidism

38. Useful in the treatment of hypercalcemia of malignancy and Paget's Disease:

- ↑Ca<sup>2+</sup>* *- A bisphosphonate*  
*- others: etidronate, pamidronate, clodronate, ibandronate, zoledronic acid, tiludronate, clodronate*
- ☐ A. Pamidronate
  - ☒ B. Parathyroid hormone
  - ☐ C. Estradiol
  - ☐ D. Levothyroxine
  - ☐ E. Glipizide

39. Which of the following best describes the mechanism of action of Vitamin D?

- SE*
- ☐ A. Binds to a tyrosine kinase-linked receptor
  - ☒ B. Binds to a nuclear receptor to enhance gene expression
  - ☐ C. Binds to the chloride ionophore
  - ☐ D. Binds to a G-protein-linked receptor
  - ☐ E. Enhances sodium influx

40. Which of the following drugs reduces calcium absorption from the gastrointestinal tract; chronic use as an immunosuppressant agent can lead to osteoporosis and aseptic necrosis of the hip?

- reduces Ca<sup>2+</sup> absorption*  
*- treats hypocalcemia*  
*- leads to osteoporosis & aseptic necrosis of the hip*  
*- glucocorticoid*  
*- anti-inflammatory*
- ☐ A. Ethinyl estradiol
  - ☒ B. Prednisone
  - ☐ C. Calcitriol
  - ☐ D. Parathyroid hormone
  - ☐ E. Tolbutamide



41. All of the following are true about insulin EXCEPT:

- ☒ A. Stimulates a tyrosine kinase-linked receptor
- ☒ B. Overdose produces hypoglycemia
- ☒ C. Secretion is stimulated by glipizide
- D. Its action is enhanced by rosiglitazone
- E. Its action is enhanced by co-administration of oral contraceptives

SE

42. Most useful for intravenous administration in the treatment of emergency diabetic coma:

- A. Regular insulin
- ☒ B. NPH insulin
- C. Ultralente insulin
- D. Glyburide
- E. Acarbose

reg- 15 min onset  
NPH - onset 1-2 hrs  
glyburide - Type II  
acarbose Type II

43. Which of the following drugs is useful in the treatment of Type 2 diabetes mellitus by altering potassium efflux, thus stimulating insulin secretion?

- A. Rosiglitazone
- ☒ B. Glyburide
- C. Metformin
- D. Acarbose
- E. Methimazole

A - ↑ transcription of insulin-response genes  
B - sulfonylureas - potassium efflux  
C - ↓ glucose production ↑ insulin uptake  
D - inhibits α-glucosidase  
E - ?

44. All of the following statements about ethinyl estradiol are true EXCEPT:

- ☒ A. Binds to a nuclear receptor to enhance gene expression
- ☒ B. Increases the risk of venous thromboemboli
- ☒ C. Increases high density lipoproteins
- ☒ D. Causes osteoporosis
- E. Combined with a progestin for use in oral contraceptives

- estrogen combats osteoporosis

45. A nonsteroidal competitive estrogen receptor blocker effective in the treatment of breast cancer:

- A. Mestranol
- B. Fluoxymesterone
- C. Danazol
- ☒ D. Tamoxifen
- E. Mestranol

- estrogen dependant breast cancer

46. Agent which inhibits the formation of gamma-carboxyglutamate residues in coagulation factors:

- E
- A. Heparin
  - B. Aspirin
  - ☒ C. Ticlopidine
  - D. Streptokinase
  - E. Warfarin  $\rightarrow$  coumadin

- vitamin K can slowly reverse  
B - inhibits  $\text{Tx A}_2$  synthesis (COX-1)  
D - promotes coagulation (plasmin)  
A - accelerates neutralization of proteases

47. The chief disadvantage of nitrous oxide as a general anesthetic is:

- C
- ☒ A. Prolonged recovery time due to retention in fat
  - ☒ B. Poor analgesic
  - C. Low potency (high MAC)
  - ☒ D. Slow induction
  - ☒ E. Excessive relaxation of skeletal muscles

SE

48. The rate of induction with inhalational general anesthetics is most closely related to:

- A
- ☒ A. Blood solubility
  - B. Lipid solubility
  - ☒ C. Water solubility
  - ☒ D. Chemical stability
  - ☒ E. Boiling point

SE

49. Which of the following is the mechanism of action for the antihyperlipidemic drug, pravastatin?

- D
- ☒ A. Inhibition of cholesterol endocytosis
  - B. Activation of cholesterol endocytosis
  - ☒ C. Inhibition of lipoprotein lipase
  - ☒ D. Inhibition of HMG-CoA reductase
  - ☒ E. Binding to bile acids in the gastrointestinal tract

- statins are HMG-CoA

50. Which of the following drugs can cause gingival hyperplasia?

- E
- A. Lidocaine
  - B. Bretylium
  - C. Quinidine
  - D. Amiodarone
  - ☒ E. Phenytoin

- effective except for absence seizure

51. Subsequent to a dental procedure, an eight-year-old patient was instructed to use a teaspoonful of liquid medication diluted in a glass of water as an oral rinse once daily for seven days. The total amount of the liquid medication used was

A. 15 mL  
B. 35 mL  
C. 70 mL  
D. 105 mL  
E. 240 mL

5 mL  
—  
35

teaspoon = 5 mL  
tablespoon = 15 mL

52. Actions of xanthines include all of the following EXCEPT:

A. Central nervous system stimulation  
B. Myocardial stimulation  
C. Bronchodilation  
D. Diuresis  
E. Decrease in cerebral vascular resistance

SE

53. Which of the following drugs has the greatest degree of beta-2 adrenergic receptor selectivity, is an effective bronchodilator, causes tremor with oral use, and has little cardiac stimulation?

A. Zileuton  
B. Albuterol  
C. Phenylephrine  
D. Beclomethasone  
E. Aminophylline

lungs

SE

54. Therapy with this drug may result in the development of hypokalemia, hyperglycemia, hyperuricemia and hypercalcemia:

A. Triamterene  
B. Bumetanide  
C. Theophylline  
D. Ethacrynic acid  
E. Hydrochlorothiazide

↓ K ↑ gly, ↑

↑ Ca

SE

55. Most effective antidiarrheal action:

A. Loperamide  
B. Lactulose  
C. Cascara sagrada  
D. Kaopectate  
E. Bismuth subcarbonate

- opioid receptors in GI tract

56. All of the following are true about caries EXCEPT:

- A. Cavitation exists only in the presence of poor nutrition  
B. Fluoridation of drinking water to concentrations higher than two parts per million may cause enamel fluorosis  
C. Watery diets seem to cause negligible caries  
D. There is a direct correlation between fluoride concentration in drinking water and anticaries protection  
E. As little as 1 part per million of fluoride in drinking water leads to anticaries protection

SE

57. Attributes of nitroglycerin include all of the following EXCEPT:

- A. Headache  
B. Dilation of arteries  
C. Tachycardia  
D. Increase in oxygen consumption  
E. Sublingual effectiveness

-decrease O<sub>2</sub> consumption

SE

58. All of the following characterize alcohols EXCEPT:

- A. Effective against viruses, spores and fungi  
B. Widely used local anti-infectives  
C. Highly volatile  
D. Denature protein  
E. Bactericidal

- not effective

59. Methylated derivatives of phenol include all of the following EXCEPT:

- A. Hexachlorophene  
B. Guaiacol  
C. Cresol  
D. Lysol  
E. Eugenol

- halogenated substitution of phenol

60. Mechanisms of action of local anti-infectives may include:

- A. Osmotic disruption of the cell  
B. Interference with a metabolic process  
C. Denaturation of cellular protein  
D. All of the above  
E. None of the above

SE

61. Which of the following drugs is a centrally acting alpha-2 adrenoceptor agonist, producing dry mouth, drowsiness and bradycardia?

- A. Mirtazapine
- B. Terbutaline
- C. Clonidine
- D. Prazosin
- E. Guanethidine

SE

62. Which of the following drugs is useful in the treatment of hypertension, but may cause bronchoconstriction?

- A. Albuterol
- B. Propranolol
- C. Phentolamine
- D. Amphetamine
- E. Prazosin

10-β-blocker  
- slows AV conduction  
- bronchoconstriction  
- hypoglycemia

63. Diazepam is suitable for all of the following indications EXCEPT:

- A. Status epilepticus
- B. Obsessive-compulsive disorder
- C. Preoperative medication
- D. Generalized anxiety disorder
- E. Acute alcohol withdrawal

- Paxil for OCD

64. A selective serotonin reuptake inhibitor used as an antidepressant:

- A. Thioridazine
- B. Tranylcypromine
- C. Oxazepam
- D. Paroxetine Paxil?
- E. Ephedrine

- Paroxetine is Paxil & is used as an anti-depressant

65. Which of the following antiepileptic drugs may be used for absence seizures when ethosuximide is not satisfactory?

- A. Carbamazepine
- B. Valproic acid
- C. Gabapentin
- D. Fosphenytoin
- E. Phenobarbital

- a second line defense.

66. An antihypertensive drug with both diuretic and vasodilating action is

- A. Hydralazine
- B. Clonidine
- ☒ C. Hydrochlorothiazide
- D. Reserpine
- E. Propranolol

SE

67. Which of the following compounds is FDA approved as a therapy in maintenance programs for heroin addiction?

- A. Fentanyl
- ☒ B. Methadone
- C. Diazepam
- D. Oxycodone
- E. Dextropropoxyphene

- longest  $\frac{1}{2}$  life  
- doesn't produce abstinence syndrome

68. Adverse drug reactions have been reported to occur with which one of the following combination of agents?

- A. Morphine and propranolol
- B. Codeine and digoxin
- C. Oxycodone and tranylcypromine
- D. Fentanyl and warfarin
- ☒ E. Meperidine and isocarboxazid

SE

69. Drug-drug interactions can be produced by:

- A. Competition for the same receptor
- B. Blockage of the receptor
- C. Alteration of receptor properties
- D. Alteration of the number of receptors
- ☒ E. All of the above

SE

70. Drugs from which one of the following classes of antibiotics may require a supplement of Vitamin K to avoid blood clotting problems caused by the antibiotic?

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

- also treats klebsiella

71. All of the following statements about antibiotics are true EXCEPT:

- A. Penicillins are active against bacteria that are dividing
- B. Rifampin reaches high concentrations in mammalian cells and is active against intracellular bacteria
- C. Tetracycline is effective in treating bone infections
- ☒ D. Non-fluorinated quinolones have little systemic activity
- E. Erythromycin is mainly active against gram-positive bacteria

72. Which of the following antibiotics is associated with an interaction with theophylline that may give rise to seizures?

- A. Amoxicillin
- ☒ B. Ciprofloxacin
- C. Vancomycin
- D. Clindamycin
- E. Tetracycline

- Quinolone  
- fluorinated

73. A patient with a tumor cell burden of  $10^{10}$  cells is treated with cancer chemotherapeutic agents. According to the Skipper hypothesis, after the first treatment the number of tumor cells remaining is:

- A. 0
- B.  $10^2$
- C.  $10^4$
- ☒ D.  $10^6$
- E.  $10^8$

74. All of the following are involved in the mechanism of methotrexate as a cancer chemotherapeutic agent EXCEPT:

- A. Exhibition of chronic toxicity
- B. Binding to dihydrofolate reductase
- C. It is not metabolized by salvage pathways
- ☒ D. Affects spindle formation
- E. Inhibition of dTMP synthesis

75. All of the following statements concerning vinblastine are true EXCEPT:

- A. It is an antimetabolite
- B. It affects spindle formation
- ☒ C. It is a cell cycle specific drug
- D. It is an alkaloid
- E. It blocks cells during mitosis

76. What is the most reliable means of determining the appropriate dose of a drug to be given to a child of 1-2 years of age?

- ~~A.~~ Ratio of body surface area to that of an "average" adult
- ~~B.~~ Ratio of total body weight to that of an "average" adult
- C. From tables of children's dosages
- ~~D.~~ Ratio of body weight, corrected for fat content, to that of an "average" adult
- ~~E.~~ Ratio of body surface area to that of a ten-years old child

- check the pharmaceutical instructions

77. All of the following statements about local anesthetics are true EXCEPT:

- A. In general, among all types of nerve fibers, A-delta and C fibers are most sensitive to the action of local anesthetics
- B. Mepivacaine is metabolized by liver microsomal enzymes
- C. Benzocaine can only be used topically
- D. The purpose of including epinephrine in preparations of local anesthetics is to decrease renal excretion of the drugs
- E. Seizures induced by local anesthetics can be treated with diazepam

SE

78. When a drug is taken enterally, the most important factor in determining where in the gastrointestinal tract most of it will be absorbed by passive diffusion is which of the following?

- A. pKa of the drug
- B. Total surface area of the various regions of the gut
- ~~C.~~ pH of the gut contents
- ~~D.~~ Whether it is a weak acid or weak base
- E. Gastric emptying time

SE

79. Therapeutic uses of atropine and related drugs include all of the following EXCEPT:

- A. To dry salivary secretions
- B. To prevent bronchospasm and laryngospasm
- ~~C.~~ In the treatment of motion sickness
- D. In the treatment of tachyarrhythmias
- E. To reduce gastrointestinal spasm

dry  
red  
- used to raise HR  
cold  
hot

80. Which of the following best describes the mechanism of action of fluconazole?

- A. Binds to ergosterol in fungal cell membranes
- B. Binds to tubulin to disrupt spindle formation in cell division
- C. Metabolized to its triphosphate form to inhibit viral DNA polymerase
- D. Inhibits thymidylate synthetase
- E. Inhibits ergosterol synthesis

zole's - do ergosterol



81. Useful by oral administration in the treatment of onychomycosis (toe nail fungal infection):

- A. Natamycin
- ☒ B. Trifluridine
- C. Tolnaftate
- D. Itraconazole
- E. Amphotericin B

- also dermatophytes

terbinafine  
- terbinafine for onychomycosis

82. Most useful agent for the treatment of a cytomegalovirus infection:

- A. Trifluridine
- B. Amantadine
- ☒ C. Ganciclovir
- D. Nelfinavir
- E. Ribavirin

- more potent vs CMV

83. Which of the following best describes the mechanism of levothyroxine?

- A. Binds to a cell membrane receptor to enhance sodium influx
- B. Binds to a G-protein-linked receptor to increase adenylyl cyclase
- ☒ C. Binds to a nuclear receptor to enhance gene expression
- D. Binds to a tyrosine kinase-linked receptor
- E. Binds to a G-protein-linked receptor to reduce adenylyl cyclase

T<sub>4</sub>

SE

84. Most effective drug in the treatment of thyroid cancer:

- A. Methimazole
- ~~B. Propranolol~~
- C. Potassium iodide
- ☒ D. Radioactive iodide (I-131)
- E. Liothyronine

- totally destroys thyroid but not adjacent tissue

85. Endogenous hormone useful in the treatment of Paget's disease, hypercalcemia and osteoporosis:

- A. Calcitonin
- ~~B. Prednisone~~
- C. Vitamin D *calcitriol*
- ☒ D. Parathyroid hormone
- ~~E. Insulin~~

- "tames" down calcium

T<sub>Ca</sub>

86. Which of the following drugs is best for once daily administration in the treatment of Type 1 diabetes mellitus?

- D
- A. Glyburide
  - B. Repaglinide
  - C. Lispro insulin
  - ☒ D. NPH insulin
  - E. Metformin

- lasts 12-16 hrs

87. A partial estrogen receptor agonist used to induce ovulation by increasing GnRH secretion:

- B
- ☒ A. Mifepristone
  - ☒ B. Clomiphene
  - C. Levonorgestrel
  - D. Flutamide
  - E. Mestranol

- can cause multiple pregnancies

88. Which of the following drugs suppresses gonadotropin release and is therefore useful in the treatment of prostate cancer?

- A
- ☒ A. Leuprolide
  - B. Flutamide
  - C. Clomiphene
  - D. Nandrolone
  - E. Levonorgestrel

SE

89. Which of the following is the major mechanism coupling the receptor to agonist dependent activation of cells?

- A
- ☒ A. Phosphorylation of serine, threonine, or tyrosine residues
  - B. ADP ribosylation
  - C. Gamma carboxylation of glutamate residues
  - D. Phosphorylation of glutamate or aspartate residues
  - E. Carboxylation of serine, threonine or tyrosine residues

SE

90. Which of the following regarding caries activity is true?

- ~~A.~~ At a pH higher than 7.5, enamel begins to demineralize  
~~B.~~ There is an indirect correlation between consumption of refined carbohydrates and caries activity  
C. Disaccharides lead to the formation of caries which are less active than is the case with monosaccharides  
D. There is a direct correlation between consumption of refined carbohydrates and caries activity  
~~E.~~ There is no correlation between consumption of refined carbohydrates and caries activity
- A-5.5  
B-direct  
C-other way around  
D-is correlation

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

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

92. All of the compounds are correctly matched with their accompanying characteristic EXCEPT:

- A. Iodophors - <sup>(slow)</sup> rapid release of iodine  
B. Hydrogen peroxide - weak antiseptic  
C. Common soaps - weak surface active agents  
D. Chlorhexidine - protein denaturation  
E. Parachlorophenol (1%) - root canal antiseptic
- slow released iodine

**Questions 93 thru 96: Match-type**

For each of the numbered statements, select the single most appropriate lettered drug.  
You may use each letter once, or not at all.

- ~~A.~~ Methicillin
- ~~B.~~ Clavulanic acid
- C. Nalidixic acid
- ~~D.~~ Isoniazid
- E. Minocycline

B 93. Drug with no antibiotic activity, but inhibits beta-lactamases

C 94. Drug with no systemic antibiotic activity, but acts as a urinary antiseptic

A 95. Beta-lactamase resistant penicillin

D 96. Antibiotic used in combination therapy for tuberculosis

**Questions 97 thru 100: Match-type**

For each of the numbered statements, select the single most appropriate lettered drug.  
You may use each letter once, or not at all.

- A. Azathioprine
- ~~B.~~ FK506
- C. Muronab
- D. Interferon alpha
- ~~E.~~ BCG

D 97. Cytokine approved for treatment of hairy cell leukemia

E 98. Adjuvant that stimulates the immune system; used in treatment of bladder cancer

B 99. Substance that inhibits Interleukin-2 production by T cells

A 100. Antimetabolite prodrug that is metabolized to its active form

**END OF EXAM**