

NAME ~~XXXXXXXXXX~~

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MAILBOX #

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**DENTAL PHARMACOLOGY
EXAMINATION # 2**

March 21, 2002

You have ONE (1) hour to complete this examination. The examination contains 50 questions, each worth 2 points.

Answer all questions on the computer sheet provided; use a soft lead pencil. Be sure that you have correctly identified your answer sheet by PRINTING your name and social security number and correctly filling in the grid spaces. Please turn in your exam booklet and answer sheet at the end of the exam. The exam booklet will be returned to you.

This examination is being administered under the Honor Code of Temple University Dental School.

Questions 1- 43: Select the single, most appropriate answer.

1. All of the following statements are true with regard to ^{speed} amphetamine **EXCEPT:**

- ☐ A. Can be taken orally, intravenously, or smoked in the free-base form
- ☐ B. Increases blood pressure and heart rate
- ☐ C. Toxicity associated with chronic use includes compulsive behaviors, paranoia and psychosis
- ☒ D. Physical dependence does not occur even with chronic use
- ☐ E. An overdose can lead to convulsions, hyperthermia and cardiac arrhythmias

2. A 23-year-old pregnant woman is found to be anemic. Laboratory analysis shows that she has typical microcytic anemia of pregnancy. Which of the following agents would be most useful to reverse the anemia?

- A B*
- ☐ A. Cobalamin
 - ☐ B. Ferrous sulfate *Iron cross placenta?*
 - ☐ C. Erythropoietin
 - ☒ D. Folic acid *megaloblastic*
 - ☐ E. Intrinsic factor

*Megalo = V_{B12} + Folic Acid
Micro = Fe
pernicious = Folate*

3. During a dental procedure, your patient has a medical emergency. You reach for an ampoule labeled "Epinephrine 1:1000" and you quickly administer 0.25 mL. How much epinephrine did you administer?

- ☐ A. 0.00025 mg
- ☐ B. 0.0025 mg
- ☐ C. 0.025 mg
- ☒ D. 0.25 mg
- ☐ E. 2.5 mg

4. A prescription for a controlled substance in Schedule II

- ☒ A. May be refilled five times within six months
- ☐ B. May be refilled as many times as needed within six months
- ☐ C. May be called in to the pharmacist
- ☒ D. May be dispensed prior to the arrival of the prescription to the pharmacist
- ☐ E. May not be refilled

5. With prolonged therapy, which diuretic may cause hypokalemia, hyperglycemia, hyperuricemia, hyperlipidemia and hypocalciuria?

↓ K, Ca

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

6. Of the following drugs, which is the most effective carbonic anhydrase inhibitor and is useful in the treatment of glaucoma?

- A. Amiloride
- ☒ B. Acetazolamide eyes
- C. Bumetanide
- D. Furosemide ear
- E. Hydrochlorothiazide

7. All of the following are characteristics of dextromethorphan EXCEPT:

- ☒ A. Is a natural opium alkaloid morph + codeine
- B. May cause histamine release
- γ C. May be abused
- γ D. Has antitussive action
- E. Is centrally active

8. Xanthines have many actions, including all of the following EXCEPT:

caffeine

stimulant

- ~~γ~~ A. Central nervous system stimulation
- ~~γ~~ B. Relaxation of bronchial smooth muscle ∴ dilation
- ☒ C. Decrease in cerebral vascular resistance
- D. Stimulation of cardiac muscle
- ~~γ~~ E. Diuresis

9. Mucolytics can be very useful in liquefying the sputum. Which of the following mucolytics has proved to be most valuable in treating acetaminophen overdose?

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

expectorant

β_2 lung

10. Of the following, which drug has the greatest beta₂ adrenergic receptor selectivity?

- For A. Norepinephrine
- For B. Epinephrine
- ☒ C. Albuterol
- D. Ephedrine
- E. Isoproterenol

11. In a patient with bronchial asthma, the beneficial effect of cromolyn is due to its action on

- A. Histamine (H₁) receptors
- B. Muscarinic receptors
- ☒ C. Mast cell membranes
- D. Beta₁ adrenergic receptors
- E. Beta₂ adrenergic receptors

M/B cromolyn sodium

12. Each of the following is correctly paired **EXCEPT:**

- ~~✓~~A. Lactulose – osmotic laxative; may reduce blood ammonia concentration
- ~~✓~~B. Enterotoxigenic E. coli – most common cause of traveler's diarrhea
- ~~✓~~C. Morphine – decreases propulsive movement of intestinal smooth muscle
- ☒ D. Mineral oil – hydrolysis subsequent to absorption is required for its laxative effect
- E. Magnesium citrate – saline laxative and a non-systemic antacid

Castor oil

13. Which of the following vitamins is used to lower cholesterol levels?

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

14. The cardiac inotropic effect of digitalis glycosides is due to

$\uparrow Ca^{++} \Rightarrow Na/K/ATPase$

- ☒ A. Increase in intracellular calcium secondary to inhibition of sodium-potassium ATPase
- ~~✓~~B. Stimulation of cardiac beta-adrenergic receptors
- ~~✓~~C. Enhanced glycosidic linkage of sugar on the cardiac beta-adrenergic receptor
- D. Reduced vagal stimulation
- E. Enhanced release of catecholamines from the CNS

15. Which of the following would be the antidote of choice in an opioid overdose?

- A. Cocaine
- B. Alcohol
- ☒ C. Naloxone
- D. Acetaminophen
- E. Diazepam

16. Pharmacological actions of nitroglycerin include all of the following **EXCEPT:**

- A. Increase in synthesis of cGMP
- ~~B.~~ Decrease in O₂ demand of the heart
- ~~C.~~ Headache and flushing
- ~~D.~~ Extensive first pass metabolism in the liver
- ☒ E. Increase in blood pressure

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

- ~~A.~~ Possesses analgesic properties
- ☒ B. Possesses anti-inflammatory properties
- ~~C.~~ Possesses antipyretic properties
- ~~D.~~ Does not irritate the stomach
- ~~E.~~ Can cause liver damage

Not: anti inflam.
anti platelet

18. When used as an antiarrhythmic drug, lidocaine typically

- quinidine*
- ~~A.~~ Increases Q-T interval of the ECG
 - ~~B.~~ Increases cardiac contractility
 - ~~C.~~ Increases the P-R interval
 - ~~D.~~ Reduces abnormal automaticity
 - ☒ E. Reduces the membrane potential in Phase 4 (resting)

ord 3'd
abnormal heart
diseased

19. Recognized side effects of quinidine include which of the following?

- A. Agranulocytosis
- B. Lupus erythematosus
- ☒ C. Cinchonism
- D. Hyperthyroidism
- E. Increased blood pressure

20. A patient is treated with atorvastatin to lower blood cholesterol. It is important to routinely monitor

- A. Platelets
- B. White blood cells
- C. Uric acid
- ☒ D. Liver enzymes
- E. Red blood cells

21. Which of the following lipoproteins is associated with decreased risk of atherosclerosis?

- A. Chylomicrons
- B. VLDL
- C. IDL
- D. LDL
- ☒ E. HDL

22. Prolongation of the P-R interval of the electrocardiogram is most likely to occur with

- A. Hydralazine
- B. Clonidine
- ☒ C. Digoxin
- D. Nitroglycerin
- E. Guanethidine

23. All of the following are attributes of digoxin **EXCEPT:**

- A. Causes nausea
- B. Increases cardiac efficiency
- ☒ C. Produces visual disturbances
- ~~D. Has a large therapeutic index (i.e., greater than 50)~~
- ~~E. Increases cardiac contractility~~

AV block

24. A calcium entry blocker that is rationally administered along with nitroglycerin in treating angina:

- ☒ A. Diltiazem
- B. Acetylcholine
- C. Epinephrine
- D. Phenylephrine
- E. Isoproterenol

or verapamil

nifedipine

10 Of the following
25. An antihypertensive drug possessing both diuretic and vasodilating action is

- A. Clonidine
- B. Guanethidine
- C. Reserpine
- ☒ D. Hydrochlorothiazide
- E. Metoprolol

26. A beta-adrenergic blocking drug with high potency and cardiac selectivity is

- AB*
- A. Propranolol *non-selective*
 - B. Atenolol
 - C. Clonidine
 - ☒ D. Hydralazine
 - E. Atropine
- B*

27. The rapid reduction in arterial pressure needed during a hypertensive emergency would best be accomplished by administration of

- A. Methyldopa
- B. Reserpine
- C. Clonidine
- ☒ D. Sodium nitroprusside
- E. Captopril

28. Withdrawal from heroin is associated with autonomic hyperactivity. A non-opioid drug that is effective in diminishing these withdrawal symptoms is

- A. Thebaine
- B. Ibuprofen
- ☒ C. Clonidine
- D. Bromocriptine
- E. Buprenorphine

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

- C*
- ☒ A. Is an H₁ histamine receptor blocker
 - ☒ B. Causes sedation
 - ☒ C. Effective alone in the treatment of drug-induced anaphylaxis
 - ☒ D. May cause constipation and urinary hesitancy
 - ☒ E. May cause blurring of vision
- Benedryl*

30. All of the following are correctly paired **EXCEPT:**

- MgDH*
- A. Metoclopramide – a prokinetic agent approved for treatment of gastroparesis
 - ~~✓B.~~ H. pylori – plays a significant role in the development of peptic ulcer
 - ~~✓C.~~ Misoprostol – can induce uterine contractions in pregnant women
 - (D) Aluminum hydroxide – increases intestinal motility and may cause diarrhea
 - ~~✓E.~~ Ranitidine – used in the prevention of heartburn
Zantac

31. Identify the cytoprotective drug for treating peptic ulcer:

- A. Diphenhydramine
- (B) Sucralfate
- C. Aspirin
- D. Cimetidine
- E. Dextropropoxyphene

32. All of the following statements are true regarding cimetidine **EXCEPT:**

- tagamet*
- ~~✓A.~~ It inhibits gastric acid secretion
 - ~~✓B.~~ It can cause gynecomastia when used at high doses in male patients
 - (C) It is a selective competitive antagonist at H₁ histamine receptors
 - D. It alters the cytochrome P450 enzyme system
 - ~~✓E.~~ It is used in the treatment of heartburn and peptic ulcers

33. All of the following are true about morphine **EXCEPT:**

- ~~✓A.~~ Is analgesic
- ~~✓B.~~ Causes constipation
- ~~✓C.~~ Overdose leads to respiratory depression
- ~~✓D.~~ Produces psychological and physical dependence
- (E) Causes mydriasis *Miosis*

34. All of the following statements about drugs of abuse are true **EXCEPT:**

- Star*
- ~~✓A.~~ Cocaine inhibits the re-uptake of dopamine into presynaptic nerve terminals
 - ~~✓B.~~ Amphetamine causes the release of dopamine from nerve terminals
 - (C) Methylene-dioxy-methamphetamine is an antagonist at serotonin receptors
 - D. Ketamine is an antagonist of the NMDA receptor
 - E. Gamma hydroxybutyrate increases the release of dopamine by an indirect mechanism

35. Before beginning folate therapy for megaloblastic anemia, one should consider which of the following to prevent neurological disease?
- ☒ A. Vitamin B₁₂ deficiency
 - B. Zinc deficiency
 - C. Iron deficiency
 - D. Vitamin B₆ deficiency
 - E. Vitamin C deficiency
36. Subsequent to a dental procedure, you instruct your patient to use a tablespoon of liquid medication diluted in a glass of water as an oral rinse twice daily for seven days. What is the total amount of the liquid medication that is used?
- A. 35 mL
 B. 70 mL
 C. 105 mL
☒ D. 210 mL
 E. 420 mL
- $$\begin{array}{r} 15 \text{ mL} \\ 2 \\ \hline 30 \\ 7 \\ \hline 210 \end{array}$$
- 1 tsp. 5 mL
 4 tsp 15 mL
37. Potassium sparer; competitive mineralocorticoid antagonism; inhibits binding of mineralocorticoids to proteins; minimal diuretic effect; hyperkalemia may result:
- A. Amiloride
 - B. Torsemide
 - ☒ C. Spironolactone —
 - D. Bumetanide
 - E. Triamterene
38. Which of the following drugs would be least likely to have bronchodilating action?
- ☒ A. Cromolyn
 - B. Epinephrine
 - C. Isoproterenol
 - D. Terbutaline
 - E. Theophylline
39. All of the following drugs depend on opioid receptors in the gastrointestinal tract for their antidiarrheal action **EXCEPT:**
- A. Morphine
 - B. Codeine
 - C. Loperamide
 - D. Diphenoxylate
 - ☒ E. Atropine

40. Antidiarrheal action; "protective" agent; coats the surface of the gastrointestinal mucosa:

pepto

- A. Activated charcoal
- ☒ B. Bismuth subcarbonate
- C. Diphenoxin
- D. Kaolin
- E. Pectin

41. The disease beri-beri is associated with the deficiency of

B₁

- ~~A. Vitamin E~~
- ~~B. Vitamin D~~
- ☒ C. Thiamine *B₁*
- D. Riboflavin *B₂*
- ~~E. Niacin.~~

42. All are considered to be central nervous system depressant drugs seen in the emergency room EXCEPT:

- A. Opioids
- B. Barbiturates
- ~~C. Ethanol~~
- ☒ D. Cocaine *stimulant*
- E. Diazepam *valium*

43. All of the following are true about acetylsalicylic acid (aspirin) EXCEPT:

- A. Causes acidosis
- ~~x~~ B. Inhibits platelet aggregation
- ~~x~~ C. Produces tinnitus
- ☒ D. Can be used as an injectable drug (parenteral) *mostly oral?*
- ~~x~~ E. Causes gastritis



Questions 44 thru 46: Match Type Questions:

Questions 44 thru 46:

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

- A. Abciximab
- B. Aspirin
- C. Ticlopidine
- D. Heparin analog
- E. Warfarin

- B E 44. Long acting, orally available inhibitor of ^Bplatelet cyclooxygenase.
- D D 45. Agent used parenterally to inhibit blood coagulation; molecular weight of 2000-6000 daltons
- C A 46. Antagonist of platelet ADP receptor; useful in the treatment of stroke, especially in patients intolerant to aspirin

Questions 47 thru 50: Match Type Questions:

Questions 47 thru 50:

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

- A. Morphine
- B. Meperidine
- C. Pentazocine
- ~~D. Codeine~~
- E. Fentanyl *most potent*

- E E 47. The drug that has the shortest duration of action after acute administration
- C B 48. Side effects include increased heart rate and blood pressure
- B A 49. The drug that has a metabolite that produces CNS excitation
- D D 50. The drug that would be best for the treatment of mild pain in an ambulatory patient; also used as an antitussive

END OF EXAM

Answer Sheet

Dental Pharmacology

EXAM #2

March 21, 2002

1. D	11. C	21. E	31. B	41. C
2. B	12. D	22. C	32. C	42. D
3. D	13. E	23. D	33. E	43. D
4. E	14. A	24. A	34. C	44. B
5. E	15. C	25. D	35. A	45. D
6. B	16. E	26. B	36. D	46. C
7. A	17. B	27. D	37. C	47. E
8. C	18. D	28. C	38. A	48. C
9. D	19. C	29. C	39. E	49. B
10. C	20. D	30. D	40. B	50. D