

Name _____

test # _____

In the Short Answer please show work on all questions for partial and full credit.

Part 1: MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (60 pts, 5 pts per question)

1) choose the one incorrect statement.

- Q6-3
- A) Morphine antagonists inhibit morphine by binding to morphine receptors.
 - B) Opium made from the poppy is a narcotic. Morphine is a component of opium.
 - C) Heroin and codeine are both derivatives of morphine.
 - D) Fentanyl, hydrocodone and methadone are all components of opium.

1) D

2) Choose the one incorrect statement.

- Q5-5
- A) Heroin and Codeine are both derivatives of morphine.
 - B) An agonist binds to a receptor and has a similar effect. An antagonist inhibits the drug by blocking the receptor.
 - C) Fentanyl, hydrocodone and methadone are found naturally in the poppy seed.
 - D) Opium from the poppy seed is a narcotic. Morphine is a component of opium.

2) C

3) Choose the one incorrect statement.

- Q5-1
- A) Enzyme induced fit means that the substrate fits into the enzyme to form an enzyme / substrate complex. If the substrate does not fit into the enzyme, the catalysis does not happen.
 - B) A catalyst is a substance which makes the reaction go to product easier and faster than without a catalyst. A catalyst is not consumed during the reaction.
 - C) Enzymes are catalysts which are mostly made of protein.
 - D) An enzyme substrate is the molecule which inhibits the action of the enzyme.

3) D

4) Choose the one best statement.

- Q5-3
- A) Aspirin, ibuprofen and naproxen are all NSAIDS.
 - B) NSAIDS work by blocking the cox enzyme.
 - C) NSAIDS work by blocking prostaglandins.
 - D) All statements are true.

4) D

5) Choose the one incorrect statement

- Q6-4
- A) Anabolic steroids increase muscle mass and can enhance athletic performance but are banned in most athletic competition.
 - B) Vitamin D is needed for calcium absorption.
 - C) aerobic exercise is done with plenty of oxygen and leads to conversion of glycogen to carbon dioxide and water.
 - D) Muscle can be built by eating lots of protein.

5) D

6) Choose the one incorrect statement

- Q5-2
- A) Two types of nucleic acids are DNA and RNA.
 - B) RNA consists of a double helix while DNA consists of a single helix.
 - C) Nucleic acids are natural polymers with sugar and phosphate backbone with heterocyclic bases attached to the backbone.
 - D) All amino acids are coded by a 3 nucleotide RNA sequence.

6) B

7) Choose the one incorrect statement

- Q6-2
- A) stimulants such as cocaine and amphetamines increase alertness, speed mental processes and elevate moods.
 - B) Antibacterial drugs (such as penicillin) work on viruses while antiviral drugs work on bacteria.
 - C) Steroids are a 4 ring base structure which includes testosterone and estrogen.
 - D) In 1900 the leading causes of death were all related to infections. In 2015 the leading causes of death in the US are heart disease, cancer and similar life style diseases.

7) B

8) The natural chemical which produces pleasure sensations is:

- Q6-1
- A) norepinephrine agonists
 - B) serotonin
 - C) norepinephrine
 - D) epinephrine

8) B

9) Which of the following are not a real side effect of some common pain relievers (analgesics)?

- Q5-4
- A) Aspirin acts as an anticoagulant so it is recommended to reduce the likelihood of heart attack and stroke.
 - B) Celebrex causes strokes and heart diseases.
 - C) Aspirin causes stomach bleeding.
 - D) Aspirin overdoses cause kidney and liver diseases especially when mixed with alcohol.

9) D

10) Circle the best statement

- A) Agent orange was used in the vietnam war. It contains 2,4-D and 2,4,5-T. Dioxane contamination of agent orange caused birth defects.
- B) Herbicides kill weeds. Defoliant cause leaves to fall off plants.
- C) 1 farm worker feeds 80 consumers and 10 units of petroleum energy is needed for 1 unit of food.
- D) All statements are true.

10) D

11) Choose the one incorrect statement

- A) Complete fertilizers such as 5-10-5 give the percentage of N, P and K respectively.
- B) Green plants convert sunlight, carbon dioxide and water into carbohydrates.
- C) Fertilizers include sources of nitrogen (ammonia derivatives), phosphorus (rock phosphates derivatives and potassium (K Cl))
- D) Most plants take nitrogen directly from atmospheric nitrogen.

11) D

12) Choose the one incorrect statement.

- A) Antihistamines act against the action of histamines to reduce the effect of allergens
- B) The common cold and allergies are the same disease only separated by the degree of severity of the symptoms.
- C) Cough suppressants (antitussives) include two narcotics: codeine and dextromethorphan
- D) There is no cure for the common cold. Cold medication only treat the symptoms.

12) B

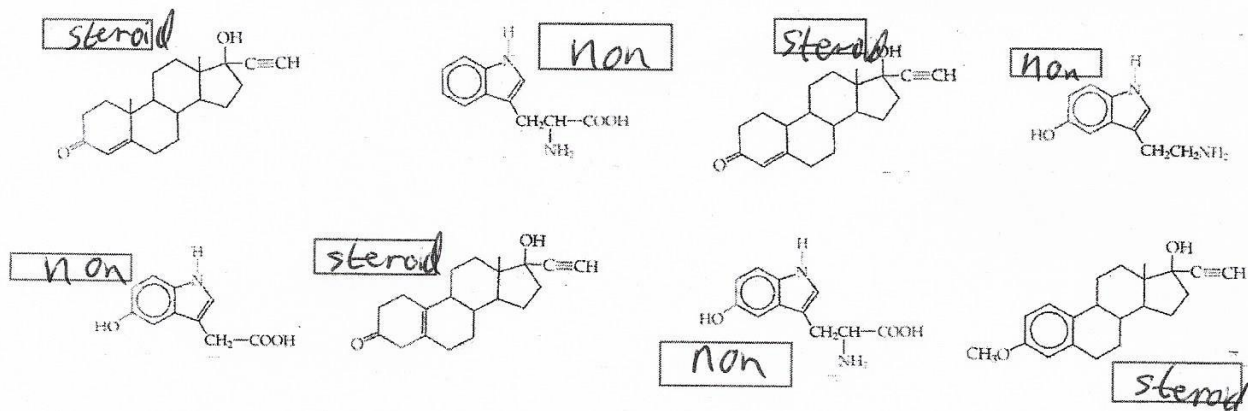
13) Which of the following statements about steroids is incorrect?

- A) Norepinephrine is a relative of epinephrine. It causes feelings of elation. Deficiency can cause depression
- B) Epinephrine is the chemical involved in fight or flight. It is implicated in some forms of mental illness.
- C) Norepinephrine agonists are stimulants that mimic or enhance the effects of NE. They are often found in patients with depression.
- D) Serotonin produces pleasure sensation. Research suggests that reduced flow of serotonin can cause depression.

13) C

Part 2: Short Answer Please show work on all questions for partial and full credit. (40 pts)

1. Given the following structures, which are steroids and which are non steroids. (16 pts, 2 pts each)



2. Add in the blank one of the following: stimulant, psychedelic drug (synthetic) and naturally found in humans

- | | |
|-----------------------|------------------------|
| a. LSD <u>P</u> | b. endorphins <u>N</u> |
| c. Marijuana <u>P</u> | d. caffeine <u>S</u> |
| e. nicotine <u>S</u> | f. cocaine <u>S</u> |
| g. serotonin <u>N</u> | h. mescaline <u>P</u> |

8 pts

3. (a) Calculate BMI for a person who is 6 foot 3 inches tall and weighs 175 pounds. Show work below. (12 pts)

16

(b) is the person [(ideal) or (overweight) or (obese)] (circle one) (4 pts)

$$6 \times \frac{12 \text{ inches}}{1 \text{ ft}} = 72'' + 3 = 75''$$

ideal 18.5-24.9
25-29.9 overweight
30-obese

$$\text{BMI} = \frac{175 \times (175 \text{ lb})}{(75'')^2} = \frac{12375}{5625} = 21.9\%$$

↑ wrong -

22%

do not use eqn.