

MCM Practice Questions: Lecture Day 1

karan gidwani

August 2022

Lecture 3: Enzyme and Isoenzymes I

1) A 19-year-old woman comes in for an annual physical. She complains of being easily fatigued, feeling weaker than usual, and recent onset of dizziness. Her physician suspects there is an issue with a cofactor of one of her metalloproteins. A deficiency of which metallic ion is most consistent with her symptoms?

- (A) Mg^{2+}
- (B) Fe^{2+}
- (C) Zn^{2+}
- (D) Mn^{2+}

2) The human stomach secretes an acid with a low pH to aid in the digestion of food. However, this harsh environment tends to alter or halt normal protein function. Which of the following proteins is able to function normally in this environment?

- (A) Pepsin
- (B) Secretin
- (C) Cholecystokinin
- (D) Trypsin

3) Aspirin is a drug that alters the action of the cyclooxygenases COX-1 and COX-2. What is the best way to describe the effect of aspirin on the function of COX-1?

- (A) Competitive inhibitor
- (B) Uncompetitive inhibitor
- (C) Noncompetitive inhibitor

(D) Irreversible inhibitor

4) A 43-year-old man comes to his Rheumatologist's office due to sudden onset of gout. Upon examination, the Rheumatologist notices a deposit of uric acid crystals within the joint. The Rheumatologist elects to prescribe a drug that will inhibit the activity of the enzyme producing uric acid. Which drug did the Rheumatologist prescribe?

(A) Penicillin

(B) Aspirin

(C) Allopurinol

(D) Paracetamol

5) A patient comes to their physician's office for a routine visit. The patient complains of being easily tired and not feeling energetic. The patient has tests run and the function of the protein glycogen phosphorylase is noted to be lower than usual. The physician then checks the vitamin levels of the patient and notices has a deficiency in which vitamin?

(A) Biotin

(B) Riboflavin

(C) Niacin

(D) Pyridoxal phosphate

6) Which of the following statements is *specific* to enzymes?

A They are proteins

B They are used up in chemical reactions

C They only catalyze reactions for very specific substrates

D They catalyze many different types of reactions