

# MCM Practice Questions: Lecture Day 6

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## Lecture 17: Urea Cycle

**1) Which of the following products is not a product of Amino acid metabolism?**

- (A) Signaling molecules
- (B) Purines and Pyrimidines
- (C) Proteins
- (D) Fatty acids

**2) After Harvey "Two-Face" Dent had half of his body severely burned, what can we expect his nitrogen balance to be?**

- (A) Increased N intake
- (B) Decreased N intake
- (C) Balanced N intake
- (D) Not enough information

**3) A woman is 6 months pregnant. Which of the following nitrogen metabolites can we expect to be decreased?**

- i. BUN
- ii. Creatinine
- iii. Uric Acid
- iv. Ammonia

- (A) i, ii
- (B) i, iii, iv
- (C) ii, iii, iv

(D) i, ii, iii

(E) ii, iv

(F) i, ii, iii, iv

**4) There are many reactions that take place during nitrogen metabolism to catalyze the transfer of nitrogen to different metabolites. Which of the following reactions can we expect to see when we transfer an alpha-amino group from an amino acid to an alpha-keto acid?**

(A) Transamination

(B) Deamination

(C) Deamidation

(D) Hydrolysis

**5) Which of the following acts as a precursor to the allosteric activator of the Urea Cycle?**

(A) Aspartate

(B) Glutamine

(C) Alanine

(D) Asparagine

**6) Which of the following enzymes catalyzes the rate-limiting step of the Urea Cycle?**

(A) CPS1

(B) Arginase

(C) Argininosuccinate Lyase

(D) Ornithine Transcarbamoylase

(E) Argininosuccinate Synthetase

**7) Bear Grylls is lost in the jungles of Cambodia. While he has found a reliable supply of water, food has been harder to come by. One day, he finds a pack of Greater Mouse Deer and is able to hunt them for meat. He eats this extremely high protein meal before going back to find a way out of the forest. He then goes 4 days without eating. What can we expect to see in his body on the 4th day?**

(A) Decreased Urea Synthesis

- (B) Low Arginine levels
- (C) Low NAG
- (D) Increased Urea Synthesis

**8) A 3-month-old baby presents to the ER in a critical state. Lab results show the patient has high urine orotate, low blood citrulline, low blood arginine, and high blood  $\text{NH}_3$ . Which Hyperammonemia does this patient most likely have?**

- (A) Type I
- (B) Type II
- (C) Citrullinuria
- (D) Arginosuccinic acidemia
- (E) Argininemia

**9) An individual is diagnosed with Argininemia. Which of the following treatments should definitely *NOT* be administered?**

- (A) Citrulline
- (B) N-Carbamoylglutamate
- (C) Arginine
- (D) Ornithine