September 2021: Kaplan MCAT stumpers put pre-meds to the test

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If you're preparing for the Medical College Admission Test® (MCAT®), you will want to consult the experts. These selections from Kaplan's MCAT Question of the Day series can help you sharpen your skills as you prepare to begin your potential journey into medical training.

The questions below come from two of the four MCAT sections—biological and biochemical foundations of living systems, and psychological, social and biological foundations of behavior. The chemical and physical foundations of biological systems is covered in previous installments of this series. A fourth section, critical analysis and reasoning skills (commonly referred to as CARS), is based largely on inference.

Medicine can be a career that is both challenging and highly rewarding but figuring out a medical school's prerequisites and navigating the application process can be a challenge unto itself. For students preparing for medical school, the AMA pre-med glossary guide has the answers to frequently asked questions.

For those already in medical school, the AMA selected Kaplan as a preferred provider to support you in reaching your goal of passing the USMLE® or COMLEX-USA®. AMA members can save 30% on access to additional study resources, such as Kaplan's Qbank and High-yield courses.

Section: Biological and biochemical foundations of living systems
Question: A student is trying to determine the type of membrane transport occurring in a cell. She finds that the molecule to be transported is very large and polar, and when transported across the membrane, no energy is required. Which of the following is the most likely mechanism of transport?

A. Active transport
B. Simple diffusion
C. Facilitated diffusion
D. Exocytosis

The correct answer is C.

Kaplan explains why: We are asked to identify the type of transport that would allow a large, polar molecule to cross the membrane without any energy expenditure. This scenario describes facilitated diffusion, which uses a transport protein—or channel—to facilitate the movement of large, polar molecules across the nonpolar, hydrophobic membrane. Facilitated diffusion, like simple diffusion, does not require energy, which explains why no ATP was consumed during this transport process.
Section: Psychological, social and biological foundations of behavior

**Question:** Prolonged vitamin B12 deficiency can be associated with subacute combined degeneration of the spinal cord. Patients with this disease have difficulty walking because they lose the ability to feel where their feet are in space. This represents a loss of:

A. Vestibular sense  
B. Kinesthetic sense  
C. Parallel processing  
D. Feature detection

The correct answer is B.
Kaplan explains why: Kinesthetic sense, or proprioception, refers to the ability to tell where body parts are in three-dimensional space. The sensors for proprioception are found predominantly in the muscles and joints. Loss of vestibular sense, choice A, would also cause difficulty walking, but this would be due to a sense of dizziness or vertigo, not an inability to feel one’s feet.