2011年GMAT考试阅读材料10(附答案) PDF转换可能丢失图片或格式，建议阅读原文 https://www.100test.com/kao_ti2020/637/2021_2022_2011_E5_B9_B4GMA_c89_637792.htm 以下为大家准备GMAT阅读材料，每篇均附有答案，大家可作为阅读材料或模拟练习使用，祝大家得到GMAT高分，顺利留学美国！ Caffeine, the stimulant in coffee, has been called“ the most widely used psychoactive substance on Earth. ”Snyder, Daly and Bruns have recently proposed that caffeine affect behavior by countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next. Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A1 and A2. Snyder et al (et al: abbr. (Lat) 以及其他人，等人) propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily than they otherwise would. For many years,caffeine ’s effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at the elevated concentrations, as might be

brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioral stimulation. But Snyder et al point out that the caffeine concentrations needed to inhibit the production of phosphodiesterase in the brain are much higher than those that produce stimulation. Moreover, other compounds that block phosphodiesterase ’ s activity are not stimulants. To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder et al compared thestimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the rains of mice. “ In general, ” they reported, “ the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse. i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion. ” Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards. There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al suggests that this is not a major stumbling block (stumbling block: n.障碍物, 绊脚石) to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse

locomotion at very low concentrations and stimulating it at higher ones. 1. The primary purpose of the passage is to (A) discuss a plan for investigation of a phenomenon that is not yet fully understood (B) present two explanations of a phenomenon and reconcile the differences between them (C) summarize two theories and suggest a third theory that overcomes the problems encountered in the first two (D) describe an alternative hypothesis and provide evidence and arguments that support it (E) challenge the validity of a theory by exposing the inconsistencies and contradictions in it 2. Which of the following, if true, would most weaken the theory proposed by Snyder et al? (A) At very low concentrations in the human brain, both caffeine and theophylline tend to have depressive rather than stimulatory effects on human behavior. (B) The ability of caffeine derivatives at very low concentrations to dislodge adenosine from its receptors in mouse brains correlates well with their ability to stimulate mouse locomotion at these low concentrations. (C) The concentration of cyclic AMP in target neurons in the human brain that leads to increased neuron firing can be produced by several different phosphodiesterase inhibitors in addition to caffeine. (D) The concentration of caffeine required to dislodge adenosine from its receptors in the human brain is much greater than the concentration that produces behavioral stimulation in humans. (E) The concentration of IBMX required to dislodge adenosine from its receptors in mouse brains is much smaller than the concentration that stimulates ocomotion in the mouse. 3. According so Snyder et al, caffeine differs from adenosine in that caffeine (A) stimulates

behavior in the mouse and in humans, whereas adenosine stimulates behavior in humans only (B) has mixed effects in the brain, whereas adenosine has only a stimulatory effect (C) increases cyclic AMP concentrations in target neurons, whereas adenosine decreases such concentrations (D) permits release of neurotransmitters when it is bound to adenosine receptors, whereas adenosine inhibits such release (E) inhibits both neuron firing and the production of phosphodiesterase when there is a sufficient concentration in the brain, whereas adenosine inhibits only neuron firing 