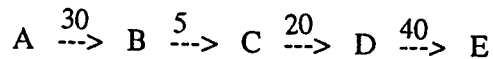


請從下列12題中任選10題作答(每題10分)

- Why are drugs that inhibit the replication of DNA potentially useful in the treatment of cancer? What are some of the limitations of such drugs?
- In the following metabolic pathway, in which the maximal rate of the individual steps are indicated. What is the rate at which the end product E is formed if substrate A is prevented at a saturating concentration?



- Given the following solutions, which has the lowest water concentration? Which two are isoosmotic?

Solution	Concentration, mM			
	Glucose	Urea	NaCl	CaCl ₂
A	20	30	150	10
B	10	100	20	50
C	100	200	10	20
D	30	10	60	100

- Eskimos have a remarkable ability to work in the cold without gloves and not suffer decreased skin blood flow. Does this prove that there is a genetic difference between Eskimos and other people with regard to this characteristic?
- If a drug were found that blocked all calcium channels directly linked to G protein, would this eliminate the role of calcium as a second messenger?
- A person has received a severe blow to the head but appears to be all right. Over the next weeks, however, he develops loss of appetite, thirst, and sexual capacity but no loss in sensory or motor function. What part of the brain do you think may have been damaged?
- A person is receiving very large doses of a cortisol-like drug to treat her arthritis. What happens to her secretion of cortisol?
- In an experimental animal the sympathetic preganglionic fibers to the adrenal medulla are cut. What happens to the plasma concentration of epinephrine at rest and during stress?
- Explain how clinical observations of individuals with various aphasias (失語症) help physiologists understand the neural basis of language.
- When the nerves from all the arterial baroreceptors are cut in the experimental animal, what happens to mean arterial pressure?
- Patients with severe uncontrolled diabetes mellitus produce large quantities of certain organic acid. Can you predict the ventilation pattern in these patients and whether their arterial PO₂ and PCO₂ increase or decrease?
- Substrate T is present in the urine. Does this prove that it is filterable at the glomerulus?